

BHAVNAGAR MUNICIPAL CORPORATION**Notice Inviting On -Line Tender****Tendar Notice No.- BUILDING / E- 01 / 2024- 25**

Department Name	:-	Building Department (Bhavnagar municipal Corpo.)
IFB No.	:-	BUILDING / E- 01 / 2024-25
Name of Project	:-	Swarnim jayanti mukhyamantri saheri vikas yojna - 2023 -24
Name of Work	:-	Construction of Compound wall , Campus inside RCC Road and chul of Gorad smashan near Rupari Road at Bhavnagar
Estimated Contract Value (INR)	:-	₹ 69,37,000.00
Class of Registration required	:-	Class "D" and ABOVE
Period of Completion (in month)	:-	6 month
Bid Call (Nos)	:-	Open (Percentage Rate Tender)
Tender Currency Type	:-	Single
Tender Currency Settings	:-	Indian Rupee (INR)
Joint Venture	:-	N.A.
Rebate	:-	N.A.
Amount Details		
Bid Document Fee	:-	Rs.2400 /- (Rs. Two Thousand four Hundred Only) (only D.D.)
Bid Document Fee Payable To	:-	Commissioner, Municipal Corporation, Bhavnagar
Bid Security / EMD (INR)	:-	Rs. 69,400/- (Rs. Sixty Nine Thousand Four Hundred Only)
Bid Security / EMD in favour of	:-	Commissioner, Municipal Corporation, Bhavnagar
Defect liability period	:-	One year
EPF registration no.	:-	The bidder shall have to submit valid certificate of registration for having EPF number and ESIC number.
Security deposit	:-	The bidder shall have to pay 10% security deposit at the time of agreement, out of which 5% shall be in the form of Bank Guarantee of schedule bank, 2.5 % in the form of FDR addressed to The Commissioner, Bhavnagar Municipal Corporation, and remaining 2.5% shall be deducted from every running bill as retention money. The retention money so deducted will be refunded along with the final bill upon the successful completion of project and submission of certificate of EIC. The 7.5% SD will be converted in the performance security and shall be released at the end of defect liability period and on production of certificate of EIC.
Tender Dates		
Bid Document Downloading Start Date	:-	30-08-2024
Bid Document Downloading End Date	:-	17-09-2024
Pre Bid Meeting	:-	No
Last Date & Time of Receipt of Bid (Submission Of Bid)	:-	17-09-2024
Bid Validity Period	:-	180 Days

Remarks	:-	CLASS OF REGISTRATION REQUIRED FOR BIDDER MUST BE " D " AND ABOVE. Demand Draft for tender fee & Emd shall be submitted in Electronic Formate through online scanning alongwith all the supporting documents such as Registration, Bank Solvency Certificate etc. while uploading thebid. Offer of those will be opened whose EMD & Tender fee is received electronically alongwith the bids. however for the purpose of realization of Demand Draft bidder shall send them in original alongwith all the required documents mentioned in the tender documents through RPAD/Speed post/Reg AD so as they reach to the office of Exe. Engg. - Building Dept. Bhavnagar Municipal Corporation during office hours between 18-09-2024 to 24-09-2024 17:00 pm. Penaltative action shall identinitiated for not submitting the supporting documents in original to E.E. by bidder. Hard copy will not be accepted and considered.Successfull Bids (Preliminary & Technical Bid), if possible will be opened on the25-09-2024, 17:00 pm at the City Engineer's office - BMC
Bid Opening Date	:-	25-09-2024 - 17:00 PM
SPECIAL CONDITION FOR SUBMISSION OF EMD,BG,SD,FD:-	:-	Henceforth Bank Guarantee, Earnest Money Deposit, Security Deposit, Fixed Deposit, Demand draft of State Bank Of India will not be accepted.
Other Details		
Officer Inviting Bids	:-	Executive Engineer, Building Department,Municipal Corporation,Bhavnagar
Bid Opening Authority Members in committee	:-	(1) Executive Engineer (2) City Engineer (3) Chief Accountant (4) Chief Auditor
Address	:-	Building Dept 0278 - 2424832
<p><u>E-tendering relate instructions</u></p> <p>(1) Bidders can download the tendar document free of cost from the website.www.nprocure.com</p> <p>(2) Bidders have to submit Technical bid as well as Price bid in Electronic for only on www.nprocure.com website till the Last Date & time for submission.</p> <p>(3) Offers in physical form will not be accepted in any case.</p> <p>(4) Free vendor training camp will be organized every Saturday between 4.00 to 5.00 p.m. at (n)code solutions - A Division of GNFC Ltd.,Bidders are requested to take benefit of the same.</p> <p>All bids should be digitally signed,for details regarding digital signature certificate related training involved,kindly,contact the below mentioned address.</p> <p>(n) Code Solutions A Division of GNFC Ltd. 403,GNFC Infotower,Bodakdev, Ahmedabad - 380 054 (India) Tel. +91 79 26854511/12/13 (EXT :501,512,516,525) +91 79 26857316/17/18 (EXT :501,512,516,525) Fex.+91 79 26857321,40007533 E-mail :nprocure @gnvfc.net Web-site :www.nprocure.com Toll Free :1800-233-1010(EXT :501,512,516,525)</p>		



Bhavnagar Municipal Corporation
Bhavnagar Municipal Corporation



બાંધકામ વિભાગ

પસં-ટેજ રેઈટ ટેન્ડર

કામનું નામ : ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંમ્પાઉન્ડ વોલને તોડી નવી કંમ્પાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા ચુલ સપ્લાય કરી ફીટીંગ કરાવવાનું કામ.

કામ ની રકમ :- રૂ. ૬૯,૩૭,૦૦૦/-

નિયત કરાયેલ ટેન્ડર ફી :- રૂ. ૨૪૦૦/-

નિયત કરાયેલ અર્નેસ્ટ મની ની રકમ :- રૂ. ૬૯,૪૦૦/-

કામ ની સમય મર્યાદા :- ૬ - માસ

એજન્સી નું નામ :-

એજન્સી ઘર તથા ઓફિસ નું પૂરું સરનામું :-

એજન્સી નો ફોન નંબર તથા મોબાઈલ નંબર :-

ટેન્ડર ફી રકમ તથા પહોંચ નંબર- તારીખ :-



Bhavnagar Municipal Corporation



કામનુંનામ :- ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંમ્પાઉન્ડ વોલને તોડી નવી કંમ્પાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા ચુલ સપ્લાય કરી ફીટીંગ કરાવવાનું કામ.

❖ આ સાથે અર્નેસ્ટ મની / ડીપોઝીટ મહાનગર પાલિકા માં રોકડા ભર્યા ની પહોંચ નં..... તારીખ.....
રૂા.....અંકે.....
ભર્યા ની અસલ પહોંચ સાથે સામેલ રાખેલ છે.

અથવા

❖ એફ.ડી.આર.નં.....તારીખ.....રૂા.....અંકેરૂપીયા.....
ની.....બેંક ની શ્રી કમિશનર મહાનગર પાલિકા સાથે જોઈન્ટ એકાઉન્ટ ની સાથે સામેલ રાખેલ છે. જેમાં પાછળ ની સાઈડે રેવન્યુ સ્ટેમ્પ ઉપર સહી કરી અસલ માં રજૂ કરેલ છે.

❖ ઉપરોક્ત વિગત પ્રમાણે ના ભાવો થી ટકા.....અંકે.....કમતી / જાસ્તી ભાવ થી આ કામ કરી આપવા બંધાઉં છું.

❖ સદરહુ ટેન્ડર ના ભાવો નાં છેલ્લા પાને, સ્પેસીફિકેશન ના છેલ્લા પાને, શરતો નાં છેલ્લા પાને, સહિ કરી આપેલ છે.

❖

કોન્ટ્રાક્ટરની સહી:- _____.

કોન્ટ્રાક્ટરનું આખું નામ:- _____.

કોન્ટ્રાક્ટરનું સરનામું :- _____.

કોન્ટ્રાક્ટરનોસિકકો:- _____ તારીખ:- _____.

ટેન્ડર કમીટી

ટેન્ડર ને ટેન્ડર કમિટી સમક્ષ ખોલ્યા સમય:- _____ તારીખ:- _____.

સહી કલાર્ક કાર્યપાલક ઈજનેર ચીફ એકાઉન્ટન્ટ ચીફ ઓડીટર સીટી એન્જીનીયર
બિલ્ડીંગ વિભાગ બિલ્ડીંગ વિભાગ એકાઉન્ટ વિભાગ ઓડીટવિભાગ સીટી એન્જી કચેરી

તારીખ-



શરતો

- ૧) ટેન્ડર માં જણાવેલી આઈટમ સિવાય બીજી આઈટમ કરવી પડે તો આનાકાની વગર કરી આપવું મારે કબુલ છે. અને તેના ભાવ શ્રી કમિશનર સાહેબ ઠરાવે તે લેવા મારે કબુલ મંજૂર છે.
- ૨) સદરહુ કામ લેટર ઓફ એસેપ્ટેન્સ (L.O.A.) મળ્યા તારીખ થી ૬ - (છ) માસ ની મુદત માં કામ પૂર્ણ કરી આપવા બંધાઉં છું.
- ૩) સદરહુ કામના ટેન્ડર ની શરતો તથા સ્પેશીફિકેશન વિગતો વિગેરે બરોબર સમજી અમોએ આ ટેન્ડર ભર્યું છે. એટલે કે તે મુજબ કાંઈપણ વાંધા વગર કામ કરી આપવા બંધાઉં છું અને આ બાબત ની પુરતી સમજૂતી મળ્યા ની ખાતરી ટેન્ડર તથા સ્પેશીફિકેશન માં અમોએ સહી કરી આપી છે. તે અમારે કબુલ મંજૂર રહી છે.
- ૪) ઉપરોક્ત ભાવે આ કામ કરવા મને વર્ક/ઓર્ડર આપવામાં આવશે તો હું આ કામ કરવા બંધાઉં છું. અને જો કોઈ સંજોગોમાં હું આ કામ ન કરું તો મહાનગરપાલિકામાં આ કામ માટેની ભરપાઈ કરેલ તમામ પ્રકાર ની તમામ ડીપોઝીટ ની રકમ ફોરફીટ કરવા મહાનગરપાલિકા હકકદાર રહેશે અને મ્યુ. કોર્પો. અમોને બ્લેક લીસ્ટ કરવા હકકદાર રહેશે.
- ૫) ટેન્ડર ખોલવાની તારીખ થી છ માસ સુધીમાં મને વર્ક-ઓર્ડર આપવામાં આવશે તો હું ભરેલ ભાવે મહાનગરપાલિકા ના સ્પેશીફિકેશન મુજબ આ કામ કરી આપવા હું બંધાઉં છું.
- ૬) મહાનગરપાલિકા ના પ્રવર્તમાન નિયત,ધારા - ધોરણ અનુસાર, કોન્ટ્રાક્ટરે પોતાના ખર્ચે જરૂરી સ્ટેમ્પ પેપર લાવી ધોરણસર નું લખાણ સાથે ડીપોઝીટ-એગ્રીમેન્ટ કરવાના રહેશે. જે અંગેની જરૂરી માહિતીમ્યુ.કોર્પો. ના બિલ્ડીંગ વિભાગે થી રૂબરૂ મેળવવાની રહેશે.
- ૭) સદરહુ કામ ટેન્ડર પ્રમાણે તથા હવે પછી વધારે વિગતવાર કામ બતાવવામાં આવે તે પ્રમાણે તેમની પસંદગી મુજબ બરાબર મજબૂત અને સારી કારીગરીમાં લાઈન લેવલમાં કરવાનું રહેશે.
- ૮) સદરહુ કામના આઈટમો માં ફેરફાર અથવા કોઈ જથ્થામાં વધારો ઘટાડો કરવો પડે તો તેમ કરવાને કાર્યપાલક ઈજનેર સાહેબ મુખત્યાર છે અને તે પ્રમાણે કોન્ટ્રાક્ટરે કંઈ વાંધો લેવાશે નહીં. અગર એવો ફેરફાર અગર વધારો ઘટાડો ધોરણસર મંજૂર થાય ત્યારે તે પ્રમાણે થયેલ કામનું માપ ભરેલા ભાવ મુજબ મજરે આપવામાં આવશે. અગર જરૂર જણાશે તો તેમનો ભાવ શ્રી કમિશનર સાહેબ મુકરર કરશે અને તે ઠરાવ છેવટનો ગણાશે.
- ૯) શ્રી કોન્ટ્રાક્ટર કોઈ કામ પેટા કોન્ટ્રાક્ટરની પાસે થી કરાવાશે નહીં. પરંતુ તે કામ હોશીયાર કારીગરોને રોજે રાખી કોન્ટ્રાક્ટરે કરાવવું પડશે.
- ૧૦) અગત્યના કામનો કોઈપણ ભાગ ટેન્ડરમાં રહી ગઈ હોય તો પણ તે કોન્ટ્રાક્ટ માં કરેલ છે. તેમ સમજી બીજા કામની માફક તે મજબૂત રીતે સારી કારીગરી થી કરી આપવું અને તેવાનો ભાવ ઠરાવેલા ભાવ પ્રમાણે આપવામાં આવશે.
- ૧૧) તમામ કામ ઉપર લખેલી મુદત પ્રમાણે અગર તે અગાઉ પસંદગી ને પાત્ર ઠરે તેવી રીતે બરોબર પુરું કરવું. ઉપર લખેલી મુદત ઉપરાંત વધારે દિવસ થાય તો પેનલ્ટી પેટે જેટલા દિવસ વધારે થાય તેટલા દરેક દિવસ ના ટેન્ડર રકમ ના ૦.૧૦ ટકા મુજબ ની રકમ કોન્ટ્રાક્ટર મજકર આપશે પરંતુ બીજું વધારે કામ કરાવવું પડે તેવા કામ માટે અરજી કર્યે થી શ્રી કમિશનર સાહેબ મુળ કામ અને મુદત ઉપર સુરત રાખી યોગ્ય મુદત વધારી શકાશે આપશે.
- ૧૨) સદરહુ કામમાં વાપરવાનો સામાન ખરાબ માલુમ પડશે તો તે નાપાસ કરવાને શ્રી કાર્યપાલક ઈજનેર મુખત્યાર છે. તેવો સામાન કામના સ્થળ ઉપર થી દુર કરવાની રૂબરૂ સુચના અથવા ૨૪ કલાકની નોટીસ મળ્યે થી કોન્ટ્રાક્ટર તે દુર કરશે અને દુર નહી કરે તો કોન્ટ્રાક્ટરને ખર્ચે દુર કરાવી શકાશે અને તેનો ખર્ચતથા જવાબદારી કોન્ટ્રાક્ટરના શીરે રહેશે અને તેકોન્ટ્રાક્ટરના બીલમાંથી કાપી લેવાહકકદાર રહેશે.



Bhavnagar Municipal Corporation



- ૧૩) સદરહુ કામ માં શ્રી કાર્યપાલક ઈજનેર ને જે કંઈ ખરાબ અગર નબળુ માલુમ પડશે તે તુરત નાપાસ કરવા માં આવશે. તેમજ શ્રી કાર્યપાલક ઈજનેર ત્યાં ન હોય તો તે કામ ખાતે નિમાયેલ અ.મ.ઈ. કે ટા.કી. તે કામ અટકાવી શ્રી કમિશનર સાહેબનો તે બાબત હુકમ મેળવશે. કોન્ટ્રેક્ટરે સારો માલ સામાન વાપરવા વગેરે બાબતો માટે તે કામ ઉપર નિમાયેલા અ.મ.ઈ. કે ટાઈમ કીપરના હુકમ પ્રમાણે કામ કરવાનુ રહેશે.
- ૧૪) સદરહુ કામ મુદતસર પુરુ થાય તેવી ઝડપથી અને શ્રી કાર્યપાલક ઈજનેર ની પસંદગી મુજબ ચાલતુ જણાશે નહીં તો તે કોન્ટ્રેક્ટરનું કામ બંધ પાડી દેશે અને રદ ગણાશે અને ત્યારબાદ બીજા માણસ અથવા માણસો થી એ કામ પુરુ કરાવવાને અને જોઈતો સામાન મેળવવાને શ્રી કમિશનર સાહેબ તુરત કુલ મુખત્યાર છે અને તેમ કરવામાં જે ખર્ચ થયેલ હશે તે કોન્ટ્રેક્ટરની તેની જામીનગીરીમાંથી અથવા તેના પૈસા જમા હોય તેમાંથી શ્રી કમિશનર સાહેબ વસુલ કરશે. (અમલ કરતા કલમ નં.: ૧૨ નો બાધ આવશે નહીં)
- ૧૫) સદરહુ કામ પુરુ થતાં સુધીને માટે જઈતા તમામ સાધનો ઓજાર, રાચ વિગેરે સામાન્ય કોન્ટ્રેક્ટરે પોતાના તરફથી પુરો પાડવો. ઉપરાંત દરેક જાતના સામાન કે રાચ શ્રી કાર્યપાલક ઈજનેર ની પરવાનગી વગર કામના સ્થળ ઉપર થી ઉઠાવી લઈ જવા નહીં.
- ૧૬) કોન્ટ્રેક્ટરે સદરહુ કામ કરવા ઉપર માણસો અથવા માણસ રાખેલા હશે તેમના કોઈની ગેરમાહિતી અગર ગેરચાલ માલુમ પડશે તો તેઓ ને રજા આપવાને શ્રી કાર્યપાલક ઈજનેર કુલ મુખત્યાર છે. ત્યારબાદ સદરહુ માણસ અથવા માણસો ને શ્રી કમિશનર સાહેબની પરવાનગી સિવાય પાછા કામ ઉપર રાખી શકાશે નહીં.
- ૧૭) સદરહુ કામમાં કોઈ ભાગને અથવા સામાનને ગફલતે લઈને અગર હરકોઈ કારણ થી નુકશાન થાય તો કોન્ટ્રેક્ટરને શીરે છે અને તે દુરસ્ત કરવા વિગેરે માટેનો ખર્ચ થાય તે પોતાના તરફ થી કરશે.
- ૧૮) આ કામનો કોન્ટ્રેક્ટર દેવાળું કાઢશે અગર શ્રી કમિશનર સાહેબ / શ્રી કાર્યપાલક ઈજનેર ની પસંદગી પ્રમાણે કામ પુરુ કરવાને ના કહે અથવા વિલંબ કરે તો પંદર દિવસની લેખીત નોટીસ આપી તે કોન્ટ્રેક્ટરને (કલમ ૧૫ નો અમલ કરી) રદ કરવા માટે મ્યુ.કોર્પો. મુખત્યાર છે.
- ૧૯) કોઈ બાબત ઉપર કંઈ તકરાર પડે તો તે બાબત ઉપર શ્રી કમિશનર સાહેબ જે ઠરાવ કરે તે છેવટનો ગણાશે.
- ૨૦) કોન્ટ્રેક્ટરે સદરહુ કામ ઉપર રાખેલ મજુરો વિગેરે ને બરાબર રીતે નાણાની ચુકવણી કર્યા બાબત શ્રી કમિશનર સાહેબ ને ખાતરી કરાવી આપવી પડશે. તેમ નહીં થયાનું જાહેર થશે તો કોન્ટ્રેક્ટરને નાણા મળવામાં અટકાયત કરવામાં આવશે.
- ૨૧) કોન્ટ્રેક્ટર પોતાના બીલના નાણા લેવાનું મુખત્યારનામું શ્રી કમિશનર સાહેબ ની મંજૂરી થી આપશે તો પણ જોખમદારી તો કોન્ટ્રેક્ટરને શીરે જ રહેશે અને આપેલું મુખત્યારનામું પાછળ થી શ્રી કમિશનર સાહેબ ની મંજૂરી સિવાય રદ કરાવી કે ફેરવી શકાશે નહીં.
- ૨૨) આ કોન્ટ્રેક્ટ અમો કોન્ટ્રેક્ટ રાખ્યા બાદ સામાનનાં અગર મજુરીના જે કંઈ ભાવો વધઘટ થાય તેને અંગે જો અમે કોઈ જાતની ભાવ વધારી આપવાની માંગણી કરીએ તો તે અમારી રદ બાતલ છે.
- ૨૩) જે તે કામનો ડીફેક્ટ લાયેબીલીટી પીરીયડ આ કામ પૂર્ણ થયાની તારીખ થી ૧૨- બાર માસ નો રહેશે. કોઈપણ પ્રકાર ની નુકશાની, સેટલમેન્ટ, લીકેજ તથા અન્ય પ્રકાર ની ખામી આ ડીફેક્ટ લાયેબીલીટી પીરીયડના સમયગાળા દરમિયાન જોવામાં આવશે તો ભાવનગર મહાનગરપાલિકા ની મૌખિક અથવા ટેલિફોનિક અથવા લેખિત કોઈપણ સુચના મળ્યે થી કોન્ટ્રાક્ટરે પોતાના ખર્ચે ટુંકા સમય ગાળામાં વ્યવસ્થિત રીપેર કરી સારુ કરી આપવાનું રહેશે. જો ભાવનગર મહાનગરપાલિકા ની સુચનાઓ મુજબની આઈટમો મુજબ કોન્ટ્રાક્ટર નુકશાનીઓ સુધારવામાં નિષ્ફળ જશે તો ભાવનગર મહાનગરપાલિકા - સદર કામ કોન્ટ્રાક્ટરના ખર્ચે અને જોખમે અન્ય પાસે રીપેર કરાવી અને થયેલા ખર્ચ ની રકમ વસુલ કરવામાં આવશે.
- ૨૪) સિક્યોરીટી ડીપોઝીટ ની રકમ કોન્ટ્રાક્ટર હસ્તક નું આખરી કામ પૂર્ણ થયા બાદ ડીફેક્ટ લાયેબીલીટી પીરીયડ પૂર્ણ થયા બાદ તથા ડીફેક્ટ લાયેબીલીટી પીરીયડના સમયગાળા દરમિયાન ધ્યાન માં આવેલ કોઈપણ પ્રકાર ની નુકશાની, સેટલમેન્ટ, લીકેજ તથા અન્ય પ્રકાર ની ખામી વ્યવસ્થિત રીપેર કરી સારુ કરી આપ્યા બાદ માંગણી કર્યે થી પરત કરવામાં આવશે.
- ૨૫) કામની સાઈટ ઉપર જે કાંઈ અકસ્માત કે અનીચ્છીય બનાવ બને તે અંગેની બધી જવાબદારી કોન્ટ્રાક્ટરની રહે છે.



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- ૨૬) કોન્ટ્રાક્ટરે પ્રવર્તમાન તમામ મજૂર કાયદાઓની જોગવાઈઓ મુજબ અમલ કરવાનો રહેશે.
- ૨૭) કામ અને મટીરીયલ્સનું સ્પેશીફિકેશન, જો બીજી કોઈ રીતે દર્શાવવામાં ન આવ્યું હોય તો તે કામ ની આઈટમ અને મટીરીયલ્સ ના પ્રવર્તમાન રીલેવન્ટ આઈ. એસ. સ્પેશીફિકેશન અનુસાર નું ગણવા નું છે.
- ૨૮) કોઈપણ કારણ બતાવ્યા સિવાય આ ટેન્ડર અથવા તેની કોઈપણ આઈટમ ના એક કરતા વધુ ભાગ કરીને અન્ય કોન્ટ્રાક્ટર અથવા એજન્સી ને કામ આપી શકશે.
- ૨૯) બાંધકામ સાઈટ પર કામ કરતા સમયે કોઈપણના જાન-માલને હાનિ થાય તો તેની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરની રહેશે. આમ ન બને તે માટે કોન્ટ્રાક્ટરે સ્વખર્ચે જરૂરી યોગ્ય પુર્વ પગલાઓ લઈ તમામ જરૂરી યોગ્ય પુરતી વ્યવસ્થા કરવાની રહેશે.
- ૩૦) કોન્ટ્રાક્ટરના અનુસંધાનમાં કે તે સિવાયના અથવા કામ કરવાની બાબત માં ઉપસ્થિત થતા તમામ પ્રકારના વાંધાઓ, કોઈપણ પ્રકાર ના મતભેદો કે તકરારો, તે તમામ ને સાંભળવા અને તેનું સમાધાન મ્યુનિ કમિશનર ભાવનગર ધ્વારા કરવામાં આવશે. મ્યુનિ કમિશનર ભાવનગર, કેવળ એક માત્ર લવાદ રહેશે અને તેના ધ્વારા લેવામાં આવેલ નિર્ણય બને પક્ષ કોન્ટ્રાક્ટર અને ભાવનગર મહાનગરપાલિકા ને બંધનકર્તા રહેશે. સમય તે આ કોન્ટ્રાક્ટનું મુળ હાર્દ છે.
- ૩૧) આપવામાં આવે તે સ્ટ્રક્ચરલ ડિઝાઈન, માપ સાઈઝ, નકશાઓ, પ્લાન, એલીવેશન, સેક્શન મુજબ તમામ કામ કરી આપવાનું છે.
- ૩૨) આ કામ માટે નિયત થતાં કોન્ટ્રાક્ટર / એજન્સી, આ કામ માટે ભાવનગર મહાનગરપાલિકાને સીધા જ જવાબદાર છે. અને ભાવનગર મહાનગરપાલિકા તરફ થી સંપૂર્ણ બાંધકામ ની ગુણવત્તા, જથ્થો, નકશા માં ફેરફાર, સ્પેશીફિકેશન અને બાંધકામ કરવા માટેની સાનુકૂળતા, પાણીનો છંટકાવ (ક્યોરીંગ) અને રોજ રોજના કામ ના સુપરવિઝન બાબત, વખતો વખતના ઓડર્સ મેળવશે.
- ૩૩) કોન્ટ્રાક્ટર ના મજૂર અને કર્મચારીઓ માટે રહેઠાણની જરૂરી વ્યવસ્થા કોન્ટ્રાક્ટરે સ્વખર્ચે અને જોખમે કરવાની રહેશે.
- ૩૪) આ કામ માટે કોન્ટ્રાક્ટરે સ્વ ખર્ચે અને જોખમે જરૂરી તમામ પ્રકારના પુરતા પ્રમાણમાં સાધનો, સરંજામ, અને સ્કેફોલ્ડીંગ તથા બાંધકામ મશીનરી ની વ્યવસ્થા કરવાની છે. તથા સમય મર્યાદામાં કામ પુરુ કરવા માટે તમામ મશીનરી ને સારી કન્ડીશન માં મેઈન્ટેન કરવાની છે. તમામ મટીરીયલ્સ, સાધનો, સ્કેફોલ્ડસ, અને સામગ્રી બાંધકામ સાઈટ સ્થળે લાવ્યા પછી ભાવનગર મહાનગરપાલિકા ની મંજૂરી સિવાય હટાવવાની નથી.
- ૩૫) સેલ્સ ટેક્ષ, ઈન્કમ ટેક્ષ, રોયલ્ટી અથવા અન્ય લાગુ પડતા ટેક્સીઝ અથવા ઈ.એસ.ઈ. પ્રિમીયમ વિગેરે જો કોઈ લાગુ પડતા હોય તો, તે તમામ કોન્ટ્રાક્ટ ધ્વારા ભરપાઈ કરવાના રહેશે. અને ભાવનગર મહાનગરપાલિકા આ અંગે નો કોઈ દાવો સાંભળશે નહિં.**
- ૩૬) કોન્ટ્રાક્ટર બાંધકામ ના લેવલ તથા બાંધકામ ની ગુણવત્તા અંગેની વ્યવસ્થા ગોઠવશે. તેમજ કોન્ટ્રાક્ટર તેની ચોક્કસાઈ માટે સંપૂર્ણ જવાબદાર ગણાશે. કોન્ટ્રાક્ટર ધ્વારા કામ ની લાઈન લેવલ તથા કામ શરુ કરવાના પ્રાથમિક તબક્કા માટે જરૂરી તમામ સાધનો તથા સ્ટાફ ની વ્યવસ્થા કરશે તથા આ માટે કોઈ અલગ નાણા ભાવનગર મહાનગરપાલિકા ધ્વારા ચુકવવામાં આવશે નહીં. સાઈટ કલયરીંગ માટે પણ કોઈ અલગ નાણા ભાવનગર મહાનગરપાલિકા ધ્વારા ચુકવવામાં આવશે નહિં.
- ૩૭) બાંધકામ માટે વાપરવાનું થતું તમામ પ્રકાર નું મટીરીયલ સારી ગુણવત્તા વાળું તથા પ્રસ્તુત પ્રવર્તમાન આઈ.એસ. સ્ટાન્ડર્ડઝ અનુસારનું અને ભાવનગર મહાનગરપાલિકા ધ્વારા પાસ કરાયેલું હોય તેવું જ ઉપયોગ માં લેવાનું છે.
- ૩૮) થયેલા કામ અનુસાર ની કોઈ આઈટમ માટે રનીંગ બીલ ધ્વારા રકમ ચુકવણી થવાથી તે કામ અને આઈટમ માન્ય રખાયેલ છે. તેવું માની લેવાનું તથા કામ ની ગુણવત્તા સુધારવાની કોન્ટ્રાક્ટર ની જવાબદારી માંથી કોઈપણ રીતે મુક્તી આપતું નથી.
- ૩૯) કોઈપણ કામ જેનો ઉપરોક્ત સ્પેશીફિકેશન માં સમાવેશ થયેલ ન હોય તે કામ બોમ્બે પી. ડબલ્યુ.ડી હેન્ડ બુક અનુસાર કરવાનું છે. અગર તો કમિશનર ફરમાવે તે પ્રમાણે કરવાનું છે.



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- ૪૦) કામ કરવાના કલાકો અને દિવસના સવારના ૯.૦૦ થી ૧૮.૦૦ કલાક સુધી પ્રમાણે કામ ચાલુ રાખવાનું છે. તેમજ જાહેર રજા ના દિવસો માં સી.સી. વર્ક કરવાનું રહેશે નહીં અને જો એકસ્ટ્રા સમયમાં કઈપણ કામ કરવાનું ચાલુ રાખવાનું હશે તો તે માટે પ્રથમ સંબંધીત સત્તા ની લેખિત મંજૂરી મેળવ્યા બાદ કામ ચાલુ રાખવા દેવામાં આવશે.
- ૪૧) કામ પૂર્ણ થયે સાઈટ તદ્દન કલીયર કરી આપવાની છે. જેની લેખિત માં હકીકત જાહેર માં કરવાની રહેશે.
- ૪૨) કામ પર સૂચના લેવા માટે કોન્ટ્રાક્ટરે પોતે જાતે કાયમ હાજર રહેવું પડશે. અથવા કોઈ જવાબદાર ટેકનીકલી ક્વોલીફાઈડ માણસે કાયમ હાજર રહેવું પડશે. અને તેવો માણસ ફરમાન અનુસારકામ નહીં કરે તો તેને કામ પરથી રજા આપવામાં આવશે. કોન્ટ્રાક્ટર તરફથી રોકવામાં આવેલ આ માણસને આપવામાં આવેલ સૂચના કોન્ટ્રાક્ટર ને આપ્યા બરાબર ગણાશે.
- ૪૩) સંબંધીત સત્તાના લેખિત હુકમ અને પહેલેથી ભાવ નક્કી કરાવ્યા સિવાય કોઈપણ પ્રકારનું "એકસ્ટ્રા કામ" કરવાનું નથી.
- ૪૪) ચાલુ કામે વખતો વખત સરકારશ્રીના માર્ગ અને મકાન વિભાગના નિયમો અનુસાર સિમેન્ટ મોર્ટાર, સિમેન્ટ કોન્ક્રીટ, લોખંડ, ચણતરકામ, તથા સુચવવામાં આવે તે તમામના અત્રેની હાજરીમાં નમુનાઓ લઈ ગેરી અથવા સરકારી કોલેજ અથવા સુચવવામાં આવે તે લેબોરેટરીમાં કોન્ટ્રાક્ટરે સ્વખર્ચે ટેસ્ટીંગ કરાવી ટેસ્ટીંગ રીપોર્ટસ રજૂ કરવાનો રહેશે. તેમજ સૂચના મુજબ ના સ્ટેજ વાઈઝ ફોટોગ્રાફ પાડી હાઈ કોપી એક સેટ તથા સોફ્ટ કોપી માં આપવા ના રહેશે.
- ૪૫) કામ ઉપરની સૂચનાઓ, સ્પેસીફિકેશન સાથે અસંમત હશે તો પણ તે સૂચનાઓ કામ સંતોષકારક રીતે પુરૂ કરવા માટે આપવામાં આવેલ ગણાશે. જો કોઈ કામ સ્પેસીફિકેશનના ભાવાર્થ થી બહાર હોવાનું જણાય તો તુરતજ તે માટે તેમણે સંબંધીત સત્તાને લેખિત ખબર આપી દેવાની છે. તે માટે ભાવ ઠરાવી લેવાનો છે. નહીં તો પાછળથી એકસ્ટ્રા કામ માટે નો દાવો બીલકુલ ચાલશે નહીં.
- ૪૬) કામનો પ્રોગ્રેસ દરમિયાન નક્શામાં ફેરફાર કરવો કે કામમાં વધારો ઘટાડો કરવા, એકસ્ટ્રા આઈટમ કરવા સંબંધીત સત્તા મુખત્યાર છે. અને કોન્ટ્રાક્ટર તે પ્રમાણે કરી આપવા માટે બંધાયેલા છે. જે માટે કોઈ કલેઈમ કે વાંધા અરજી ચાલશે નહીં.
- ૪૭) કામની લાઈન દોરી, લેવલ માટે તમામ સગવડતાઓ (મેખ, ખીલા, ચુકો, દોરી, ઓળંભા, મેજર ટેપ, કાટબૂણા, ચૂનો વિગેરે) કોન્ટ્રાક્ટરે આપવાની છે. દરેક મટીરીયલ્સ સારી રીતે રહે તે માટે તથા મટીરીયલ્સ ના સ્ટોરેજ કામ માટે જોઈતા તમામ "શેડ" કોન્ટ્રાક્ટરે સ્વખર્ચે યોગ્ય રીતે બાંધી આપવાના છે.
- ૪૮) રેતી, ચુનો, મેટલ, પત્થર, સિમેન્ટ, કોન્ક્રીટ, લોખંડ, મોઝેકટાઈલ્સ વિગેરે કોઈપણ ચીજ નો ટેસ્ટ કરવા જરૂર જણાશે તો તે માટે નો ખર્ચ કોન્ટ્રાક્ટરને શીરે રહેશે. અને ટેસ્ટનું પરિણામ કહેવામાં આવે તે લેબોરેટરીમાં પાસ કરાવ્યા બાદ વપરાશે. સ્પેસીફિકેશન પ્રમાણેની ફરજો તથા સંતોષકારક કામ બાબત તમામ જવાબદારીમાંથી મુક્ત થઈ શકતા નથી.
- ૪૯) ખરાબ કામ કે નબળુ મટીરીયલ્સ કાઢી નાખી ઉપાડી લઈ જવા અથવા તેની દુરસ્તી કરી આપવા માટે ડિકેક્ટ લાયબીલીટી પીરીયડ પુરો થતાં સુધી કોન્ટ્રાક્ટર જવાબદાર રહેશે.
- ૫૦) સદરહું કામ માટે જે પ્રકારનું મજૂરી કામ કરવાનું હોય તે પ્રકારના કામ માટે સારા માં સારા કારીગરો / રોજમદારો રાખી કામ કરવાનું છે. નબળા કારીગરો ને કામ ઉપરથી તુરતજ રજા આપવામાં આવશે.
- ૫૧) તમામ ઈટ, ચુનો અને સિમેન્ટ ના કામ ને જરૂર જણાયે સૂચના અપાયે થી બરાબર વીસ દીવસ સુધી પાણીનો છંટકાવ કરવાનો છે. તે માટે પુરતા પ્રમાણમાં પાણી મળી રહે તે રીતે યોગ્ય પાણીની વ્યવસ્થા પોતાના સ્વખર્ચે અને જોખમે કરવાની છે. અને પાઈપ કીબી, પંપ વિગેરે આ કામ માટે ખાસ મજૂરો રોકી ને પાણીનો છાંટવા પુરતો બંદોબસ્ત કોન્ટ્રાક્ટરે પોતાના સ્વખર્ચે અને જોખમે કરવાનો છે. તેમા જરા પણ ક્યાશ હશે તો કોન્ટ્રાક્ટર ના ખર્ચે અને જોખમે વિભાગ ધ્વારા બંદોબસ્ત કરાવી લેવામાં આવશે જે માટે નોટીસ પણ આપવામાં આવશે નહીં.
- ૫૨) તમામ રેતી નદીમાં ચાળેલી હશે તો પણ ૬ મીમી ચાળણા માંથી ચાળવી પડશે. અને ઉપરની સાઈઝ કાઢી નાખવી પડશે. પ્લાસ્ટર કામ માટે ૩ મીમી ચાળણા માંથી ચાળેલી ઝીણી રેતી વાપરવાની છે. તમામરેતીચોકખાપાણી થી સારી રીતે ધોઈ ને વાપરવાની છે.



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ચાલુ કામે જ્યારે જ્યારે કામના ઈન્સ્પેક્શન માટે માપ લેવા અગર બીજી કોઈ તપાસ માટે તમામ સ્થળે પહોંચી શકાય તે માટે પુરતા સાધનો જેવા કે નીસરણી, પાટીયા વિગેરે તમામની પુરતી વ્યવસ્થા કોન્ટ્રાક્ટરે કરવાની છે. અને જરૂર પડે નીસરણી ફેરવવા અગર બીજી મુકવા વિગેરે સુચના પ્રમાણે બંદોબસ્ત કરવાનો છે. તેમ નહી કરવામાં આવે તો તેવો બંદોબસ્ત કોન્ટ્રાક્ટરના ખર્ચે કરાવી લેવામાં આવશે.

- ૫૩) કોન્ટ્રાક્ટર/ટેન્ડર ભરનારે સવાલ વાળી બાંધકામની સાઈટની સ્થળ સ્થિતિ ની મુલાકાત લઈ જરૂરી અભ્યાસ કરી લેવો.
- ૫૪) કોન્ટ્રાક્ટર / ટેન્ડર ભરનારે તેઓની અનુકુળતા અનુસાર આ પોઈટમાંથી સાઈટ(સ્થળે) જરૂરી અન્ય સ્થળોએ જરૂરી વિજળી અને યોગ્ય પાણીની વિતરણ વ્યવસ્થા સ્વ ખર્ચે અને જોખમે પોતાની રીતે ગોઠવવાની રહેશે. આ બંને સુવિધાના થતો વપરાશના ચાર્જીસ કોન્ટ્રાક્ટર/ટેન્ડર ભરનારે ભરપાઈ કરી આપવાના રહેશે.
- ૫૫) કોન્ટ્રાક્ટમાં આવરી લેવામાં આવેલું તમામ કામ, કોન્ટ્રાક્ટર/ટેન્ડર ભરનારે સ્વયં બાંધવાનું /અમલ કરવાનો છે. ભાવનગર મહાનગરપાલીકાની લેખિત સંમતી મેળવ્યા સિવાય, કોન્ટ્રાક્ટર/ ટેન્ડર ભરનારે આ કોન્ટ્રાક્ટ અથવા તે પૈકીનો કોઈ ભાગ, સીધો અથવા આડકતરી રીતે અન્ય ના નામે ટ્રાન્સફર કે પેટા ફાળવણી કરવાની નથી.
- ૫૬) કોઈપણ કારણ બતાવ્યા સિવાય આ ટેન્ડર અથવા તેની કોઈપણ આઈટમના એક કરતાં વધુ ભાગ કરીને અન્ય કોન્ટ્રાક્ટર અથવા એજન્સી ને કામ આપી શકશે.
- ૫૭) ટેન્ડરની ચકાસણી સમયે, જરૂરી કલેરીફિકેશન ત્યા નેગોસીએશન રૂબરૂ હાજર રહી કરી આપવાનું છે.
- ૫૮) ભાવનગર મહાનગરપાલીકાની સક્ષમ સતા ને કોઈપણ કારણ બતાવ્યા સિવાય કોઈપણ ટેન્ડર સ્વિકારવા અથવા રદ કરવા અંગેનો અધિકાર અબાધિત રહેશે. અને લોએસ્ટ ભાવનુ ટેન્ડર સ્વિકારવા માટે પણ બંધનકર્તા નથી.
- ૫૯) કરેલ કામના વચગાળાના બીલની રકમ ત્રીસ દિવસે એકવાર ઓછામાં ઓછી મંજૂર રકમના ૧૫ % ની રહેશે.
- ૬૦) કોઈપણ પ્રકારનુ એડવાન્સ પેમેન્ટ કરવામાં આવશે નહીં.
- ૬૧) એસ્ટીમેટેડ (ટેન્ડર) ની કોઈપણ આઈટમની કવોન્ટીટીના કોઈપણ વેરીએશન સબબ કોઈપણ પ્રકારનો ભાવવધારો આપવામાં આવશે નહીં.
- ૬૨) કોઈપણ પ્રકારના માલ સામાન, મટીરીયલ્સ વગેરેનો કોઈપણ પ્રકારનો ભાવ વધારો આપવામાં આવશે નહીં.
- ૬૩) કોઈપણ પ્રકારની વ્યાજની રકમની માંગણી કરી શકાશે નહીં.
- ૬૪) સામાન્ય રીતે આઈટમોના માપો લેવાની રીત પ્રસ્તુત આઈ.એસ. કોડ અનુસરની રહેશે. તમામ આઈટમોનું માપ ફાઈનલ વર્કીંગ ડ્રોઈંગ મુજબ અથવા સ્થળ પર ખરેખર થયેલા કામ મુજબ બન્ને માંથી જે ઓછુ હોય તે ગણતરીમાં લેવાનુ છે.
- ૬૫) સરકારશ્રી નાં વખતો વખત નાં બહાર પાડવા માં આવેલ મજૂર કામદારોનાં કાયદા ઓ નું ચુસ્ત પણે કોન્ટ્રાક્ટરશ્રી દ્વારા અમલ કરવાનું રહે છે.
- ૬૬) ટેન્ડરમા જણાવેલ બાંધકામો ના સ્થળો પૈકી કોઈ પણ બાંધકામનુ સ્થળ ફેરફાર કરવાનુ થાય તો કાર્યપાલક ઈજનેરશ્રી દ્વારા સુચવવામા આવે તે સ્થળે કોઈ પણ પ્રકારના વાંધા સુચન લીધા વગર બાંધકામ કરી આપવાનુ રહે છે.



Bhavnagar Municipal Corporation



- ૬૭) ટેન્ડરમા જણાવેલ બાંધકામોની યુનીટ સંખ્યામા વધારો કે ઘટાટો કરવાનો થાય તો તે મુજબ અમલ કરવાનો રહેશે. અને જે સુચના આપવામા તેટલા યુનીટનુ બાંધકામ કરી આપવાનુ રહેશે.
- ૬૮) એજન્સી દ્વારા કામ શરૂ કરતા પહેલા સ્થળ સ્થિતિ મુજબના ફોટા ગ્રાફ રજુ કરવાના રહેશે અને ત્યારબાદ જ કામગીરી શરૂ કરવાની રહેશે. વખતો વખત ટેન્ડર માં સમાવેશ થતી આઈટમો ની કામગીરી ના ફોટા ગ્રાફ રજુ કરવાના રહેશે.
- ૬૯) આ તમામ ભાવમાં જી.એસ.ટી.નો સમાવેશ કરવામાં આવેલ નથી. સરકારશ્રીના નિયમાનુસાર અલગથી જી.એસ.ટી ચુકવવામાં આવશે. વધુમાં એજન્સીને સરકારશ્રીના નિયમનુસાર જી.એસ.ટી.નું ચુકવણું કરવાનું રહેશે.
- ૭૦) સ્થળે એચ.ટી વીજ લાઈન પસાર થતી હોય તો આ માટે વીજ પ્રોટેક્શન અંગેની તમામ વ્યવસ્થા કોન્ટ્રાક્ટરે સ્વખર્ચે કરવાની રહેશે. તેમજ કોઈ અકસ્માત કે જાનહાની થાય તો તે અંગેની તમામ જવાબદારી કોન્ટ્રાક્ટરની રહેશે.
- ૭૧) હાલના વેન્ડર લીસ્ટ અને ભવિષ્યમાં જે તે સમયે જ્યારે ભાવનગર મહાનગરપાલિકા અને સક્ષમ સત્તા વેન્ડરમાં ફેરફાર કરશે તે અધતન વેન્ડર લીસ્ટ માન્ય ગણીને કોન્ટ્રાક્ટરશ્રીએ સાઈટ પર માન્ય મટીરીયલ વપરાશમાં લેવાનું રહેશે તે બાબતે વધારાના ભાવ તફાવત ખર્ચ ચુકવવામાં નહિ આવે.
- ૭૨) કામ શરૂ કરતા પુર્વે કામની વિગતો દર્શાવતુ બોર્ડ કામ પુર્ણ થતા સુધી કોન્ટ્રાક્ટરે સ્વખર્ચે લગાડી રાખવાનુ રહેશે અન્યથા કોઈ પણ સમયે બોર્ડ લાગેલુ માલુમ નહી પડશે ત્યારે રૂપિયા ૫૦૦૦/- ની પેનલ્ટી લાગુ પડશે.
- ૭૩) ટેન્ડર/એજન્સી એ ટેન્ડર ડોક્યુમેન્ટ સાથે ESIC કોડ/રજીસ્ટ્રેશન ફરજિયાત રજુ કરવાનુ રહેશે, ESIC કોડ/રજીસ્ટ્રેશન સિવાયનુ ટેન્ડર માન્ય ગણાશે નહીં.
- ૭૪) કોન્ટ્રાક્ટરશ્રીએ બાંધકામ માં OPC ૫૩ ગ્રેડ સિમેન્ટ વાપરવાની રહેશે.

❖ ઉપરોક્ત તમામ શરતો નં- ૧ થી ૭૪ અમો એ વાંચી, વંચાવી, સમજી, વિચારીને ટેન્ડરમાં ભાવો ભરેલ છે જે મને / અમને કબુલ મંજુર છે અને તે મુજબ અમો કામ કરવા બંધાઈએ છીએ.

કોન્ટ્રાક્ટરની સહી _____ .

કોન્ટ્રાક્ટરનું નામ _____ .

કોન્ટ્રાક્ટરનો સિક્કો

તારીખ

તારીખ

**MUNICIPAL CORPORATION
BHAVNAGAR**

VENDOR LIST

(A) LIST OF APPROVED VENDORS FOR CIVIL WORKS

Sr. No.	ITEMS	Approved Brands / Quality
1	CEMENT PPC 53 Grade & SULPHATE RESISTANT CEMENT,S.R.C.	Ambuja, Hathi, Ultra Tech, Sanghi, Siddhi, Hi-bond
2	BRICKS	MBM, Arjun, PBM, 555, Kisan, ABM, TRD, Paresh, Dhara, B.R.C., Kiran, BMB, Kirit, Sonal
3	Steel TMT, CRS	TISCO, SAIL, VIZAG, Kamdhenu, NATIONAL, Electrotherm, JSW, Welspun steel, Pollad Steel, DIAMOUND TMT, M. G. Steel, Friends Steel, Crown next TMT, Briskon TMT
4	VITRIFIED TILES	Asian, Kajaria, Jonson, Varmora, Simpolo, OASIS
5	CERAMIC TILES	Asian, Kajaria, Johnson, Varmora, Simpolo, OASIS
6	GLAZED TILES	Asian, Kajaria, Johnson, Varmora, Simpolo
7	ACRYLIC PAINT	ICI, Asian, Nerolac, Burger
8	OIL BOUND DISTEMPER	ICI, Asian, Nerolac, Burger
9	EXTERIOR WEATHER PROOF EMULSION PAINT	ICI, Asian, Nerolac, Burger
10	Oil Paint	ICI, Asian, Nerolac, Burger
11	SANITARY WARE	Cera, Hindware, Parryware
12	CAST IRON PIPES AND FITTINGS.	NECO, Swayarhoo, Bengal, Oriental Castings, Electro steel Castings
13	P.V.C. PIPES AND FITTING (UPVC/CPVC)	Finolex, Supreme, Jain, Kisan, Astral, Dutron, Prince
14	CHROMIUM PLATED WATER SUPPLY FITTINGS	Jaquar, Ess Ess, Plumber ,ESSCO, Crown, Metro, Prince
15	GALVANIZED PIPE	Tata, Essco, Jaquar, Ess Ess, Plumber
16	GALVANIZED FITTINGS	'R' Brand, 'RV' Brand, Kranti
17	C.I. MANHOLE COVER	Manish, Sil, NECO
18	PLUMBING FIXTURES	Jaguar, Plumber, Essco
19	PVC WATER TANK (100% VIRGIN PVC)	Sintex, Aqua
20	ALUMINIUM SHEETS AND ACCESSORIES	Nalco, Jindal, Hindalco, Banko

Sr. No.	ITEMS	Approved Brands / Quality
21	ALUMINIUM EXTRUDED DOOR/ WINDOW SECTION	Jindal, Hindalco, Banko, Ajin India, Aldowin, Alumilite
22	ALUMINIUM HARDWARE	Rajdoot, Belu, Diamond, Glider, Ajin India, Aldowin, Alumilite
23	WATER PROOFING MATERIALS	Zycosil, Dr. Fixit, Kerakoll, Pidilite, Roff
24	DOOR CLOSER	Efficient Gadget, Everite, Hardwin, Aldowin, Ozone
25	DOOR FITTINGS	Godrej, Efficient Gadgets (E.G.) Dunex, Doorset, Suzu, Coral
26	HINGES	Suzu, Yama, E.P.P.W.
27	SCREW AND BOLTS	Nettle Folds, GKW, Stud
28	BOLTS & FASTENERS	Hilti, Fisher
29	LIFT	Top, Express, Omega, OTIS, Schander, TRIO, Aegis Elevator, Mitsubishi, Aditya, Siemens slider
30	ROOFING MATERIAL – Galvalume sheets	TATA, Essar, Jindal
31	Slag Cement	SANGHI CEMENT Sanghipuram
32	CPVC PIPES FOR AUTOMATIC SPRINKLER FIRE EXTINGUISHING SYSTEM	ASTRAL POLY TECHNIK LIMITED પાર્કિંગ એરિયા, બેઈઝમેન્ટ એરિયા જેવા વિસ્તારો સિવાય માત્ર કન્સીલ્ડ પાઈપીંગ માટે આ કંપનીના CPVC pipe નો ઉપયોગ fire sprinkler piping માટે કરવાની મંજૂરી આપવામાં આવે છે.
33	AAC Blocks	NXTBLOC
34	Jointing Mortar	NXTFIX Block
35	Ready Mix Plaster	NXTPLAST
36	Block joining Masonry Mortar	Unifix
37	Tile adhesive	Unifix
38	RCC bench	Sardar Pre cast
39	Rubber mould garden curbin	Sardar Pre cast

Sr. No.	ITEMS	Approved Brands / Quality
40	Rubber mould Paver block	Sardar Pre cast
41	Fencing Pole	Sardar Pre cast
42	RCC Masonry block	Sardar Pre cast
43	Pre cast wall	Sardar Pre cast

(B) LIST OF APPROVED VENDORS FOR MECHANICAL & ELECTRICAL WORKS

Sr. No.	Description	Name of Manufacturer
1	HSCF Pump	Crompton Greaves Ltd
		Kirloskar Brothers Limited (KBL)
		JASCO
		Mather & Platt Pumps Ltd.
		Jyoti Ltd.
2	Electric Motor	Lubi Industries LLP
		Bharat Bijlee Ltd.
		Jyoti Ltd.
		JSL Industries Ltd.
		Jeumont Electrical India Pvt. Ltd.
3	Electrical Panel	LHP
		Crompton Greaves Ltd
		Bhagyashree Power Control
		Dynamic Control System
		Elembica Services
		JSL Industries Ltd.
4	Kinetic Air Valve	Nutral Power Tech
		Kirloskar Brothers Limited (KBL)
		FOURESS Engineering (India) Limited.
		Durga Valves Pvt.Ltd
		Orbinox
5	Expansion Bellows	ಶ್ರೀ ಕ್ರಿಷ್ಣಾ ಇಂಜಿನಿಯರಿಂಗ್ಸ್
6	Dewatering (Drain) Pump(Submersible/Horizontal)	Precise Engineers
		KSB Pumps
		Kirloskar Brothers Limited (KBL)
		JASCO
		Crompton Greaves Ltd
		La Gajjar Machinery Pvt Ltd.
		Pullen Pumps Industries Pvt. Ltd.
MBH		
7	Sluice Valves and Sluice Gate	Kirloskar Brothers Limited (KBL)
		DURGA Valves Pvt.Ltd
		L & T Valves
		Jupiter
		SACHDEVA
8	UPVC Pipe	Supreme Industries Ltd.,Mumbai
		Dutron Polymers Ltd
		Parixit Industries Ltd., A'bad
		Jain Irrigation Systems Ltd., Jalgaon
9	HDPE Pipe	Jain Irrigation Systems Ltd., Jalgaon
		Parixit Industries Ltd., A'bad
		Dutron Polymers Ltd
		Jindal
10	C.I. Pipe	Essar Steel
13	EOT Crane	Electro Steel, Kejriwal, Oriental Castings, BIC, Jindal, Lanco Industries Ltd.,Chennai, Kesins
13	EOT Crane	Grip Engineering Pvt. Ltd., JAPS Project, Brady & Morris Engineering Co. Ltd., Techno Industries

Sr. No.	Description	Name of Manufacturer
14	Cable & Wires	KEI Industries Ltd.
		Polycab Wires Pvt. Ltd.
		Aerolex Cables Pvt. Ltd.
		Allwin Industries
		Finolex Cables
		L&T Cables
		ULTRA CAB (India) Limited
15	Transformer	Atlanta Electricals Pvt. Ltd.
		Powerlite Electricals
		Voltamp Transformers Ltd.
		SKP Transformers
		Arya Electronics
16	Components for MCC :	
	Switch	L&T, Siemens
	HRC Fuse	L&T, Siemens
	Timer	L&T, Siemens
	Relay	L&T, Siemens
	Push Button Stations	L&T, Siemens
	Indicating Lamp	L&T, Siemens
	Cable Jointing Kit	CCI, M. Seal
	MCB/DB's	MDS, Siemens, Indokupp
17	Capacitors	L&T, Crompton, Khatau Note: Capacitors shall be oil fill type
18	KWH Meter	Simco, Jaipur, GEC
19	Light Fittings: (Indoor & Outdoor Luminaries)	Philips, Crompton, Bajaj, NESSA Illumination
20	Exhaust Fans	Crompton, Bajaj,
21	Ceiling Fans	Crompton, Bajaj, Havells
22	Air Blowers	Everest Ltd.
		Swan Pneumatics (P) Ltd
23	Alum Dosing Pumps	Asia LMI
		VK Pumps
		Swelore
24	Pressure Gauges	General Instruments
		Bells Control
		H. Guru Marketing
25	Level Gauge / Indicator	R K Dutt
		Levecon
		S. B. Electromec
26	Clarifier Equipment	Enviro Control Associates
		Voltas Ltd
		Hindustan Dorr-Oliver
		Geomiller/Triveni
27	Chlorination System	Industrial Device (I) Pvt. Ltd
		Metito
		Chloroequip
		Pennwalt
28	Gear Box	Greaves
		Radicon
		Elecon
		Shanti

Sr. No.	Description	Name of Manufacturer
29	Level Switches	Level-Tech
		Revathi Electronics
		Levec
30	Refrigerator	LG, Samsung, Kelvinator
31	PVC Pipes for Fluid	Finolex, Jain Irrigation
32	PVC Conduits for Electricals	Precision, Shakti
33	Butterfly Valve	KIRLOSKAR Brothers Limited(KBL), DURGA valves Pvt Ltd, L & T valves, R&D MULTIPLE, Jupiter, श्री कृष्ण एन्जिनीयर्स IVC, IVI, Audco, R & D multiple, Jupiter, Cair, Orbit Engineers
34	Check Valve (Dual Plate check Valve)	KIRLOSKAR Brothers Limited(KBL), DURGA valves Pvt Ltd, Orbinox, R&D MULTIPLE, Orbit Engineers
35	Metallic Expansion Bellow	Beloflex(B.D. Engineers), Stanfab Engineering Pvt. Ltd., D. Wren Engineering Pvt. Ltd., Sur Industries,
36	Centrifugal / Centrifugal Non Clog Pumps	Beacon Weir, KSB, Mather & Platt (Wilo), Worthington, WPIL, Xylem pumps , Grundfos Pumps Pvt. Ltd., MBH, JASCO
37	Submersible non Clog Pumps / Submersible Centrifugal Pumps	Kirlosker, KSB, ABS, ITT- Flyght, Xylem pumps, Grundfos Pumps Pvt. Ltd. , MBH, JASCO, AQUA, Jyoti, PULLEN PUMPS, Alpha, Het Pump
38	Screw Pump	Roto, Netzsch, Tushaco, Seepex
39	Metering / Dosing Pumps	Swelore, V.K. Pumps, Shapotools
40	Non Return Valves (Single / multi door) / Dual Plate Check Valves	Kirlosker, IVC, IVI, R & D multiple, Durga, Jupiter, Cair, Orbit Engineers
41	Knife Gate valves	Jash, Fouess, Vass (Dezurick), Vag, Orbinox, Orbit Engineers
42	Sluice gates / open Chanel Gates	Jash Engineering, IVC, R & D Multiple, Jupiter
43	Mechanical Fine Screens – Step (Mat) Type / Drum Type	Jash, Huber, Johnson, Savi, Italy, Apollo Screens
44	Mechanical Course bar Screen	Jash, Huber, Johnson, HDO, Triveni, Savi, Italy
45	Manual Bar Screen	Jash, Japs, HDO, Triveni, Auric
46	Grit mechanism	EIMCO – KCP, Hindustan Dorr – Oliver, Jash-Shivpad, Triveni, Voltas
47	Diffused Aeration System	EDI, OTT, Rehau
48	Air Blower	Kay, Swam, Everest, Usha Compressors, Gardner Denver
49	Agitator / mixer	Remi, Schurtek, Fibre & Fibre, Milton Roy
50	Gear Boxes	Greaves, Elecon, CPEC, PEPL, Bonfiglioli
51	Centrifuge	Humboldt, Alpha Laval, Hiller

Sr. No.	Description	Name of Manufacturer
52	HDPE Pipes	Astral, Dutron, Duraline, Narmada, RIL (PIL), Penwalt, Anjney, jain irrigation, Sangir
53	Air Compressor	Ingersoll – Rand, khosla, Kirlosker, CPE, Alpha
54	Bearing For All Equipments	SKF, FAG, Tata
55	Fasteners	Precision, Durakhanawala, Echjay, Tata, Sundaram
56	Mechanical Seals	Eagle Seals (Sealol), Durametalllic, Burgman
57	Electric Actuator	Auma ,Rotork, Emerson, Pentair
58	(1) CATEGORY III Indoor LED fittings, LED Panel light, LED down light, outdoor LED ligh (street light, LED flood light, LED Post top lantern, LED bollard) (2) Solar LED Light	NESSA ILLUMINATION TECHNOLOGIES PVT.LTD., Litsun, Nextray
59	STREET LIGHT POLES	AMBICA POLES (for octogonal poles,swage poles,street loght poles, high mast poles,decorative poles, conical poles, JETCOTECH Engineering LLP
60	Resilient Seated Slice Valve	Cair
61	Air Vale	Cair, Orbit Engineers
62	Flow Control valve	Cair
63	Altitude Control valve	Cair, Orbit Engineers
64	Pressure reducing valve	Orbit Engineers
65	Pressure relief valve	Orbit Engineers
66	Ball valve	Orbit Engineers
67	Mast pole	JETCOTECH Engineering LLP
68	Earthing material	JETCOTECH Engineering LLP
69	Hot dip galvanizing	JETCOTECH Engineering LLP
70	LED Highbay	Litsun

(C) LIST OF APPROVED VENDOR FOR INSTRUMENTATION SYSTEM

SR NO	DESCRIPTION	Name Of Manufacturer
1	Electromagnetic Flow Meter	E+H, Siemens, Abb, Fuji, Yokogawa, Krohne-Marshall, AAROHI Embedded System Pvt Ltd., Emerson, SBEM
2	Pressure Gauges	Wika, H.Guru, General Instruments Consortium Manometer (India) P. Ltd. , Baumer, Waaree
3	Pressure Switch	Danfoss , Indfoss , Switzer
4	Process Analyzers (pH, DO, Free / Residual Chlorine , BOD / COD)	E+H , Emerson , Hach , Chemitech , Polymetron, Wtw (Forbes Marshall),Yokogawa
5	Ultrasonic transmitter level / diff. level / flow	E+H, Siemens – Milltronics, Krohne, Vega
6	Hydraulic level transmitter	E+H,Siemens, ABB, Forbes- Marshall, Emerson, SBEM
7	Displacer/Float Switches	Levcon, Nivo, Toshbro, Pune Techtrol , SBEM
8	PP Float / Buoyancy switch	Pepprl + Fuchs, Baumer, Waaree, E+H , Pune Techtrol , SBEM
9	Float & Board Type Level Gauge	Levcon, Nivo, Toshbro, Pune Techtrol, SBEM
10	Electromagnetic Flow Meter	E+H, Siemens, ABB, Fuji, Yokogawa, Krohne-Marshall
11	Field Transmitter (P, DP,F, L , T)	ABB, Fuji, Yokogawa, Honeywell, Emerson
12	Pressure Gauges	Wika, H.Guru, General Instruments Consortium Manometer (India) P. Ltd., Baumer, Waaree
13	Panel Mounted Process Indicator & Flow Integrator	Masibus, Nishko, Nivam, Selectron, Radix, Yokogawa, ABB
14	Pressure Switch	Danfoss, Indfoss, Switzer
15	Programmable Logic Controllers	Rockwell (Allen Bradeley), Siemens, Schneider, Fuji, ABB, GE Fanuc
16	Control Panel Enclosure	Rittal, Enklotek, Bartakke, BCH, Eldon
17	Alarm Annunciator	Aplab Ltd., Minilec , IIC
18	Solenoid valves	Asco, Rotex, Schrader
19	Tube Fitting	Excel Hydropneumatic, Multimetal, Placka

20	Instrument Valves , Manifolds	Aptek, Anmol (Superlok), Excel Hydropneumatic, General
21	Fitting	Instrument Consortium , Multimetal, Technomatic, Placka
22	Pneum , Brass Fitting	Swagelok, Multimetal Industries, SMC, Festo
23	Control Panel Accessories / Components	
a.	Miniature Relay	Wago, Omron,Phoenix, Rockwell
b.	Indication Pilot Lamps (LED Type)	Teknic, Schneider, Siemens
c.	Push Button / Selector Switch (with NO/NC Elements)	Teknic, Schneider, Siemens
d.	DC Power Supplies (DIN Rail mounted)	Phoenix, Omron, Schneider, Rockwell
e.	Terminals	Elmex, Phoenix, Wago, Connectwell
f.	Panel Wires	Finolex , Havell's , R R Kabel
g.	Panel Illumination	Philips , Crompton , GE
24	Instrument Cables (Power , Signal , Control)	Associated Cables, Associated Flexible and Wires P.Ltd., Brooks Cables, Thermo Cables, Udey Pyro
25	Cable Glands	Ex- protecta, Braco, Sudhir, Comet, Connectwell
26	Junction Box	Ex- protecta, CEAG, Sudhir, Baliga, FCG
27	Cable Tray	M.M.Engineering, Globe, Jacinth, Equi. Reputed, JETCOTECH Engineering LLP
28	Computer System	HP-Compaq, Dell, IBM, Sony, Samsung
29	UPS	Hirel-Hitachi, Emerson, APC
30	<ol style="list-style-type: none"> 1. PLC (Programmable Logic Controller) 2. SCADA (Supervisory Control and Data acquisition) 3. VFD (Variable Frequency Drive Up to 500 KW) 4. ACB (Air Circuit Breaker up to 	MITSUBISHI ELECTRIC INDIA PRIVATE LIMITED, Emerald House, EL-3, J Block, M.I.D.C., Bhosari, Pune 411026

	<p>6000A)</p> <ol style="list-style-type: none">5. MCCB (Moulded Case Circuit Breaker up to – 1600 A)6. MCB (Miniature Circuit Breaker up to – 63 A)7. ELCB (Earth Leakage Moulded Case Circuit Breaker up to 1600 A)8. Contractor up to – 800 A & OLR (Over load Relay) up to 630 A9. Multi Functional Meters10. MPCB (Motor Protection Circuit Breaker up to 32 A)	
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**(D) LIST OF APPROVED VENDORS FOR MATERIALS RELATED TO WATER
SUPPLY AND SEWERAGE NETWORK**

SR. NO.	ITEMS	NAME OF AGENCIES
1	A C Pressure pipe MAZZA process	Lotus, Kirti
2	A C Pressure pipe MEGHNANI process	Lotus, Kirti, Hindustan
3	Sluice Valve	Durga, kartar, Kirloskar, Jupiter, SACHDEVA (C.I. & D.I.), શ્રી કિર્તી ઇન્જિનીયર્સ, Cair, Orbit Engineers
4	DI Pipe	Electrotherm (I) Ltd.,Ahmedabad, Lanco Industries Ltd.,Chennai, Electrsteel, Jindal Saw Ltd.,Ahmedabad, Kesins, Welspun
5	R.C.C. PIPE (COLLAR JOINT & SOCKET SPIGOT JOINT) CLASS NP3 & NP4, & R.C.C. COLLARS	VIPUL SPUN PIPES (SIHOR & LATHIDAD,BOTAD), KATARIYA & CO. (DHASSA), OMKARESHVAR PIPES (NAVAGAAM), OMKAR PIPES (LATHIDAD, BOTAD), MARUTI PIPES (BAGODARA ,AHMEDABAD), KALATHIYA PIPES(BAGODARA ,AHMEDABAD), R. S. PIPES (BODELI), UMA HUME PIPES (KALOL, GANDHINAGAR), SIDHDHIVINAYAK (KARDEJ ,BHAVNAGAR)
6	R.C.C. MACHINEOLE FRAME & COVER, INLET FRAME COVER 10T.(600*450 MM.) , 20T.,35T., & 50T.	SONI CEMENT PRODUCT , VIPUL SPUN PIPES, KATARIYA & CO., OMKARESHVAR PIPES, OMKAR PIPES, MARUTI PIPES, KALATHIYA PIPES , R. S. PIPES, UMA HUME PIPES, SIDHDHIVINAYAK , S.K. Corporation, Laxmi Price Industries, S.J.Corporation, Sardar pre cast
7	Stone ware PipeManufacturer having BIS Certificate for ISI marking	Krishna Pipe, j.K. Pipe, Taya ceramic, Burn & co., perfect Potteries, Navroji Vakil, Kashmira
8	D.I. & C.I. FITTINGS	RG BRAND, ESSEM Engineering Industries, Bikaners Engineers works
9	CID Joints	ESSEM Engineering Industries
10	Valves & Graded Castings	ESSEM Engineering Industries
11	Pipe Fittings	ESSEM Engineering Industries, Bikaners Engineers works
12	CI/DI/MS graded castings	Bikaners Engineers works
13	Scaper machine hole	Sardar Pre cast



Bhavnagar Municipal Corporation



Bhavnagar Municipal Corporation

બાંધકામ વિભાગ
પસં-ટેજ રેઈટ ટેન્ડર

કામનું નામ : ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંમ્પાઉન્ડ વોલને તોડી નવી કંમ્પાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા ચુલ સખ્લાય કરી ફીટીંગ કરાવવાનું કામ.

કામ ની રકમ :- રૂ. ૬૯,૩૭,૦૦૦/-

નિયત કરાયેલ ટેન્ડર ફી :- રૂ. ૨૪૦૦/-

નિયત કરાયેલ અર્નેસ્ટ મની ની રકમ :- રૂ. ૬૯,૪૦૦/-

કામ ની સમય મર્યાદા :- ૬ – માસ

એજન્સી નું નામ :-

એજન્સી ઘર તથા ઓફિસ નું પૂરું સરનામું :-

એજન્સી નો ફોન નંબર તથા મોબાઈલ નંબર :-

ટેન્ડર ફી રકમ તથા પહોંચ નંબર – તારીખ :-



Bhavnagar Municipal Corporation



કામનું નામ :- ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંમ્પાઉન્ડ વોલને તોડી નવી કંમ્પાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા યુલ સપ્લાય કરી ફીટીંગ કરાવવાનું કામ.

❖ આ સાથે અર્નેસ્ટ મની / ડીપોઝીટ મહાનગર પાલિકા માં રોકડા ભર્યા ની પહોંચ નં..... તારીખ.....
રૂા.....અંકે.....
ભર્યા ની અસલ પહોંચ સાથે સામેલ રાખેલ છે.

અથવા

❖ એફ.ડી.આર.નં.....તારીખ.....રૂા.....અંકેરૂપીયા.....
ની.....બેંક ની શ્રી કમિશનર મહાનગર પાલિકા સાથે જોઈન્ટ એકાઉન્ટ ની સાથે સામેલ રાખેલ છે. જેમાં પાછળ ની સાઈડે રેવન્યુ સ્ટેમ્પ ઉપર સહી કરી અસલ માં રજુ કરેલ છે.

❖ ઉપરોક્ત વિગત પ્રમાણે ના ભાવો થી ટકા.....અંકે.....કમતી / જાસ્તી ભાવ થી આ કામ કરી આપવા બંધાઉં છું.

❖ સદરહુ ટેન્ડર ના ભાવો નાં છેલ્લા પાને, સ્પેસીફિકેશન ના છેલ્લા પાને, શરતો નાં છેલ્લા પાને, સહિ કરી આપેલ છે.

❖

કોન્ટ્રાક્ટરની સહી:- _____.

કોન્ટ્રાક્ટરનું આખું નામ:- _____.

કોન્ટ્રાક્ટરનું સરનામું :- _____.

કોન્ટ્રાક્ટરનો સિક્કો:- _____ તારીખ:- _____.

ટેન્ડર કમીટી

ટેન્ડર ને ટેન્ડર કમિટી સમક્ષ ખોલ્યા સમય:- _____ તારીખ:- _____.

સહી	ક્લાર્ક	કાર્યપાલક ઈજનેર	ચીફ એકાઉન્ટન્ટ	ચીફ ઓડીટર	સીટી એન્જીનીયર
	બિલ્ડીંગ વિભાગ	બિલ્ડીંગ વિભાગ	એકાઉન્ટ વિભાગ	ઓડીટવિભાગ	સીટી એન્જી કચેરી

તારીખ-



બિલ્ડીંગ વિભાગ
ભાવનગર મહાનગર સેવા સદન
સ્પેસીફિકેશન

(1) **પાયાનું ખોદાણ કામ : ૧.૫ મીટર ઉડાઈ સુધી**

પાયાનું ખોદાણ કામ બતાવ્યા મુજબ દોરીમાં ઓળંભે તથા સીધી લાઈનમાં સીટી એન્જીનીયરશ્રી ફરમાવે તેટલી ઉચાઈમાં ખોદી આપવાનું છે. ખોદાણ કરતાં જમીન કઠણ, મોરમ, માટી કે તાછવાળી આવે તો તે તમામ ખોદવાનું છે. કોઈ જમીન નરમ આવે અથવા ખોદાણ કરતાં બાજુમાંથી ઘસી પડે તેવી હોય તો ઘસી પડતું અટકાવવા "શોરીંગ" કરવાનું છે, સીવાય ખોદાણ કામમાં પાણી નીકળે તો તે પણ કોન્ટ્રાક્ટરે પાણી ઉલેચીને કરવાનું છે. પાણી ઉલેચવાના સાધનો જેવા કે પમ્પ, એન્જીન વિગેરે કોન્ટ્રાક્ટરે પોતાના ખર્ચે લાવવાનાં છે, અને પાણી ઉલેચવાનો "ડી વોટરીંગ" નો કંઈપણ અલગ ભાવ આપવામાં આવશે નહીં ખોદાણમાંથી નિકળેલ માટી, મોરમ, તાછ વિગેરે મ્યુ. કોર્પો. સુચવે તે મુજબ ૯૦ મીટર (નેવુ મીટર) લીડ સુધી લઈ જઈ પાથરી આપવાનું છે અને તે અંગેનો કંઈપણ અલગ ભાવ મળી શકશે નહીં. પાયાનું દરેક જાતનું કામ શોરીંગ, ડી-વોટરીંગ, વિગેરે તથા ઉપરોક્ત વિગતો સાથેનાં તમામ કામનો સમાવેશ પાયાના ખોદાણ કામમાંજ થાય છે. તેનો ભાવ દરે એક ઘનમીટર પર સમજવાનો છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે.

(2) **પાયાનું ખોદાણ કામ ૧.૫ મીટર થી ૩.૦૦ મીટર ઉડાઈ સુધી.**

(આ. નં. ૧ મુજબ)

(3) **પાયાનું ખોદાણ કામ ૩.૦ મી થી ૫.૦ મી. ઉડાઈ સુધી.**

(આ. નં. ૧ મુજબ)

(4) **ખોદાણ કરેલ માટી/મુરમ ફીલ્ડીંગ**

ખોદાણ કરેલ માટી / મુરમ વડે સૂચના આપવામાં આવે તે મુજબ ૦.૩૦ મીટરના લેયરમાં પાયા/પ્લીન્થમાં ભરતી કરી તેના ઉપર જરૂરી રેમીંગ, ક્યોરીંગ વગેરે કરી આપવાનું છે. તેનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે.

(5) **બહારથી પાસ કરેલ માટી/મુરમ ફીલ્ડીંગ**

ખોદાણ કરેલ માટી / મુરમ વડે સૂચના આપવામાં આવે તે મુજબ ૦.૩૦ મીટરના લેયરમાં પાયા/પ્લીન્થમાં ભરતી કરી તેના ઉપર જરૂરી રેમીંગ, ક્યોરીંગ વગેરે કરી આપવાનું છે. તેનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે.



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(6) સેન્ડ / રેતી ફીલ્ડિંગ

બહારથી પાસ કરવા માં આવે તેવી ચોખ્ખી ધૂળ વગરની, તળાજા, ઉમરાળા, ઘંધુકા પૈકીની રેતી લાવી પાયા/પ્લેથ માં ૦.૩૦મી. ના લેયર માં રેમીંગ ક્યોરીંગ સાથે ભરતી કરવાનું કંમ્પ્લીટ કામ

(7) બોર પાઈલ્સ માટે બોર/બોદાણ કરવાનું કામ.

સીટી એન્જીનીયરશ્રી ધ્વારા સૂચવવામાં આવે તે મુજબની માપ સાઈઝના બોર પાઈલ્સ માટે ડ્રીલીંગ મશીન વડે બોર પાઈલ્સનું જે તે ઉડઈ સુધી જમીનમાં બોર કરી આપવાના છે. તમામ બોર ઓળંભે લાઈનદોરી તથા લેવલે કરી આપવાના છે. (બોદાણ) બોર કરતાં જમીન કઠણ, મોરમ, માટી કે તાઇ વાળી આવે તો તે તમામ બોર કરી આપવાના છે. બોર કામમાં પાણી નિકળે તો તે જરૂરી સાધનો વડે પાણી ઉલેચી (ડીવોટરીંગ) કરી આપવાનું છે. આ અંગેનો કોઈ અલગ ભાવ આપવામાં આવશે નહીં. જરૂર જણાયે શોરીંગ કરી આપવાનું છે. બોર (બોદાણ) માંથી નિકળેલ માટી ૮૦.૦૦ મીટરની લીડમાં લઈ જઈ સુચવવામાં આવે તે મુજબ પાથરી આપવાની છે. ઉપરોક્ત તમામ વિગતે કામનો ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે.

(8) બોરનાં અંદરના ભાગે રીમ કરવા માટે બલ્બ કરી આપવાનું કામ.

—સદર— (આઈટમ નં. ૩ મુજબ) પરંતુ એકસ્ટ્રા ફોર અંડર રીમીંગ ઈન સાઈડ ધ બોર હોલ્સ અંદર ભાગે રીમ કરવા માટે કહેવામાં આવે તે મુજબ માપ સાઈઝના અને ઉડાઈએ બલ્બ કરવાનું કંમ્પ્લીટ કામ કરી આપવાનું છે. આ કામનો ભાવ દર એક નંગ (બલ્બ) પર સમજવાનો છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે.

(9) પી.સી.સી ૧:૩:૬ ફાઉન્ડેશન/ફ્લોર માટે

આ કામમાં ૧૫ થી ૨૦ એમ.એમ. સાઈઝની પાસ કરવામાં આવે તેવી સારી હાર્ડ બ્લેક સ્ટોન મેટલની મશીન ક્રશ્ડ કપચી લાવી વાપરવાની છે. આ કામનાં પાસ કરવામાં આવે તેવી સારી જાતની રેતી, ધુળ વગરની, ચોખ્ખી, તળાજા, ઉમરાળા, ઘંધુકા પૈકીની લાવી વાપરવાની છે. આ કામમાં આઈ.એસ.ઓ.પી.સી ૫૩-ગ્રેડ સિમેન્ટ પાસ કરવામાં આવે તે સીમેન્ટ લાવી વાપરવાની છે. સદરહુ કામ માટે છ ભાગ કપચી, ત્રણભાગ રેતી અને એક ભાગ સીમેન્ટ એ પ્રમાણે માલ બનાવવાનો છે. સીમેન્ટ રેતી, કપચી મશીન મીક્સીંગ કરી જરૂરી રેમીંગ, ક્યોરીંગ કોન્સોલીડેશન, સ્કેફોલ્ડીંગ, વગેરે સાથે કંમ્પ્લીટ કરી આપવાનું છે. તમામ કામ સતત ભીનુ રહે તે મુજબ દસ દિવસ સુધી ક્યોરીંગ કરવાનું છે, ઉપરોક્ત તમામ વિગતે આ કામનો ભાવ દર એક ઘન મીટર પર સમજવાનો છે, તૈયાર કામનું માપ લેવામાં આવશે, આ તમામ કામ લાઈનદોરી, લેવલે તથા ઓળંભે આપવામાં આવે તે ડીઝાઈન મુજબ કરી આપવાનું છે.

(10) ૧:૨:૪ ના પ્રમાણથી સીમેન્ટ કોન્ક્રીટ કરવાનું કંમ્પ્લીટ કામ

આ કામ માં વાપરવાની થતી કપચી ૧૫ થી ૨૦ મીમી. નોમીનલ સાઈઝ ની પાસ કરવામાં આવે તેવી હાર્ડ બ્લેક સ્ટોન મેટલ ની મશીન ક્રશ્ડ લાવવાની છે. તથા આ કામ માટે પાસ કરવામાં આવે તેવી ચોખ્ખી ધૂળ વગરની (તળાજા, ઉમરાળા, ઘંધુકા) ની રેતી લાવી વાપરવાની છે. આ કામ માટે આઈ.એસ.ઓ.પી.સી. ૫૩ ગ્રેડ સિમેન્ટ પાસ કરવામાં આવે તેવી સીમેન્ટ લાવી, ચાર ભાગ કપચી, બે ભાગ રેતી, એક ભાગ સીમેન્ટ મશીન માં મીક્સ કરી માલ બનાવવા નો છે. લાઈન લેવલ માં જરૂરી સેન્ટરીંગ, શટરીંગ તથા સ્કેફોલ્ડીંગ કરી રેમીંગ કોન્સોલીડેશન વીગેરે સાથે આપવામાં આવે તે ડીઝાઈન મુજબ કંમ્પ્લીટ કામ કરવાનું છે. તમામ કામ સતત ભીનું રહે તે રીતે પંદર દીવસ સુધી ક્યોરીંગ કરવાનું છે. તૈયાર કામ નું માપ લેવામાં આવશે. ભાવ દર એક ઘન મીટર પર સમજવાનો છે.



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(11) માઈલ્સ સ્ટીલ રી-ઈનફોર્સમેન્ટ કામ. આર.સી.સી. ફાઉન્ડેશન ફર્ટીગ્ઝ, બેઈઝ, રાફ્ટ સ્લેબ, લીન્ટેલ, છજજા, દાદર, લોફ્ટ કોર્પીંગ, બીમ, કોલમ, સ્લેબ વગેરે માટે.

આ કામમાં આવતું તમામ લોખંડ આઈ.એસ. સ્પે. સ્ટીલમાં જણાવ્યા મુજબ ૧૭૮૬ માઈલ્સ સ્ટીલ બાર્સ સાડ, કાટ વગરનું મ્યુ. કોર્પો. પાસ કરે તેવું લાવી તથા આપવામાં આવે તે માપ સાઈઝનું લાવવાનું છે અને મ્યુ. કોર્પો. કહે આપે તે તમામ (જરૂરી તમામ પ્રકારના ડીઝાઈન મુજબ હુકવાળી આપવા સાથે) ડીઝાઈન મુજબવાળી, કાપી જરૂરી વાયર ૧૮ ગેજનો વાપરી ડબલ આંટા વડે બાંધી સેન્ટરીંગ ઉપર ગોઠવી તૈયાર કરી આપવાનું છે. આ તૈયાર થયેલ કામ મ્યુ. કોર્પો. ને બતાવ્યા બાદ, પાસ કરાવ્યા પછી મંજૂરી મેળવીને સીમેન્ટ કોન્ક્રીટ ભરવાનું છે તૈયાર લોખંડનો ભાવ દર એક કી.ગ્રામ પર સમજવાનો છે. બાઈન્ડીંગ વાપર અને વેસ્ટેજનું વજન જુદુ ગણવામાં આવશે નહીં. એટલેકે તેનું માપ લેવામાં આવશે નહીં.

(12) ટી. એમ. ટી. રી-ઈનફોર્સમેન્ટ કામ. આર.સી.સી. ફાઉન્ડેશન ફર્ટીગ્ઝ, બેઈઝ, પાઈલ, રાફ્ટ સ્લેબ, સીલ, લિન્ટેલ, છજજા, દાદર, લોફ્ટ, કોર્પીંગ, બીમ, કોલમ, સ્લેબ વગેરે માટે.

આ કામમાં આવતું તમામ લોખંડ આઈ.એસ. ૧૭૮૬ મુજબનું સ્ટાન્ડર્ડ કંપની નું ટી.એમ.ટી. થર્મલ મીકેનિકલ ટ્રીટેડ (ટી.એમ.ટી. બારસ) સ્ટીલ બાર્સ સાડ, કાટ વગરનું પાસ કરવામાં આવે તે તેવું તથા આપવામાં આવે તે માપ સાઈઝનું સ્ટીલ લાવવાનું છે અને કહેવમાં તથા આપવામાં આવે તે તમામ (જરૂરી તમામ પ્રકારનાં ડીઝાઈન મુજબ હુકવાળી આપવા સાથે) ડીઝાઈન મુજબ વાળી કાપી, જરૂરી ૧૮ ગેઈઝનાં વાયર લાવી વાપરી ડબલ આંટા વડે, બાંધી સેન્ટરીંગ ઉપર ગોઠવી તૈયાર કરી આપવાનું છે. આ તૈયાર થયેલ કામ બતાવ્યા બાદ પાસ કરાવ્યા પછી મંજૂરી મેળવીને સીમેન્ટ કોન્ક્રીટ ભરવાનું છે. તૈયાર લોખંડનો ભાવ દર એક કી.ગ્રામ પર સમજવાનો છે. બાઈન્ડીંગ વાયર અને વેસ્ટેજનું વજન જુદુ ગણવામાં આવશે નહીં એટલે કે તેનું માપ લેવાનું નથી.

(13) ઈટ યજાતરકામ પ્લીન્થ/સુપરસ્ટ્રક્ચર માટે સિમો ૧:૬

આ કામમાં વાપરવાની તમામ ઈટો ચીમની ભટ્ટાની, બેસ્ટ મેન્યુફેક્ચરની મ્યુ. કોર્પો. તરફથી પાસ કરવામાં આવે તેવી ફર્ટ કવોલીટીની લાવવાની છે. તમામ ઈટો આખી, સારીપાકેલી, ફાટફટ વગરની એક સરખી સાઈઝની કોલસી કે તેવો બીજો કોઈ પદાર્થ ચોટેલો ન હોય તેવી એક સરખી સ્ટાન્ડર્ડ સાઈઝની લાવવાની છે. સાઈટ ઉપર ઈટો લાવ્યા પછી પણ પાસ કરાવ્યા બાદ વાપરવા દેવામાં આવશે. તમામ ઈટો યજાતર કામમાં વાપરતાં પુર્વે જરૂરી પૂરતાં પ્રમાણમાં પાણી વડે પલાળવાની છે. આર્ય, કોનીસ્ટ, પીલર્સ, આર્કીટ્રેપ, પેરાપેટ વિગેરે કામનો સમાવેશ ઈટના યજાતરમાં થાય છે. તેનો કોઈપણ ભાવ જુદો આપવામાં આવશે નહીં. ઈટનું યજાતર કામ દર એક થરે દોરી બાંધીને લાઈન દોરીમાં, લેવલમાં ઓળંભે, સાડ, સફાઈદાર કરવાનું છે. યજાતર કામમાં સાંધ (૧/૨" થી) ૧.૨૫ સે.મી. તમામ કામ કાળજીથી કરવાનું છે. મ્યુ. કોર્પો. પાસ કરે તેવી સારી જાતની ચોખ્ખી ચાળેલી રેતી (તળાજા, ઉમરાળા, ઘંધુકા પૈકીની) વાપરવાની છે. આઈ.એસ. ૫૩ ગ્રેડ ઓ.પી.સી. સિમેન્ટ વાપરવાની છે. ઈટનું યજાતર ૧:૬ નાં પ્રમાણમાં સી.મો.થી કરવાનું છે. તમામ યજાતર કામને જરૂરી પૂરતા પ્રમાણમાં ક્યોરીંગ કરવાનું છે અને દસ દિવસ સુધી પાણીથી ભીનું રાખવાનું છે. આ કામના પ્લાન, એલીવેશન, તથા સેક્સન મુજબનું તથા ઉચાઈ મુજબનું યજાતર કામ કરવાનું છે. તેનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. ઉપરોક્ત તમામ વિગતે આ કામ જરૂરી ક્યોરીંગ, સ્કેફોલ્ડીંગ રેકીંગ ઓફ જોઈન્ટસ સાથે કંપલીટ કામ કરી આપવાનું છે.



Bhavnagar Municipal Corporation



(14) પાર્ટીશન વોલ નું ઈટ યણતર કામ ૧:૩ સી મો

આ કામમાં વાપરવાની તમામ ઈટો ચીમની ભઠ્ઠાની, બેસ્ટ મેન્યુફેક્ચરની મ્યુ. કોર્પો. તરફથી પાસ કરવામાં આવે તેવી ફર્ટ કવોલીટીની લાવવાની છે. તમામ ઈટો આખી, સારીપાકેલી, ફાટફુટ વગરની એક સરખી સાઈઝની કોલસી કે તેવો બીજો કોઈ પદાર્થ ચોટેલો ન હોય તેવી એક સરખી સ્ટાન્ડર્ડ સાઈઝની લાવવાની છે. સાઈટ ઉપર ઈટો લાવ્યા પછી પણ પાસ કરાવ્યા બાદ વાપરવા દેવામાં આવશે. તમામ ઈટો યણતર કામમાં વાપરતાં પુર્વે જરૂરી પૂરતાં પ્રમાણમાં પાણી વડે પલાળવાની છે. આર્ચ, કોનીસ્ટ, પીલર્સ, આર્કીટ્રેપ, પેરાપેટ વિગેરે કામનો સમાવેશ ઈટના યણતરમાં થાય છે. તેનો કોઈપણ ભાવ જુદો આપવામાં આવશે નહીં. ઈટનું યણતર કામ દર એક થરે દોરી બાંધીને લાઈન દોરીમાં, લેવલમાં ઓળંભે, સાડ, સફાઈદાર કરવાનું છે. યણતર કામમાં સાંધ (૧/૨" થી) ૧.૨૫ સે.મી. તમામ કામ કાળજીથી કરવાનું છે. મ્યુ. કોર્પો. પાસ કરે તેવી સારી જાતની ચોખ્ખી ચાળેલી રેતી (તળાજા, ઉમરાળા, ઘંધુકા પૈકીની) વાપરવાની છે. આઈ.એસ. ૫૩ ગ્રેડ ઓ.પી.સી. સીમેન્ટ વાપરવાની છે. ઈટનું યણતર ૧:૩ નાં પ્રમાણમાં સી.મો.થી કરવાનું છે. તમામ યણતર કામને જરૂરી પૂરતા પ્રમાણમાં ક્યોરીંગ કરવાનું છે અને દસ દિવસ સુધી પાણીથી ભીનું રાખવાનું છે. આ કામના પ્લાન, એલીવેશન, તથા સેક્સન મુજબનું તથા ઉચાઈ મુજબનું યણતર કામ કરવાનું છે. તેનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. ઉપરોક્ત તમામ વિગતે આ કામ જરૂરી ક્યોરીંગ, સ્કેફોલ્ડીંગ રેકીંગ ઓફ જોઈન્ટસ સાથે કંપલીટ કામ કરી આપવાનું છે.

(15) પાર્ટીશન વોલ નું રેઈનફોર્સ ઈટ યણતર કામ ૧:૩ સી મો

આ કામમાં વાપરવાની તમામ ઈટો ચીમની ભઠ્ઠાની, બેસ્ટ મેન્યુફેક્ચરની મ્યુ. કોર્પો. તરફથી પાસ કરવામાં આવે તેવી ફર્ટ કવોલીટીની લાવવાની છે. તમામ ઈટો આખી, સારીપાકેલી, ફાટફુટ વગરની એક સરખી સાઈઝની કોલસી કે તેવો બીજો કોઈ પદાર્થ ચોટેલો ન હોય તેવી એક સરખી સ્ટાન્ડર્ડ સાઈઝની લાવવાની છે. સાઈટ ઉપર ઈટો લાવ્યા પછી પણ પાસ કરાવ્યા બાદ વાપરવા દેવામાં આવશે. તમામ ઈટો યણતર કામમાં વાપરતાં પુર્વે જરૂરી પૂરતાં પ્રમાણમાં પાણી વડે પલાળવાની છે. આર્ચ, કોનીસ્ટ, પીલર્સ, આર્કીટ્રેપ, પેરાપેટ વિગેરે કામનો સમાવેશ ઈટના યણતરમાં થાય છે. તેનો કોઈપણ ભાવ જુદો આપવામાં આવશે નહીં. ઈટનું યણતર કામ દર એક થરે દોરી બાંધીને લાઈન દોરીમાં, લેવલમાં ઓળંભે, સાડ, સફાઈદાર કરવાનું છે. યણતર કામમાં સાંધ (૧/૨" થી) ૧.૨૫ સે.મી. તમામ કામ કાળજીથી કરવાનું છે. મ્યુ. કોર્પો. પાસ કરે તેવી સારી જાતની ચોખ્ખી ચાળેલી રેતી (તળાજા, ઉમરાળા, ઘંધુકા પૈકીની) વાપરવાની છે. આઈ.એસ. ૫૩ ગ્રેડ ઓ.પી.સી. સીમેન્ટ વાપરવાની છે. ઈટનું યણતર ૧:૩ નાં પ્રમાણમાં સી.મો.થી કરવાનું છે. યણતર કામમાં દરેક બે લેયરમાં ૬ એમ.એમ. ડાયાના માઈલ્ડ સ્ટીલનાં બે નંગ આપવામાં આવે તે ડીઝાઈન મુજબ સુચવવામાં આવે તે તમામ ડીઝાઈન મુજબના હુકોવાળી લાવી આપી ગોઠવી (એમ્બેડ) કરવા સાથે તમામ યણતર કામને જરૂરી પૂરતા પ્રમાણમાં ક્યોરીંગ કરવાનું છે અને દસ દિવસ સુધી પાણીથી ભીનું રાખવાનું છે. આ કામના પ્લાન, એલીવેશન, તથા સેક્સન મુજબનું તથા ઉચાઈ મુજબનું યણતર કામ કરવાનું છે. તેનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. ઉપરોક્ત તમામ વિગતે આ કામ જરૂરી ક્યોરીંગ, સ્કેફોલ્ડીંગ રેકીંગ ઓફ જોઈન્ટસ સાથે કંપલીટ કામ કરી આપવાનું છે.

(16) પથ્થર યણતરકામ પાયા માટે સિમો ૧:૬

આ કામ માટે જોઈતા તમામ પથ્થર પાસ કરવામાં આવે તે પ્રમાણેની ખાણોના યોગ્ય માપ સાઈઝ તથા વજનના પાસ કરવામાં આવે તેવા લાવવાના છે. તમામ પથ્થર સારી, પાકા, ચાંભ વગરના લાવી વાપરવાના છે. યણતર કામમાં લાંબા પથ્થર પછાડ રાખીને દોઢવીને કામ કરવાનું છે. પાયાનો ભાગ જ્યાં જમીનની બહાર નિકળે ત્યાં દોરી બાંધી યોગ્ય જરૂરી માપમાં સરખું કામ કરવાનું છે. અને ખુણાઓ પથ્થરના ઘડાવીને અથવા ઈટના યણીને કરવાના છે. જમીનની અંદરનું યણતર કામ જરાપણ પોલાણ ન રહે તેમ સરખું કરવાનું છે. કોરા



Bhavnagar Municipal Corporation



પત્થર ગોઠવીને ૧:૬ નાં સી.મો. નો માલ પાથરવાની રીત ચાલવા દેવામાં આવશે નહીં. દરેક પત્થર સરખો ગોતીને હથોડાથી ઘડીને એકેક ગોઠવી ૧:૬ ના સી.મો માં ભર બેસાડીને ચણતર કામ કરવું પડશે. દરેક પાંચ ફુટ "હેદર" દરેક થરમાં વાપરવાનો છે. પત્થરને કડાઉ, મુકવા દેવામાં આવશે નહીં અને પોલાણ ન રહે તે માટે ખાસ જરૂર પુરતાં કપચા વાપરી ચારેય બાજુએ ૧:૬ નો સી.મો. નો માલ ઠાંસી દાબડી જેવું ભર કામ કરવાનું છે. પ્લીન્થનું ચણતર કામ દરેક પત્થર બરાબર માપનો ગોતીને હથોડાથી ઘડી ૧૮ એમ.એમ. થી મોટી સાંધ ન રહે તેમ ગોઠવીને, દોઢવીને કામ કરવાનું છે. તમામ પત્થર ૧:૬ ના સી.મો. ના માલ વડે ભર બેસાડીને દાબડી જેવું કરવાનું છે. જ્યાં બતાવવામાં આવે ત્યાં ૧-૨ નાં સીમો વડે સીમેન્ટ પોઈન્ટીંગ કરી આપવાનું છે. દરેક ચણતરનો થર ૦.૪૫ મીટરથી વધારે ઉંચો કરવા દેવામાં આવશે નહીં. તમામ કામ લાઈન દોરીએ, લેવલે તથા ઓળંભે કરવાનું છે. ૧:૬ ના સી.મો.માં છ ભાગ રેતી તથા એક ભાગ સીમેન્ટ વાપરવાની છે. આ કામ માટે પાસ કરવામાં આવે તેવી ચોખ્ખી ઘૂળ વગર ની (તળાજા, ઉમરાળા, ધંધૂકા) ની રેતી લાવી વાપરવાની છે. આ કામ માટે આઈ.એસ.ઓ.પી.સી. ૫૩ ગ્રેડ ની પાસ કરવામાં આવે તેવી સીમેન્ટ લાવી વાપરવાની છે. દસ દિવસ સુધી તમામ કામને સતત ભીનું રહે તે મુજબ ક્યોરીંગ કરવાનું છે આ કામનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે.

(17) પથ્થર ચણતરકામ પ્લીન્થ/સુપરસ્ટ્રક્ચર માટે સિમો ૧:૬

આ કામ માટે જોઈતા તમામ પત્થર પાસ કરવામાં આવે તે પ્રમાણેની ખાણોના યોગ્ય માપ સાઈઝ તથા વજનના પાસ કરવામાં આવે તેવા લાવવાના છે. તમામ પત્થર સારી, પાકા, ચાંભ વગરના લાવી વાપરવાના છે. ચણતર કામમાં લાંબા પત્થર પછાડ રાખીને દોઢવીને કામ કરવાનું છે. પાયાનો ભાગ જ્યાં જમીનની બહાર નિકળે ત્યાં દોરી બાંધી યોગ્ય જરૂરી માપમાં સરખું કામ કરવાનું છે. અને ખુણાઓ પત્થરના ઘડાવીને અથવા ઈટના ચણીને કરવાના છે. જમીનની અંદરનું ચણતર કામ જરાપણ પોલાણ ન રહે તેમ સરખું કરવાનું છે. કોરા પત્થર ગોઠવીને ૧:૬ નાં સી.મો. નો માલ પાથરવાની રીત ચાલવા દેવામાં આવશે નહીં. દરેક પત્થર સરખો ગોતીને હથોડાથી ઘડીને એકેક ગોઠવી ૧:૬ ના સી.મો માં ભર બેસાડીને ચણતર કામ કરવું પડશે. દરેક પાંચ ફુટ "હેદર" દરેક થરમાં વાપરવાનો છે. પત્થરને કડાઉ, મુકવા દેવામાં આવશે નહીં અને પોલાણ ન રહે તે માટે ખાસ જરૂર પુરતાં કપચા વાપરી ચારેય બાજુએ ૧:૬ નો સી.મો. નો માલ ઠાંસી દાબડી જેવું ભર કામ કરવાનું છે. પ્લીન્થનું ચણતર કામ દરેક પત્થર બરાબર માપનો ગોતીને હથોડાથી ઘડી ૧૮ એમ.એમ. થી મોટી સાંધ ન રહે તેમ ગોઠવીને, દોઢવીને કામ કરવાનું છે. તમામ પત્થર ૧:૬ ના સી.મો. ના માલ વડે ભર બેસાડીને દાબડી જેવું કરવાનું છે. જ્યાં બતાવવામાં આવે ત્યાં ૧-૨ નાં સીમો વડે સીમેન્ટ પોઈન્ટીંગ કરી આપવાનું છે. દરેક ચણતરનો થર ૦.૪૫ મીટરથી વધારે ઉંચો કરવા દેવામાં આવશે નહીં. તમામ કામ લાઈન દોરીએ, લેવલે તથા ઓળંભે કરવાનું છે. ૧:૬ ના સી.મો.માં છ ભાગ રેતી તથા એક ભાગ સીમેન્ટ વાપરવાની છે. આ કામ માટે પાસ કરવામાં આવે તેવી ચોખ્ખી ઘૂળ વગર ની (તળાજા, ઉમરાળા, ધંધૂકા) ની રેતી લાવી વાપરવાની છે. આ કામ માટે આઈ.એસ.ઓ.પી.સી. ૫૩ ગ્રેડ ની પાસ કરવામાં આવે તેવી સીમેન્ટ લાવી વાપરવાની છે. દસ દિવસ સુધી તમામ કામને સતત ભીનું રહે તે મુજબ ક્યોરીંગ કરવાનું છે આ કામનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે.

(18) બારી દરવાજા ના ઉપ મીમી જાડા સાગના શટર્સ

આ કામમાં વાપરવાનું તમામ લાકડું જે સાઈઝ તથા ડીઝાઈન બતાવવામાં આવે તે પ્રમાણેની પુરી સાઈઝનું લાવવાનું છે. પાસ કરવામાં આવે તેવું સાડુ, એકપણ ધાર પડાઉ ન હોય કે બરાબ ન હોય તેવું, સીધું, ગાંઠ કે વેઠા વગર ફાટફુટ વગરનું ચોખ્ખું, પાકું સાગનું લાકડું લાવવાનું છે. સદરહું લાકડું કામ ઉપર આવ્યા પછી ફાટે નહીં, ઓંતાય જાય નહીં તે માટે તથા તડકો કે વરસાદ ન લાગે તેવી રીતે છાપડું કરી તેમાં માલ રાખવાનો છે. શટર્સનું તમામ ફ્રેમ વર્ક તમામ વેણી, ધોકા, ઉપ એમ.એમ. જાડા સાગના લાકડાના કરવાના છે. તમામ



Bhavnagar Municipal Corporation



પેનલ્સ સાગના લાકડાના આપવામાં આવે તે ડીઝાઈન મુજબ લાકડું લાવી ૨૨ એમ.એમ. ની જાડાઈમાં તૈયાર કરીને ફીટ કરવાના છે. તમામ જરૂરી ફીટીંગ્સ ફીક્સીંગ્સ બે સ્ટોપર, આલ્ડ્રાફ, તાડી, પવન આંકડી, બે હેન્ડલ, સુચવવામાં આપવામાં આવે તે માપ સાઈઝ તથા ડીઝાઈન મુજબ એલ્યુમીનીયમના લાવી ફીટ કરવાના રહેશે. પાર્ટીલીગલેઝડ અથવા ફુલીગલેઝડ શટર્સમાં ૬ એમ.એમ. જાડો વાયરડ ફિગર્ડ બાજરી ગ્લાસ (કાચ) લાવી વાપરવાનો છે. તમામ કામને પાસ કરવામાં આવે તેવો ટ્યુઈનર (પ્રાયમર) લાવી એક હાથ તથા ઓઈલ પેઈન્ટ લાવી બે હાથ મારી આપવાના છે. તમામ ઉપરોક્ત કામ સારામાં સારા કારીગર વડે કારીગર લાવી તમામ કામ સાડું સફાઈદાર, કાટખૂણે અથવા આપવામાં આવે ડીઝાઈન મુજબ "વર્ક મેન-લાઈક" કરવાનું છે. રફ કે નબળું કામ ચાલશે નહીં.

(19) સાગના લાકડા થી ૧૦×૭ સે.મી. સેક્શન ની ફ્રેમ તથા ૩૫ એમ.એમ. જાડા શટર્સ

આ કામમાં વાપરવાનું તમામ લાકડું જે સાઈઝ તથા ડીઝાઈન બતાવવામાં આવે તે પ્રમાણેની પુરી સાઈઝનું લાવવાનું છે. પાસ કરવામાં આવે તેવું સાડું, એકપણ ધાર પડાઉ ન હોય કે ખરાબ ન હોય તેવું, સીધું, ગાંઠ કે વેઢા વગર ફાટફુટ વગરનું ચોખ્ખું, પાકું સાગનું લાકડું લાવવાનું છે. સદરહું લાકડું કામ ઉપર આવ્યા પછી ફાટે નહીં, ઓંતાય જાય નહીં તે માટે તથા તડકો કે વરસાદ ન લાગે તેવી રીતે છાપડું કરી તેમાં માલ રાખવાનો છે. આ કામમાં બારી, દરવાજા, કપબોર્ડ વગેરેની ૧૦ × ૭ સે.મી. સેક્શન મુજબ સાગનું લાકડું લાવી આપવામાં આવે તે ડીઝાઈન મુજબ ફ્રેમ બનાવવાની છે અને સુચવવામાં આવે તે મુજબ જરૂરી લોખંડના વેરાઓ સાથે ચણતર અથવા આર.સી.સી. કામમાં ફીટ કરવાની છે. શટર્સનું તમામ ફ્રેમ વર્ક તમામ વેણી, ધોકા, ૩૫ એમ.એમ. જાડા સાગના લાકડાના કરવાના છે. તમામ પેનલ્સ સાગના લાકડાના આપવામાં આવે તે ડીઝાઈન મુજબ લાકડું લાવી ૨૨ એમ.એમ. ની જાડાઈમાં તૈયાર કરીને ફીટ કરવાના છે. તમામ જરૂરી ફીટીંગ્સ ફીક્સીંગ્સ બે સ્ટોપર, આલ્ડ્રાફ, તાડી, પવન આંકડી, બે હેન્ડલ, સુચવવામાં આપવામાં આવે તે માપ સાઈઝ તથા ડીઝાઈન મુજબ એલ્યુમીનીયમના લાવી ફીટ કરવાના રહેશે. પાર્ટીલીગલેઝડ અથવા ફુલીગલેઝડ શટર્સમાં ૬ એમ.એમ. જાડો વાયરડ ફિગર્ડ બાજરી ગ્લાસ (કાચ) લાવી વાપરવાનો છે. તમામ કામને પાસ કરવામાં આવે તેવો ટ્યુઈનર (પ્રાયમર) લાવી એક હાથ તથા ઓઈલ પેઈન્ટ લાવી બે હાથ મારી આપવાના છે. તમામ ઉપરોક્ત કામ સારામાં સારા કારીગર વડે કારીગર લાવી તમામ કામ સાડું સફાઈદાર, કાટખૂણે અથવા આપવામાં આવે ડીઝાઈન મુજબ "વર્ક મેન-લાઈક" કરવાનું છે. રફ કે નબળું કામ ચાલશે નહીં. ઉપરોક્ત તમામ વિગતે આ કામનો ભાવ દર એક ચો.મી. પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે.

(20) સાગના લાકડા થી ૧૨×૭ સે.મી. સેક્શન ની ફ્રેમ તથા ૩૫ એમ.એમ. જાડા શટર્સ

આ કામમાં વાપરવાનું તમામ લાકડું જે સાઈઝ તથા ડીઝાઈન બતાવવામાં આવે તે પ્રમાણેની પુરી સાઈઝનું લાવવાનું છે. પાસ કરવામાં આવે તેવું સાડું, એકપણ ધાર પડાઉ ન હોય કે ખરાબ ન હોય તેવું, સીધું, ગાંઠ કે વેઢા વગર ફાટફુટ વગરનું ચોખ્ખું, પાકું સાગનું લાકડું લાવવાનું છે. સદરહું લાકડું કામ ઉપર આવ્યા પછી ફાટે નહીં, ઓંતાય જાય નહીં તે માટે તથા તડકો કે વરસાદ ન લાગે તેવી રીતે છાપડું કરી તેમાં માલ રાખવાનો છે. આ કામમાં બારી, દરવાજા, કપબોર્ડ વગેરેની ૧૨ × ૭ સે.મી. સેક્શન મુજબ સાગનું લાકડું લાવી આપવામાં આવે તે ડીઝાઈન મુજબ ફ્રેમ બનાવવાની છે અને સુચવવામાં આવે તે મુજબ જરૂરી લોખંડના વેરાઓ સાથે ચણતર અથવા આર.સી.સી. કામમાં ફીટ કરવાની છે. શટર્સનું તમામ ફ્રેમ વર્ક તમામ વેણી, ધોકા, ૩૫ એમ.એમ. જાડા સાગના લાકડાના કરવાના છે. તમામ પેનલ્સ સાગના લાકડાના આપવામાં આવે તે ડીઝાઈન મુજબ લાકડું લાવી ૨૨ એમ.એમ. ની જાડાઈમાં તૈયાર કરીને ફીટ કરવાના છે. તમામ જરૂરી ફીટીંગ્સ ફીક્સીંગ્સ બે સ્ટોપર, આલ્ડ્રાફ, તાડી, પવન આંકડી, બે હેન્ડલ, સુચવવામાં આપવામાં આવે તે માપ સાઈઝ તથા ડીઝાઈન મુજબ એલ્યુમીનીયમના લાવી ફીટ કરવાના રહેશે. પાર્ટીલીગલેઝડ અથવા ફુલીગલેઝડ શટર્સમાં ૬ એમ.એમ. જાડો વાયરડ ફિગર્ડ બાજરી ગ્લાસ (કાચ) લાવી વાપરવાનો છે. તમામ કામને પાસ કરવામાં આવે તેવો ટ્યુઈનર (પ્રાયમર) લાવી એક હાથ તથા



Bhavnagar Municipal Corporation



ઓઈલ પેઈન્ટ લાવી બે હાથ મારી આપવાના છે. તમામ ઉપરોક્ત કામ સારામાં સારા કારીગર વડે કારીગર લાવી તમામ કામ સારું સફાઈદાર, કાટબૂણે અથવા આપવામાં આવે ડીઝાઈન મુજબ "વર્ક મેન-લાઈક" કરવાનું છે. રફ કે નબળું કામ ચાલશે નહીં. ઉપરોક્ત તમામ વિગતે આ કામનો ભાવ દર એક ચો.મી. પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે.

(21) કોલેપ્સીકલ ગ્રીલ ગેઈટ

લોખંડના ઘડીવાળા દરવાજા માટે વાપરવાનું તમામ લોખંડ માઈલ્ડ સ્ટીલ, સારૂ કાટ વગરનું લાવવાનું છે. આ કામ માટે તમામ ૨૦ એમ.એમ. ની ચેનલ વાપરી નમુના તથા ડીઝાઈન મુજબ કરી આપવાનું છે. દરવાજો બંધ થાય ત્યારે બે ચેનલ વચ્ચેનું અંતર ૭૫ એમ.એમ.થી વધારે ન રહે તે પ્રમાણે ચેનલ વાપરવાની છે. ચેનલનાં અંદરના ભાગે વાપરવાની પટ્ટીઓની ડબલ ચોકડી પર તે રીતે બનાવવાની છે. ૪૦×૪૦×૬ એમ.એમ. ની ટોપ રેઈન તથા બોટમ રેઈલ બનાવવામાં આવે તે પ્રમાણે નાખી આપવાનું છે. તમામ દરવાજા બહાર - અંદર પીતળનો હેન્ડલ તાળુ મારી શકાય તેવી સગવડતા સાથે લગાડવાનો છે. તમામ કામને પ્રથમ સિંદુર તથા વાર્નિશનો એક હાથ લગાડી તેના પર કહેવામાં આવે તેવા પાકા ઓઈલ કલરનાં બે હાથ લગાવી આપવાનાં છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(22) રોલ્લીંગ શટરનું કામ.

આ કામ માટે મ્યુ. કોર્પો. ની સુચના મુજબનાં સારા મેન્યુફેક્ચરનાં રોલ્લીંગ શટર્સ લાવવાનાં છે. તમામ શટર્સ માટે સુચવ્યા મુજબ (૧૬ થી ૧૮ ગેજ) ની જાડાઈનાં માઈલ્ડ સ્ટીલનાં પતરાના લાવવાનાં છે. તમામ શટર્સની બંને સાઈડની ગાઈડો, બ્રેકેટ્સ તથા સારી કવોલીટીની મજબૂત ગોળ અથવા ફ્લેટ સ્પ્રીંગ ઈંગ્લીશ બનાવટની વાપરી લગાડવાની છે. તમામ શટર્સના સરપેન્શન શાફ્ટ, લોડીંગ એરેન્જમેન્ટ, પુલીંગ હુડ, હેન્ડલ્સ તથા ટોપ કવર વિ. વાપરીને દરવાજાઓ ફીટ કરવાનાં છે. તમામ શટર્સ દિવાલમાં લાકડાની ડટ્ટીઓ સિમેન્ટ રેતીથી છાંદી તેમાં સ્ક્રૂ બોલ્ટી લગાડી ફીટ કરવાના છે. આર.સી.સી. કામ ઉપર શટર્સ તમામ રીતે મજબૂતીથી ફીટ થાય તે પ્રમાણે કરવાનું છે. તમામ શટર્સ સહેલાઈથી ખોલી બંધ કરી શકાય તે માટે એક દરવાજામાં એક નંગ બોલ બેરીંગની જોડી વાપરી આપવાનું કામ કરવાનું છે. તમામ શટર્સને કહેવામાં આવે તેવી સારી કંપનીના ઓઈલ પેઈન્ટનાં બે હાથ પ્રાઈમરનો એક હાથ પછી લગાડી આપવાના છે. શટર્સ ફીટ કરવા માટેનાં તમામ સાધનો વિ. કોન્ટ્રાક્ટરે લાવવાનાં રહેશે તેમજ લાકડાની ડટ્ટી-ડટ્ટીઓ વિ. જે કાંઈ દિવાલોમાં નાખવામાં આવે તેનો કોઈપણ ભાવ અલગ આપવામાં આવશે નહિં. શટર્સની તમામ રીબ સુચના મુજબનાં એક સરખી જાડાઈનાં પતરાની બનેલી હોવી જોઈએ. તૈયાર શટર્સની ઉચાઈ ટોપ કવરની પાછળથી તે લાદીનાં ટોપ સુધી માપ લેવામાં આવશે. ટોપ કવર પર ગોળાઈમાં મેઝરટેપ ફેરવીને માપ લેવામાં આવશે નહિં. પહોળાઈનું માપ સાઈડની બંને સાઈડ સાથે લેવામાં આવશે. તૈયાર કામનું માપ લેવામાં આવશે તથા ભાવ દરેક એક ચો.મી. પર સમજવાનો છે.

(23) રોલ્લીંગ શટર ની સ્ટાન્ડર્ડ સ્પ્રીંગ સપલાય, ફીટીંગ કામ.

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તેવી રોલ્લીંગ શટર્સની ૨૭.૫ સે.મી. લાંબી સ્ટાન્ડર્ડ સ્પ્રીંગ ગ્રેડ-૨ લાવી જરૂરી તમામ પ્રકારના ફીટીંગ ફીક્સીંગ સાથે જરૂરી ઓઈલીંગ, ગ્રીસીંગ કરી શટર ખોલી ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. આ કામ માટે એક નંગ પર ભાવ સમજવાનો છે.

(24) રોલ્લીંગ શટર નું હુડ કવર સપલાય, ફીટીંગ કામ.

મ્યુ. કોર્પો. પાસ કરે તેવું રોલ્લીંગ શટર્સ માટેનું હુડ કવર લાવી જરૂરી કેપ સાથે તેમજ જરૂરી તમામ પ્રકારનાં ફીટીંગ-ફીક્સીંગ સાથે ફીટ કરી રેડોક્સાઈડનો એક હાથ અને તેના પર સારી કંપનીના ઓઈલ પેઈન્ટનાં બે હાથ લગાવી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે તથા આ કામ માટે એક રનીંગ મીટર પર ભાવ સમજવાનો છે.



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(25) ગ્લાસ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી જાડાઈનાં સાદા ટાઈપ-સી કલાસ લાવી સુચવ્યા મુજબનાં માપ સાઈઝમાં ફીટ કરી જરૂરી લાપીથી ફીટ કરી ફીનીશીંગ તથા જરૂરી ફીટીંગ્સ-ફીક્સીંગ કરી આપવાનું કામ કમ્પલીટ કામ તૈયાર કામનું માપ લેવાશે તથા ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(26) ગ્રાઉન્ડ / ફોસ્ટ્રેડ / ઓબસ્ટર્ડ ગ્લાસ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી જાડાઈનાં ફોસ્ટ્રેટ અથવા ઓબસ્ટર્ડ કાચ લાવી સુચવ્યા મુજબનાં માપ સાઈઝમાં ફીટ કરી જરૂરી લાપીથી ફીટ કરી ફીનીશીંગ તથા જરૂરી ફીટીંગ્સ-ફીક્સીંગ કરી આપવાનું કામ કમ્પલીટ કામ તૈયાર કામનું માપ લેવામાં આવશે તથા ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(27) વાયર રીન્ફોર્સ્ડ ગ્લાસ ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી જાડાઈનાં ટાઈપ-સી કલાસ ના ૬ મીમી જાડાઈ ના વાયર રીન્ફોર્સ્ડ ગ્લાસ લાવી સુચવ્યા મુજબ નાં માપ સાઈઝમાં ફીટ કરી જરૂરી લાપીથી ફીટ કરી ફીનીશીંગ તથા જરૂરી ફીટીંગ્સ-ફીક્સીંગ કરી આપવાનું કામ કમ્પલીટ કામ તૈયાર કામનું માપ લેવામાં આવશે તથા ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(28) માર્બલ સ્ટોન ફ્લોરીંગ

આ કામમાં વાપરવાનો થતો માર્બલ સ્ટોન ૨૦ એમ.એમ. જાડો મ્યુ. કોર્પો. પાસ કરે તે કલર તથા માપ સાઈઝમાં લાવી ૧:૬ ના સી.મો. ના પ્રમાણમાં ૨૦ એમ.એમ. જાડો થર પાથરીને તેના પર વ્હાઈટ સિમેન્ટ સ્લરી નાખી લાઈન લેવલમાં સફાઈદાર જરૂર જણાયે તેમજ સુચના અપાય તેવી રીતે ફીગર મેળવીને મારબલ સ્ટોન ફીટ કરી આપી સ્ટોન વચ્ચેનાં સાંધાઓ જે તે કલર વાપરી વ્હાઈટ સિમેન્ટમાં ભેળવી પુરી આપવાનાં રહેશે. તથા દસ દિવસ સુધી તમામ કામને પાણી છાંટવાનું છે. બાદમાં સુચવ્યા મુજબ પોલીશીંગ તથા વેકસીંગ કરી આપવાનું કમ્પલીટ કામ છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર ચો.મી. પર સમજવાનો છે. આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસીટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિં.

(29) કોટા સ્ટોન ફ્લોરીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી ૦.૬૦ મી. × ૦.૪૫ મી. તથા ૦.૪૫ મી. × ૦.૪૫ મીટરની માપ સાઈઝ અને સુચવવામાં આવે તે જાડાઈનો પોલીશ્ડ એક રંગનો કોટા સ્ટોન લાવી ૧:૮ ના સિમેન્ટ રેતીના પ્રમાણમાં ૪૦ થી ૫૦ એમ.એમ. જાડો થર પાથરી તેનાં પર સિમેન્ટ સ્લરી નાખી લાઈન, લેવલ, સફાઈદાર, દોરીમાં પોલીશ્ડ કોટા સ્ટોન ફીટ કરી વચ્ચેનાં સાંધાઓ ગ્રે સિમેન્ટમાં ભરી દસ દિવસ સુધી ક્યોરીંગ કરી આપી સુચવ્યા મુજબ પોલીશીંગ તથા વેકસીંગ કરી આપવાનું કામ છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર એક ચો.મી. પર સમજવાનો છે. આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસીટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિં.



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(30) રાઈઝર/ટ્રેડ/સ્કર્ટીંગ/સીલ/પાર્ટીશન/શેલ્ફ માટે પોલીશ કોટા સ્ટોન સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે માપ સાઈઝ અને સુચવવામાં આવે તે જાડાઈનો પોલીશ એક રંગનો કોટા સ્ટોન લાવી ૧:૩ નાં પ્રમાણમાં સિ.મો. થી ૧૨ થી ૧૫ એમ.એમ. નું બેડીંગ પ્લાસ્ટર કરી સિમેન્ટ પેસ્ટ વડે લાઈન, લેવલ, સફાઈદાર, દોરીમાં પોલીશ કોટા સ્ટોન ફીટ કરી વચ્ચેનાં સાંધાઓ ગ્રે સિમેન્ટમાં ભરી દસ દિવસ સુધી ક્યોરીંગ કરી આપી સુચવ્યા મુજબ પોલીશીંગ તથા વેકસીંગ કરી આપવાનું કામ છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર એક ચો.મી. પર સમજવાનો છે. કોટા સ્ટોન ની ધાર પોલિશીંગ અલગ થી ગણવામાં આવશે. આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસિટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિ

(31) ગ્લેઝ ટાઈલ ફીટીંગ ૧:૩ પ્લાસ્ટર સાથે

મ્યુ. કોર્પો. પાસ કરે તેવા રંગ અને સાઈઝની સારી કંપનીની સારી ક્વોલિટીની ગ્લેઝ ટાઈલ્સ લાવી ૧:૩ સી.મો. પ્રમાણમાં સપાટી પર ઠઈયે,ઓળંભે, દોરીએ, પ્લાસ્ટર કરી ગ્લેઝ ટાઈલ્સને સિમેન્ટ પેસ્ટમાં સફાઈદાર, દોરીમાં, લેવલમાં, સુચવ્યા મુજબની ડીઝાઈન માં ચોટક કરી આપવાનું તથા ગ્લેઝ ટાઈલ્સનાં કલર મુજબનો કલર લાવી વ્હાઈટ સિમેન્ટ લાવી તેમાં ભેળવી સાંધાઓ ભરી આપવાનું કમ્પલીટ કામ છે. આ કામને દસ દિવસ સુધી પાણીથી ભીનું રાખી ક્યોરીંગ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર ચો.મી. પર સમજવાનો છે.

(32) આઈ. પી. એસ.

મ્યુ. કોર્પો. પાસ કરે તેવી સારી જાતની મશીન ક્રસ ૧૦ થી ૧૫ એમ. એમ. જાડાઈની પાકી કપચી લાવી વાપરી ૧:૨:૪ નાં પ્રમાણમાં સુચના અપાય તે જાડાઈ અને ઢાળમાં લાઈન લેવલ દોરીમાં કોર્કરીટ કામ કરીને કોન્સોલીડેશન સાથે તેનાં પર જરૂર જણાય તો ૧:૪ નાં સિમેન્ટ મોર્ટારનો ૫ એમ.એમ. જાડાઈનો થર પાથરી તરત તેના પર સુચવ્યા મુજબ સિમેન્ટ સ્લરી અથવા સિમેન્ટ પેસ્ટ પાથરી સપાટી ફીનીશ કરી સુચના મુજબ દોરીઓ છાપી ફરીથી સપાટી સ્મુથ કરી દસ દિવસ ક્યોરીંગ વિ. સહીતનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(33) સીરામીક ટાઈલ્સ ફ્લોરીંગ નું કામ.

પાસ કરવામાં આવે તે કંપની અને શેડની એ-ગ્રેડ સીરામીક ટાઈલ્સ લાવી, ૧:૪ ના પ્રમાણમાં સિમેન્ટ રેતીનું મિશ્રણ કરી ૨૦ મી.મી. જાડાઈના બેડીંગ પર લાઈન લેવલ ઓળંભે ચોંટાડવાની રહેશે. સાંધાઓ લાદી કલરની સિમેન્ટથી પુરવાના રહેશે. દસ દિવસ સુધી ક્યોરીંગ કરવાનું રહેશે. માપ તૈયાર કામના ચોરસ મીટર ગણવાના રહેશે.

(34) વિટ્રીફાઈડ ટાઈલ્સ ફ્લોરીંગ નું કામ.

પાસ કરવામાં આવે તે કંપની અને શેડની એ-ગ્રેડ વિટ્રીફાઈડ ટાઈલ્સ લાવી, ૧:૮ ના પ્રમાણમાં સિમેન્ટ રેતીનું મિશ્રણ કરી ૪૦ થી ૫૦ મી.મી. જાડાઈના બેડીંગ પર લાઈન લેવલ ઓળંભે ચોંટાડવાની રહેશે. સાંધાઓ લાદી કલરની સિમેન્ટથી પુરવાના રહેશે. દસ દિવસ સુધી ક્યોરીંગ કરવાનું રહેશે. માપ તૈયાર કામના ચોરસ મીટર ગણવાના રહેશે.

(35) બ્રીક બેટ ફ્લોરીંગ

પાસ કરવામાં આવે તે સુચવ્યા મુજબ ની સાઈઝ નાં ઈટનાં કટકા ઓ કરી ૧:૬ સિમેન્ટ રેતી પ્રમાણમાં તથા અત્રેથી સુચવવામાં આવે તે કંપનીનું વોટર પ્રુફીંગ લાવી જરૂરીયાત મુજબનું મિશ્રણ કરી ૮૦ મી.મી.થી ૧૦૦ મી.મી.જાડાઈના બેડીંગ કરી આપી દસ દિવસ સુધી ક્યોરીંગ કરી આપવા સાથેનું કમ્પલીટ કામ કરી આપવાનું રહેશે. આ તૈયાર કામનું માપ લેવાશે ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(36) ચીની ગ્લેઝીંગ ફ્લોરીંગ

પાસ કરવામાં આવે તે સુચવ્યા મુજબ ની સાઈઝ નાં ગ્લેઝ ટાઈલ્સ નાં કટકા ઓ કરી ૧:૬ સિમેન્ટ રેતીનાં પ્રમાણમાં મિશ્રણ કરી ૩૦ મી.મી.થી ૪૦ મી.મી. જાડાઈના બેડીંગ પર લાઈન લેવલ દોરીમાં ચોટક કરી આપી સાંધાઓ વ્હાઈટ સિમેન્ટથી પુરી દસ દિવસ સુધી ક્યોરીંગ કરી એસીડ થી સાફ કરવા સાથેનું કમ્પલીટ કામ. તૈયાર કામનું માપ લેવાશે ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(37) ઈન્ટરલોકીંગ સાદા બ્લોકનું કામ.

સુચવ્યા મુજબ કહેવામાં આવે તે જાડાઈના, કહેવામાં આવે તેવી પેટર્ન અને ગુણવત્તાના ઈન્ટર લોકીંગ બ્લોક લાવવાના છે. ૧૫ થી ૨૦ સે.મી. ખોદાણ કરી તેમાં ૮ થી ૧૦ સે.મી. નું રેતી તથા કપચી પાવડરનું બેડીંગ બનાવી લાઈન, લેવલમાં બ્લોક ફીટ કરવાના રહેશે. માપ તૈયાર કામના ચોરસ મીટર લેવામાં આવશે.

(38) કોરુગેટેડ જી.આઈ. શીટ રૂફિંગ

મ્યુ. કોર્પો. પાસ કરે તેવી લંબાઈ તથા પહોળાઈનાં સારી કંપનીનાં ૦.૮૦ એમ.એમ. જાડાઈનાં જી. આઈ. કોરુગેટેડ શીટ કાટ વગરનાં સીધા લાવી ૮ એમ.એમ. નાં જી.આઈ. આયર્ન, જે બોલ્ટ, એલ બોલ્ટ, તથા ગેલ્વે. અને બીટુમીનન વોશર વાપરી આડા ૧૦ સે.મી. ઓવર લીપીંગ રહે તે રીતે ગોઠવી તથા ઉભા ઓવર લેપ ૧૫ સે.મી. રહે તે રીતે ફીટ કરવા તથા જરૂરી ફીક્સીંગ લાવી ફીટ કરવા સાથેનું કમ્પલીટ કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. ઉપર સમજવાનો છે. (ફિબ્રીકેશન કામ અલગ ગણવાનું છે.)

(39) જી.આઈ.શીટ હીપ્સ રીજીસ સપલાય, ફીટીંગ

જી. આઈ. કોરુગેટેડ શીટ માટે જરૂરી રીજ કે હોપ લાવી સ્ટાન્ડર્ડ જે બોલ્ટ, એલ બોલ્ટ વિ. થી ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ૨.મી. પર સમજવાનો છે.

(40) સીંગલ કોટ પ્લાસ્ટર ૧૦ થી ૧૨ મી.મી. જાડાઈ

મ્યુ. કોર્પો. પાસ કરે તેવી સારી ચાળેલી રેતી લાવી સુચના આપવામાં આવે તેવા સિમેન્ટ રેતીનાં પ્રમાણમાં મીક્સ કરી પ્લાસ્ટર શરૂ કરતાં પુર્વે જે તે સપાટી પાણીથી તરે કર્યા બાદ તથા સુચના આપવામાં આવે મુજબ ની જાડાઈનું પ્લાસ્ટર કરવા માટે જરૂરી ઠયાઓ કરી એક સરખું દોરીમાં, ઓળંભે લાઈન લેવલે ખાડા ખડીયા વગરનું પડ સારૂ સફાઈદાર પ્લાસ્ટર કરવાનું છે. પ્લાસ્ટર કામમાં જ્યાં જ્યાં પટ્ટા પટ્ટી, ઘીસી, મોલ્ડીંગ વિ. જે કહેવામાં આવે તે ફીનીશીંગ કરી આપવાનું દસ દિવસ ક્યોરીંગ સાથેનું કમ્પલીટ કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે. પ્લાસ્ટરમાં પટ્ટા-પટ્ટી, ઘીસી-આર્કીટેક, પાણી પટ્ટી વગેરેનો ભાવ અલગ આપવામાં આવશે નહિ. જરૂરી તમામ સ્કેફોલ્ડીંગની વ્યવસ્થા કોન્ટ્રાક્ટરે કરવાની છે.

(41) સીંગલ કોટ પ્લાસ્ટર ૧૫ મી.મી. જાડાઈ

(આ. નં. ૪૦ મુજબ)

(42) સીંગલ કોટ પ્લાસ્ટર ૨૦ મી.મી. જાડાઈ

(આ. નં. ૪૦ મુજબ)



(43) નીરૂ / સિમેન્ટ ફીનીશ પ્લાસ્ટર ૧૦ થી ૧૨ મી.મી. જાડાઈ

મ્યુ. કોર્પો. પાસ કરે તેવી સારી ચાળેલી રેતી લાવી સુચના આપવામાં આવે તેવા સિમેન્ટ રેતીનાં પ્રમાણમાં મીક્સ કરી પ્લાસ્ટર શરૂ કરતાં પુર્વે જે તે સપાટી પાણીથી તરે કર્યા બાદ તથા સુચના આપવામાં આવે મુજબ ની જાડાઈનું પ્લાસ્ટર કરવા માટે જરૂરી ઠયાઓ કરી એક સરખું દોરીમાં, ઓળંબે લાઈન લેવલે ખાડા ખડીયા વગરનું પડ સાડુ સફાઈદાર પ્લાસ્ટર કરવાનું છે. પ્લાસ્ટર કામમાં જ્યાં જ્યાં પટ્ટા પટ્ટી, ઘીસી, મોલ્ડીંગ વિ. જે કહેવામાં આવે તે સાથે તેમજ તેના પર ચુના સિમેન્ટનું યોગ્ય પ્રમાણમાં મીક્સીંગ કરી પેસ્ટ લગાવી આપી નીફ ફીનીશીંગ કરી આપવાનું દસ દિવસ ક્યોરીંગ સાથે કમ્પલીટ કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે. પ્લાસ્ટરમાં પટ્ટા-પટ્ટી, ઘીસી-આર્કીટેક, પાણી પટ્ટી વગેરેનો ભાવ અલગ આપવામાં આવશે નહિં. જરૂરી તમામ સ્કેફોલ્ડીંગની વ્યવસ્થા કોન્ટ્રાક્ટરે કરવાની છે.

(44) નીરૂ / સિમેન્ટ ફીનીશ પ્લાસ્ટર ૧૫ મી.મી. જાડાઈ

(આ. નં. ૪૩ મુજબ)

(45) નીરૂ / સિમેન્ટ ફીનીશ પ્લાસ્ટર ૨૦ મી.મી. જાડાઈ

(આ. નં. ૪૩ મુજબ)

(46) એક્સ્ટ્રા ફોર હાઈ ફ્લોર બે માળ કરતા વધારાના ફ્લોર માટે વધારાના માળ દીઠ વધારો

(અ) સીંગલ કોટ પ્લાસ્ટર :-

આઈટમ નં. ૪૦,૪૨ મુજબ જે લાગુ પડતું હોય તે કામગીરી એક્સ્ટ્રા હાઈટ ફ્લોર બે માળ કરતાં વધારેની હાઈટ માટે જે-તે કામગીરીના ભાવમાં વધારો આપવામાં આવશે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(બી) સીંગલ કોટ વ્હાઈટ નીરૂ / સિમેન્ટ ફીનીશ પ્લાસ્ટર :-

આઈટમ નં. ૪૩,૪૪,૪૫ મુજબ જે લાગુ પડતું હોય તે કામગીરી એક્સ્ટ્રા હાઈટ ફ્લોર બે માળ કરતાં વધારેની હાઈટ માટે જે-તે કામગીરીના ભાવમાં વધારો આપવામાં આવશે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(47) ડબલ કોટ સેન્ડ ફેસ પ્લાસ્ટર (૧૦ મીટર અને ૧૦ મીટર થી ૨૦ મીટર ઉચાઈ લેવલ સુધી)

મ્યુ. કોર્પો. પાસ કરે તેવી સારી ચાળેલી રેતી લાવી સુચવ્યા મુજબની ઉચાઈ હાઈટ લેવલ સુધીની જે તે સપાટી પાણીથી તરે કર્યા બાદ જરૂરી ઠયાઓ કરી એક સરખું દોરીએ, ઓળંબે લાઈન લેવલે ખાડા ખડીયા વગર ૧:૩ સિ.મો. નાં પ્રમાણમાં ૧૨ એમ.એમ. જાડો પ્રથમ કોટ નું પ્લાસ્ટર કરવાનું છે. ત્યારબાદ બીજા દિવસે આ પ્રથમ કોટ પર મ્યુ. કોર્પો. પાસ કરે તેવો સુરેન્દ્રનગરનો પણો લાવી આપી ૧:૨ નાં પ્રમાણમાં ૮ એમ.એમ. જાડો બીજો કોટ નું પ્લાસ્ટર કરવાનું છે. આ બીજા હાથ પર "રબર સ્પોન્જસ" વડે ડબલ કોટ એન્ડ ફેઈસ પ્લાસ્ટર કરી આપવાનું છે. તૈયાર કામ પર દસ દિવસ સુધી પાણી છાંટી ક્યોરીંગ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. મુજબ સમજવાનો છે.



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(48) ઈટ ચણતર વાટા કામ ૧:૩ સી.મો.

મ્યુ. કોર્પો. સુચના આપે તેવી પધ્ધતિ અનુસાર ૧:૩ સિ.મો. માં હયાત ઈટ ચણતર કામ ને જરૂરી સ્કેફોલ્ડીંગ સાથે ૧૨ થી ૧૫ એમ.એમ. નો સાંધા ખોતરી પાણીથી સારી રીતે તરે કર્યા બાદ વાટાઓ ભરી દસ દિવસ ક્યોરીંગ કરવા સહિતનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(49) ઈટ ચણતર વાટા કામ ૧:૪ સી.મો.

મ્યુ. કોર્પો. સુચના આપે તેવી પધ્ધતિ અનુસાર ૧:૪ સિ.મો. માં હયાત ઈટ ચણતર કામ ને જરૂરી સ્કેફોલ્ડીંગ સાથે ૧૨ થી ૧૫ એમ.એમ. નો સાંધા ખોતરી પાણીથી સારી રીતે તરે કર્યા બાદ વાટાઓ ભરી દસ દિવસ ક્યોરીંગ કરવા સહિતનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(50) પથ્થર ચણતર વાટા કામ ૧:૩ સી.મો.

મ્યુ. કોર્પો. સુચના આપે તેવી પધ્ધતિ અનુસાર ૧:૩ સિ.મો. માં હયાત પથ્થર ચણતર કામ ને જરૂરી સ્કેફોલ્ડીંગ સાથે ૧૨ થી ૧૫ એમ.એમ. નો સાંધા ખોતરી પાણીથી સારી રીતે તરે કર્યા બાદ વાટાઓ ભરી દસ દિવસ ક્યોરીંગ કરવા સહિતનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(51) ત્રિકોણીયો લોઢીયો વાટો ૧:૧ સી.મો., ૧૦ × ૧૦ સે.મી. સાઈઝ

મ્યુ. કોર્પો. સુચના આપે તે રીતે ૧:૧ સિમેન્ટ મોર્ટારમાં ૧૦×૧૦ સે.મી. સાઈઝનો લોઢીયો વાટો કરી તેના પર તુર્તજ નીટ સિમેન્ટ નીરૂ ચડાવી આપી ફીનીશીંગ કરી આપવાનું દસ દિવસ ક્યોરીંગ સહિતનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(52) વ્હાઈટ વોશ / કલર વોશ

આ કામમાં વાપરવાનો થતો કળી ચુનો, મ્યુ. કોર્પો. પાસ કરે તે કંપનીનો લાવી, ફોડી ગાળી, તેમાં સુચના અપાય તે મુજબ ફેવીકોલ / એડહેઝીવ અને કલરની પેસ્ટ ઉમેરીને તમામ દિવાલને ઘસી સાફ કરી જરૂર જણાય ત્યાં પ્લાસ્ટર ઓફ પેરિસ લાવી લગાવી ઘસીને કલર વોશના ત્રણ હાથ ત્રણ અલગ અલગ દિવસે લગાવી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(53) વ્હાઈટ વોશ / કલર વોશ સીંગલ કોટ

આ કામમાં વાપરવાનો થતો કળી ચુનો, મ્યુ. કોર્પો. પાસ કરે તે કંપનીનો લાવી, ફોડી ગાળી, તેમાં સુચના અપાય તે મુજબ ફેવીકોલ / એડહેઝીવ અને કલરની પેસ્ટ ઉમેરીને તમામ દિવાલને ઘસી સાફ કરી જરૂર જણાય ત્યાં પ્લાસ્ટર ઓફ પેરિસ લાવી લગાવી ઘસીને કલર વોશના ફક્ત એક કોટ લગાવી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(54) આઈટમ વોશ / કલર વોશ એડીશનલ કોટ

આઈટમ નં. ૫૨ મુજબના કામમાં એડીશનલ કોટ જરૂરી સુચના મુજબ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. ૫૨ સમજવાનો છે.

(55) ઓઈલ બાઉન્ડ ડીસ્ટેમ્પર પેઈન્ટીંગ

સદરહું કામમાં વાપરવાનો ડીસ્ટેમ્પર કલર મ્યુ. સીટી એન્જી. શ્રી તરફથી ફરમાવવામાં આવે તે બેસ્ટ મેન્યુફેક્ચરનો લાવી લગાડી આપવાનો છે. ડીસ્ટેમ્પર કલર લગાડતા પહેલા તમામ દિવાલને પ્રથમ કળી ચુનાની તરી મારી સુકાયા બાદ કાચ પાએલા કાગળથી ઘસી તેના પર ડીસ્ટેમ્પર કલર લગાડી આપવાનો છે. તમામ કલર કામ સાડૂ સફાઈદાર થવું જોઈએ. કલર કામમાં બ્રશના લીટા કે સળ ન દેખાય તે રીતે કામ કરવાનું છે. તમામ કલરના કુલ ત્રણ હાથ લગાડી આપવાના છે. ડીસ્ટેમ્પર કલરના કામમાં પટ્ટા ૩૦૩ વિ. જે કંઈ આવે તે બરાબર દોરીમાં લાઈનમાં સરખા કાપ કામ કાળજીથી કરી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. ૫૨ સમજવાનો છે.

(56) એડીશનલ કોટ ઓઈલ બાઉન્ડ ડીસ્ટેમ્પર

આઈટમ નં. ૫૬ મુજબના કામમાં એડીશનલ કોટ જરૂરી સુચના મુજબ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. ૫૨ સમજવાનો છે.

(57) કોન્ક્રીટ તોડ કામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે ચુના કોન્ક્રીટ અથવા આર.સી.સી. કામ વાળું બાંધકામ અથવા બાંધકામનાં કોઈ ભાગ નું તોડકામ અન્ય બાંધકામ કે હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તે રીતે જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ક્રીટરનાં શીરે રહેશે. આર.સી.સી. કે લોખંડ કામ તોડવાનું થાય ત્યારે સુચના અપાય તેવું લોખંડ અલગ તારવી આપવાનું છે. તથા મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ઘ.મી. ૫૨ સમજવાનો છે.

(58) ઈટ/પત્થરનું ચણતર તોડ કામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા બાંધકામનું પત્થર/ઈટનું ચણતર કામ અથવા તે બાંધકામનાં કોઈ ભાગ નું તોડકામ અન્ય બાંધકામ કે હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તે રીતે જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ક્રીટરનાં શીરે રહેશે. ઉપયોગી મટીરીયલ મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ઘ.મી. ૫૨ સમજવાનો છે.



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(59) લાદી ફલોરીંગ તોડ કામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા બાંધકામનું કોઈપણ પ્રકારનાં ફલોરીંગ કામ નું તોડકામ અન્ય બાંધકામ કે હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તે રીતે જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. ઉપયોગી મટીરીયલ મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(60) શીટ રૂફીંગ ખોલવું / તોડવું

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા બાંધકામ નું એ.સી. શીટ/જી.આઈ. શીટ હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તેમ જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી એ.સી. શીટ/જી.આઈ. શીટ તુટે નહિ તેમ ખોલી, નીચે ઉતારી વેલી, ગટર, રીજ, વગેરે સહીસલામત ઉતારી, તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. ઉપયોગી મટીરીયલ મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(61) બાર્બડ વાયર ફેન્સીંગ રીમુવલ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે બાર્બડ વાયર ફેન્સીંગ રીમુવ કરવા તોડફોડ નો માલ-સામાન, માણસો વગેરે લાવી બાર્બડ વાયર ફેન્સીંગનાં ખુટા અને ફેન્સીંગ ખોલી છુટી પાડી ફેન્સીંગ વાયરનાં વીટા વાળીને તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. ઉપયોગી મટીરીયલ મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(62) સેનેટરી ફીટીંગ્સ વોશ બેસીન, યુરીનલ, ડબલ્યુ.સી.પાન, ફલશ ટેન્ક રીમુવલ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે સેનેટરી ફીટીંગ્સ વોશ બેસીન, યુરીનલ, ડબલ્યુ.સી.પાન, ફલશ ટેન્ક રીમુવલ કરવાનો માલ-સામાન, માણસો વગેરે લાવી મટીરીયલ મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ પ્રતિ નંગ પર સમજવાનો છે.

(63) પ્લાસ્ટર તોડકામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા બાંધકામ નું પ્લાસ્ટર બાંધકામ કે હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તેમ જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. થયેલાં કામનું માપ લેવાશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(64) **બારી, બારણા, ગ્રીલ, ગેઈટ વિ. રીમુવલ**

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે બારી, બારણા, ગ્રીલ, ગેઈટ વિગેરે રીમુવલ કરવાનો માલ-સામાન, માણસો વગેરે લાવી મટીરીયલ મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ પ્રતિ નંગ પર સમજવાનો છે.

(65) **વોટર ટેન્ક ફીટ કરવાનું કામ.**

સુચવ્યા મુજબ કંપની તથા કહેવામાં આવે તે સાર્જની સિલિન્ડર ટાઈપ ટાંકી લાવી, કહેવામાં આવે તે સ્થળે ફીટ કરવાની રહેશે. તેને સંલગ્ન ઈનલેટ, આઉટલેટ, ઓવરફ્લો પાઈપ, યુનીયન લાવી ફીટ કરવાના રહેશે. આ સંલગ્ન આઈટમોનો ખર્ચ અલગથી આપવામાં આવશે નહિં. કોઈ પણ જગ્યાએથી પાણી લીકેજ ન થવું જોઈએ. ભાવ ટેન્કની સાર્જ પ્રમાણે એક નંગ મુજબ સમજવાનો રહેશે.

(66) **પીવીસી પાઈપ કન્સીલ્ડમાં ફીટીંગ**

મ્યુ. કોર્પો. સુચવે તે કંપનીના, પીવીસી પાઈપ લાવી તેનું ફીટીંગ કામ તમામ જરૂરી ફીટીંગો (કપલીન, નીપલ, યુનીયન, ટી, એલબો વિગેરે) લાવીને દિવાલ, આર.સી.સી.માં ચરેડી પાડી લાઈન લેવલમાં સુચના આપવામાં આવે તે મુજબ ફીટ કરી આ દિવાલ, આર.સી.સી.માં ચરેડી કરેલ ભાગમાં જરૂરી મટીરીયલથી લાઈન લેવલમાં ફીનીશીંગ કરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે.

(67) **પીવીસી પાઈપ જમીન માં ફીટીંગ**

મ્યુ. કોર્પો. સુચવે તે કંપનીનાં પીવીસી પાઈપ લાવી તેનું ફીટીંગ કામ જરૂરી તમામ ફીટીંગો (કપલીન, નીપલ, યુનીયન, ટી, એલબો વિગેરે) લાવીને સુચના મળ્યેથી જરૂરી અંદાજે ૧.૦૦ મીટરની ઉડાઈમાં ખોદાણ કામ કરીને લાઈન લેવલમાં સુચના આપવામાં આવે તે મુજબ ફીટ કરી ખોદાણ કરેલ ભાગમાં જરૂરી રીફીલીંગ કરી લાઈન લેવલમાં ફીનીશીંગ આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે. આ કામમાં ૧.૦૦ મીટરથી વધુ ખોદાણ / પુરાણ કરવામાં આવશે તો ૧.૦૦ મીટર ઉપરના વધારાનું ખોદાણ / પુરાણનું અલગથી જે તે આઈટમ મુજબ ચુકવણું કરવામાં આવશે.

(68) **કાસ્ટ આયર્ન સ્પીગોટ અને સોઈલ સોકેટ, વેસ્ટ એન્ડ વેન્ટીલેટીંગ પાઈપ**

મ્યુ. કોર્પો. સુચના આપે તે માપ સાર્જ અને સ્ટાન્ડર્ડ કંપનીનાં કાસ્ટ આયર્નનાં સ્પીગોટ અને સોઈલ સોકેટ, વેસ્ટ એન્ડ વેન્ટીલેટીંગ પાઈપ લાવી કલેમ્પ ફીટ કરી જરૂરી સાંધાઓ ૧:૧ સી.મો. તથા સ્પન યાર્ન પુરી આપી ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર રનીંગ મીટર પર સમજવાનો છે.

(69) **કાસ્ટ આયર્ન રેઈન વોટર પાઈપ**

મ્યુ. કોર્પો. પાસ કરે તેવી સારી કંપનીમાં ૭૫ એમ.એમ. ડાયાનાં કાસ્ટ આયર્ન રેઈન વોટર પાઈપ લાવી જરૂરી ફીટીંગ, બેન્ડ, જોઈન્ટ, કલેમ્પ, જોઈન્ટમાં, સ્પન યાર્ન સાથે સિમેન્ટ પેસ્ટથી વાટા સાથે ફીટ કરી આપવા સાથેનું કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ર.મી. પર સમજવાનો છે.



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(70) પીવીસી પાઈપ ઓપન માં ફીટીંગ

મ્યુ. કોર્પો. સુચવે તે કંપનીના, પીવીસી પાઈપ લાવી તેનું ફીટીંગ કામ તમામ જરૂરી ફીટીંગો (કપલીન,નીપલ,યુનીયન,ટી,એલબો વિગેરે) લાવીને લાઈન લેવલમાં સુચના આપવામાં આવે તે મુજબ ફીટ કરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે.

(71) એ.સી રેઈન વોટર પાઈપ

મ્યુ. કોર્પો. પાસ કરે તે કંપનીના એ.સી. સીમેન્ટ રેઈન વોટર પાઈપ, તથા જરૂરી ફીટીંગ, બેન્ડ, જોઈન્ટસ, કલેમ્પ લાવી ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ર.મી. પર સમજવાનો છે.

(72) એ.સી સીમેન્ટ ના સ્ટાન્ડર્ડ ફીટીંગ્સ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તે સારી કંપનીના તથા માપ સાઈઝનાં એ.સી. સીમેન્ટનાં રેઈન વોટર પાઈપ માટેનાં સ્ટાન્ડર્ડ ફીટીંગ લાવી જરૂરી ફીટીંગ સાથે ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(73) કાસ્ટ આયર્ન ની નાની ટ્રેપ

મ્યુ. કોર્પો. પાસ કરે તે સ્ટાન્ડર્ડ કંપનીની ૧૦૦ એમ.એમ. ઈન્લેટ અને ૫૦ એમ.એમ. આઉટલેટવાળી બીડની હાઈડ ગ્રેટીંગ ધરાવતી નાની ટ્રેપ લાવી, સુચના અપાય તથા જરૂરી તોડફોડ કરી ૧:૧ સી.મો. માં લેવલમાં ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવાનું છે. ભાવ દર એક નંગ પર સમજવાનો છે.

(74) પીવીસીની નાની ટ્રેપ

મ્યુ. કોર્પો. પાસ કરે તે સ્ટાન્ડર્ડ કંપનીની ૧૦૦ એમ.એમ. ઈન્લેટ અને ૫૦ એમ.એમ. આઉટલેટવાળી પીવીસી પાઈપની નાની ટ્રેપ લાવી, સુચના અપાય તથા જરૂરી તોડફોડ કરી ૧:૧ સી.મો. માં લેવલમાં ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવાનું છે. ભાવ દર એક નંગ પર સમજવાનો છે.

(75) ઓરીસા ટાઈપ પી./એસ. ટ્રેપ સાથે નું વોટર કલોઝેટ પાન

મ્યુ. કોર્પો. પાસ કરે તેવી સ્ટાન્ડર્ડ કંપનીનું સફેદ કલરનું ૫૮૦ એમ.એમ. સાઈઝનું ઓરીસા ટાઈપ, વોટર કલોઝેટ પાન, પી અથવા એસ ટ્રેપ લાવી સાથે લાવી સુચવવામાં આવે તે સ્થળે જરૂરી ખોદાણ કરી લાઈન લેવલમાં જરૂરી તમામ ફીકસીંગ તથા ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે ભાવ દર એક નંગ પર સમજવાનો છે.

(76) યુરોપીયન ડબલ્યુ.સી. પાન

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તેવું 'યુરોપીયન ટાઈપ' વોટર કલોઝેટ પાન લાવી જરૂરી તમામ ફીટીંગ-ફીકસીંગ સાથે સુચવવામાં આવે તે સ્થળે ૧:૧ સી.મો. માં સોઈલ પાઈપ સાથે ફીટ કરી ચાલુ કરી આપવા સાથેનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે ભાવ દર એક નંગ પર સમજવાનો છે.



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(77) પી./એસ.ટ્રેપ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચવે તે સ્ટાન્ડર્ડ કંપનીનાં ૧૦૦ એમ.એમ. ડાયાની પી અથવા એસ ટ્રેપ લાવી સુચના અપાય ત્યાં જરૂરી તોડફોટ કરી છાંદા-છુંદી કરી ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(78) લો-લેવલ ફલશીંગ સીસ્ટર્ન સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચવે તેવી સ્ટાન્ડર્ડ કંપનીની ૧૨.૫ લીટર કેપેસિટીની લો-લેવલ ફલશીંગ સીસ્ટર્ન લાવી, જરૂરી તમામ પ્રકારનાં ફીટીંગ તથા બ્રાસ બ્રેકેટ, હેન્ડલ, ઈન્લેટ આઉટલેટ માટેનાં કનેક્શનનાં જી.આઈ. કપલીંગ, યુનીયન વગેરે લાવી, સુચના અપાય ત્યાં ૪૦ એમ.એમ. ડાયાનો પોર્સેબીન એનેમલ્ડ ફલ્શ બેન્ડ લાવી દિવાલમાં હોલ કરવા સાથે તમામ એસેમ્બલી ફીટ આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(79) શીટ ક્વર યુરોપીયન ડબલ્યુ.સી પાન માટે

મ્યુ. કોર્પો. પાસ કરે તે સ્ટાન્ડર્ડ કંપનીનું તથા કલરનું યુરોપીયન વોટર કલોઝેટ પાન માટેનું જરૂરી શીટ ક્વર, સીપી, બોસ્ટીજ અને રબર બફર સહિત લાવી સુચના અપાય ત્યાં જરૂરી ફીટીંગ ફીકસીંગ સાથે ફીટ કરી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે ભાવ દર એક નંગ પર સમજવાનો છે.

(80) સીંગલ હોલ વાળું વોશ બેસીન સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી સ્ટાન્ડર્ડ કંપનીની અને માપ સાઈઝની સીરામીક વોશ બેસીન, એમ.એસ. બ્રેકેટ તથા જરૂરી ફીટીંગ ફીકસીંગ પ્લગ ટી સાથે લાવી સૂચવાય ત્યાં કન્સીલ્ડ ફીટીંગ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(81) ક્રિયન સીંક સ્ટેનલેસ સ્ટીલ ની સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી ૧ મીમી જાડાસ્ટાન્ડર્ડ કંપનીની અને ૬૦૦×૪૫૦×૧૫૦ એમ.એમ. સાઈઝની ક્રિયન સીંક, એમ.એસ. બ્રેકેટ તથા જરૂરી ફીટીંગ ફીકસીંગ પ્લગ ટી સાથે લાવી સૂચવાય ત્યાં કન્સીલ્ડ ફીટીંગ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(82) સી.પી.બ્રાસ વેસ્ટ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પસંદ કરે તે કંપનીની તથા માપ સાઈઝની ક્રોમીયમ પ્લેટેડ બ્રાસ વેસ્ટ (વોશ બેઝીન/સીંક માટે) લાવી સુચવવામાં આવે ત્યાં ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(83) એમ.આઈ ફીશર યુનીયન સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પસંદ કરે તે કંપનીની તથા માપ સાઈઝની એમ.આઈ. ફીશર યુનીયન (વોશ બેઝીન/સીંક માટે) લાવી સુચવવામાં આવે ત્યાં ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.



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(84) બીડ ના સ્કુ ડાઉન ટાઈપ ટેપ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચના આપે તેવા અને સાઈઝનાં બીડનાં સ્કુ ડાઉન ટાઈપ ટેપ લાવી સુચના અપાય તે રીતે દોરા વીટીને ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(85) સી. પી. બ્રાસના સ્કુ ડાઉન ટાઈપ બીબ ટેપ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચના આપે તેવા અને સાઈઝનાં ક્રોમીયમ પ્લેટેડ બ્રાસનાં સ્કુ ડાઉન ટાઈપ બીબ ટેપ લાવી સુચના અપાય તે રીતે દોરા વીટીને ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(86) કેપ્સ્ટેન હેડેડ સ્કુ ડાઉન હાઈ પ્રેશર કેપેસીટી પીલર કોક સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચના આપે તેવા અને સાઈઝનાં ક્રોમીયમ પ્લેટેડ બ્રાસનાં સ્કુ ડાઉન સ્ટોપ કોક લાવી સુચના અપાય તે રીતે દોરા વીટીને ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(87) બ્રાસ સ્કુ ડાઉન ટાઈપ સ્ટોપ કોક સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચના આપે તેવા અને સાઈઝનાં ક્રોમીયમ પ્લેટેડ બ્રાસનાં કેપ્સ્ટેન હેડેડ પીલર કોક (સ્કુ ડાઉન હાઈ પ્રેશર કેપેસીટી) લાવી સુચના અપાય તે રીતે દોરા વીટીને ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(88) ગનમેટલ ચેક/નોન રીટર્ન ફુલ વે વ્હીલ વાલ્વ સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચના આપે તેવા અને સાઈઝનાં ક્રોમીયમ પ્લેટેડ બ્રાસનાં ગનમેટલનાં ચેક/નોનરીટર્ન ફુલવે વ્હીલ વાલ્વ લાવી સુચના અપાય તે રીતે દોરા વીટીને ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(89) સી. પી બ્રાસ હાફ ટર્ન ફલ્શ કોક સપલાય, ફીટીંગ

મ્યુ. કોર્પો. સુચના આપે તેવા અને સાઈઝનાં ક્રોમીયમ પ્લેટેડ બ્રાસનાં હાફ ટર્ન ફલ્શ કોક લાવી સુચના અપાય તે રીતે દોરા વીટીને ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(90) યુરીનલ પાન સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસે કરે તે સાઈઝનું અને સ્ટાન્ડર્ડ કંપનીનું જરૂરી કનેક્શન સાથેનું યુરીનલ પાન તથા વેસ્ટ પાઈપ ટ્રેપ સાથે લાવી ફીટ કરવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે ભાવ દર એક નંગ પર સમજવાનો છે.

(91) બોલ કોક સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસે કરે તેવી સ્ટાન્ડર્ડ કંપની તથા સાઈઝનાં બ્રાસનાં બોલ કોક લાવી, સુચના અપાય તથા જરૂરી ફીટીંગ-ફીક્સીંગ સાથે ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.



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(92) કાસ્ટ આયર્ન 'પગા' (સ્ટેપ) સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી ક્વોલીટીમાં કાસ્ટ આયર્ન ૫૦૦×૧૫૦×૨૨.૫ એમ.એમ. સાઈઝનાં સ્ટે લાવી સુચના આપવામાં આવે ત્યાં જરૂરી તોડફોટ કરી ફીટ કરી આપી ૧:૨ સી.મો. માં છાંદા છુંદી કરી આપવા સાથે, તથા તેયાર કામને એન્ટી કોરોઝીવ કલર કરી આપવાનું છે. તેયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(93) ઉઘઈ ટીટ્રમેન્ટ લાકડા માટે

મ્યુ. કોર્પો. સુચવે તેવી સ્ટાન્ડર્ડ કંપનીનાં એન્ટી ઉઘઈ કેમીકલ લાવી જરૂરી જણાય તે જગ્યાએ જરૂરી સુચના મુજબ ઉડાઈમાં ડ્રીલ થી હોલ કરી ઈજેક્શન ધ્વારા અથવા બ્રસથી સપાટી ઉપર કોટીંગ સ્વરૂપે ઉઘઈ ટીટ્રમેન્ટ કરી આપવાનું કંમ્લીટ કામ. ત્રણ વર્ષની ગેરંટી પીરીયડ ફરજીયાત છે. થયેલા કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(94) ઉઘઈ ટીટ્રમેન્ટ દીવાલો ફલોરીંગ માટે

મ્યુ. કોર્પો. સુચવે તેવી સ્ટાન્ડર્ડ કંપનીનાં એન્ટી ઉઘઈ કેમીકલ લાવી જરૂરી જણાય તે જગ્યાએ જરૂરી સુચના મુજબ ઉડાઈમાં ડ્રીલ થી હોલ કરી ઈજેક્શન ધ્વારા અથવા બ્રસથી સપાટી ઉપર કોટીંગ સ્વરૂપે ઉઘઈ ટીટ્રમેન્ટ કરી આપવાનું કંમ્લીટ કામ. ત્રણ વર્ષની ગેરંટી પીરીયડ ફરજીયાત છે. થયેલા કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(95) ઉઘઈ ટીટ્રમેન્ટ લાકડા માટે

મ્યુ. કોર્પો. સુચવે તેવી સ્ટાન્ડર્ડ કંપનીનાં એન્ટી ઉઘઈ કેમીકલ લાવી જરૂરી જણાય તે જગ્યાએ જરૂરી સુચના મુજબ ઉડાઈમાં ડ્રીલ થી હોલ કરી ઈજેક્શન ધ્વારા અથવા બ્રસથી સપાટી ઉપર કોટીંગ સ્વરૂપે ઉઘઈ ટીટ્રમેન્ટ કરી આપવાનું કંમ્લીટ કામ. ત્રણ વર્ષની ગેરંટી પીરીયડ ફરજીયાત છે. થયેલા કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(96) ઉઘઈ ટીટ્રમેન્ટ દીવાલો ફલોરીંગ માટે

મ્યુ. કોર્પો. સુચવે તેવી સ્ટાન્ડર્ડ કંપનીનાં એન્ટી ઉઘઈ કેમીકલ લાવી જરૂરી જણાય તે જગ્યાએ જરૂરી સુચના મુજબ ઉડાઈમાં ડ્રીલ થી હોલ કરી ઈજેક્શન ધ્વારા અથવા બ્રસથી સપાટી ઉપર કોટીંગ સ્વરૂપે ઉઘઈ ટીટ્રમેન્ટ કરી આપવાનું કંમ્લીટ કામ. ત્રણ વર્ષની ગેરંટી પીરીયડ ફરજીયાત છે. થયેલા કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.



બિલ્ડીંગ વિભાગ

ભાવનગર મહાનગર સેવા સદન

SCHEDULE - B = સ્પેસીફિકેશન

વર્ષ ૨૦૨૨-૨૦૨૩ માટે વાર્ષિક ભાવની આઈટમો

- (1) પાયામાં ૬% લાઈમ ડોજીંગ સાથે સેન્ડ ફીલીંગ કરવાનું કામ.

આ કામમાં પાસ કરવામાં આવે તેવો સારી જાતનો કુટ્યા વિનાનો કાચો ચૂનો લાવવાનો છે. પાયામાં સેન્ડ ફીલીંગ સમયે સેન્ડના ૬% મુજબનો કોરો ચૂનો પલાળી સેન્ડ અને આ પલાળેલ ચૂના પાણીનું યોગ્ય મીશ્રણ કરી આપવાનું છે. આ કામનો ભાવ દર એક ઘ.મી. (સેન્ડ ફીલીંગ) પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. જરૂરી તેમજ યોગ્ય ક્યોરીંગ કરવાનું છે.
- (2) ૩.૫૦ મીટર થી વધારા ની ઉડાઈ સુધી બોર પાઈલ્સ કરી નીકળેલ માટી ૯૦.૦ મીટર ની લીડ માં પાથરી આપવા સાથે નું કમ્પ્લીટ કામ. ((વધારાની દરએક મીટર ની ઉડાઈ માટે))

તમામ કામ ૩.૫ મીટર કરતાં વધુ ઉડાઈએ (સુચવવામાં આવે તે મુજબ) બોર કરી આપવાનાં છે. તેનો ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે અને તે ૩.૫ મીટર ઉડાઈ બાદનો જ સમજવાનો છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે.
- (3) ખોદાણ કરી નીકળેલ માટીને ૬% લાઈમ ડોઝ આપી ભરતી કરવાનું કામ.

પાયાના ખોદાણ કામમાંથી નીકળેલ માટીમાંથી સાઈટ એન્જીનીયર સુચવે તેટલી માટીને ૬% મુજબ લાઈમ ડોઝ આપી ૨૦ સે.મી. ના લેયરમાં રેમીંગ કરી, ભરતી ભરવાનું કામ કરવાનું છે. માપ તૈયાર કામનું લેવામાં આવશે.
- (4) ૧:૧.૫ :૩ ના પ્રમાણથી આર.સી.સી. કામ (M-200) માટે સીમેન્ટ કોન્ક્રીટ કરવાનું કમ્પ્લીટ કામ.

આ કામમાં ૧૫ થી ૨૦ એમ.એમ. સાઈઝની હાર્ડ બ્લેક સ્ટોન મેટલની મશીન ક્રશ કપચી લાવી વાપરવાની છે. ઉમરાળા, તળાજા, ઘંઘુકા, પૈકીની પાસ કરવામાં આવે તેવી ધૂળ વગરની ચોખ્ખી, જીણી, ચાળેલી, કસ્તર વિનાની, શ્રીકાર આકારની લાવી વાપરવાની છે. આઈ.એસ. ૫૩ ગ્રેડ ઓ.પી.સી. સિમેન્ટ પાસ કરવામાં આવે તે લાવી વાપરવાની છે. તમામ રેતી, ઘોઈને વાપરવાની છે. તમામ કામ મશીન મીકસીંગ વડે જરૂરી તેમજ યોગ્ય સેન્ટરીંગ, શટરીંગ, સ્કેફોલ્ડીંગ, વાયબ્રેટીંગ (વાયબ્રેટીંગ મશીન વડે) ૧૫ દિવસ ક્યોરીંગ વગેરે સાથે કમ્પ્લીટ કામ કરી આપવાનું છે. આ કામમાં ત્રણ ભાગ કપચી, દોઢ ભાગ રેતી અને એક ભાગ સીમેન્ટ એ પ્રમાણે માલ બનાવવાનો છે. કપચી, રેતી, સીમેન્ટ પાયલા ભરી માપવાનું છે. ઉપરોક્ત તમામ વિગતે કામનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. આ તમામ કામ લાઈન દોરીએ, લેવલે, ઓળંભે આપવામાં આવે તે ડીઝાઈન મુજબ કરી આપવાનું છે.
- (5) ૧:૧ : ૨ ના પ્રમાણથી આર.સી.સી. કામ (M-250) માટે સીમેન્ટ કોન્ક્રીટ કરવાનું કમ્પ્લીટ કામ.

આ કામમાં ૧૫ થી ૨૦ એમ.એમ. સાઈઝની હાર્ડ બ્લેક સ્ટોન મેટલની મશીન ક્રશ કપચી લાવી વાપરવાની છે. ઉમરાળા, તળાજા, ઘંઘુકા, પૈકીની પાસ કરવામાં આવે તેવી ધૂળ વગરની ચોખ્ખી, જીણી, ચાળેલી, કસ્તર વિનાની, શ્રીકાર આકારની લાવી વાપરવાની છે. આઈ.એસ. ૫૩ ગ્રેડ ઓ.પી.સી. સિમેન્ટ પાસ કરવામાં આવે તે લાવી વાપરવાની છે. તમામ રેતી, ઘોઈને વાપરવાની છે. તમામ કામ



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મશીન મીકસીંગ વડે જરૂરી તેમજ યોગ્ય સેન્ટરીંગ, શટરીંગ, સ્કેફોલ્ડીંગ, વાયબ્રેટીંગ (વાયબ્રેટીંગ મશીન વડે) ૧૫ દિવસ ક્યોરીંગ વગેરે સાથે કમ્પલીટ કામ કરી આપવાનું છે. આ કામમાં બે ભાગ કપચી, એક ભાગ રેતી અને એક ભાગ સીમેન્ટ એ પ્રમાણે માલ બનાવવાનો છે. કપચી, રેતી, સીમેન્ટ પાયલા ભરી માપવાનું છે. ઉપરોક્ત તમામ વિગતે કામનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. આ તમામ કામ લાઈન દોરીએ, લેવલે, ઓળંભે આપવામાં આવે તે ડીઝાઈન મુજબ કરી આપવાનું છે.

(6) **બ્રીક બેલાસ્ટ સિમેન્ટ કોન્ક્રીટ ૧:૩:૬**

આ કામમાં ફસ્ટ ક્લાસ બીકસ ની ૪૦ એમ.એમ. સાઈઝની બ્રીક બેલાસ્ટ (કપચી) વાપરવાની છે. ઉમરાળા, તળાજા, ધંધુકા, પૈકીની પાસ કરવામાં આવે તેવી ધૂળ વગરની ચોખ્ખી, જીણી, ચાળેલી, કસ્તર વિનાની, શ્રીકાર આકારની લાવી વાપરવાની છે. આઈ.એસ. ૫૩ ગ્રેડ ઓ.પી.સી. સિમેન્ટ પાસ કરવામાં આવે તે લાવી વાપરવાની છે. તમામ રેતી, ઘોઈને વાપરવાની છે. તમામ કામ મશીન મીકસીંગ વડે જરૂરી તેમજ યોગ્ય સેન્ટરીંગ, શટરીંગ, સ્કેફોલ્ડીંગ, વાયબ્રેટીંગ (વાયબ્રેટીંગ મશીન વડે) ૧૫ દિવસ ક્યોરીંગ વગેરે સાથે કમ્પલીટ કામ કરી આપવાનું છે. આ કામમાં છ ભાગ બ્રીક બેલાસ્ટ(કપચી), ત્રણ ભાગ રેતી અને એક ભાગ સીમેન્ટ એ પ્રમાણે માલ બનાવવાનો છે. બ્રીક બેલાસ્ટ, રેતી, સીમેન્ટ પાયલાભરી માપવાનું છે. ઉપરોક્ત તમામ વિગતે કામનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. આ તમામ કામ લાઈન દોરીએ, લેવલે, ઓળંભે આપવામાં આવે તે ડીઝાઈન મુજબ કરી આપવાનું છે.

(7) **ઈટનું ખરંજા ૧:૬ સીમો ૧૨ મીમી બેડીંગ**

મ્યુ. કોર્પો. પાસ કરે તેવી ચિમની ભઠ્ઠાની સારી પાકી ઈટો લાવી વાપરી ૧:૬ સી.મો. ૧૨ એમ.એમ. જાડાઈનું પાથરી એક ઈટનું ખરંજા પેવીંગ કરવાનું છે. દરેક ઈટ ખરંજા સ્ટાઈલમાં ગોઠવી બે ઈટ વચ્ચેનો સાંધો ૧૨ થી ૧૫ એમ.એમ. થી વધે નહીં તે રીતે રાખી ૧:૬ સી.મો. માં પુરી ફીનીશીંગ કરી આપી દસ દિવસ ક્યોરીંગ કરવા સાથેનું કમ્પ. કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. ની ઉપર સમજવાનો છે.

(8) **કંપાઉન્ડ વોલ ટોપ પર ગોળીયો વાટો**

મ્યુ. કોર્પો. ધ્વારા સુચનાં આપવામાં આવે તે રીતે કમ્પાઉન્ડ વોલનાં ટોપ ઉપર ૧ સારી પાકી ચીમની ઈટ લાવી મુકી ૧:૪ નાં સિ.મો. માં ગોળીયો વાટો કરી તેનાં વાંટા ભરી તેનાં ફરતે પ્લાસ્ટર કરી દિન – ૮ સુધી ક્યોરીંગ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે.

(9) **કંપાઉન્ડ વોલ ટોપ પર કાચના ટુકડા મુકી ગોળીયો વાટો**

મ્યુ. કોર્પો. ધ્વારા સુચનાં આપવામાં આવે તે રીતે કમ્પાઉન્ડ વોલનાં ટોપ ઉપર જરૂરી સાઈઝના કાચના ટુકડા મુકી ૧:૪ નાં સિ.મો. માં ગોળીયો વાટો કરી તેનાં વાંટા ભરી તેનાં ફરતે પ્લાસ્ટર કરી દિન – ૮ સુધી ક્યોરીંગ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે.



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(10) સાગનું લાકડું સપ્લાય ફીટીંગ ફીનીશીંગ સાથે

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે માપ સાર્જ અને ડીઝાઈન મુજબનાં સાગી લાકડા લાવી, જરૂરી ફીનીશીંગ કરી, સુચવવામાં આવે તે જગ્યાએ જરૂરી એલ્યુમિનિયમ ફીટીંગ-ફીકસીંગ લાવી ફીટ કરવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામ પર વુડ પ્રાઈમરનો એક હાથ તથા સ્ટાન્ડર્ડ કંપનીનાં ઓઈલ પેઈન્ટનાં બે હાથ લાવી લગાવી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ઘનમીટર પર સમજવાનો છે.

(11) બારી / દરવાજાનું રીપેરીંગ કામ.

ફીટીંગ કરેલા બાકી દરવાજાને ફ્રેમમાંથી ખોલી, તૂટેલું/ખરાબ લાકડું દુર કરી સુચવવામાં આવે તેવી સાર્જ અને ગુણવત્તાનું લાકડું લાવી, દુર કરેલા મેમ્બરની જગ્યાએ ફીટ કરી આપવાનું છે. સંપૂર્ણ બારી/દરવાજાને રીફીટીંગ કરી લાઈન, લેવલે, ઓળંભે કરવાનું છે. નેઈલ, સ્ક્રુ, ફેવીકોલ, મીજાગરા વિ. નો આ આઈટમમાં જ સમાવેશ કરવાનો છે. લાકડું, ફીકચર તથા ફાસ્ટનરનો ખર્ચ અલગ આઈટમથી આપવાનો છે. રીપેરીંગનું માપ શટરના ચો.મીટર લેખે ગણવામાં આવશે.

(12) ૧.૦ મી.મી. જાડાઈનો સનમાઈકા લાવી ફીટ કરવાનું કામ.

સુચવવામાં આવે તે કંપની અને શેડનું સનમાઈકા લાવી કહેવામાં આવે તે જગ્યાએ ફીટ કરી સાથેનું કમ્પલીટ કામ કરવાનું છે. આમાં ફીટીંગ માટે જરૂરી તમામ આઈટમોનો સમાવેશ થશે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચોરસમીટર પર સમજવાનો છે.

(13) વીનીયર સપ્લાઈ તથા ફીટીંગ

સુચવ્યા મુજબની ડીઝાઈનવાળું (પાસે કરેલ ડીઝાઈનવાળું) ૧.૫ એમ.એમ. અથવા ૪ એમ.એમ. જાડું વીનીયર લાવી સુચવ્યા મુજબનાં સ્થળે, સુચના મુજબની ડીઝાઈન માપ સાર્જમાં વિનીયર કાપી ખીલી, ફેવીકોલ વડે ફીટીંગ કરી આપવાનું મીસ્ટ્રી મજૂરી સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચોરસમીટર પર સમજવાનો છે.

(14) વોટરપ્રૂફ પ્લાય ફીટ કરવાનું કામ.

સુચવવામાં આવે તેવી આઈ.એસ. : સ્ટાન્ડર્ડ કંપનીની વોટરપ્રૂફ તથા કહેવામાં આવે તે જાડાઈની લાવવાની રહેશે. કહેવામાં આવે તે સ્થળે ખીલી, ફેવીકોલ વડે ફીટીંગ કરી આપવાનું મીસ્ટ્રી મજૂરી સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચોરસમીટર પર સમજવાનો છે. દર જાડાઈ પ્રમાણે આપવાના રહેશે.

(15) સાગનું લાકડાની બીડીંગ પટ્ટી સપ્લાય ફીટીંગ ફીનીશીંગ સાથે

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે માપ સાર્જ અને ડીઝાઈન મુજબનાં સાગની લાકડાની બીડીંગ પટ્ટી લાવી, જરૂરી ફીનીશીંગ કરી, સુચવવામાં આવે તે જગ્યાએ જરૂરી ફીટ કરવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામ પર વુડ પ્રાઈમરનો એક હાથ તથા સ્ટાન્ડર્ડ કંપનીનાં ઓઈલ પેઈન્ટનાં બે હાથ લાવી લગાવી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચોરસમીટર પર સમજવાનો છે.



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(16) એમ.એસ.ફેબ્રિકેશન શ્રીલ,ડોર,વિન્ડો ઓઈલ પેઈન્ટીંગ સાર્થ.

આ કામ માટે આપવામાં આવે અને સુચવવામાં આવે તે માપ સાઈઝ તથા ડીઝાઈન અનુસારનું આઈ.એસ. સ્પેશીયલ સ્ટીલમાં જણાવ્યા મુજબનું સાડ, કાટ વગરનું પાસ કરવામાં આવે તેવું માર્શલ સ્ટીલ લાવી આપવામાં આવે તે ડીઝાઈન મુજબ ફેબ્રિકેશન વર્ક તૈયાર કરી જરૂરી તમામ પ્રકારના લોખંડના ફીટીંગ ફીક્સીંગ સાથે અને જરૂરી સ્થળ ઉપર વેલ્ડીંગ કામ સાથે સ્થળે સુચવવામાં આવે તે મુજબ જરૂરી ૧:૨ ના સી.મો. વડે છાંદા છુંદી સાથે તથા દિવાલ અગરતો આર.સી.સી. વર્કમાં જરૂરી યોગ્ય તોડફોડ સાથે ફીટ કરી આપવાનું છે. જરૂરી જણાયે આવું ફેબ્રિકેશન વર્ક લાકડા કામમાં પણ જરૂરી સ્ક્રુ વગેરેથી ફીટ કરવાનું છે. જરૂર જણાયે કહેવામાં આવે તો આવું ફેબ્રિકેશન વર્ક દિવાલો કે આર.સી.સી. કામમાં જરૂરી ડ્રીલીંગ મશીન વડે જરૂરી હોલ પાડી લાકડાની ડટ્ટીઓમાં સ્ક્રુ વડે ફીટ કરવાનું છે. તમામ કામને પાસ કરવામાં આવે તેવા પ્રાયમર લાવી તેનો એક હાથ મારવાનો છે. અને પાસ કરવામાં આવે તેવો સારી કંપનીનો ઓઈલ પેઈન્ટ લાવી તેના તમામ કામને બે હાથ મારી આપવાના છે. આ ઉપરોક્ત વિગતે કામના ભાવ દર એક કિ.ગ્રા. પર સમજવાના છે. તૈયાર કામનું માપ લેવામાં આવશે.

(17) રોલીંગ શટરનું કામ.

આ કામ માટે મ્યુ. કોર્પો. ની સુચના મુજબનાં સારા મેન્યુફેક્ચરનાં રોલીંગ શટર્સ લાવવાનાં છે. તમામ શટર્સ માટે સુચવ્યા મુજબ (૧૬ થી ૧૮ ગેજ) ની જાડાઈનાં માર્શલ સ્ટીલનાં પતરાના લાવવાનાં છે. તમામ શટર્સની બંને સાઈડની ગાઈડો, બ્રેકેટર્સ તથા સારી કવોલીટીની મજબૂત ગોળ અથવા ફ્લેટ સ્પ્રીંગ ઈંગ્લીશ બનાવટની વાપરી લગાડવાની છે. તમામ શટર્સના સરપેન્શન શાફ્ટ, લોડીંગ એરેન્જમેન્ટ, પુલ્લીંગ હુડ, હેન્ડલ્સ તથા ટોપ કવર વિ. વાપરીને દરવાજાઓ ફીટ કરવાનાં છે. તમામ શટર્સ દિવાલમાં લાકડાની ડટ્ટીઓ સિમેન્ટ રેતીથી છાંદી તેમાં સ્ક્રુ બોલ્ટી લગાડી ફીટ કરવાના છે. આર.સી.સી. કામ ઉપર શટર્સ તમામ રીતે મજબૂતથી ફીટ થાય તે પ્રમાણે કરવાનું છે. તમામ શટર્સ સહેલાઈથી ખોલી બંધ કરી શકાય તે માટે એક દરવાજામાં એક નંગ બોલ બેરીંગની જોડી વાપરી આપવાનું કામ કરવાનું છે. તમામ શટર્સને કહેવામાં આવે તેવી સારી કંપનીના ઓઈલ પેઈન્ટનાં બે હાથ પ્રાઈમરનો એક હાથ પછી લગાડી આપવાના છે. શટર્સ ફીટ કરવા માટેનાં તમામ સાધનો વિ. કોન્ટ્રાક્ટરે લાવવાનાં રહેશે તેમજ લાકડાની ડટ્ટા-ડટ્ટીઓ વિ. જે કાંઈ દિવાલોમાં નાખવામાં આવે તેનો કોઈપણ ભાવ અલગ આપવામાં આવશે નહિ. શટર્સની તમામ રીબ સુચના મુજબનાં એક સરખી જાડાઈનાં પતરાની બનેલી હોવી જોઈએ. તૈયાર શટર્સની ઉચાઈ ટોપ કવરની પાછળથી તે લાદીનાં ટોપ સુધી માપ લેવામાં આવશે. ટોપ કવર પર ગોળાઈમાં મેઝરટેપ ફેરવીને માપ લેવામાં આવશે નહિ. પહોળાઈનું માપ સાઈડની બંને સાઈડ સાથે લેવામાં આવશે. તૈયાર કામનું માપ લેવામાં આવશે તથા ભાવ દરેક એક ચો.મી. પર સમજવાનો છે.

(18) એમ.એસ. ચેઈનલીક સ્કેવર જાળી ફીટીંગ

મ્યુ. કોર્પો. ધ્વારા કહેવામાં અને સુચવવામાં આવે તે મુજબ ૧૦ ગેજની એમ.એસ. ચેઈનલીક સ્કેવર જાળી લાવી, જે તે સ્થળે ફેબ્રિકેશન વર્ક સાથે સુચવાય તે રીતે ફીટ કરી ઓઈલ પેઈન્ટનાં બે હાથ લગાવી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવાનું છે. તથા ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(19) ફેબ્રિકેશન રીપેરીંગ

મ્યુ. કોર્પો. ધ્વારા સુચવાય તે જગ્યાએ જરૂરી ઘટતું એમ.એસ. લોખંડ લાવી હયાત બારી/દરવાજાઓ ઘટતું ફીટીંગ-ફીક્સીંગ લાવી વેલ્ડીંગ પ્લાન્ટ લાવી વેલ્ડ કરી, તૈયાર કામને એક હાથ રેડોક્સાઈડ અને ત્રણ હાથ ઓઈલ પેઈન્ટનાં લાવી લગાવી આપવાનું કમ્પલીટ કામ કરવાનું છે. માત્ર નવા થયેલાં તૈયાર કામનાં ભાવ દર એક કિ.ગ્રા. પર સમજવાનો છે.



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(20) ફેબ્રીકેશન લેબર / મજૂરી કામ

આપેલ માઈલસ્ટીલ માંથી સુચવ્યા મુજબ આપવામાં આવે તે ડીઝાઈન મુજબ ગ્રીલ, બારી, દરવાજા, રેલીંગ, હેન્ડરેઈલ, રૂફીંગ, કેચી વિગેરે કે અન્ય માટે, જરૂરી માપ સાઈઝ માં આપેલ માઈલસ્ટીલ માં જરૂરી ફેરફાર કે કટીંગ કરી, તમામ ફીટીંગ્સ ફીક્સીંગ સાથે ફેબ્રીકેટ કરી આપવા નું કંમલીટ કામ. જેમાં આપેલ માઈલસ્ટીલ સિવાય વધારા નું સ્ટીલ અલગ નવા ફેબ્રીકેશન કામ ની આઈટમ માં ગણવા નું રહેશે.

(21) ચીકન મેસ લગાડી આપવાનું કામ.

પાસ કરવામાં આવે તેવી ચીકન મેસ લાવી સુચવ્યા મુજબ સ્થળે ફીટ કરવાની રહેશે. ફીટીંગ માટેની જરૂરી આઈટમનો આમાં જ સમાવેશ કરવાનો રહેશે. ખીલી, ઘોબા વગેરે કહેવામાં આવે તે સાઈઝના લાવવાના રહેશે. માપ ફીટીંગ થયેલી મેસના ચોરસ મીટર લેખે લેવામાં આવશે. પ્લાસ્ટર કામ અલગ આઈટમથી ગણવામાં આવશે.

(22) દિવાલ પર વાયર ફેન્સીંગનું કામ.

દિવાલ પર ૨.૨૫ મીટરના અંતરે ૫૦×૫૦×૬ એમ.એમ. ની ૧.૨૫ મીટર લાંબી ઍંગલ લાવી કોન્ક્રીટ બ્લોકમાં એન્કેસીંગ કરવાની રહેશે. કોન્ક્રીટ બ્લોકની સાઈઝ ૦.૨૩×૦.૩૭×૦.૩૦ મી. રહેશે તથા ૧:૨:૪ પ્રમાણનું કોન્ક્રીટ રહેશે. ઍંગલ પર ૧૪ ગેજના બાર્બડ વાયરની આડી આઠ લાઈન ખેંચી 'યુ' પીનથી ફીટ કરવાની રહેશે. કોન્ક્રીટ કામને આઠ દિવસ સુધી ક્યોરીંગ કરવાનું રહેશે. ઍંગલ કામને પ્રાઈમરનો એક કોટ તથા ઓઈલ પેઈન્ટના બે કોટ લગાવવાના રહેશે. માપ તૈયાર કામના ૨નીંગ મીટર લેવામાં આવશે.

(23) રોલીંગ શટર રીપેરીંગ કરવાનું કામ.

રોલીંગ શટરને લાઈન, લેવલ, ઓળંભે કરી, બ્રેકેટ પ્લેટસ, ગાઈડ ચેનલ, લોકસ તથા જરૂરી ફીટીંગ, ફીક્સીંગ રીપેર કરી, ગ્રીસીંગ કરવા સાથેનું કામ રહેશે. માપ શટરના ચો. મીટર લેવામાં આવશે. રીપેરીંગમાં જરૂર પડતી તમામ સામગ્રીનો આ આઈટમમાં જ સમાવેશ થશે.

(24) રોલીંગ શટર માટે ઈન્ટર લોકીંગ લોકસ ફીટ કરવાનું કામ.

આ આઈટમમાં પાસ કરવામાં આવે તેવું ઈન્ટરલોકીંગ લોકસ લાવી ફીટ કરવાનું રહેશે. ફીટીંગ માટે જરૂરી તમામ વસ્તુઓનો આ આઈટમમાં જ સમાવેશ કરવાનો રહેશે.

(25) બાર્બડ વાયર ફીટ કરી આપવાનું કામ.

આ કામમાં ૧૪ ગેજનો બાર્બડ વાયર લાવવાનો રહેશે. હયાત વાયર ફેન્સીંગમાં સુચવવામાં આવે તે સ્થળે ફીટ કરી આપવાનો રહેશે. માપ સીંગલ લાઈનના ૨નીંગ મીટર લેવામાં આવશે.

(26) વાયર બ્લેડેડ ફેન્સીંગ કામ.

દિવાલ પર ૨.૨૫ મીટરના અંતરે ૫૦×૫૦×૬ એમ.એમ.ની ૧.૫૫ મીટર લાંબી એમ.એસ. ઍંગલ લાવી કોન્ક્રીટ બ્લોકમાં એક્સીંગ કરવાની રહેશે. કોન્ક્રીટ બ્લોકની સાઈઝ ૦.૨૩×૦.૩૭×૦.૨૦ મીટર રહેશે તથા ૧:૨:૪ પ્રમાણનું કોન્ક્રીટ કરવાનું રહેશે. ઍંગલ પર ૪ ગેજની બાર્બડ વાયરની આડી ૪ લાઈન ખેંચી યુ પીનથી ફીટ કરવાની રહેશે. તથા રેજર બ્લેડેડ વાયર જેનું વજન ૧.૨૦ કિલોગ્રામ પ્રતિ ૨નીંગ મીટર પ્રમાણે હોવું જોઈએ. જે બ્લેડેડ વાયર લાવી બ્લેડેડ વાયર ઉપર ૪૫૦ એમ.એમ.ની ગોળાઈમાં ફીટ કરવાના રહેશે. તૈયાર



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કામ પર બાઈડ વાયર સિવાય પ્રાઈમરનો એક હાથ તથા સ્ટાન્ડર્ડ કંપનીના ઓઈલ પેઈન્ટનાં બે હાથ લગાવી આપવાનાં છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે.

(27) એસ.એસ.ફેબ્રીકેશન રેલીંગ કરવાનું કામ .

આ કામ માટે આપવામાં આવે અને સુચવવામાં આવે તે માપ સાઈઝ તથા ડીઝાઈન અનુસારનું આઈ.એસ. સ્પેશીયલ એસ.એસ. સ્ટીલમાં જણાવ્યા મુજબનું સાડ પાસ કરવામાં આવે તેવું ગ્રેડ વાળું એસ.એસ.સ્ટીલ લાવી આપવામાં આવે તે ડીઝાઈન મુજબ એસ.એસ. રેલીંગ કામ તૈયાર કરી જરૂરી તમામ પ્રકારના એસ.એસ. ના ફીટીંગ્સ ફીક્સીંગ સાથે અને જરૂરી સ્થળ ઉપર વેલ્ડીંગ કામ સાથે સ્થળે સુચવવામાં આવે તે મુજબ જરૂરી ૧:૨ ના સી.મો. વડે છાંદા છુંદી સાથે તથા દિવાલ અગરતો આર.સી.સી. વર્કમાં જરૂરી યોગ્ય તોડફોટ સાથે ફીટ કરી આપવાનું છે. જરૂરી જણાયે આવું એસ.એસ. ફેબ્રીકેશન વર્ક લાકડા કામમાં પણ જરૂરી સ્ક્રુ વગેરેથી ફીટ કરવાનું છે. જરૂર જણાયે સુચવવામાં આવે તો આવું એસ.એસ. ફેબ્રીકેશન વર્ક દિવાલો કે આર.સી.સી. કામમાં જરૂરી ડ્રીલીંગ મશીન વડે જરૂરી હોલ પાડી લાકડાની ડટ્ટીઓમાં સ્ક્રુ વડે ફીટ કરવાનું છે. આ ઉપરોક્ત વિગતે કામના ભાવ દર એક કિ.ગ્રા. પર સમજવાના છે. તૈયાર કામનું માપ લેવામાં આવશે.

(28) મચ્છર જાળી ફીટ કરી આપવાનું કામ

મ્યુ. કોર્પો. ધ્વારા સુચવાય તે જગ્યાએ પાસ કરવામાં આવે તે પ્રકારની મચ્છર જાળી લાવી જરૂરી ફીટીંગ કરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચોરસ મીટર પર સમજવાનો છે.

(29) કબુતર જાળી ફીટ કરી આપવાનું કામ

મ્યુ. કોર્પો. ધ્વારા સુચવાય તે જગ્યાએ પાસ કરવામાં આવે તે પ્રકારની કબુતર જાળી લાવી જરૂરી ફીટીંગ કરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચોરસ મીટર પર સમજવાનો છે.

(30) ફેન હુક સપલાય, ફીટીંગ કામ.

૧૨ એમ.એમ. ડાયાનાં સ્ટાન્ડર્ડ ટી.એમ.ટી. સળીયામાંથી ફેન હુક લાવી બનાવી મ્યુ. કોર્પો. સુચવે તેવી જગ્યાએ કાસ્ટીંગ કરેલાં સ્લેબમાં જરૂરી તોડફોટ કરી જરૂરી ૧:૨ નાં સીમેન્ટ રેતીનાં મોર્ટારમાં ફીનીસીંગ તથા છુંદાછુંદી કરી આપી કલર કરી આપી ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામનો ભાવ એક નંગ દીઠ સમજવાનો છે.

(31) ઈ-ઝેડ/૨૭ સેક્શન લાવી, બારી, દરવાજાની ફક્ત ફેમ બનાવવા નું કામ

મ્યુ. કોર્પો. સુચવે તે માપ સાઈઝનાં બારી દરવાજા માટે ઈ-ઝેડ/૨૭ સેક્શન લાવી ફક્ત ફેમ બનાવી ફેમ પર સુચવવામાં આવે તે ડીઝાઈનમાં એમ.એસ. સ્કવેર બાર લાવી કાપી, ૧૨ સે.મી. થી વધુ અંતર ન રહે તે પ્રમાણે વેલ્ડ કરી તૈયાર કામને સુચવાય તે જગ્યાએ જરૂરી ફીટીંગ-ફીક્સીંગ સાથે ફીટ કરી આપવાનું કમ્પલીટ કામ છે. તૈયાર કામને પ્રાઈમરનો એક હાથ અને ઓઈલ પેઈન્ટ લાવી તેનાં બે હાથ લગાવી આપવાનાં છે. તૈયાર કામનું માપ લેવામાં આવશે તથા ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(32) વડ વર્ક હાઉસર ફીટીંગ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે સ્ટાન્ડર્ડ કંપનીનાં જરૂરી ફીટીંગ-ફાસ્ટનીંગ્સ લાવી સુચવાય તે જગ્યાએ ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(33) મેટાલીક / પ્લાસ્ટીક કબાટ / વોર્ડ રોબ માટે ફીટીંગ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે સ્ટાન્ડર્ડ કંપનીનાં જરૂરી ફીટીંગ-ફાસ્ટનીંગ્સ લાવી સુચવાય તે જગ્યાએ ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(34) સીરામીક ટાઇલ્સ ફ્લોરીંગ નું કામ. ટાઇલ ઓન ટાઇલ

પાસ કરવામાં આવે તે કંપની અને શેડની એ-ગ્રેડ સીરામીક ટાઇલ્સ લાવી, સ્પેશ્યલ ગ્રેડ સિમેન્ટ બેઈઝડ પોલીમર એડહેસીવ કેમીકલ પ મી.મી. જાડાઈમાં વાપરી ટાઇલ-ઓન-ટાઇલ ફીટ કરવાનું કામ. સાંધાઓ, આ કેમીકલમાં લાદી કલરનો શેડ લાવી ભરવાના રહેશે. સાત દિવસ સુધી ક્યોરીંગ કરવાનું રહેશે.

(35) વિટ્રીફાઈડ ટાઇલ્સનું કામ. ટાઇલ ઓન ટાઇલ ફ્લોરીંગ

પાસ કરવામાં આવે તે કંપની અને શેડની એ-ગ્રેડ વિટ્રીફાઈડ ટાઇલ્સ લાવી, સ્પેશ્યલ ગ્રેડ સિમેન્ટ બેઈઝડ પોલીમર એડહેસીવ કેમીકલ પ મી.મી. જાડાઈમાં વાપરી ટાઇલ-ઓન-ટાઇલ ફીટ કરવાનું કામ. સાંધાઓ, આ કેમીકલમાં લાદી કલરનો શેડ લાવી ભરવાના રહેશે. સાત દિવસ સુધી ક્યોરીંગ કરવાનું રહેશે.

(36) રસ્ટીક એન્ટી સ્ક્રીડ ટાઇલ્સ ફ્લોરીંગ

યવ્યા મુજબ કંપની અને શેડની એ-ગ્રેડ રસ્ટીક એન્ટી સ્ક્રીડ ટાઇલ્સ લાવી, ૧:૮ સિમેન્ટ રેતીનાં પ્રમાણમાં મિશ્રણ કરી ૩૦ મીમી થી ૪૦ મીમી જાડાઈના બેડીંગ પર લાઈન લેવલ દોરીમાં ચોટક કરી આપી સાંધાઓ લાદી કલરની સિમેન્ટથી પુરી દસ દિવસ સુધી ક્યોરીંગ કરવા સાથેનું કમ્પલીટ કામ. તૈયાર કામનું માપ લેવાશે ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(37) ગ્રેનાઈટ ૧૯-૨૦ મીમી જાડાઈ ફ્લોરીંગ ૧:૬ સિમો બેડીંગ સાથે

આ કામમાં વાપરવાનો થતો ગ્રેનાઈટ સ્ટોન ૨૦ એમ.એમ. જાડો મ્યુ. કોર્પો. પાસ કરે તે કલર તથા માપ સાઈઝમાં લાવી ૧:૬ ના સી.મો. ના પ્રમાણમાં ૨૦ એમ.એમ. જાડો થર પાથરીને અથવા પ્લાસ્ટર કરી ને તેના પર સિમેન્ટ સ્લરી નાખી લાઈન લેવલમાં સફાઈદાર જરૂર જણાયે તેમજ સુચના અપાય તેવી રીતે ડીઝાઈન મેળવીને ગ્રેનાઈટ સ્ટોન ફીટ કરી આપી સ્ટોન વચ્ચેનાં સાંધાઓ જે તે કલર વાપરી વ્હાઈટ સિમેન્ટમાં ભેળવી પુરી આપવાનાં રહેશે. તથા દસ દિવસ સુધી તમામ કામને પાણી છાંટવાનું છે. બાદમાં સુચવ્યા મુજબ પોલીસીંગ તથા વેકસીંગ કરી આપવાનું કમ્પલીટ કામ છે. તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર ચો.મી. પર સમજવાનો છે. ગ્રેનાઈટ સ્ટોન ની ધાર પોલિશીંગ અલગ થી ગણવામાં આવશે. આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસીટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિં.



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(38) ઈન્ટરલોકીંગ રબર મોલ્ડ બ્લોકનું કામ.

(અ) ૬૦ થી ૬૫ મીમી જાડાઈ ધરાવતા :-

આ કામ જરૂર મુજબનું ખોદાણ કામ કરી, ફીટીંગના સ્થળે જરૂરી લેવલીંગ કરી, જરૂરી કોમ્પેક્શન કરાવી, ૧" થી ૧-૧/૨" જાડાઈમાં રેતી અથવા ગ્રીટ પાથરી, તેના પર સ્ટોન ડસ્ટ પાથરી બેઈઝ તૈયાર કરી, રબર મોલ્ડેડ ૬૦ થી ૬૫ મીમી જાડાઈ ધરાવતા - ૪૦ ન્યુટન / ચો મીમી સ્ટ્રેન્થ ધરાવતા (40 N / sq.mm compressive strength) તેમજ ઓફીસ ધ્વારા પાસ કરવામાં આવે તેવી ડીઝાઈન તથા કલર મુજબના પ્રિકાસ્ટ સીમેન્ટ કોન્ક્રીટ પેવિંગ બ્લોક કામના સ્થળે સપ્લાય કરી, પેવિંગ બ્લોક ફીટ કરવાના રહેશે. તેમજ પેવિંગ બ્લોકના છેડે સીમેન્ટ કોન્ક્રીટ ૧:૨:૪ ના પ્રમાણમાં વાટા કરી, પેવિંગ બ્લોકના વચ્ચેનાં જોઈન્ટસ માં સ્ટોન પાવડર કે પણા થી ફીલીંગ કરી, ક્યોરીંગ વોટરીંગ સાથે કમ્પલીટ કામ કરી આપવાનું રહેશે. પેવિંગ બ્લોક સાઈટ પર લાવ્યા બાદ તથા ફીટિંગ કરાયા બાદ ગમે ત્યારે દર ૩૦૦ ચો.મી. દીઠ તથા મીનીમમ એક વખત અત્રેની હાજરીમાં બ્લોકનાં નમુનાઓ લઈ ટેસ્ટીંગ માટે જરૂરી તમામ વ્યવસ્થા કરી ગેરી / સરકારી કોલેજ અથવા સુચવવામાં આવે તે લેબોરેટરીમાં કોન્ટ્રાક્ટરે સ્વખર્ચે ટેસ્ટીંગ કરાવી ટેસ્ટીંગ રીપોર્ટસ રજૂ કરવાનો રહેશે. ટેસ્ટીંગ કરાવતાં નિયત સ્ટ્રેન્થ નહિ મળે તો તેવા બ્લોક સાઈટ પરથી દૂર કરાવવાનાં રહેશે. ટેસ્ટીંગ બાદજ નિયત સ્ટ્રેન્થ ધરાવતાં પેવિંગ બ્લોકનું જ ફીટીંગ કરાવવાનું રહેશે. ૧૦ સેમી સુધીનું ખોદાણ આ આઈટમમાં ગણવામાં આવશે જે માટે ખોદાણનું કામ /૨કમ અલગથી નહિ અપાય. આ કામનો ભાવ ૧ ચો.મી. મુજબ આપવામાં આવશે.

(બી) ૮૦ મીમી જાડાઈ ધરાવતા :-

આ કામ જરૂર મુજબનું ખોદાણ કામ કરી, ફીટીંગના સ્થળે જરૂરી લેવલીંગ કરી, જરૂરી કોમ્પેક્શન કરાવી, ૧" થી ૧-૧/૨" જાડાઈમાં રેતી અથવા ગ્રીટ પાથરી, તેના પર સ્ટોન ડસ્ટ પાથરી બેઈઝ તૈયાર કરી, રબર મોલ્ડેડ ૮૦ મીમી જાડાઈ ધરાવતા - ૫૦ ન્યુટન / ચો મીમી સ્ટ્રેન્થ ધરાવતા (50 N / sq.mm compressive strength) તેમજ ઓફીસ ધ્વારા પાસ કરવામાં આવે તેવી ડીઝાઈન તથા કલર મુજબના પ્રિકાસ્ટ સીમેન્ટ કોન્ક્રીટ પેવિંગ બ્લોક કામના સ્થળે સપ્લાય કરી, પેવિંગ બ્લોક ફીટ કરવાના રહેશે. તેમજ પેવિંગ બ્લોકના છેડે સીમેન્ટ કોન્ક્રીટ ૧:૨:૪ ના પ્રમાણમાં વાટા કરી, પેવિંગ બ્લોકના વચ્ચેનાં જોઈન્ટસ માં સ્ટોન પાવડર કે પણા થી ફીલીંગ કરી, ક્યોરીંગ વોટરીંગ સાથે કમ્પલીટ કામ કરી આપવાનું રહેશે. પેવિંગ બ્લોક સાઈટ પર લાવ્યા બાદ તથા ફીટિંગ કરાયા બાદ ગમે ત્યારે દર ૩૦૦ ચો.મી. દીઠ તથા મીનીમમ એક વખત અત્રેની હાજરીમાં બ્લોકનાં નમુનાઓ લઈ ટેસ્ટીંગ માટે જરૂરી તમામ વ્યવસ્થા કરી ગેરી / સરકારી કોલેજ અથવા સુચવવામાં આવે તે લેબોરેટરીમાં કોન્ટ્રાક્ટરે સ્વખર્ચે ટેસ્ટીંગ કરાવી ટેસ્ટીંગ રીપોર્ટસ રજૂ કરવાનો રહેશે. ટેસ્ટીંગ કરાવતાં નિયત સ્ટ્રેન્થ નહિ મળે તો તેવા બ્લોક સાઈટ પરથી દૂર કરાવવાનાં રહેશે. ટેસ્ટીંગ બાદજ નિયત સ્ટ્રેન્થ ધરાવતાં પેવિંગ બ્લોકનું જ ફીટીંગ કરાવવાનું રહેશે. ૧૦ સેમી સુધીનું ખોદાણ આ આઈટમમાં ગણવામાં આવશે જે માટે ખોદાણનું કામ /૨કમ અલગથી નહિ અપાય. આ કામનો ભાવ ૧ ચો.મી. મુજબ આપવામાં આવશે

(39) ઈન્ટરલોકીંગ બ્લોકને કર્બીંગ કરવાનું કામ.

સુચવ્યા મુજબ ઈન્ટરલોકીંગ બ્લોક ખુલે નહી તે રીતે ૩૦ સેમી. ઉંડાઈ સુધી સાઈડમાં પત્થર મુકી, ખુલ્લા રહેતા ઓપનીંગમાં ૧:૧.૫:૩ ના પ્રમાણમાં કોન્ક્રીટ વાપરી ધાર બાંધી આપવાની છે. અને આઠ દિવસ સુધી ક્યોરીંગ કરવાનું છે. માપ રનીંગ મીટરમાં લેવામાં આવશે.

૪૦) સેમી મીરર પોલીસીંગ કરવાનું કામ. ફ્લોરીંગ કામનું પોલીસીંગ કરવાનું કામ.

સુચવ્યા મુજબ કહેવામાં આવે તે તેટલા પોલીસીંગ કરેલ ફ્લોરીંગ ને સેમી મીરર પોલીસીંગ વેકસીન સાથેનું કામ કરવાનું છે. માપ થયેલ કામના ચોરસ મીટર લેવામાં આવશે.



Bhavnagar Municipal Corporation



(૪૧) ગ્રેનાઈટ તપ્તી બનાવવાનું કામ.

સુચવવામાં આવેલ તે કલર તથા સારી કવોલીટીના ગ્રેનાઈટ લાવી સુચના મુજબ ની સાઈઝમાં તપ્તીની બોર્ડર લાઈન સુચના મુજબના લોગો તથા જે લખાણ આપવામાં આવે લખાણ કરી સુચવવામાં આવે તે સ્થળે શીફ્ટીંગ કરી જરૂરીયાત મુજબ દિવાલ અથવા તપ્તી સ્ટેન્ડમાં ફીટીંગ કરી આપવા સાથેનુકમ્પલીટ કામ આ કામનો તૈયાર તપ્તીના માપ મુજબ દર ચો.મીટર પ્રમાણે આપવામાં આવશે .

(૪૨) ગ્રેનાઈટ ની ફ્રેમ

(અ) ૧૨x૭ સે.મી. સેક્શન ની ફ્રેમ

આ કામમાં વાપરવાનો થતો ગ્રેનાઈટ સ્ટોન ૨૫ એમ.એમ. જાડો મ્યુ. કોર્પો. પાસ કરે તે કલર તથા માપ સાઈઝમાં પોલીસીંગ તથા વેકસીંગ સાથે અંદાજે ૧૫ સે.મી પહોળાઈના પટ્ટામાં ૧૨ x ૭ સે.મી સેક્શન ફ્રેમ બનાવી આ ફ્રેમ માં કટ માટે ૫ સે.મી ની ઓવર લેપ ફ્રેમ ફીટીંગ સુચના આપવામાં આવે તેવા ચોટક કેમીકલ/ મટેરીલ્સમાં ફીટીંગ કરી ડોરની ફ્રેમ બનાવી જરૂરી મટેરીલ્સથી ફીટીંગ કરવા સાથે આ ફ્રેમને અંદાજે ૧૦થી ૧૫ એન્કર ફાસ્ટનરથી દિવાલમાં ફીટીંગ ફીક્સીંગ કરી આપવાનું રહેશે. સાથેનુ કમ્પલીટ કામ કરી આપવાનું રહેશે તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર નંગ પર સમજવાનો છે. ગ્રેનાઈટ સ્ટોન ની ધાર પોલિશીંગ અલગ થી ગણવામાં આવશે નહીં . આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસીટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિં.

(બી) ૧૦x૭ સે.મી. સેક્શન ની ફ્રેમ

આ કામમાં વાપરવાનો થતો ગ્રેનાઈટ સ્ટોન ૨૫ એમ.એમ. જાડો મ્યુ. કોર્પો. પાસ કરે તે કલર તથા માપ સાઈઝમાં પોલીસીંગ તથા વેકસીંગ સાથે અંદાજે ૧૫ સે.મી પહોળાઈના પટ્ટામાં ૧૦ x ૭ સે.મી સેક્શન ફ્રેમ બનાવી આ ફ્રેમ માં કટ માટે ૫ સે.મી ની ઓવર લેપ ફ્રેમ ફીટીંગ સુચના આપવામાં આવે તેવા ચોટક કેમીકલ/ મટેરીલ્સમાં ફીટીંગ કરી ડોરની ફ્રેમ બનાવી જરૂરી મટેરીલ્સથી ફીટીંગ કરવા સાથે આ ફ્રેમને અંદાજે ૧૦થી ૧૫ એન્કર ફાસ્ટનરથી દિવાલમાં ફીટીંગ ફીક્સીંગ કરી આપવાનું રહેશે. સાથેનુ કમ્પલીટ કામ કરી આપવાનું રહેશે તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર નંગ પર સમજવાનો છે. ગ્રેનાઈટ સ્ટોન ની ધાર પોલિશીંગ અલગ થી ગણવામાં આવશે નહીં . આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસીટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિં.

(૪૩) કોટા સ્ટોન ની ફ્રેમ

(અ) ૧૨x૭ સે.મી. સેક્શન ની ફ્રેમ

આ કામમાં વાપરવાનો થતો કોટા સ્ટોન ૨૫ એમ.એમ. જાડો મ્યુ. કોર્પો. પાસ કરે તે કલર તથા માપ સાઈઝમાં પોલીસીંગ તથા વેકસીંગ સાથે અંદાજે ૧૫ સે.મી પહોળાઈના પટ્ટામાં ૧૨ x ૭ સે.મી સેક્શન ફ્રેમ બનાવી આ ફ્રેમ માં કટ માટે ૫ સે.મી ની ઓવર લેપ ફ્રેમ ફીટીંગ સુચના આપવામાં આવે તેવા ચોટક કેમીકલ/ મટેરીલ્સમાં ફીટીંગ કરી ડોરની ફ્રેમ બનાવી જરૂરી મટેરીલ્સથી ફીટીંગ કરવા સાથે આ ફ્રેમને અંદાજે ૧૦થી ૧૫ એન્કર ફાસ્ટનરથી દિવાલમાં ફીટીંગ ફીક્સીંગ કરી આપવાનું રહેશે. સાથેનુ કમ્પલીટ કામ કરી આપવાનું રહેશે તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર નંગ પર સમજવાનો છે. ગ્રેનાઈટ સ્ટોન ની ધાર પોલિશીંગ અલગ થી ગણવામાં આવશે નહીં . આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસીટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિં.



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(બી) ૧૦×૭ સે.મી. સેક્શન ની ફ્રેમ

આ કામમાં વાપરવાનો થતો કોટા સ્ટોન ૨૫ એમ.એમ. જાડો મ્યુ. કોર્પો. પાસ કરે તે કલર તથા માપ સાઈઝમાં પોલીસીંગ તથા વેકસીંગ સાથે અંદાજે ૧૫ સે.મી પહોળાઈના પટ્ટામાં ૧૦ × ૭ સે.મી સેક્શન ફ્રેમ બનાવી આ ફ્રેમ માં કટ માટે ૫ સે.મી ની ઓવર લેપ ફ્રેમ ફીટીંગ સુચના આપવામાં આવે તેવા ચોટક કેમીકલ/ મટેરીલ્સમાં ફીટીંગ કરી ડોરની ફ્રેમ બનાવી જરૂરી મટેરીલ્સથી ફીટીંગ કરવા સાથે આ ફ્રેમને અંદાજે ૧૦થી ૧૫ એન્કર ફાસ્ટનરથી દિવાલમાં ફીટીંગ ફીક્સીંગ કરી આપવાનું રહેશે. સાથેનું કમ્પલીટ કામ કરી આપવાનું રહેશે તમામ તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર નંગ પર સમજવાનો છે. ગ્રેનાઈટ સ્ટોન ની ધાર પોલિશીંગ અલગ થી ગણવામાં આવશે નહીં. આ કામમાં મશીનરી તથા મશીન ચલાવવા ઈલેક્ટ્રીસીટી તથા માણસો વિ. તમામ સગવડ કોન્ટ્રાક્ટરે કરવાની છે. તેનો કોઈપણ અલગ ભાવ આપવામાં આવશે નહિં.

(૪૪) એ.સી. શીટ/જી.આઈ. શીટ રૂફીંગ લેબર કામ ફક્ત ફીટીંગ

મ્યુ. કોર્પો. ધ્વારા આપવામાં આવે તે પ્રકાર અને સાઈઝનાં પતરાઓ, જરૂરી તમામ પ્રકારનાં ફીટીંગ્ઝ-ફીક્સીંગ લાવી (જે બોલ્ટ, એલબોલ્ટ, વાયસર વગેરે) સુચવેલ સ્થળે ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(૪૫) મેંગલોર તથા કન્ટી નળીયાનાં રૂફીંગને ચાળવાનું કામ

મ્યુ. કોર્પો. સુચવે તે જગ્યાએ હયાત મેંગલોર તથા કન્ટી નળીયાનાં રૂફીંગને ચાળવાનું કામ છે. આ કામ માટેની જરૂરી સ્કેફોલ્ડીંગ માણસો વગેરે વ્યવસ્થા કોન્ટ્રાક્ટરે કરવાની છે. તેનો ભાવ અલગથી આપવામાં આવશે નહીં. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(૪૬) મેંગલોર તથા કન્ટી નળીયાનાં છાપરૂ રી-ફીટીંગ કરવાનું કામ

મ્યુ. કોર્પો. સુચવે તે જગ્યાએથી હયાત મેંગલોર તથા કન્ટી નળીયાનાં છાપરૂ રી-ફીટીંગ કરવાનું કામ છે. આ કામ માટેની જરૂરી સ્કેફોલ્ડીંગ માણસો વગેરે વ્યવસ્થા કોન્ટ્રાક્ટરે કરવાની છે. તેનો ભાવ અલગથી આપવામાં આવશે નહીં. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(૪૭) નળીયા સપ્લાય કરવાનું કામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે માપ સાઈઝનાં વિદેશી/દેશી નળીયાઓ સુચવાય તે સાઈટ પર તુટકુટ ન થાય તે રીતે સપ્લાય કરી આપવાનાં છે. સાઈટ પર તુટકુટ વગરનાં નંગ ગણીને તે મુજબ ભાવ દર એક નંગ પર સમજવાનો છે.

(૪૮) વીલાયતી મોભીયા ૧:૨ સી.મો માં ફીટીંગ સાથે સપ્લાઈ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે જગ્યાએ જરૂરી વિલાયતી નળીયાઓના મોભીયા લાવી ૧:૨ પ્રમાણમાં સિ.મો. માં છાંટી ફીટ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.



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(49) વેન્ટિલેશન માં જી. આઈ. શીટ મારવાનું કામ.

સુચવવામાં આવે તે કંપનીની પ્લેન જી.આઈ. શીટ ૨૨ ગેજ ની લાવી, કહેવામાં આવે તે સ્થળે લગાવી આપવાની છે. શીટમાં સુચવ્યા મુજબનાં અંતરે ૩ એમ.એમ. ડાયાના હોલ કરવાના છે. તેમજ યોગ્ય લંબાઈનાં કટીંગ કરીને તેને લાકડા અથવા લોખંડમાં ફીટ કરી આપવાનું છે. હાઈટ પ્લાનમાં દર્શાવ્યા મુજબ રહેશે. નટ, બોલ્ટ, વોશર વિ. જરૂરી તમામ વસ્તુઓનો આ આઈટમમાં જ સમાવેશ કરવાનો રહેશે. માપ થયેલ કામનું લેવામાં આવશે.

(50) સીલનટ ભરવાનું કામ.

છાપરામાં દિવાલ તથા શીટનાં જોઈન્ટમાં ૧:૨ સી.મો. માં વાટા તેમજ કહેવામાં આવે તે કંપનીનું સીલનટ લાવી, સાંધામાં ભરી આપવાનું કમ્પલીટ કામ. માપ રનીંગ મીટરમાં લેવામાં આવશે.

(51) જીપ્સમ બોર્ડ ફોલ્સ સીલીંગ

આપેલ ડિઝાઈન / સ્ટેપ મુજબ સસ્પેન્ડેડ જીપ્સમ બોર્ડ ફોલ્સ સીલીંગ કરવા માટે જીપબોર્ડ કંપની નાં તેનાં સ્પેસીફિકેશન મુજબના સેન્ટરે સ્ટાન્ડર્ડ સેક્શન / મટીરીયલ સોફ્ટ કલિટ વાપરી, લાંબા અને જાડા ફોલ્સ સીલીંગ માટેના સ્પેશ્યલ બોલ્ટ ને સીલીંગમાં (રાઉલ પ્લગ લગાવી)આંટા ચડાવી પીલી ને ફીટ કરીને,તેની સાથે એપ્ટ્ડ કરાવેલ સીલીંગ એન્ગલ / સસ્પેન્ડેડ પટ્ટી લગાવીને,તેની સાથે અન્ય મેમ્બર લગાવી ૧૨ મીમી જાડાઈના જીપસમ બોર્ડ ના જોઈન્ટ જ્યાં આવતા હોય ત્યાં જોઈન્ટ ને ક્રોસ માં ખોતરી ને પીઓપી / લાપી વડે ફીનીશીંગ કરી એડહેસીવ ટેપ વડે જોઈન્ટ ને પેક કરવા સાથે દિવાલો પાસે નાં જોઈન્ટ/ગેપ ૫ મીમી થી વધુ ન રહે તેમ જીપબોર્ડ નું ફીટીંગ કરી ફોલ્સ સીલીંગ તૈયાર કરી આપવાનું કમ્પલીટ કામ.

(૫૨) પ્રી કોટેડ કલર જી.આઈ. શીટ રૂફિંગ

મ્યુ. કોર્પો. પાસ કરે તેવી લંબાઈ તથા પહોળાઈનાં સારી કંપનીનાં સુચના મુજબની જાડાઈનાં પ્રી કલર કોટેડ જી. આઈ. કોરુગેટેડ શીટ લાવી ૮ એમ.એમ. નાં જી.આઈ. આયર્ન, જે બોલ્ટ, એલ બોલ્ટ, તથા ગેલ્વે. અને બીટુમીનન વોશર વાપરી આડા ૧૦ સે.મી. ઓવર લીપીંગ રહે તે રીતે ગોઠવી તથા ઉભા ઓવર લેપ ૧૫ સે.મી. રહે તે રીતે ફીટ કરવા તથા જરૂરી ફીક્સીંગ લાવી ફીટ કરવા સાથેનું કમ્પલીટ કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. ઉપર સમજવાનો છે. (ફિબ્રીકેશન કામ અલગ ગણવાનું છે.)

(53) વી નોચ ફ્રેક / તીરાડ ફીલીંગ

મ્યુ. કોર્પો. સુચવે તે અનુસાર આર.સી.સી. કામ તથા ઈટ ચણતર કામમાં થયેલી તીરાડોને ચીજલીંગથી સુચના અપાય તેવી ઉડાઈમાં ચીજલીંગથી 'વી' નોચ કરી, સપાટી સાફ કરી, પાણીથી તરે કરી ૧:૩ નાં સિ.મો. માં ગ્રાઉટીંગ કરી દિન-૮ સુધી કયોરીંગ કરી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે.

(54) ડબલ કોટ માલા પ્લાસ્ટર (૧૦ મીટર અને ૧૦ મીટર થી ૨૦ મીટર ઉંચાઈ લેવલ સુધી)

મ્યુ. કોર્પો. પાસ કરે તેવી સારી ચાળેલી રેતી લાવી સુચવ્યા મુજબની ઉંચાઈ હાઈટ લેવલ સુધીની જે તે સપાટી પાણીથી તરે કર્યા બાદ જરૂરી ઠયાઓ કરી એક સરખું દોરીએ, ઓળખે લાઈન લેવલે ખાડા ખડીયા વગર ૧:૩ સિ.મો. નાં પ્રમાણમાં ૧૨ એમ.એમ. જાડો પ્રથમ કોટ નું પ્લાસ્ટર કરવાનું છે. ત્યારબાદ બીજા દિવસે આ પ્રથમ કોટ પર મ્યુ. કોર્પો. પાસ કરે તેવો સુરેન્દ્રનગરનો પણો લાવી આપી ૧:૨



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નાં પ્રમાણમાં ૮ એમ.એમ. જાડો બીજો કોટ નું પ્લાસ્ટર કરવાનું છે. તૈયાર કામ પર દસ દિવસ સુધી પાણી છાંટી ક્યોરીંગ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. મુજબ સમજવાનો છે.

(55) ઓઈલ પેઈન્ટીંગ નું કામ (લાપી ટર્ચીંગ ફક્ત).

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તે કંપનીનાં તથા કલર શેડસનો ઓઈલ પેઈન્ટ લાવી જે તે સપાટી ઘસી, સાફ કરી, લાપી ભરી, સપાટી સ્મુધ કરી લોખંડ કામ, લાકડા કામ/દિવાલ પર પ્રથમ પ્રાઈમરનો હાથ લગાવી તેનાં પર ઓઈલ પેઈન્ટનાં બે હાથ લગાવી આપવાનું કમ્પ્લીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(56) એડીશનલ કોટ ઓઈલ પેઈન્ટીંગ

આઈટમ નં. ૫૫ મુજબના કામમાં એડીશનલ કોટ જરૂરી સુચના મુજબ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(57) ફ્રેન્ચ પોલીશ પેઈન્ટીંગ નું કામ.

મ્યુ. કોર્પો. પાસ કરે તેવા ફ્રેન્ચ પોલીશ માટે સુચના મુજબના લકડાકામ પર સપાટી સાફ કરી, ઘસી, લાપી ભરી સપાટી સ્મુધ કરી, વુડ ફીલર કોટ ભર્યા પછી તેના ઉપર એક હાથ પ્રાઈમરનો લગાવી, બે હાથ ફ્રેન્ચ પોલીશ લાવી લગાવી આપવાનું કમ્પ્લીટ કામ છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(58) કોલટાર પેઈન્ટીંગ નું કામ.

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા લાકડા કામ પર કોલટાર લાવી તેનાં લાકડા કામ પર બે હાથ લગાવી આપવાનાં છે. પ્રથમ કોટમાં ૦.૧૬ લીટર/ચો.મી. તથા બીજા કોટમાં ૦.૧૨ લીટર/ચો.મી. મુજબ કોલટાર વાપરવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(59) સ્પ્રે કલર ઓઈલ પેઈન્ટીંગ નું કામ.

સપાટી સાફ કરી, જરૂર જણાય ત્યાં પ્લાસ્ટર ઓફ પેરીસથી/લાપીથી ટર્ચીંગ કરી, કોર્પોરેશન પાસ કરે તેવો સ્ટાન્ડર્ડ કંપની અને શેડનો ઓઈલ પેઈન્ટ લાવી સ્પ્રે વડે બે કોટ કલર કામ કરવાનું છે. તેનો ભાવ દર એક ચોરસમીટર પર સમજવાનો છે.

(60) લાકડા કામની સપાટીને પોલીશ કરવાનું કામ.

સુચના મુજબ નવા કે અન્ય લાકડા કામની સપાટી ઘસી સાફ કરવાની રહેશે. ત્યારબાદ એક કોટ વુડ ફીલર લગાવી આપી ત્યારબાદ કહેવામાં આવે તે કંપનીનો પોલીશ લાવી બે કોટ લગાવી આપવાના રહેશે. ભાવ એક ચોરસમીટર પર સમજવાનો છે.

(61) ઓઈલ પેઈન્ટીંગ નું ફેલ લાપી કરવા સાથેનું કામ.

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તે કંપનીના તથા શેડનો ઓઈલ પેઈન્ટ લાવી જે તે સપાટી ઘસી, સાફ કરી, સંપૂર્ણ સપાટી પર લાપી ભરી, સપાટી સ્મુધ કરી પ્રથમ પ્રાઈમરનો એક હાથ લગાવી તેના પર બે કોટ ઓઈલ પેઈન્ટના લગાવી આપવાના છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(62) એડીશનલ કોટ ઓઈલ પેઈન્ટીંગ ફલ લાપી સાથે

આઈટમ નં. ૬૧ મુજબના કામમાં એડીશનલ કોટ જરૂરી સુચના મુજબ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(63) પ્લાસ્ટીક ઈમ્યુલ્ઝન પેઈન્ટીંગ નું કામ.

સદરહુ કામ માટે સીટી એન્જીનીયરશ્રી સુચવે તે મુજબ બેસ્ટ મેન્યુનો લાવવાનો છે. સાઈટ ઉપર લાવી પાસ કરાવ્યા બાદ ઉપયોગમાં લેવાનો છે. જેવા કલરનું કામ કરવાનું કહેવામાં આવે તેવા કલરના "શેડ" નું કામ કરી આપવાનું છે. આ કામ માટે કલરનાં જુદા જુદા નમુના તૈયાર કરી તેમાંથી પાસ કરવામાં આવે તે સરફેસ કાચ પાએલા કાગળથી ઘસી સાફ કરી જરૂર જણાય ત્યાં પ્લાસ્ટર ઓફ પેરીસ લગાવી તેના પર પ્રથમ એક હાથ પ્રાયમર લગાડી બાદ પાકા (પ્લાસ્ટીક ઈમ્યુલ્ઝન પેઈન્ટના) રંગના બે હાથ મારી આપવાનાં છે. તમામ કામ સારૂ સફાઈદાર કરવાનું છે. બ્રશના લીટા કે સળ ન દેખાય તે પ્રમાણે કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(64) એડીશનલ કોટ પ્લાસ્ટીક ઈમ્યુલ્ઝન ફલ લાપી સાથે

આઈટમ નં. ૬૩ મુજબના કામમાં એડીશનલ કોટ જરૂરી સુચના મુજબ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(65) એસ કલરનું કામ.

વાયર બ્રશ વડે સપાટી ઘસી, કહેવામાં આવે તે શેડનો એકસ કલર લાવી, એક કોટ પ્રાઈમર તથા બે કોટ એકસ કલર લગાવી આપવાના છે. તમામ કામ સારૂ સફાઈદાર કરવાનું છે. બ્રશના લીટા કે સળ ન દેખાય તે પ્રમાણે કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર એક ચોરસ મીટર પર સમજવાનો છે.

(66) એડીશનલ કોટ એસ કલરનું કામ .

આઈટમ નં. ૬૫ મુજબના કામમાં એડીશનલ કોટ જરૂરી સુચના મુજબ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(67) એપેક્સ/સ્નોકીલ એકસટીરીયર કલરનું કામ.

વાયર બ્રશ વડે સપાટી ઘસી, કહેવામાં આવે તે શેડનો એપેક્સ/સ્નોકીલ-એકસ.ટી. (એક્રેલીક અને સીલીકોન બેઈઝડ) લાવી, એક કોટ પ્રાઈમર તથા બે કોટ એપેક્સ/ સ્નોકીલ-એકસ.ટી. કલર લગાવી આપવાના છે. તમામ કામ સારૂ સફાઈદાર કરવાનું છે. બ્રશના લીટા કે સળ ન દેખાય તે પ્રમાણે કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. તેનો ભાવ દર એક ચોરસ મીટર પર સમજવાનો છે.

(68) એડીશનલ કોટ એપેક્સ/સ્નોકીલ એકસટીરીયર કલરનું કામ .

આઈટમ નં. ૬૬ મુજબના કામમાં એડીશનલ કોટ જરૂરી સુચના મુજબ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(69) મેંગલોર/કન્ટ્રી નળીયાનું રૂફીંગ ખોલવા/તોડવા નુંકામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા બાંધકામનાં મેંગલોર અથવા કન્ટ્રી નળીયાનાં છાપરાને નળીયાઓ કુટે નહિ તે રીતે બાંધકામ કે હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તેમ જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી ઉતારી આપવાનાં/તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. ઉપયોગી મટીરીયલ અલગ તારવી આપવાનું છે. તથા મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(70) લાકડાનું ફ્રેમ વર્ક, ટ્રસીસ મેમ્બરો ખોલવા/તોડવા નુંકામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા બાંધકામનાં લાકડાનું ફ્રેમ વર્ક, ટ્રસીસ મેમ્બરો વગેરે તુટે નહિ તે રીતે બાંધકામ કે હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તેમ જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી ખોલી આપવાનું / ઉતારી આપવાનું/તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. ઉપયોગી મટીરીયલ અલગ તારવી આપવાનું છે. તથા મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(71) લોખંડ નું ફ્રેમ વર્ક, ટ્રસીસ મેમ્બરો ખોલવા/તોડવા નુંકામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તેવા બાંધકામના લોખંડનું ફ્રેમ વર્ક, ટ્રસીસ તથા તેના કમ્પોનન્ટસ વગેરે ને તુટે નહિ તે રીતે બાંધકામ કે હયાત બાંધકામનાં અન્ય ભાગોને નુકશાન ન થાય તેમ જરૂરી સ્કેફોલ્ડીંગ તથા તોડફોડ માલ-સામાન, માણસો વગેરે લાવી ખોલી આપવાનું / ઉતારી આપવાનું/તોડી આપવાનું છે. તુટી પડેલાં ખરાબાને ૮ કી.મી. ની લીડમાં સુચવવામાં આવે તે રીતે સ્ટેકીંગ કરી પાથરી આપવા સાથેનું કમ્પલીટ કામ કરવાનું છે. આ કામમાં ઉપયોગમાં લેવાતા માણસોની જાનહાની અથવા કોઈ અકસ્માતની સંપૂર્ણ જવાબદારી કોન્ટ્રાક્ટરનાં શીરે રહેશે. ઉપયોગી મટીરીયલ અલગ તારવી આપવાનું છે. તથા મ્યુ. સ્ટોર કે સુચના અપાય ત્યાં પહોંચાડી આપવાનું છે. થયેલાં કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(72) વૂડન પાર્ટીશન ડીસમેન્ટલીંગ

કહેવામાં આવે તે જગ્યાએ પાર્ટીશન ડીસમેન્ટલીંગ કરવાનું રહેશે. કાચ, વિ. આઈટમોને નુકશાન ન થાય તે રીતે છુટી પાડવાની રહેશે. ઘોઠા, પ્લાય, પટ્ટીઓ વગેરે તુટયા વગર છુટી પાડી અલગ કરવાની રહેશે. આ તમામ વસ્તુ ૮ કિ.મી. ની લીડમાં કહેવામાં આવે તે સ્થળે પહોંચતી કરવાની રહેશે. ભાવ પાર્ટીશનના ચો.મી. નો સમજવાનો રહેશે.

(73) એલ્યુમીનીયમ પાર્ટીશન ડીસમેન્ટલીંગ

કહેવામાં આવે તે જગ્યાએ પાર્ટીશન ડીસમેન્ટલીંગ કરવાનું રહેશે. કાચ, વિ. આઈટમોને નુકશાન ન થાય તે રીતે છુટી પાડવાની રહેશે. ઘ પટ્ટીઓ વગેરે તુટયા વગર છુટી પાડી અલગ કરવાની રહેશે. આ તમામ વસ્તુ ૮ કિ.મી. ની લીડમાં કહેવામાં આવે તે સ્થળે પહોંચતી કરવાની રહેશે. ભાવ પાર્ટીશનના ચો.મી. નો સમજવાનો રહેશે.



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(74) પાઈપ લાઈન ઓપનીંગ કામ

મ્યુ. કોર્પો. સુચવે તેવી પાઈપ લાઈન (સી.આઈ., સ્ટોનવેર, એસી) જરૂરી ખોદાણ કામ કરી, પાઈપ લાઈન તુટે નહી તે રીતે સાંધાઓમાંથી છુટા પાડીને બહાર કાઢી, મ્યુ. કોર્પો. સુચવે તે રીતે ૮ કી.મી. ની લીડમાં સ્ટેકીંગ કરી આપવાનું તથા કરેલું ખોદાણ પુરી આપવા સાથેનું કમ્પલીટ કામ છે. થયેલા કામનું માપ લેવામાં આવશે ભાવ દર એક રનીંગ મીટર પર સમજવાનો છે.

(75) પી વી સી પાઈપ રેઈન વોટર સ્પાઉટ,

મ્યુ. કોર્પો. પાસ કરે તેવી સારી ક્વોલીટીનાં સ્ટાન્ડર્ડ આઈ.એસ.આઈ. માર્ક ધરાવતી કંપની નાં પી વી સી પાઈપ રેઈન વોટર સ્પાઉટ, અંદર ગાળે ૦.૧૦ મીટર (૧૦૦ એમ.એમ.) ડાયાની સાઈઝ ધરાવતાં લાવી ૦.૭૫ મીટર લંબાઈમાં કટીંગ કરી, સુચના આપવામાં આવે ત્યાં લાઈન લેવલમાં ફીટ કરી જરૂરી સિમેન્ટ મોર્ટાર (૧:૩) માં છાંટી આપવાનું કમ્પલીટ કામ કરવાનું છે.

(76) વોશ બેસીન સપલાય, ફીટીંગ

મ્યુ. કોર્પો. પાસ કરે તેવી સ્ટાન્ડર્ડ કંપનીની અને માપ સાઈઝની સીરામીક વોશ બેશીન, એમ.એસ. બ્રેકેટ તથા જરૂરી ફીટીંગ ફીકસીંગ પ્લગ ટી સાથે લાવી સૂચવાય ત્યાં કન્સીલ્ડ ફીટીંગ કરી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(77) ટ્રેપ જાળી ફીટ કરી આપવાનું કામ.

સુચવ્યા મુજબ કંપની અને મટીરીયલની ૬"×૬" ની જાળી લાવી, લાઈન, લેવલમાં ફીટ કરી આપવાની છે. ભાવ એક નંગનો સમજવાનો રહેશે. મટીરીયલના પ્રકાર પ્રમાણે આઈટમમાં દર્શાવ્યા મુજબ અલગ અલગ ભાવ રહેશે.

(78) બાર્બડ વાયર ફેન્સીંગ કામ.

જી. આઈ. સ્ટીલની ૯.૩૮ કીલો / ૧૦૦ મીટર મુજબની બાર્બડ વાયર ફેન્સીંગ કામ માટે ૨.૦ મી. લાંબા ૫૦×૫૦×૬ એમ.એમ. સાઈઝની એમ.એસ. ઍંગલ લાવી છોડાઓ ફાડી, જરૂરી હોલ પાડી દર ૨.૫૦ મીટરનાં અંતરે તથા દરેક ખુણા પર અને દર ૩૦ મીટરે સપોર્ટ માટે જરૂરી ૦.૪૫×૦.૪૫×૦.૪૫ નાં ખાડાઓ કરી તેમાં લાઈન લેવલ ઓળંભે ૧.૫૫ મીટર જમીન બહાર રહે તેમ ઉભા કરી મશીન ક્રસ કપચી ૧૦ થી ૧૨ એમ.એમ. સાઈઝની લાવી ૧:૩:૬ નાં સિમેન્ટ કોક્રીટ (૦.૪૫×૦.૪૫×૦.૪૫) કરી ઍંગલો ફીટ કરવાની છે. સપોર્ટનાં ઍંગલો જરૂરી નટ-બોલ્ટ લાવી ફીટ કરવાનાં છે. તથા ૮ દિવસ પાણીથી કયોરીંગ કર્યા બાદ, બાર્બડ વાયરની આડી પાંચ લાઈનો તથા બે લાઈન ચોકડી પડે તેમ ઍંગલોના હોલમાં જી.આઈ. પીન સાથે ખેંચી ફીટ કરી આપવાનું છે. તૈયાર કામ પર બાર્બડ વાયર સિવાય પ્રાઈપરનો એક હથા તથા સ્ટાન્ડર્ડ કંપનીના ઓઈલ પેઈન્ટનાં બે હાથ લગાવી આપવાનાં છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ૨.મી. પર સમજવાનો છે.

(79) મોજેક/ધાબા લાટી જુના વાટા ફીલીંગ કામ

મ્યુ. કોર્પો. ધ્વારા સુચવવામાં આવે તે જગ્યાએ મોજેક/ધાબા લાટીમાં જે તે શેડવાળી લાટી મુજબની સિમેન્ટ વાપરી જરૂર જણાયે તેમાં જરૂરી કલર ઉમેરીને સિમેન્ટ પેઈસ્ટથી વાટા કરવાનું છે. જુના વાટા પ્રથમ ખોતરી સાફ કરી આપવાના છે. તથા તૈયાર કામને દિન-૮ સુધી કયોરીંગ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(80) હાઈડ્રોલીક ડોર કલોઝર સપ્લાઈ જરૂરી ફીટીંગ સાથે

મ્યુ. કોર્પો. પાસ કરે તેવું સ્ટાન્ડર્ડ આઈ.એસ.આઈ. માર્કવાળુ હાઈડ્રોલીક ડોર કલોઝર લાવી સુચવ્યા મુજબની જગ્યાએ જરૂરી ફીટીંગ સાથે ફીટ કરી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે ભાવ દર એક નંગ પર સમજવાનો છે.

(81) હાઈડ્રોલીક ફ્લોર સ્પ્રિંગ ડોર કલોઝર સપ્લાઈ જરૂરી ફીટીંગ સાથે

મ્યુ. કોર્પો. પાસ કરે તેવું સ્ટાન્ડર્ડ આઈ.એસ.આઈ. માર્કવાળુ હાઈડ્રોલીક ફ્લોર સ્પ્રિંગ ડોર કલોઝર લાવી સુચવ્યા મુજબની જગ્યાએ જરૂરી ફીટીંગ સાથે ફીટ કરી આપવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે ભાવ દર એક નંગ પર સમજવાનો છે.

(82) એલ્યુમીનીયમ ના હેવી સેક્શન નું પાર્ટીશન

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તે ડીઝાઈન મુજબ નું પાર્ટીશન માટે આઈટમ માં દર્શાવેલ માપ સાઈઝ નાં એલ્યુમીનીયમ સેક્શન લાવી જરૂરી તમામ ફીટીંગ-ફિક્સીંગ સાથે પાનેલમાં સ્ટાન્ડર્ડ કંપનીનો અનબ્રેકેબલ ફાઈબર ગ્લાસ / પી.વી.સી. ફીલર ફીટ કરી આપી જે તે સ્થળે જરૂરી તમામ ફીટીંગ ફિક્સીંગ સાથે ફીટ કરવાનું કમ્પલીટ કામ કરવાનું છે. તમામ એલ્યુમીનીયમ સેક્શન સાદું તથા ૧.૫ મીમી જાડાઈ નું વાપરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(83) પાવડર કોટેડ એલ્યુમીનીયમ ના હેવી સેક્શન નું પાર્ટીશન

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તે ડીઝાઈન મુજબ નું પાર્ટીશન માટે આઈટમ માં દર્શાવેલ માપ સાઈઝ નાં એલ્યુમીનીયમ સેક્શન લાવી જરૂરી તમામ ફીટીંગ-ફિક્સીંગ સાથે પાનેલમાં સ્ટાન્ડર્ડ કંપનીનો અનબ્રેકેબલ ફાઈબર ગ્લાસ / પી.વી.સી. ફીલર ફીટ કરી આપી જે તે સ્થળે જરૂરી તમામ ફીટીંગ ફિક્સીંગ સાથે ફીટ કરવાનું કમ્પલીટ કામ કરવાનું છે. તમામ એલ્યુમીનીયમ સેક્શન પાવડર કોટેડ તથા ૧.૫ મીમી જાડાઈ નું વાપરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(84) એલ્યુમીનીયમ ના હેવી સેક્શન નાં બારી / દરવાજા

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તે ડીઝાઈન મુજબ નું પાર્ટીશન ની બારી/દરવાજાની ડીઝાઈન માટે આઈટમમાં દર્શાવેલ માપ સાઈઝનાં એલ્યુમીનીયમ સેક્શન લાવી જરૂરી તમામ ફીટીંગ-ફિક્સીંગ સાથે પાનેલમાં સ્ટાન્ડર્ડ કંપનીનો અનબ્રેકેબલ ફાઈબર ગ્લાસ / પી.વી.સી. ફીલર ફીટ કરી આપી તૈયાર બારી / દરવાજા જે તે સ્થળે જરૂરી તમામ ફીટીંગ ફિક્સીંગ સાથે ફીટ કરવાનું કમ્પલીટ કામ કરવાનું છે. તમામ એલ્યુમીનીયમ સેક્શન સાદું તથા ૧.૫ મીમી જાડાઈ નું વાપરવાનું છે. બારણા માટે ૮૫ મીમી ના સેક્શન વાપરવાના રહેશે. તૈયાર કામનું માપ લેવાશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(85) પાવડર કોટેડ એલ્યુમીનીયમ ના હેવી સેક્શન નાં બારી / દરવાજા

મ્યુ. કોર્પો. ધ્વારા પાસ કરવામાં આવે તે ડીઝાઈન મુજબ નું પાર્ટીશન ની બારી/દરવાજાની ડીઝાઈન માટે આઈટમમાં દર્શાવેલ માપ સાઈઝનાં એલ્યુમીનીયમ સેક્શન લાવી જરૂરી તમામ ફીટીંગ-ફિક્સીંગ સાથે પાનેલમાં સ્ટાન્ડર્ડ કંપનીનો ૫ મીમી જાડો અનબ્રેકેબલ ફાઈબર ગ્લાસ / ૪ મીમી પી.વી.સી. ફીલર ફીટ કરી આપી તૈયાર બારી / દરવાજા જે તે સ્થળે જરૂરી તમામ ફીટીંગ ફિક્સીંગ સાથે ફીટ કરવાનું કમ્પલીટ કામ કરવાનું છે. તમામ એલ્યુમીનીયમ સેક્શન પાવડર કોટેડ તથા ૧.૫ મીમી જાડાઈ નું વાપરવાનું છે. બારણા માટે ૮૫ મીમી ના સેક્શન વાપરવાના રહેશે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.



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(86) એલ્યુમીનીયમ ના પાવડર કોટેડ હેવી સેક્શન નું પાર્ટીશન- એલ્યુમીનીયમ સેક્શન વગર

સંસ્થા એ આપેલ એલ્યુમીનીયમ ના હેવી સેક્શન તથા કલીપ પટી વાપરી પાવડર કોટીંગ કરી સુચવ્યા મુજબનું પાર્ટીશન આપવામાં આવે તે ડિઝાઈન મજબ ઘટતું મટીરીયલ સ્ટાન્ડર્ડ કંપનીનાં રબર સ્ટ્રીપ / ગ્લાસ / પેનલ / પ્લાય/કલીપ/નટ બોલ્ટ સ્ક્રુ વાપરી, સુચવ્યા મુજબ સ્થળે ફીટીંગ ફીક્સીંગ સાથે કમ્પલીટ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(87) એલ્યુમીનીયમ સેક્શન નું પાર્ટીશન તથા ડોર – રી – ફીટીંગ મજૂરી

સુચવ્યા મુજબ પાર્ટીશન ખોલી, કહેવામાં આવે તે સ્થળે રીફીટીંગ કરવાનું કમ્પલીટ કામ. નેઈલ, સ્ક્રૂ વગેરે આ આઈટમમાં જ ગણવામાં આવશે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(88) રબર સ્ટ્રીપ ગ્લાસ / પ્લાઈ એલ્યુમીનીયમ સેક્શન પાર્ટીશન માટે

સંસ્થા એ આપેલ એલ્યુમીનીયમ ના હેવી સેક્શનમાં આવે તે ડિઝાઈન મજબ સ્ટાન્ડર્ડ કંપનીનાં રબર સ્ટ્રીપ / ગ્લાસ / પેનલ / પ્લાય/કલીપ/નટ બોલ્ટ સ્ક્રુ વાપરી, સુચવ્યા મુજબ સ્થળે ફીટીંગ ફીક્સીંગ સાથે કમ્પલીટ કરી આપવાનું કામ. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(89) પી.વી.સી. સોલીડ દરવાજા (રીજીડ સોલીડ પી.વી.સી.ના વેણી ધોકા વાળા)નું કામ.

સૂચવેલ કંપની નાં રીજીડ પી.વી.સી. સોલીડ પ્રોફાઈલ નાં એફ.પી. ૭૧૧૪ (FP 7114) સેક્શન થાન્ગા બોન્ડ સોલ્વન્ટ બેઈઝ પી.વી.સી. એડહેસીવ વડે જોઈન્ટ કરી તથા ગ્રુવ માં ૪૦×૨૦×૧૯ ગેજ એમ.એસ. પાઈપ ફ્રેમ " [" શેઈપ (MS pipe frame "C" 40x20x19g) સ્ટીફનર વાપરી ૭૧×૩૦ સેમી સાઈઝ નાં વેણી-ધોકા તૈયાર કરી, ૧૫×૧૫ મીમી ની બિડીંગ તથા ૪ મીમી જાડાઈની હાઈપ્રેશર કોમ્પેક્ટ લેમીનેટસ વાપરી પાસ કરે તે મુજબના કલર અને ડિઝાઈન મુજબ સૂચવેલ સાઈઝ માં શટર તૈયાર કરી ૪" નાં ત્રણ હેવી મીજાગરા, ક્રોમીયમ પ્લેટેડ એમ.એસ. ના હાર્ડવેર – અંદર બહાર ૫" હેન્ડલ, ૧-૧ નંગ ૧૦" એમ.એસ. આલ્ડ્રાફ, ૮" તાડી, ૮" સ્ટોપર જરૂરી સ્ક્રુ સાથે સુચવ્યા મુજબ ના સ્થળે ફીટીંગ કરી આપવા સાથે નું કમ્પલીટ કામ. તૈયાર કામનું માપ લેવાશે ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(90) પી.વી.સી. (હોલો પીવીસી)ડોર

સુચવવામાં આવે તે મુજબની સ્ટાન્ડર્ડ કંપનીના હોલો પી.વી.સી. સેક્શન વાપરી વેણી-ધોકા તૈયાર કરી, સૂચના મુજબ લેમીનેટસ વાપરી તૈયાર પી.વી.સી. દરવાજા પાસ કરે તે મુજબના કલર અને ડિઝાઈન મુજબ લાવી સ્થળે તમામ ફીટીંગ ફીક્સીંગ સાથેનું કમ્પ કામ. તૈયાર કામનું માપ લેવાશે ભાવ દર એક ચો.મી. પર સમજવાનો છે.

(91) સિમેન્ટ માં સ્ટાન્ડર્ડ વોટર પ્રુફીંગ વડે અગાશી માં વોટર પ્રુફીંગ

મ્યુ. કોર્પો. ધ્વારા કહેવામાં આવે અને સુચવવામાં આવે તે પ્રકારનું સ્ટાન્ડર્ડ વોટર પ્રુફીંગ મટીરીયલ / કેમીકલ લાવી વાપરીને પાણીની ટાંકી / અગાસીમાં ગ્રે સિમેન્ટ / વ્હાઈટ સિમેન્ટમાં વોટર પ્રુફીંગ ટ્રીટમેન્ટ કરી આપવાની છે. તૈયાર કામનું માપ લેવામાં આવશે તથા ભાવ દર એક ચો. મી. પર સમજવાનો છે.



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(92) ફેન્સીંગ માટે ઍંગલ સપ્લાઈ અને ફીટીંગ ફીકસીંગ

મ્યુ. કોર્પો. ધ્વારા કહેવામાં અને સુચવવામાં આવે તે જગ્યાએ ૫૦×૫૦×૬ એમ.એમ. ની સાઈઝની ૨.૩૦ મીટર લાંબી અને એમ.એસ. ઍંગલો લાવી છેડાઓ ફાડી, સ્થળે ૦.૪૫×૦.૪૫×૦.૪૫ મીટરનાં ખાડા કરી તેમાં ૧:૨:૪ નાં પ્રમાણમાં જરૂરી મટીરીયલ લાવી સીમેન્ટ કોન્ક્રીટ કામ કરી આપી, ઍંગલોમોં જરૂરી હોલ પાડી ફેન્સીંગ સાથે ફીટ કરવાનું કમ્પલીટ કામ છે. તૈયાર કામનો રેડોક્સાઈડનો એક હાથ તથા ઓઈલ પેઈન્ટનાં બે હાથ લગાવી આપવાનું કમ્પલીટ કામ કરવાનું છે. તૈયાર કામનું માપ લેવામાં આવશે. ભાવ દર એક નંગ પર સમજવાનો છે.

(93) ક્રેકમાં ગ્રાઉટીંગ કરવાનું કામ.

સુચવ્યા મુજબની ક્રેકને ૨૦ એમ.એમ. પહોળી તેમજ ૧૨ થી ૧૫ એમ.એમ. ઉંડાઈ સુધી ખોલવાની રહેશે. ત્યારબાદ "પાર-પેચ" ના મટીરીયલથી ફિલીંગ કરવાની રહેશે. અને તેમાં ૯" ના અંતરે ૧૦ એમ.એમ. ડાયાનો હોલ ૩" ઉંડાઈનો કરી તેમાં પીવીસી નોઝલ ફીટ કરીને તેમાં પ્રેશર પમ્પથી ગ્રાઉટીંગ મટીરીયલ (પારફીટ આઈ.જી. અને એસ.બી.આર.) થી ગ્રાઉટીંગ કરવાનું રહેશે અને સુચવ્યા મુજબ ક્યોરીંગ કરવાનું રહેશે. ભાવ રનીંગ મીટરનો સમજવાનો રહેશે.

(94) પ્રેશર ગ્રાઉટીંગ થી વોટર પ્રુફીંગ કરવાનું કામ.

સુચવ્યા મુજબ ના અંતરે ૧૦ એમ.એમ. ડાયાનો હોલ ૩" ઉંડાઈનો કરી તેમાં પીવીસી નોઝલ ફીટ કરીને તેમાં પ્રેશર પમ્પથી ગ્રાઉટીંગ મટીરીયલ (પારફીટ આઈ.જી. અને એસ.બી.આર.) થી ગ્રાઉટીંગ વડે વોટર પ્રુફીંગ કરવાનું રહેશે અને સુચવ્યા મુજબ ક્યોરીંગ કરવાનું રહેશે. ભાવ એક નંગ દીઠ સમજવાનો રહેશે.

(95) દિવાલના બહારના ભાગે વોટર પ્રુફીંગનું કામ.

દિવાલના બહારના ભાગે કલરકામ કરતા પહેલા ફીનીશીંગ કરવા માટે જરૂરી વોટર પ્રુફીંગ કેમીકલ (એક્રેલીક પોલીમર બેઈઝડ સીમેન્ટીયસ મટીરીયલ્સ) ધ્વારા ફીનીશીંગ કરી, ક્યોરીંગ કરી આપવાનું છે. ભાવ ચોરસ મીટરનો સમજવાનો છે.

(96) ટેરેસમાં વોટર પ્રુફીંગનું કામ. (પ્રુફ એન.એમ. એક્રેલીક પોલીમર સીમેન્ટીયસ મટીરીયલ્સ)

ટેરેસ સાફ કરી વોટર પ્રુફીંગ માટે પાર પ્રુફ એન.એમ. (એક્રેલીક પોલીમર સીમેન્ટીયસ મટીરીયલ્સ) લાવી, સુચવ્યા મુજબ ૩ થી ૪ એમ.એમ. જાડાઈનું લેયર બ્રશ વડે લગાવી આપવાનું છે. ભાવ ચોરસ મીટરનો સમજવાનો છે.

(97) સ્પે. કેમીકલ પ્લાસ્ટર કામ.

સુચવ્યા મુજબ ૮-૧૦ એમ.એમ. જાડાઈનો પ્રીમીકસ બેઝ કોટ (પાર-પ્લાસ્ટ) માર્યા બાદ, સુપરકોટ (પાર-પ્લાસ્ટ-એસ.સી.) નો ૪ થી ૬ એમ.એમ. જાડાઈનો લગાવી, ફીનીશીંગ કરી ક્યોરીંગ કરવા સાથેનું કમ્પલીટ કામ કરી આપવાનું છે. મટીરીયલ સુચવ્યા મુજબની સ્ટાન્ડર્ડ કંપનીનું લાવવાનું રહેશે. ભાવ એક ચોરસ મીટરનો સમજવાનો છે.

(98) કોટા / માર્બલ સ્ટોનનું ઘાર મોલ્ડીંગ કામ

સુચવ્યા મુજબ કહેવામાં આવે તે રીતે મોલ્ડીંગ વર્ક કરી સુચવ્યા મુજબની જગ્યાએ ફીટ કરી આપવાના છે. અલગ અલગ મોલ્ડીંગ કામ માટે અલગ અલગ ભાવ આઈટમમાં દર્શાવ્યા મુજબ રહેશે. ભાવ એક રનીંગ મીટરનો સમજવાનો છે.



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(99) ગ્રેનાઈટ સ્ટોનનું મોલ્ડીંગ કામ

સુચવ્યા મુજબ કહેવામાં આવે તે રીતે મોલ્ડીંગ વર્ક કરી સુચવ્યા મુજબની જગ્યાએ ફીટ કરી આપવાના છે. અલગ અલગ મોલ્ડીંગ કામ માટે અલગ અલગ ભાવ આઈટમમાં દર્શાવ્યા મુજબ રહેશે. ભાવ એક રનીંગ મીટરનો સમજવાનો છે.

(100) પ્રિકાસ્ટ દિવાલ બનાવવાનું કામ.

સુચવ્યા મુજબ, ૫"×૫" સેક્શનના પ્રિકાસ્ટ થાંભલા, તથા તેમાં ફીટ બેસે તેવા ૨" જાડાઈના પ્રિકાસ્ટ પાપડા લાવી, થાંભલાને સુચવ્યા મુજબ ૧.૫ મીટરના અંતરે ૧:૨:૪ ના કોન્ક્રીટ વડે જમીનમાં એન્કેસીંગ કરવાના છે અને તેમાં પાપડા ફીટ બેસાડી આપવાના છે. કોન્ક્રીટ કામને દસ દિવસ સુધી કયોરીંગ કરી આપવાનું છે. દિવાલ લાઈન લેવલ ઓળંભે કરી આપવાની છે. થાંભલા જમીનમાં ઓછામાં ઓછા ૦.૬૦ મી. નાખવાના રહેશે. પાપડા કહેવામાં આવે તેટલા જ જમીનમાં રાખવાના છે. માપમાં પાપડાની બોટમથી પાપડાની ટોપ સુધીની પહોળાઈ ગણવાની છે. પાપડાની નીચે બાકી રહેતા ખુંટાનું માપ આપવામાં આવશે નહિ. તૈયાર કામના ચોરસ મીટર લેખે ભાવ સમજવાનો રહેશે.

(101) પ્રિકાસ્ટ ડોર/વિન્ડો ફ્રેમનું કામ.

૧:૧.૫:૩ ના પ્રમાણમાં પૂર્વ નિર્મિત (પ્રિકાસ્ટ) ૩"×૪" સેક્શન ધરાવતી ફ્રેમ ખાતા ધ્વારા નમુનો પાસ કરાવ્યા બાદ લાવી, સુચવ્યા મુજબ સ્થળે લાઈન, લેવલ, ઓળંભે ફીટ કરી આપવાની છે. ફ્રેમમાં યોગ્ય પ્રમાણમાં રેન્ફોર્સમેન્ટ વાપરેલું હોવું જોઈએ. ભાવ રનીંગ મીટરનો સમજવાનો છે.

(102) ડિપાર્ટમેન્ટ કામ માટે પુરુષ મજૂર બેલદાર પુરા પાડવાનું કામ.

આ કામમાં ડિપાર્ટમેન્ટ કામ માટે પુરુષ મજૂર-બેલદાર પુરા પાડવાનાં છે. સાઈટ પર આવ્યાથી આઠ કલાકનો એક દિવસ (જમવા માટેનાં બ્રેક/રીસેસ માટેનાં એક કલાક ઉપરાંતના આઠ કલાક) મુજબ રોજ આપવામાં આવશે. સાઈટ પર પહોંચવાનો ખર્ચ કોન્ટ્રાક્ટરના શીરે રહેશે.

(103) ડિપાર્ટમેન્ટ કામ માટે સ્ત્રી મજૂર ટોપલા પુરા પાડવાનું કામ.

આ કામમાં ડિપાર્ટમેન્ટ કામ માટે સ્ત્રી મજૂર-ટોપલા પુરા પાડવાનાં છે. સાઈટ પર આવ્યાથી આઠ કલાકનો એક દિવસ (જમવા માટેનાં બ્રેક/રીસેસ માટેનાં એક કલાક ઉપરાંતના આઠ કલાક) મુજબ રોજ આપવામાં આવશે. સાઈટ પર પહોંચવાનો ખર્ચ કોન્ટ્રાક્ટરના શીરે રહેશે.

(104) ટ્રેક્ટર – ટ્રોલી ભાડે આપવાનું કામ

આ કામમાં ટ્રેક્ટર ટ્રોલી સાથે ભાડે આપવાનું છે. આ કામ માટે ડ્રાઈવર, ડિઝલ, તથા અન્ય ખર્ચ કોન્ટ્રાક્ટરના શીરે રહેશે. સાઈટ પર આવ્યાથી આઠ કલાકનો એક દિવસ (જમવા માટેનાં બ્રેક/રીસેસ માટેનાં એક કલાક ઉપરાંતના આઠ કલાક) મુજબ ભાડુ આપવામાં આવશે. ડ્રાઈવર, ડિઝલ કે અન્ય કારણોસર જેટલા કલાક ઉપયોગ બંધ રહેશે તે મજૂરે બાદ લેવાશે.



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(105) જે.સી.બી લોડર / એક્કવેટર ભાડે આપવાનું કામ

આ કામમાં જે.સી.બી. લોડર/એક્કવેટર ભાડે આપવાનું છે. આ કામ માટે ડ્રાઈવર, કલીનર, ડિઝલ, તથા અન્ય ખર્ચ કોન્ટ્રાક્ટરના શીરે રહેશે. સાઈટ પર આવ્યાથી એક કલાક મુજબ ભાડુ આપવામાં આવશે. ડ્રાઈવર, કલીનર, ડિઝલ કે અન્ય કારણોસર જેટલા કલાક ઉપયોગ બંધ રહેશે તે ગણતરી માં નહિ લેવાય.

(106) બ્રેકર ભાડે આપવાનું કામ

આ કામમાં બ્રેકર ભાડે આપવાનું છે. આ કામ માટે ઓપરેટર, ડ્રાઈવર, ડિઝલ, તથા અન્ય ખર્ચ કોન્ટ્રાક્ટરના શીરે રહેશે. સાઈટ પર આવ્યાથી એક કલાક મુજબ ભાડુ આપવામાં આવશે. ઓપરેટર, ડ્રાઈવર, ડિઝલ કે અન્ય કારણોસર જેટલા કલાક ઉપયોગ બંધ રહેશે તે ગણતરી માં નહિ લેવાય.

(107) રોલર એન્ડ કન્સોલીડેશન કરવાનું કામ

સપ્લાય કરેલ મેટલને સુચના મુજબની જાડાઈ, પહોળાઈ, લાઈનલેવલ તથા કેમ્બરમાં પાથર્યા બાદ રોડ રોલરથી રોલીંગ રસ્તાની ધારેથી શરુ કરી રોલરનાં પાછળના પેડાને દોડાવી સેન્ટર સુધી લાવવાનું છે. આ રીતે રોલીંગ પૂર્ણ થયા બાદ તમામ કામને પુષ્કળ પાણીથી તર કરી ચીલા ન પડે ત્યાં સુધી રોલીંગ કરવાનું છે. આમ કરતાં જો જોબ પડે તો મેટલ નાંખી લેવલ કરવાનું છે. લેવલ થયા બાદ મોરમ સપ્લાય કરી, દાજીયા ન રહે તે રીતે પાથરી રોલીંગ કરી પુષ્કળ પાણીથી તર કર્યા બાદ (૧૨૦૦ ચો.મી. માં ૮૦૦૦ લીટર પાણી છાંટી રોલીંગ કરવાનું રહેશે. ત્યારબાદ જો દાજીયા રહે તો ફરી મોરમ નાંખી દાજીયા પુરવાના રહેશે ત્યારબાદ ફરી રોલીંગ કરવાનું રહેશે. આ કંપલીટ રોલીંગ કામનો મજૂરીનો ભાવ (પાણી સપ્લાઈ કરવા સાથે) દર એક ચો.મી.નો આપવામાં આવશે.

(108) સી.આઈ (કાસ્ટ આયર્ન) માંથી ચુલ બનાવી સ્થળ પર સપ્લાય કરી ફીટ કરી આપવાનું કામ.

ભાવનગર મહાનગરપાલિકા દ્વારા સુચવવામાં આવે તે ડીઝાઈન, સ્પેસીફિકેશન મુજબ સી.આઈ (કાસ્ટ આયર્ન) માંથી બનાવવામાં આવેલ, અગ્નીદાહ માટે ચુલ (સગડી) સ્મશાનમાં પહોચાડવાનું તેમજ ફીટ કરી આપવાનું કમ્પલીટ કામ કરી આપવાનું રહેશે. માપ તૈયાર કામના પ્રતી નંગ પર ગણતરી કરવામાં આવશે.

(109) ફ્રસ્ટ ક્લાસ ક્વોલિટી ગ્રીન શીટ ફીટ કરવાનું કામ.

ભાવનગર મહાનગરપાલિકા દ્વારા સુચવવામાં આવે તેવી જાડાઈમાં તેમજ ડીઝાઈન મુજબ ગ્રીન શીટ લાવી, કટીંગ, ફીનીશીંગ કરી જરૂરી નટ બોલ્ટ, સ્ક્રુ વગેરે મટીરીયલ સાથે સુચવવામાં આવે તે મુજબ સહીત ફીટ કરી આપવાની રહેશે. માપ તૈયાર કામના પ્રતી નંગ પર ગણતરી કરવામાં આવશે.

(110) બોર કરવાનું કામ

સુચના આપવામાં આવે તે સ્થળે ૨૦ સે.મી. ડાયામીટરમાં મશીનથી ૮૦ મીટર સુધીની ઉડાઈમાં બોર કરી ૨૦૦ એમ.એમ ડાયા. કેસીંગ પાર્થપ સામે ૧ H.P સીંગલ સબમર્શીયલ પમ્પ, મોટર શેટ તથા ૧ " ડાયામીટરનો જરૂરીયાત મુજબનો પીવીસી બ્લેક પાર્થપ લાવી જરૂરી ફીટીંગ કરવા સાથે (૧ * ૩ * ૧.૫) એમ એસ પાવડર કોટેડ ૩૦૦ * ૩૦૦ એમ.એમ પેનલ બોર્ડ સાથે ૧૬ એમ્પીયર MCB તથા જરૂરીયાત મુજબનાં માપ સાઈઝના કેબલ સાથે પાણી પમ્પીંગ કરી ઉપયોગ થાય ત્યા સુધી કમ્પલીટ કામ કરી આપવાનું રહેશે આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(111) બોર કરવાનું કામ



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સુચના આપવામાં આવે તે સ્થળે ૨૫ સે.મી. ડાયામીટરમાં મશીનથી ૯૦ મીટર સુધીની ઉડાઈમાં બોર કરી ૨૦૦ એમ.એમ ડાયા. કેસીંગ પાઈપ સામે ૧ H.P સીંગલ સબમર્શીબલ પમ્પ, મોટર શેટ તથા ૧ " ડાયામીટરનો જરૂરીયાત મુજબનો પીવીસી બ્લેક પાઈપ લાવી જરૂરી ફીટીંગ કરવા સાથે (૧ * ૩ * ૧.૫) એમ એસ પાવડર કોટેડ ૩૦૦ * ૩૦૦ એમ.એમ પેનલ બોર્ડ સાથે ૧૬ એમ્પીયર MCB તથા જરૂરીયાત મુજબનાં માપ સાઈઝના કેબલ સાથે પાણી પમ્પીંગ કરી ઉપયોગ થાય ત્યા સુધી કમ્પલીટ કામ કરી આપવાનું રહેશે આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(112) પાણી કનેક્શનનું કામ

સુચવવામાં આવે તે સ્થળેથી જે સાઈઝના ડાયામીટરની પાણીની લાઈન પસાર થતી હોય તેમાથી જરૂરીયાત મુજબના ડાયામીટરનું કનેક્શન / જોડાણ જરૂરી ક્લેમ્પ, સાધન સામગ્રી વગેરે લાવી જોડાણ કરી આપવાનું કામ. આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(113) ટ્રેનેજ કનેક્શનનું કામ

સુચવવામાં આવે તે સ્થળેથી જે સાઈઝના ડાયામીટરની ટ્રેનેજ લાઈન પસાર થતી હોય તેમાથી જરૂરીયાત મુજબના ડાયામીટરનું કનેક્શન / જોડાણ જરૂરી ક્લેમ્પ, સાધન સામગ્રી વગેરે લાવી જોડાણ કરી આપવાનું કામ. આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(114) ફ્લશ ડોર

સુચવવામાં આવે તે કંપનીના સારી ક્વોલીટીના સોલીડ કોર થર્સ લાવી સારી ક્વોલીટીના લાકડાની ફ્રેમ સાથે જરૂરી સ્ક્રુ, મીજગરા સ્ટોપર, પવન આંકડી, આલ્ડ્રાફ વગેરે ફીટીંગ, ફીક્સીંગ સાથે ફીટ કરી આપવાનું કમ્પલીટ કામ. આ કામનો ભાવ પ્રતી ચો.મીટર મુજબ સમજવાનો રહેશે.

(115) ACP WORK

સુચવવામાં આવે તે ક્લસ્ટરમાં ૩ mm જડાઈનું પ્લેન ACP (એલ્યુમીનીયમ કોમ્પોઝાઈટ પેનલ) લાવી જરૂરીયાત મુજબની ડીઝાઈનમાં સુચના આપવામાં આવે તે માપ સાઈઝમાં / પેટર્ન મુજબ જે હાઈટમાં ફીટીંગ, ફીક્સીંગ કરી જોઈન્ટમાં જોઈન્ટમાં જરૂરી સીલન્ટ ભરી કમ્પલીટ કરવા સાથેનું કામ. કમ્પલીટ કામ. આ કામનો ભાવ પ્રતી ચો.મીટર મુજબ સમજવાનો રહેશે.

❖ નોંધ :- શેડયુલ એ માં સમાવેશ કરાયેલ આઈટમો પૈકી કોઈ આઈટમ નું સ્પેસીફિકેશન ઉપરોક્ત આઈટમો નાં સ્પેસીફિકેશન માં સમાવવામાં ન આવેલ હોય તો તેવી આઈટમો માટે પી.ડબલ્યુ.ડી. નાં સ્પેસીફિકેશન ધ્યાને લેવાના રહેશે.

❖ ઉપરોક્ત તમામ સ્પેસીફિકેશન અમો એ વાંચી,વંચાવી,સમજી,વિચારીને ટેન્ડરમાં ભાવો ભરેલ છે જે મુજબ અમો કામ કરવા બંધાઈએ છીએ.

કોન્ટ્રાક્ટરની સહી

કોન્ટ્રાક્ટરનું આધુનામ

કોન્ટ્રાક્ટરનો સિકકો

તારીખ

Bhavnagar Municipal Corporation

બાંધકામ વિભાગ

પસં-ટેજ રેઈટ ટેન્ડર

કામનું નામ : ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંમ્પાઉન્ડ વોલને તોડી નવી કંમ્પાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા ચુલ સખ્વાય કરી ફીટીંગ કરાવવાનુ કામ.

કામ ની રકમ	:— રૂ. ૬૯,૩૭,૦૦૦/-
નિયત કરાયેલ ટેન્ડર ફી	:— રૂ. ૨૪૦૦/-
નિયત કરાયેલ અર્નેસ્ટ મની ની રકમ	:— રૂ. ૬૯,૪૦૦/-
કામ ની સમય મર્યાદા	:— ૬ – માસ
એજન્સી નું નામ	:—
એજન્સી ઘર તથા ઓફિસ નું પૂરૂ સરનામું	:—
એજન્સી નો ફોન નંબર તથા મોબાઈલ નંબર	:—
ટેન્ડર ફી રકમ તથા પહોંચ નંબર— તારીખ	:—

TRIMIX CONCRETE ITEM SPECIFICATION

- ❖ Providing laying controlled cement concrete M-25 FOR RCC ROAD using minimum cement content @ 450 kg/Cmt and including curing complete excluding the cost of form work and reinforcement
- ❖ કન્ટ્રોલ્ડ આર.સી.સી. M-25 Grade રસ્તા માટે સિમેન્ટ કોન્ક્રીટ ટ્રીમિક્સ પદ્ધતિથી સિમેન્ટ કોન્ક્રીટ કરવાનું કમ્પલીટ કામ.

Providing laying **Controlled Reinforced cement concrete M 25 For RCC ROAD by Trimix Method** using minimum cement content @ 450 kg/Cmt including curing complete excluding the cost of form work and reinforcement for reinforced concrete work in concrete road Coarse and fine aggregate conforming to IS:383 maximum size of coarse aggregate not exceeding 25 mm, using mechanical weigh batcher, mixed as per approved mix design, laid, placed & distributed with sufficient man power using M.S. Side Rail of road thickness with necessary nut bolt plates, fixing as per width, compacted with Poker vibrator V.D. system (Trimix) & Surface Plate Vibrator, Troweling to be carried out with the same machine running on troweling blades, finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler separation membrane, sealant primer, joint sealant debonding strip, dowel bar, tie rod, Surface Hardner must be spraied on final concrete surface to harden the top surface, admixtures as approved, curing compound, finishing to lines and grades

આ કામમાં મેક્સીમમ ૨૫ એમ.એમ. સાઈઝની હાર્ડ બ્લેક સ્ટોન મેટલની મશીન ક્રશ કપચી લાવી વાપરવાની છે. ઉમરાળા, તળાજા, ઘંધુકા, પૈકીની પાસ કરવામાં આવે તેવી ધૂળ વગરની ચોખ્ખી, જીણી, ચાળેલી, કસ્તર વિનાની, શ્રીકાર આકારની લાવી વાપરવાની છે. આઈ.એસ. ૫૩ ગ્રેડ ઓ.પી.સી. સિમેન્ટ પાસ કરવામાં આવે તે લાવી વાપરવાની છે. તમામ રેતી, ઘોઈને વાપરવાની છે. તમામ કામ મશીન મીક્સીંગ, વાયબ્રેટીંગ (વાયબ્રેટીંગ મશીન વડે), ૨૧ દિવસ કયોરીંગ વગેરે સાથે કમ્પલીટ કામ કરી આપવાનું છે. આ કામમાં **ગેરી અથવા સરકારી એન્જીનીયરીંગ કોલેજ માં કરાવવામાં આવેલ મીક્સ ડિઝાઈન પ્રમાણે સિમેન્ટ, રેતી, કપચી તથા એડમીક્ચર/કેમીકલ વાપરી વોટર સિમેન્ટ રેશીયો જાળવી M-25 Grade ના કન્ટ્રોલ્ડ કોન્ક્રીટ માટે મીનીમમ સિમેન્ટ કન્ટેન્ટ ૪૫૦ કિલો/ ઘ.મી. વાપરીને મીકેનીકલ વે-બેચર નો ઉપયોગ કરીને** માલ બનાવવાનો છે. ઉપરોક્ત આ તમામ કામ લાઈન દોરીએ, લેવલે, ઓળભે આપવામાં આવે તે ડીઝાઈન મુજબ કરી આપવાનું છે. I.S. - 456-2000 મુજબ ટેસ્ટીંગ માટેનાં કયુબ કાસ્ટીંગ કરી મ્યુની. કોર્પો ની સુચના મુજબ ગેરી અથવા સરકારી એન્જીનીયરીંગ કોલેજ માં ટેસ્ટીંગ કરાવવાનાં રહેશે. જે માટે ની તમામ જરૂરી વ્યવસ્થા કોન્ટ્રાક્ટરે કરવાની રહેશે તથા તે માટે તથા ટેસ્ટીંગ નો તમામ ખર્ચ કોન્ટ્રાક્ટરના શીરે રહેશે. નિયત સ્ટ્રેન્થ સિવાયનું કામ ગ્રાહ્ય રખાશે નહિ. તમામ વિગતે કામનો ભાવ દર એક ઘનમીટર પર સમજવાનો છે. તૈયાર કામનું માપ લેવામાં આવશે. I.S. - 456-2000 મુજબ ટેસ્ટીંગ કરાવતાં તેનાં રિઝલ્ટ આવ્યા બાદ બિલ તૈયાર કરાશે. અન્યથા જે તે માપનાં કામનું બિલ આ આઈટમનાં ભાવનાં મેક્સીમમ ૫૦ % મુજબ ભાવ ગણીને અપાશે.

Specification of Compaction by Trimix method

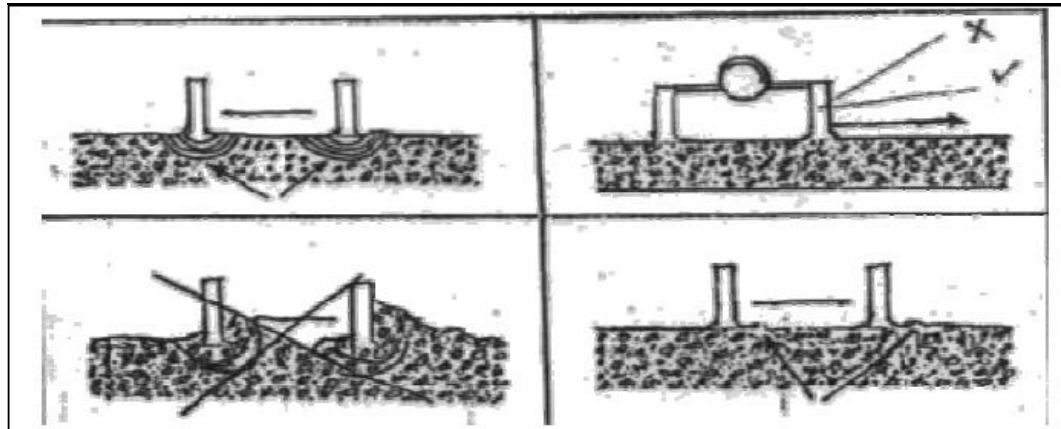
1. Working Method

1. Concrete Placing

Concrete can be placed & distributed with sufficient man power required. It is important to distributed the concrete evenly & as near the final level as possible.

2. Poker vibration:

As a first step, concrete is vibrated with an immersion vibrator in order to remove entrapped air & voids & make the concrete homogeneous, please ensure that area close to channels & stop ands carefully vibrated. Do not distribute the concrete with the poker vibration along with the surface vibration.

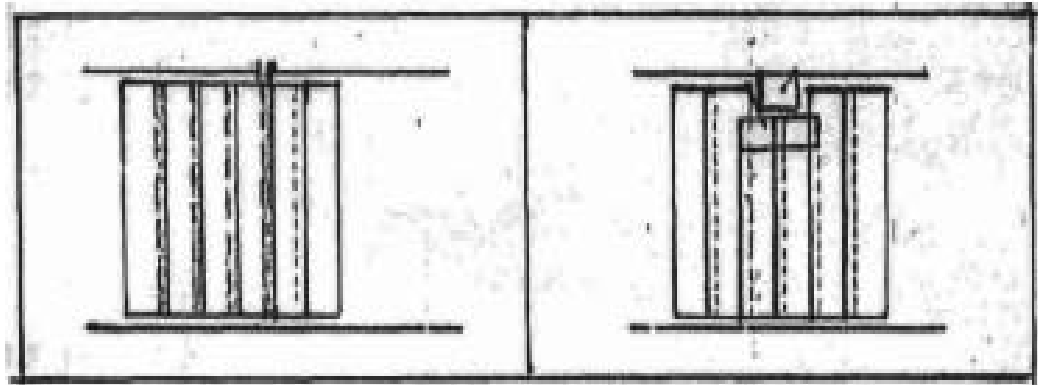


3. Surface vibration:

Surface vibration should always start as soon as there is enough concrete in front of surface vibrator. Two passes with the surface vibrator are required. During the first pass, concrete must be distributed evenly in front of surface vibrator. There should be a roll of concrete of about 10-20 mm in front of leading beam along the entire length of the vibrator when the concrete has been placed and vibrated to a length of 5mm, the second pass is carried but. The machine should be pulled at a speed of maximum 1 mtr./min and without interruption avoid linings on the surface. Keep the surface of the channel. Clean from concrete.

4. Vacuum Processing:

Place the filter pads as soon as the sufficient concrete surface is vibrated. Please note that the vacuum dewatering process must start within 30 minits from the time of starting concrete pouring, Filter pads are placed in such away that there is at least 100 mm fresh concrete visible around the fitter pads on all four sides. Filter should be overlapped with each other by at least 250 mm. (all filter pads are marked with black line .to ensure proper overlapping.)



The recesses or other obstacles within the area to be vacuum processed must be covered & sealed using polyethylene sheet before the filter pads are placed. If the obstacles are flush with the surface level or above, filter pad must be folded.

The rolled up top cover is placed centrally on the filter pads. It is rolled out in such a way that it covers all filter pads & exposed concrete on the sides of the filter pads. Please note that this exposed concrete will ensure perfect sealing for the cover from laying top. Connect the central pipe of top cover to the suction hose, which is connected to the vacuum pump.

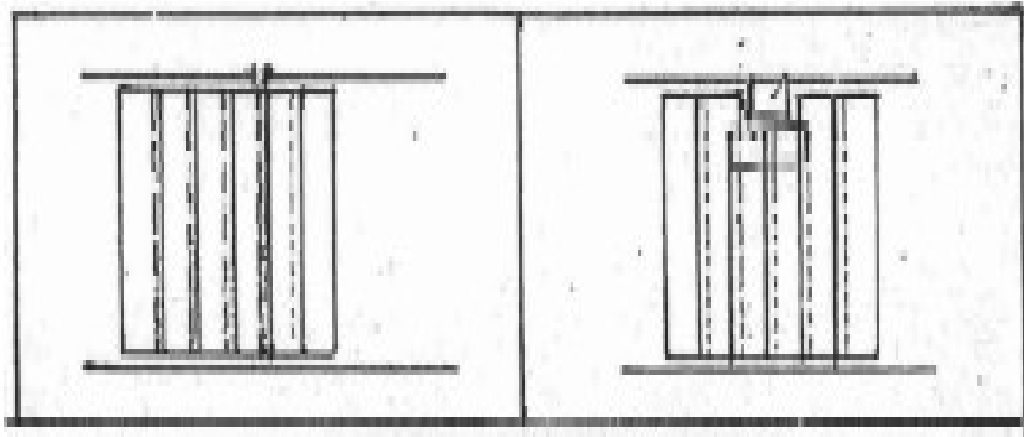
When the pump is started vacuum will be created between the top cover & filter pads. Excess water will be taken in to the vacuum pump's tank & discharged. Normal suction cycle is 1 -1.5 min. per 10 mm. of concrete thickness. Guidelines for selecting dewatering time @ normal condition are shown in the following table.

Thickness		Dewatering Time {Min}
MM	Inch	
50	2	7
100	4	15
125	6	20
150	8	30
200	10	40
250	12	45

Please note that dewatering time largely depends upon ambient conditions viz. Temperature, humidity, etc. During the course of dewatering, the concrete surface gradually hardens & can be felt from the top of the top cover. The extent of hardness achieved by the concrete decides when to stop dewatering process.

When the vacuum processing is over, the cover is rolled up, to 100 mm so that the filter pads are visible. This will remove the water, that may have remained on the concrete surface, filter pads & in the suction hose. After about 30 seconds, the top cover is rolled completely & vacuum pump is switched off. Simultaneously, the suction hose & the top cover pipe are disconnected. Do not run the pump while the ball valve is open as likely that small aggregate are sucked into the pump due to vacuum. The entire process is repeated on the next concrete pane.

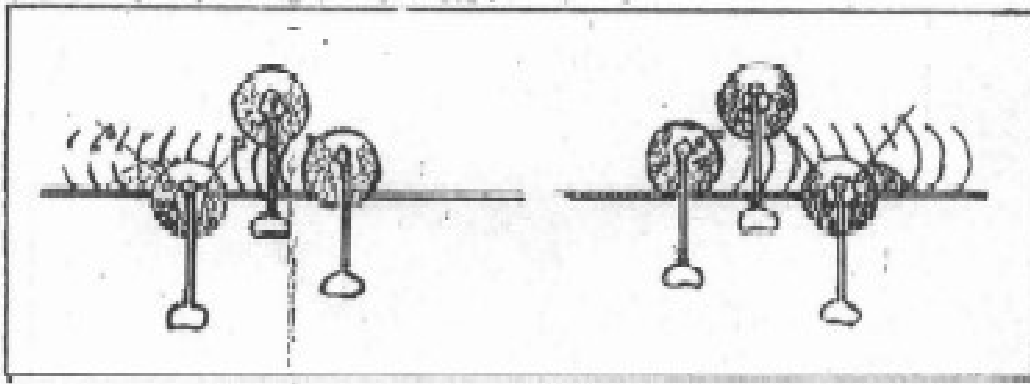
After first patch in any / given panel is dewatered, care should be taken while placing filter pad on the concrete surface next to the dewatered concrete. First filter pad should start from the edges of last filter pad of the previously dewatered concrete. The remaining filter pads than shall be placed as explained above.



While repeating dewatering process subsequently, in order that top cover should get proper sealing against the side already vacuum processed, it should be rolled out at least 300 mm over the vacuum dewatered area. Before spreading the top cover on the dewatered area, it is essential to give one pass of skim floater (with disc) along the edges of the dewatered concrete. The concrete surface will become wet as some will be come on the top surface. This will provide the necessary sealing. Subsequently roll out the top cover completely. Check that there are no wrinkles on the top cover.

5. Floating :

The first finishing operation is floating where floating disc is used. that can not be reached by skim floater floated by hand. Care should be taken while floating near channels & edges. The skim floater is run over the channel up to disc center in order to avoid unevenness at the joint. All four sides of dewatered panel must be floated first central area is to be floated later. Any corrections, if required are to be carried out at this stage with the concrete at the time of raking only. Never use any cement paste, mixtures of cement & sand or fresh concrete for patchwork. Such materials will be pill off, will leave patches after the concrete floor is brought to use.



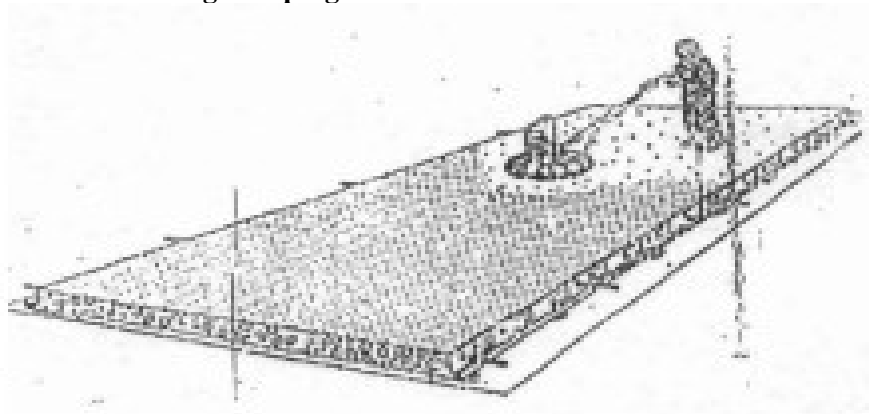
Normally two passes with disc with the skim floater operating at higher speed are sufficient for the skid free surfaces. This pass of skim floater should be given perpendicular to the previous pass.

Please note that the floating operation brings up certain amount of water to the surface. This moisture helps in carrying out finishing operation.

6 Troweling:-

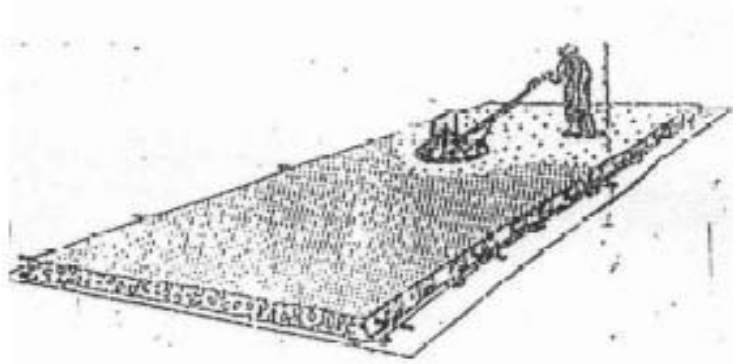
Troweling is carried out with the same machine running on troweling blades. Normally, two pass of troweling blades are required for the smooth surface finish. However, the number of passes can be decided depending upon the surface finish required. The first troweling operation can start after the about 30 minutes after the final floating operation & surface is sufficiently dry. This pass is to be made using low speed & minimum blade angle. Please also use the lower speed when troweling near the channels, from the edges, obstacles etc. Blade angle & the speed can be increased for subsequent passed to achieved smoother surface finish.

Intermixing of topping First Pass



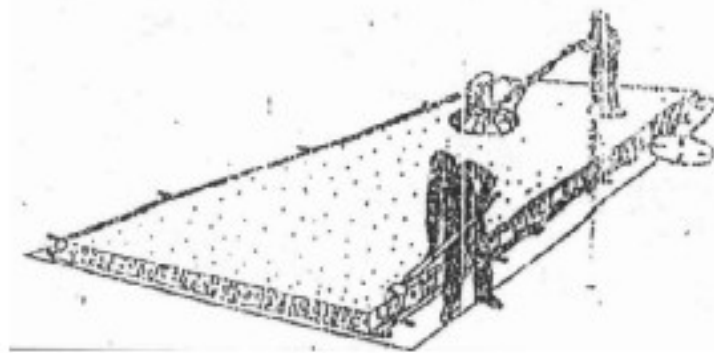
You can start the work when topping has darkened because the moisture under the concrete. The topping material is worked with care into concrete surface with a skim floated equipped with disc.

Intermixing of Topping Second Pass

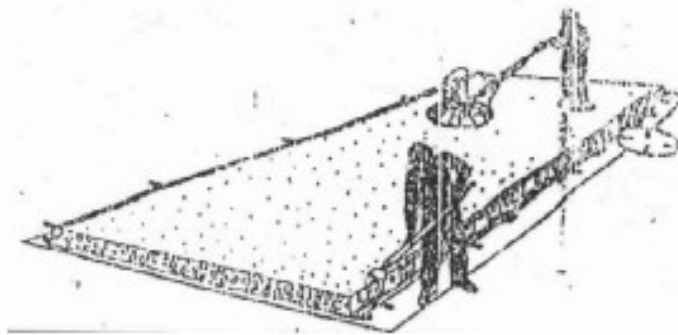


Check the surface flatness with straight edge and work the topping material into concrete s the first time.

Power Troweling First Pass



Power Troweling Final Pass



At the time of final power troweling, Surface Hardner must be spraied on final concrete surface to harden the top surface, surplus concrete must be off from the rails and stop ends.,There must not be any damage at the rails when the floor is finished.

After the finished the surface, the groove shall be made using concrete cutter with appropriate spacing as directed by Engineer in Charge. The groove shall be filled up by bitumen. The edges of panels shall not be damaged during the process of making grooves

7. Curing

Concrete has to be protected from rapid drying which may result in cracking. Curing can be done by ponding, covering with plastic sheet or gunny bags. In any method, the surface should be always kept wet with water. Curing call also be done by application of curing compound. Curing must be done for at least 7 days.

કામનું નામ :-

ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંપાઉન્ડ વોલને તોડી નવી કંપાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા યુલ સપ્લાય કરી ફીટીંગ કરાવવાનું કામ.

Tender sheet

No	ITEM	QTY	RATE	UNIT	AMOUNT
1	Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead.(A) Loose or soft soil	788.00	115.92	Cum	91344.96
2	Boring holes 3.5 m deep in ordinary soil (for cast in situ piles) and getting out the soil and disposal of the surplus excavated soil as directed within a lead of 50 Meter for following diameter of pipes.(iii) 300 mm	63.00	1471.43	Nos	92700.09
3	Extra for under reaming inside the bore Holes for under reamed piles of following Diameter.(iii) 300 mm	126.00	626.18	Nos	78898.68
4	(i) Uncoursed Rubble Masonry with hard stone of approved quality in foundations and plinth in Cement Mortar 1:6 (1-cement : 6-coarse sand including levelling up etc. complete (upto 10 ton)	44.55	2475.26	Cum	110272.83
5	Providing and laying cement concrete 1:2:4 (1- Cement : 2- Coarse sand : 4- graded stone aggregates 20 mm nominal size) and curing complete including cost of formwork in (A) Foundation and Plinth (upto 10 ton)	131.00	3893.00	Cum	509983.00
6	Providing and laying controlled cement concrete M.250 and curing complete including the cost of form work but excluding the cost of reinforcement reinforced concrete work in (A) Foundations, footings, Base of columns and Mass concrete. (upto 10 ton)	31.00	4469.50	Cum	138554.50
7	Providing laying controlled cement concrete M-250 and curing complete including the cost of form work but excluding the cost of reinforcement for reinforced concrete work in GROUND BEAMS / PLINTH BEAMS	39.00	6515.00	Cum	254085.00
8	Providing laying controlled cement concrete M-250 and curing complete including the cost of form work but excluding the cost of reinforcement for reinforced concrete work in COLUMN	52.60	8562.00	Cum	450361.20
9	Providing laying controlled cement concrete M-250 and curing complete including the cost of form work but excluding the cost of reinforcement for reinforced concrete work in COPPING FOR ALL LEVEL	7.12	5342.00	Cum	38035.04
10	Brick work using common Brunt clay building bricks having crushing strength not less than 35 Kg./Sqcm. In foundation and plinth in cement mortar 1:6 (1cement : 6 fine sand) (B) Conventional (up to 10 ton)	189.00	3938.81	Cum	744435.09
11	Extra for brick work in superstructure above floor two level Item No. 1(6.12) (B) Conventional (upto 10 ton)	189.00	265.65	Cum	50207.85
12	Filling available excavated earth (excluding rock) in trenches. plinth, sides of foundations etc. in layers not exceeding 20 cm. in depth consolidating each dispoisited layer by ramming and watering.	788.00	129.10	Cum	101730.80
13	20mm thick sand faced cement plaster on walls upto height 10 metres above ground level consisting of 12mm thick backing coat of C.M. 1:3 (1-cement : 3-sand) and 8mm thick finishing coat of C.M. 1:1 (1-cement : 1-sand) etc. complete.	1188.00	322.88	Sqm	383581.44

કામનું નામ :-

ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંપાઉન્ડ વોલને તોડી નવી કંપાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા યુલ સપ્લાય કરી ફીટીંગ કરાવવાનું કામ.

Tender sheet

No	ITEM	QTY	RATE	UNIT	AMOUNT
14	Finishing wall with weather proof exterior emulsion paint on wall surface (two coats) to give an required shape even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials.etc complete The material shall be as described in list of approved material.shade and pattern as directed by Architects/City Engineer / Executive Engineer in charge.	1188.00	113.40	Sqm	134719.20
15	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on wall surfaces to give an even brushing the surface free from mortar droppings and other foreign matter and sand papered smooth..	1188.00	40.19	Sqm	47745.72
16	Providing & fixing M.S. grills of required pattern using M.S. flats, bright bar, hollow MS sactions at required spacing and frame all-round square or round bars with round headed bolts and nuts or by screws. Design and pattern as directed by Architect	800.00	105.00	Kg	84000.00
17	Providing TMT Bar FE 500D reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level	10900.00	75.46	Kg	822514.00
18	Providing and fixing 0.60 metre high fencing with 0.75 metre long M.S. Angle (Y type Fabricated) posts 50mm. X 50mm. X 6mm. And oil painting 3 coats fixed at 2.5 mt. C/c with Tow horizontal Wire Line including Tow horizontal Circle of 450mm dia of Razer Blade wire wighing 1.20Kg/Rmt, strained and fixed to posts with G.I staples, including fixing posts.	132.00	638.00	Rmt	84216.00
19	JCB Work	15.00	900.00	Hours	13500.00
20	Demolition of Brick work and stone masonry including stacking of serviceable materilas and disposal of unserviceable materials with all lead and lift.(ii) In Cement Mortar.	63.75	530.78	Cum	33837.22
21	Demolition including stacking of serviceable materilas and disposal of unserviceable materials with all lead and lift. (i) R.C.C. work	9.10	1020.60	Cum	9287.46
22	Providing and fixing to wall ceiling and floor 10.0 Kg. F/Cm2 working pressure poluthene pipes of the following outside Dia. Low densidy, complete with special falnge compression type fittings, wall clipsetc. including making good the wall ceiling and floor.(G)110 mm	30.00	237.83	Rmt	7134.90
23	સીઆઈ (કાસ્ટ આયર્ન)માંથી યુલ બનાવી સ્થળ પર સપ્લાઈ કરી ફીટ કરી આપવાનું કામ	9.00	106375.00	Nos	957375.00
24	Clearing and grubbing road land including uprooting rank vegetation grass bushes,shrubs,sapling and trees girth up to 300 mm removal of stumps of trees cut earlier and disposal of unserviceable materials(A) By manual means in area of light jungle	0.54	79449.30	Hectare	42902.62

કામનું નામ :-					
ગોરડ સ્મશાનનાં પાછળનાં ભાગમાં આવેલ જર્જરીત કંપાઉન્ડ વોલને તોડી નવી કંપાઉન્ડ વોલ, કેમ્પસમાં આર.સી.સી. રોડ, તથા યુલ સપ્લાય કરી ફીટીંગ કરાવવાનું કામ.					
<u>Tender sheet</u>					
No	ITEM	QTY	RATE	UNIT	AMOUNT
25	Supply and stacking quarry spall	198.38	378.00	Cum	74987.64
26	supply and spreading including rolling G.S.B. (2- layer) as per specification	198.38	810.00	Cum	160687.80
27	supply and spreading including rolling wet mix macadam (WMM) 2- layer as per specification	148.78	966.00	Cum	143721.48
28	Spreading of quarry spall	198.38	107.00	Cum	21226.66
29	Rolling and consolidating.	991.90	7.00	Sqm	6943.30
30	Providing laying Controlled Reinforced cement concrete M 25 using minimum cement content @ 450 kg/Cmt including curing complete excluding the cost of form work and reinforcement for reinforced concrete work in concrete road Coarse and fine aggregate conforming to IS:383 maximum size of coarse aggregate not exceeding 25 mm, using mechanical weigh batcher, mixed as per approved mix design, laid, placed & distributed with sufficient man power using M.S. Side Rail of road thickness with necessary nut bolt plates, fixing as per width, compacted with Poker vibrator (Trimix) & Surface Plate Vibrator, Troweling to be carried out with the same machine running on troweling blades, finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler separation membrane, sealant primer, joint sealant debonding strip, dowel bar, tie rod, concrete admixtures as approved, curing compound, finishing to lines and grades. Surface Hardener must be spread on Top surface of concrete.	198.38	6289.00	Cum	1247611.82
				Rs.	6936601.30
Rs. Sixty Nine Lakh Thirty Seven Thousand Only.				Say Rs.	6937000.00

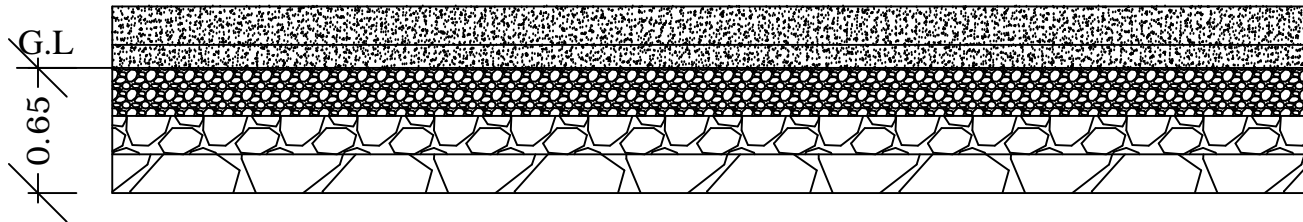
ઉપરોક્ત વિગત પ્રમાણે ના ભાવો થી ટકા.....અંકે.....કમતી / જાસ્તી ભાવ થી આ કામ કરી આપવા બંધાઉ છું.

કોન્ટ્રાક્ટરની સહી

કોન્ટ્રાક્ટરનું આખું નામ:-

કોન્ટ્રાક્ટરનો સિકકો

તારીખ:-



- 0.20 Cm Trimix M-250 with Steel 8#-0.3C/C
- 0.12 Cm 1:2:4 P.C.C
- 0.20 Cm wet mix macadam (WMM) 2- layer
- 0.20 G.S.B. (2- layer) as per specification
- 0.20 Cm Quarry spall

R.C.C. Road section



**IA<0LU IJEFU
EFJGUZ DCFG; UF ; NG
: 5; LOLSXG**

- (1) 5FI FG\BINF6 SFD o ! P5 DL8Z pOF. ; WL
5FI FG\ BINF6 SFD ATFJIF DJHA NMZLDA VM/E[TYF ; LWL , F. GDA ; L8L VgHLGLI ZzL OZDFJ[Tß, L pRF. DA BINL VF5JFG)Kp BINF6 SZTFAHDLG S964 DMZD4 DF8L S[TFKJF/L VFJ[TM T[TDFD BMNJFG)Kp SM. HDLG GZD VFJ[VYJF BINF6 SZTFAFH)DFYL 3; L 50[TUL CMI TM 3; L 50T)V8SFJJF ccXIMZLUcc SZJFG)Kp; LJFI BINF6 SFDDA\5F6L GLS/[TM T[56 SMg8FS8Z[5F6L p, RLG[SZJFG)Kp 5F6L p, RJFG ; FWGM HUF S[5d54 VgHLG IJUZ[SMg8FS8Z[5MTFGF BR[, FJJGFA Kp VG[5F6L p, RJFGM cc0L JMBZLUcc GM S\ 56 V, U EFJ VF5JFDA VFJX[GCL\BINF6DFYL IGS/[DF8L4 DMZD4 TFK IJUZ[dI p SM5IP ; RJ[T(DHA) _ DL8Z sGU]DL8Zf , LO ; WL , . H. 5FYZL VF5JFG)K[VG[T[VUGM S\ 56 V, U EFJ D/L XSX[GCLR 5FI FG\NZS HFTG)SFD XIMZLU4 0lvJMBZLU4 IJUZ[TYF p5ZMST IJUTM ; FYGATDFD SFDGM ; DFJX 5FI FG\ BINF6 SFDDFH YFI Kp TGM EFJ NZ[Vß 3GD8Z 5Z ; DHJFGM Kp TDFD T[FZ SFDG)DF5 , JFDAVFJXP
- (2) 5FI FG\BINF6 SFD ! P5 DL8Z YL #P DL8Z pOF. ; WLP
sVFP GR ! DJHAF
- (3) 5FI FG\BINF6 SFD #P DL YL 5P DLP pOF. ; WLP
sVFP GR ! DJHAF
- (4) BINF6 SZ[DF8LqDZD OL, LU
BINF6 SZ[DF8L q DZD JO[; RGF VF5JFDA VFJ[T(DHA _P#_ DL8ZGF , I ZDA5FI Fq%, IgYDA EZTL SZL TGF p5Z H-ZL ZDLU4 SI NZLU JUZ[SZL VF5JFG)Kp TGM EFJ NZ Vß 3GD8Z 5Z ; DHJFGM Kp TDFD T[FZ SFDG)DF5 , JFDAVFJXP
- (5) ACFZYL 5F; SZ[DF8LqDZD OL, LU
BINF6 SZ[DF8L q DZD JO[; RGF VF5JFDA VFJ[T(DHA _P#_ DL8ZGF , I ZDA5FI Fq%, IgYDA EZTL SZL TGF p5Z H-ZL ZDLU4 SI NZLU JUZ[SZL VF5JFG)Kp TGM EFJ NZ Vß 3GD8Z 5Z ; DHJFGM Kp TDFD T[FZ SFDG)DF5 , JFDAVFJXP



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- (6) : q0 q ZTL OL, LU
ACFZYL 5F; SZJF DAVFJ[T]JL RMBL W/ JUZGL T/FHF4 pDZF/F4 WWSF 5SLGL ZTL, FJL 5F1 Fq%, LY DA _P#_DLP GF, I Z DAZDLU S1 MZLU; FY[EZTL SZJFG]Sd%, L8 SFD
- (7) AMZ 5F. <; DF8]AMZqBINF6 SZJFG]SFDp
; l8L VqHLGLI ZzL wJFZ; RJJFDFV FJ[T]D]HAGL DF5; F. hGF AMZ 5F. <; DF8]0e, LU DXLG JO[AMZ 5F. <; G]H[T] pfo. ;]L HDLGDFAAMZ SZL VF5JFGF KP TDFD AMZ VM'E[, F. GNMZL TYF, U, [SZL VF5JFGF KP sBINF6F AMZ SZTFH HDLG S964 DMZD4 DF8] S[TFK JF/L VFJ[T]M T]TDFD AMZ SZL VF5JFGF KP AMZ SFDDA5F6L IGS/[TM T]H~ZL; FwGM JO[5F6L p, R] s0LJ]8ZLUF SZL VF5JFG]KP VF VU]GMSI. V, U EFJ VF5JFDFV FJX[GCLR H~Z H6FI [X]MZLU SZL VF5JFG] KP AMZ sBINF6F DFYL IGS/[DF8])_P___ DL8ZGL, LODA, . H. ; RJJFDFV FJ[T]D]HA 5FYZL VF5JFGL KP p5ZMST TDFD IJUT[SFDGM EFJ NZ V\$ ZGLU DL8Z 5Z; DHJFGM KP TDFD T] FZ SFDG]DF5,]FDFV FJXP
- (8) AMZGA VNZGF EFU]ZLD SZJF DF8]A<A SZL VF5JFG]SFDp
vvv; NZvvv sVF. 8D GR # D]HAF 5ZT] V\$; 8F OMZ VOZ ZLDLU . G; F. 0 W AMZ C]k; VNZ EFU]ZLD SZJF DF8] SC]JFDFV FJ[T]D]HA DF5; F. hGF VG[pDF. V[A<A SZJFG]Sd5, L8 SFD SZL VF5JFG]KP VF SFDGM EFJ NZ V\$ GU sA<Af 5Z; DHJFGM KP TDFD T] FZ SFDG]DF5,]FDFV FJXP
- (9) 5LP; LP; L ! o# o& Ofpg0]XGq0, MZ DF8]
VF SFDDA! 5 YL Z_ VDPVDP; F. hGL 5F; SZJFDFV FJ[T]JL; FZL CF0"a, \$:8MG D8, GL DXLG Sx0 S5RL, FJL JF5ZJFGL KP VF SFDGA 5F; SZJFDFV FJ[T]JL; FZL HFTGL ZTL4W/ JUZGL RMBL4 T/FHF4 pDZF/F4WWSF 5SLGL, FJL JF5ZJFGL KP VF SFDDA VF. PV; PVMP5LP; L 5#vUp I; Dq8 5F; SZJFDFV FJ[T]; LDq8, FJL JF5ZJFGL KP; NZC]SFD DF8]K EFU S5RL4]6EFU ZTL VG[V\$ EFU; LDq8 V]5]DF6[DF, AGFJJFGM KP; LDq8 ZTL4 S5RL DXLG DLS; LU SZL HZLZ ZDLU4 S1 MZLU S]q; M, LSXG4 :S]MkOLU4 JUZ; FY[Sd5, L8 SZL VF5JFG]KP TDFD SFD; TT ELG]ZC[T]D]HA N; INJ; ;]L S1 MZLU SZJFG]K] p5ZMST TDFD IJUT[VF SFDGM EFJ NZ V\$ WG DL8Z 5Z; DHJFGM K] T] FZ SFDG]DF5,]FDFV FJX]VF TDFD SFD, F. GNMZL4, U, [TYF VM'E[VF5JFDFV FJ[T]D]hf. G D]HA SZL VF5JFG]KP
- (10) ! oZoS\$ GF 5]DF6YL ; LDq8 S]qS]L8 SZJFG]Sd5, L8 SFD
VF SFD DAVF5ZJFGL YTL S5RL ! 5 YL Z_ DLDIP GMDIG, ; F. h GL 5F; SZJFDFV FJ[T]JL CF0"a, \$:8MG D8, GL DXLG Sx0, FJJFGL KP TYF VF SFD DF8]5F; SZJFDFV FJ[T]JL RMBL W/ JUZGL sT/FHF4 pDZF/F4WWSF GL ZTL, FJL JF5ZJFGL KP VF SFD DF8]VF. PV; PVMP5LP; LP 5# Up I; Dq8 5F; SZJFDFV FJ[T]JL; LDq8, FJL RFZ EFU S5RL4 A] EFU ZTL4 V\$ EFU; LDq8 DXLG DADLS; SZL DF, AGFJJFGM KP, F. G, U, DAH~ZL; q8ZLU4X8ZLU TYF :S]MkOLU SZL ZDLU S]q; M, LQXG JLUZ; FY[VF5JFDFV FJ[T]D]hf. G D]HA Sd5, L8 SFD SZJFG]KP TDFD SFD; TT ELG]ZC[T]ZLT] 5NZ NLJ; ;]L S1 MZLU SZJFG]KP T] FZ SFD G]DF5,]FDFV FJXP EFJ NZ V\$ 3G DL8Z 5Z; DHJFGM KP



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- (11) DF. <0 :8L, ZLv. G OM; Dg8 SFDp VFZP; LP; LP Ofpg0XG 08Luh4 A[. h4 ZF08 ; ,IA4 , Lg8[. 4 KHHF4 NFNZ4 , M08 SM5LU4 ALD4 SM, D4 : , JA JUJZ[DF8P
 VF SFDDAVFJT]TDFD , MB0 VF. PV[; P :5P :8L, DAH6fjIF DJHA ! * (& DF. <0 :8L, AF; " ; F-4 SF8 JUZG)dI P SM5MP 5F; SZ[TJ], FJL TYF VF5JFDA VFJ[T]DF5 ; F. hG), FJJFG)K[VGdI P SM5MP SC[VF5[T]TDFD sH-ZL TDFD 5SFZGF 0Lhf. G DJHA C\$JF/L VF5JF ; FYF 0Lhf. G DJHAJF/L SF5L H-ZL JFI Z ! (UHGM JF5ZL 0A, VF8F JO[AFWL ; j8ZLU p5Z UM9JL T[IFZ SZL VF5JFG)K P VF T[IFZ YI[, SFD dI P SM5MP G[ATEJ]IF AFN4 5F; SZF]IF 5KL DHZL D[/JLG[; LDj8 SltjS[8 EZJFG)K[T]IFZ , MB0GM EFJ NZ V\$ SPUF D 5Z ; DHJFGM K P AF. g0LU JF5Z VG[J[8HG)JHG HN]U6JFDA VFJX[GCLR V8, [T[G]DF5 , JFDAVFJX[GCLR
- (12) 8LP V[DP 8LP ZLv. GOM; Dg8 SFDp VFZP; LP; LP Ofpg0XG 08Luh4A[. h45F. , 4 ZF08 ; ,IA4 ; L, 4 L, g8[. 4 KHHF4 NFNZ4 , M084 SM5LU4 ALD4 SM, D4 : , JA JUJZ[DF8P
 VF SFDDAVFJT]TDFD , MB0 VF. PV[; P ! * (& DJHAG):8fg00[55GL G)8LPVDP8LP YD", DISGLS, 8t8D s8LPVDP8LP AFZ; f :8L, AF; " ; F-4 SF8 JUZG)5F; SZJFDA VFJ[T]TJ] TYF VF5JFDA VFJ[T]DF5 ; F. hG):8L, , FJJFG)K[VG[SCJDA TYF VF5JFDA VFJ[T]TDFD sH-ZL TDFD 5SFZGAF0Lhf. G DJHA C\$JF/L VF5JF ; FYF 0Lhf. G DJHA JF/L SF5L H-ZL ! (U[hGARJFI Z , FJL JF5ZL 0A, VF8F JO[AFWL ; j8ZLU p5Z UM9JL T[IFZ SZL VF5JFG)K P VF T[IFZ YI[, SFD ATEJ]IF AFN 5F; SZF]IF 5KL DHZL D[/JLG[; LDj8 SltjS[8 EZJFG)K P T[IFZ , MB0GM EFJ NZ V\$ SPUF D 5Z ; DHJFGM K P AF. g0LU JFI Z VG[J[8HG)JHG HN]U6JFDAVFJX[GCLR V8, [SITG]DF5 , JFG) GYP
- (13) . 8 R6TZSFD %, LgYq; J5Z:8SRZ DF8[I: DM ! o&
 VF SFDDAVF5ZJFGL TDFD . 8MRIDGL E9FGL4 A[8 Dg[P\$SRZGL dI P SM5MP TZOYL 5F; SZJFDA VFJ[T]JL 0:8"SJM, L8LGL , FJJFGL K P TDFD . 8M VFBL4 ; FZL5FS[L4 OF808 JUZGL V\$; ZBL ; F. hGL SM ; L S[T]JM ALHF]SM. 5NFY"RMB[M G CMI T]JL V\$; ZBL :8fg00" ; F. hGL , FJJFGL K P ; F. 8 p5Z . 8M, fjIF 5KL 56 5F; SZF]IF AFN JF5ZJF N[JFDAVFJX P TDFD . 8MR6TZ SFDDAVF5ZTA5J]H-ZL 5ZTA5DF6DA5F6L JO[5, F/JFGL K P VFR4 SMGL 84 5L , ; 4 VFSL854 5ZF58 IJUJ[SFDGM ; DEJX . 8GF R6TZDARYFI K P TGM SM. 56 EFJ HN]M VF5JFDA VFJX[GCLR . 8G)R6TZ SFD NZ V\$ YZ[NMZL AFWLG[, F. G NMZLDF4 , J, DAVM/E[; F-4 ; OF. NFZ SZJFG)K P R6TZ SFDDA; FW s! qZcc YLF ! PZ5 ; PDL P TDFD SFD SF/HLYL SZJFG)K P dI P SM5MP 5F; SZ[T]JL ; FZL HFTGL RMBL RF/[L Z[TL sT/FHF4 pDZF/F4 WWSF 5SGLGF JF5ZJFGL K P VF. PV[; P 5# UP VIP5LP; LP I; Dg8 JF5ZJFGL K P . 8G)R6TZ ! o& GF5DF6DA; LPDMPYL SZJFG)K P TDFD R6TZ SFDG[H-ZL 5ZTF 5DF6DA S[IMZLU SZJFG)K[VG[N; INJ ; ; WL 5F6LYL EIG)ZFBJFG)K P VF SFDGF %, FG4 V[LJXG4 TYF ; \$; G DJHAG)TYF pRF. DJHAG)R6TZ SFD SZJFG)K P TGM EFJ NZ V\$ 3GDL8Z 5Z ; DHJFGM K P T[IFZ SFDG]DF5 , JFDAVFJX P p5ZIMST TDFD IJUT[VF SFD H-ZL S[IMZLU4 : SPM-OLU Z\$LU VMD HF. g8 ; ; FY[S6, L8 SFD SZL VF5JFG) K P



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(14) 5F8LXG JM, GL. 8 R6TZ SFD ! o# ; L DM

VF SFDDAJF5ZJFGL TDFD . 8MRDGL E9FGL4 A# 8 DgI pSRZGL dI P SM5MP TZOYL 5F; SZJFDA VFJ[TJL 0:8"SJM, L8LGL , FJJFGL KP TDFD . 8M VFBL4 ; FZL5FS, L4 OF80B JUZGL V# ; ZBL ; F. hGL SM ; L S[TJM ALHF[SM. 5NFY"RIB, M G CMI TJL V# ; ZBL :8fg00" ; F. hGL , FJJFGL KP ; F. 8 p5Z . 8M, fjI F 5KL 56 5F; SZfjI F AFN JF5ZJF NUFDA VFJXP TDFD . 8MR6TZ SFDDAJF5ZTA5JH-ZL 5ZTA5DF6DA5F6L JO[5, F/JFGL KP VFR4 SML84 5L, ; 4 VFSL854 5ZF5B IJUZI SFDGM ; DFJX . 8GF R6TZDAYFI KP TGM SM. 56 EFJ HNM VF5JFDA VFJX[GCLR . 8G)R6TZ SFD NZ V# YZ[NMZL AFWLG[, F. G NMZLDF4 , J, DA VM/E# ; F-4 ; OF. NFZ SZJFG)KP R6TZ SFDDA ; FW s! qZcc Ylf ! PZ5 ; PDLP TDFD SFD SF/HLYL SZJFG)KP dI P SM5MP 5F; SZ[TJL ; FZL HFTGL RIBBL RF/L L Z[TL sT/FHF4 pDZF/F4 WWSF 5SLGLF JF5ZJFGL KP VF. PV# P 5# UP VMP5P; LP ; LDg8 JF5ZJFGL KP . 8G)R6TZ ! o# GA5DF6DA ; LPDMPYL SZJFG)KP TDFD R6TZ SFDG) H-ZL 5ZTF 5DF6DA SI MZLU SZJFG)K[VG[N; INJ ; ; ML 5F6LYL ELG)ZFBJFG)KP VF SFDGF % , FG4 V[LJXG4 TYF ; # ; G DHAG)TYF pRF. DHAG)R6TZ SFD SZJFG)KP TGM EFJ NZ V# 3GDL8Z 5Z ; DHJFGM KP T[FZ SFDG)DF5 , JFDA VFJXP p5ZMST TDFD IJUT[VF SFD H-ZL SI MZLU4 : SPM-OLU ZSLU VMO HF. g8 ; ; FY[S5, L8 SFD SZL VF5JFG) KP

(15) 5F8LXG JM, GLZ. GOM:09. 8 R6TZ SFD ! o# ; L DM

VF SFDDAJF5ZJFGL TDFD . 8MRDGL E9FGL4 A# 8 DgI pSRZGL dI P SM5MP TZOYL 5F; SZJFDA VFJ[TJL 0:8"SJM, L8LGL , FJJFGL KP TDFD . 8M VFBL4 ; FZL5FS, L4 OF80B JUZGL V# ; ZBL ; F. hGL SM ; L S[TJM ALHF[SM. 5NFY"RIB, M G CMI TJL V# ; ZBL :8fg00" ; F. hGL , FJJFGL KP ; F. 8 p5Z . 8M, fjI F 5KL 56 5F; SZfjI F AFN JF5ZJF NUFDA VFJXP TDFD . 8MR6TZ SFDDAJF5ZTA5JH-ZL 5ZTA5DF6DA5F6L JO[5, F/JFGL KP VFR4 SML84 5L, ; 4 VFSL854 5ZF5B IJUZI SFDGM ; DFJX . 8GF R6TZDAYFI KP TGM SM. 56 EFJ HNM VF5JFDA VFJX[GCLR . 8G)R6TZ SFD NZ V# YZ[NMZL AFWLG[, F. G NMZLDF4 , J, DA VM/E# ; F-4 ; OF. NFZ SZJFG)KP R6TZ SFDDA ; FW s! qZcc Ylf ! PZ5 ; PDLP TDFD SFD SF/HLYL SZJFG)KP dI P SM5MP 5F; SZ[TJL ; FZL HFTGL RIBBL RF/L L Z[TL sT/FHF4 pDZF/F4 WWSF 5SLGLF JF5ZJFGL KP VF. PV# P 5# UP VMP5P; LP ; LDg8 JF5ZJFGL KP . 8G)R6TZ ! o# GA5DF6DA ; LPDMPYL SZJFG)KP R6TZ SFDDANZS A[, I ZDA & VDPVDP OFI FGF DF. <0 :8L, GA A[GU VF5JFDA VFJ[T[Olhf. G DHA ; RJJFDA VFJ[T[TDFD Olhf. G DHAGF CSNUF/L , FJL VF5L UM9JL sVpAdf SZJF ; FY[TDFD R6TZ SFDG)H-ZL 5ZTF 5DF6DA SI MZLU SZJFG)K[VG[N; INJ ; ; ML 5F6LYL ELG)ZFBJFG)KP VF SFDGF % , FG4 V[LJXG4 TYF ; # ; G DHAG)TYF pRF. DHAG)R6TZ SFD SZJFG)KP TGM EFJ NZ V# 3GDL8Z 5Z ; DHJFGM KP T[FZ SFDG)DF5 , JFDA VFJXP p5ZMST TDFD IJUT[VF SFD H-ZL SI MZLU4 : SPM-OLU ZSLU VMO HF. g8 ; ; FY[S5, L8 SFD SZL VF5JFG)KP

(16) 5yYZ R6TZSFD 5FI F DF8[L; DM ! o&

VF SFD DF8[HF. TF TDFD 5tYZ 5F; SZJFDA VFJ[T]5DF6GL BF6MGF I MuI DF5 ; F. h TYF JHGGF 5F; SZJFDA VFJ[T]JF , FJJFGF KP TDFD 5tYZ ; FZL4 5FS4 RPE JUZGF , FJL JF5ZJFGF KP R6TZ SFDDA, FAF 5tYZ 5Kf0 ZFBLG[NM-JLGSFD SZJFG)KP 5FI FGM EFU HIF HDLGG ACfZ IGS/[tIF NMZL AFWL I MuI H-ZL DF5DA ; ZB)SFD SZJFG)KP VG[B)FVMM 5tYZGF 30FJLG[VYJF . 8GF R6LG[SZJFGF KP HDLGG VNZG)R6TZ SFD HZF56 5M, F6 G ZC[TD ; ZB)SZJFG)KP SMZF



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5tYZ UM9JLG[! o& GA; LPDMP GM DF, 5FYZJFGL ZLT RF, JF NJFDFA VEFJX[GCLR NZS 5tYZ ; ZBM UMTLG[CYMDFYL 30LG VSS UM9JL ! o& GF ; LPDM DAEZ AF; FOLG[R6TZ SFD SZJ}50XP NZS 5FR O8 ccCNZcc NZS YZDAJF5ZJFGM KP 5tYZG[SOFp4 D5JF NJFDFA VEFJX[GCLVVG[5M, F6 G ZC[T]DF8[BF; H-Z 5ZTAS5RF JF5ZL RFZ[AFH[V]! o& GM ; LPDMP GM DF, 9F L NFAOL H[U] EZ SFD SZJFG}KP %, IgYG}R6TZ SFD NZS 5tYZ AZFAZ DF5GM UMTLG[CYMDFYL 30L ! (VDPVDP YL DIBL ; FW G ZC[TD UM9JLG} NM-JLG[SFD SZJFG}KP TDFD 5tYZ ! o& GF ; LPDMP GF DF, JO[EZ AF; FOLG[NFAOL H[U]SZJFG} KP HI VATEJJFDFA VEFJ[tI A! vZ GA; LDM JO[; LDj8 5M. g8LU SZL VF5JFG}KP NZS R6TZGM YZ _P\$5 DL8ZYL JWFZ[pRMSZJF NJFDFA VEFJX[GCLR TDFD SFD , F. G NMZLV} , U, [TYF VM/E[SZJFG}KP ! o& GF ; LPDMP DAK EFU Z[TL TYF VS EFU ; LDj8 JF5ZJFGL KP VF SFD DF8[5F; SZJFDFA VEFJ[T]L RmbL W/ JUZ GL sT/FHF4 pDZF/F4WWSff GL Z[TL , FJL JF5ZJFGL KP VF SFD DF8[VF. PVf; PVM5LP; LP 5# UP GL 5F; SZJFDFA VEFJ[T]L ; LDj8 , FJL JF5ZJFGL KP N; INJ; ; WL TDFD SFDG[; TT EIG}ZC[T]DHA SI MZLU SZJFG}K[VF SFDGM EFJ NZ VS 3GDL8Z 5Z ; DHJFGM KP T[FZ SFDG}DF5 , JFDFA VEFJX

(17) 5yYZ R6TZSFD %, IgYq; JSZ:8SRZ DF8[L; DM ! o&

VF SFD DF8[Hf. TF TDFD 5tYZ 5F; SZJFDFA VEFJ[T]5DF6GL BF6MGF I MuI DF5 ; F. h TYF JHGGF 5F; SZJFDFA VEFJ[T]UF , FJJFGF KP TDFD 5tYZ ; FZL4 5FS4 RPE JUZGF , FJL JF5ZJFGF KP R6TZ SFD DA, FAF 5tYZ 5Kf0 ZFBLG[NM-JLG[SFD SZJFG}KP 5FI FGM EFU HI F HDLGG ACfZ IGS/[tI F NMZL AFWL I MuI H-ZL DF5DA; ZB}SFD SZJFG}KP VG[B]6FVM 5tYZGF 30FJLG[VYJF . 8GF R6LG[SZJFGF KP HDLGG VNZG}R6TZ SFD HZF56 5M, F6 G ZC[TD ; ZB}SZJFG}KP SMZF 5tYZ UM9JLG[! o& GA; LPDMP GM DF, 5FYZJFGL ZLT RF, JF NJFDFA VEFJX[GCLR NZS 5tYZ ; ZBM UMTLG[CYMDFYL 30LG VSS UM9JL ! o& GF ; LPDM DAEZ AF; FOLG[R6TZ SFD SZJ}50XP NZS 5FR O8 ccCNZcc NZS YZDAJF5ZJFGM KP 5tYZG[SOFp4 D5JF NJFDFA VEFJX[GCLVVG[5M, F6 G ZC[T]DF8[BF; H-Z 5ZTAS5RF JF5ZL RFZ[AFH[V]! o& GM ; LPDMP GM DF, 9F L NFAOL H[U] EZ SFD SZJFG}KP %, IgYG}R6TZ SFD NZS 5tYZ AZFAZ DF5GM UMTLG[CYMDFYL 30L ! (VDPVDP YL DIBL ; FW G ZC[TD UM9JLG} NM-JLG[SFD SZJFG}KP TDFD 5tYZ ! o& GF ; LPDMP GF DF, JO[EZ AF; FOLG[NFAOL H[U]SZJFG} KP HI VATEJJFDFA VEFJ[tI A! vZ GA; LDM JO[; LDj8 5M. g8LU SZL VF5JFG}KP NZS R6TZGM YZ _P\$5 DL8ZYL JWFZ[pRMSZJF NJFDFA VEFJX[GCLR TDFD SFD , F. G NMZLV} , U, [TYF VM/E[SZJFG}KP ! o& GF ; LPDMP DAK EFU Z[TL TYF VS EFU ; LDj8 JF5ZJFGL KP VF SFD DF8[5F; SZJFDFA VEFJ[T]L RmbL W/ JUZ GL sT/FHF4 pDZF/F4WWSff GL Z[TL , FJL JF5ZJFGL KP VF SFD DF8[VF. PVf; PVM5LP; LP 5# UP GL 5F; SZJFDFA VEFJ[T]L ; LDj8 , FJL JF5ZJFGL KP N; INJ; ; WL TDFD SFDG[; TT EIG}ZC[T]DHA SI MZLU SZJFG}K[VF SFDGM EFJ NZ VS 3GDL8Z 5Z ; DHJFGM KP T[FZ SFDG}DF5 , JFDFA VEFJX

(18) AFZL NZJFHF GF #5 DIDL HFOF : FUGF X8: "

VF SFD DAJF5ZJFG}TDFD , FSO}H[; F. h TYF Olhf. G ATEJJFDFA VEFJ[T]5DF6GL 5ZL ; F. hG}, FJJFG}KP 5F; SZJFDFA VEFJ[T]U; F-4 VS56 WFZ 50Fp G CMI S[BZFA G CMI T[U] ; LW} UF9 S[U]-F JUZ OF80B JUZG}RmbB} 5FS); FUG}, FSO} , FJJFG}KP ; NZC}, FSO}SFD p5Z VFj IF 5KL OF8[GCLV VMFFI HFI GCLV[DF8[TYF TOSMSJUZ; FN G , FU[T]L ZLT[KF5-1 SZL TDA DF, ZFBJFGM KP X8; G}TDFD OP JS" TDFD J6L4 WMSF4 #5 VDPVDP HFOF ; FUGF , FSOFGF SZJFGF KP TDFD



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5G<; ; FUGF , FS0FGF VF5JFDA VFJ[T]OLhf. G DJHA , FS0, FJL ZZ VDPVDP GL HFOF. DATI FZ SZLG[OL8 SZJFGF KP TDFD H-ZL OL8Luh OLS; Luh A[: 8M5Z4VF<0F04TF0L45JG VFS0L4A[Cg0, 4; RJJFDA VF5JFDA VFJ[T]DF5 ; F. h TYF OLhf. G DJHA V<I DLGLI DGF , FJL OL8 SZJFGF ZCXP5F8L", lu, h0 VYJF O, lu, h0 X8; DA & VDPVDP HFOM JFI ZO IOU0" AFHZL u, F; sSFRF , FJL JF5ZJFGM KP TDFD SFDG[5F; SZJFDA VFJ[T]JM 8I]. GZ s5FI DZf , FJL V\$ CFY TYF VM. , 5[g8 , FJL A[CFY DFZL VF5JFGF KP TDFD p5ZMST SFD ; FZFDA; FZ SFZLUZ JO[SFZLUZ , FJL TDFD SFD ; F-A ; OF. NFZ4 SF8B) [VYJF VF5JFDA VFJ[OLhf. G DJHA ccJS"DGv, F. Soc SZJFG)KP ZO S(GA/)SFD RF, X(GCLR

(19) : FUGF , FS0F YL ! 2* ; PDLP ; SXG GL OJD TYF #5 VIDPVDP HFOF X8; "

VF SFDDAJF5ZJFG)TDFD , FS0)H; F. h TYF OLhf. G ATEJJFDA VFJ[T]5DF6GL 5ZL ; F. hG, FJJFG)KP 5F; SZJFDA VFJ[T]J; F-4 V\$56 WFZ 50fp G CMI S(BZFA G CMI T)M ; LM) UF9 S(J-F JUZ OF80B JUZG)RMbB) 5FS); FUG) , FS0) , FJJFG)KP ; NZC), FS0)SFD p5Z VFjIF 5KL OF8(GCL) VMFFI HFI GCIT[DF8]TYF TOSMSJZ; FN G , FU[T]JL ZLT[KF5-1 SZL TPA DF, ZFBJFGM KP VF SFDDA AFZL4 NZJFH4 S5AM0" JUZGL ! _ 2 * ; PDLP ; SXG DJHA ; FUG) , FS0) , FJL VF5JFDA VFJ[T]OLhf. G DJHA OJD AGEJJFGL K[VG; RJJFDA VFJ[T]DJHA H-ZL , MB0GF JZFM; FY[R6TZ VYJF VFZP; IP; IP SFDDAOL8 SZJGL KP X8; G)TDFD OJD JS" TDFD J6L4 MMSF4 #5 VDPVDP HFOF ; FUGF , FS0FGF SZJFGF KP TDFD 5G<; ; FUGF , FS0FGF VF5JFDA VFJ[T]OLhf. G DJHA , FS0, FJL ZZ VDPVDP GL HFOF. DATI FZ SZLG[OL8 SZJFGF KP TDFD H-ZL OL8Luh OLS; Luh A[: 8M5Z4VF<0F04TF0L45JG VFS0L4A[Cg0, 4; RJJFDA VF5JFDA VFJ[T]DF5 ; F. h TYF OLhf. G DJHA V<I DLGLI DGF , FJL OL8 SZJFGF ZCXP5F8L", lu, h0 VYJF O, lu, h0 X8; DA & VDPVDP HFOM JFI ZO IOU0" AFHZL u, F; sSFRF , FJL JF5ZJFGM KP TDFD SFDG[5F; SZJFDA VFJ[T]JM 8I]. GZ s5FI DZf , FJL V\$ CFY TYF VM. , 5[g8 , FJL A[CFY DFZL VF5JFGF KP TDFD p5ZMST SFD ; FZFDA; FZ SFZLUZ JO[SFZLUZ , FJL TDFD SFD ; F-A ; OF. NFZ4 SF8B) [VYJF VF5JFDA VFJ[OLhf. G DJHA ccJS"DGv, F. Soc SZJFG)KP ZO S(GA/)SFD RF, X(GCLR p5ZMST TDFD IJUT[VF SFDGM EFJ NZ V\$ RIMPDP 5Z ; DHJFGM KP TI FZ SFDG)DF5 , JFDA VFJXP

(20) : FUGF , FS0F YL ! Z2* ; PDLP ; SXG GL OJD TYF #5 VIDPVDP HFOF X8; "

VF SFDDAJF5ZJFG)TDFD , FS0)H; F. h TYF OLhf. G ATEJJFDA VFJ[T]5DF6GL 5ZL ; F. hG, FJJFG)KP 5F; SZJFDA VFJ[T]J; F-4 V\$56 WFZ 50fp G CMI S(BZFA G CMI T)M ; LM) UF9 S(J-F JUZ OF80B JUZG)RMbB) 5FS); FUG) , FS0) , FJJFG)KP ; NZC), FS0)SFD p5Z VFjIF 5KL OF8(GCL) VMFFI HFI GCIT[DF8]TYF TOSMSJZ; FN G , FU[T]JL ZLT[KF5-1 SZL TPA DF, ZFBJFGM KP VF SFDDA AFZL4 NZJFH4 S5AM0" JUZGL ! Z 2 * ; PDLP ; SXG DJHA ; FUG) , FS0) , FJL VF5JFDA VFJ[T]OLhf. G DJHA OJD AGEJJFGL K[VG; RJJFDA VFJ[T]DJHA H-ZL , MB0GF JZFM; FY[R6TZ VYJF VFZP; IP; IP SFDDAOL8 SZJGL KP X8; G)TDFD OJD JS" TDFD J6L4 MMSF4 #5 VDPVDP HFOF ; FUGF , FS0FGF SZJFGF KP TDFD 5G<; ; FUGF , FS0FGF VF5JFDA VFJ[T]OLhf. G DJHA , FS0, FJL ZZ VDPVDP GL HFOF. DATI FZ SZLG[OL8 SZJFGF KP TDFD H-ZL OL8Luh OLS; Luh A[: 8M5Z4VF<0F04TF0L45JG VFS0L4A[Cg0, 4; RJJFDA VF5JFDA VFJ[T]DF5 ; F. h TYF OLhf. G DJHA V<I DLGLI DGF , FJL OL8 SZJFGF ZCXP5F8L", lu, h0 VYJF O, lu, h0 X8; DA & VDPVDP HFOM JFI ZO IOU0" AFHZL u, F; sSFRF , FJL JF5ZJFGM KP TDFD SFDG[5F; SZJFDA VFJ[T]JM 8I]. GZ s5FI DZf , FJL V\$ CFY TYF VM. , 5[g8 , FJL A[CFY DFZL VF5JFGF KP TDFD p5ZMST SFD ; FZFDA; FZ SFZLUZ JO[SFZLUZ , FJL TDFD SFD ; F-A ; OF. NFZ4 SF8B) [VYJF VF5JFDA VFJ[OLhf. G DJHA ccJS"DGv, F. Soc SZJFG)KP ZO S(GA/)SFD RF, X(GCLR p5ZMST TDFD IJUT[VF SFDGM EFJ NZ V\$ RIMPDP 5Z ; DHJFGM KP TI FZ SFDG)DF5 , JFDA VFJXP



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VM. , 5[g8 , FJL A[CFY DFZL VF5JFGF Kp TDFD p5ZMST SFD ; FZFDA ; FZF SFZLUZ J0[SFZLUZ , FJL TDFD SFD ; F-1 ; Of. NFZ4 SF8B}6[VYJF VF5JFDFVVFJ[0LhF. G DJHA ccJS"DGv, F. Soc SZJFG)Kp ZO S(GA/)SFD RF, X(GCLR p5ZMST TDFD IJUT[VF SFDGM EFJ NZ V\$ RMPDLP 5Z ; DHJFGM Kp Tq FZ SFDG)DF5 , jFDFAVFJXP

(21) SM, P: LS, UL, UJ, 8

, MBOGF 30LJF/F NZJHF DF8[JF5ZJFG) TDFD , MBO DF. <0 :8L, 4 ; F~ SF8 JUZG), FJJFG) Kp VF SFD DF8[TDFD Z_ VDPVDP GL RG, JF5ZL GD)GF TYF 0LhF. G DJHA SZL VF5JFG) Kp NZJHF[AW YFI tI FZ[A[RG, JrRG) VITZ *5 VDPVDPYL JWFZ[G ZC[T] 5DF6[RG, JF5ZJFG Kp RG, GA VNZGF EFU[JF5ZJFG 58LVIGL OA, RIMSOL 50[T] ZLT[AGFJJFGL Kp \$_2\$_2& VDPVDP GL 8M5 Z[G TYF AMB D Z[, AGFJJFDF VVFJ[T] 5DF6[GFBL VF5JFG) Kp TDFD NZJHF ACfZ v VNZ 5LT/GM Cj0, TF/) DFZL XSF I TjL ; UJOTF ; FY[, UFJFGM Kp TDFD SFDG[5YD I; NZ TYF JFGLXGM V\$ CFY , UFOL TGf 5Z SCjFDFVVFJ[T] 5FSF VM. , S, ZGRA[CFY , UFJL VF5JFG) Kp Tq FZ SFDG)DF5 , jFDFAVFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM Kp

(22) ZM, LU X8ZG)SFDp

VF SFD DF8[dI P SM5M GL ; RGF DHAGA ; FZF Dji DSRZGVM, LU X8; ", FJJFG) Kp TDFD X8; "DF8[; RjI F DJHA s! & YL ! (UHf GL HFOF. GADF. <0 :8L, GA5TZGF , FJJFG) Kp TDFD X8; "GL AG[; F. OGL UF. OM A\$B; "TYF ; FZL SJM, L8LGL DHATJ UM/ VYJF 0, B :5]U . u, LX AGFJ8GL JF5ZL , UFJFGL Kp TDFD X8; "GF ; :5jXG XF084 , M0LU VZjHDj84 5), LU Cj0 Cj0< ; TYF 8M5 SJZ IJP JF5ZLG[NZJHFVM 0L8 SZJFG) Kp TDFD X8; "INJF, DA, FSOGL 08LVMI ; Dj8 Z[TLYL KFNL TPA: S]AM-8L , UFOL 0L8 SZJFG Kp VFZP; IP; IP SFD p5Z X8; "TDFD ZLT[DHA]TLYL 0L8 YFI T] 5DF6[SZJFG) Kp TDFD X8; "; Cj F. YL BM, L AW SZL XSF I T] DF8[V\$ NZJHFDFV\$ GU AM, AZLUGL HFJL JF5ZL VF5JFG)SFD SZJFG) Kp TDFD X8; "G[SCjFDFVVFJ[T] jL ; FZL S5GLGF VM. , 5[g8GAA[CFY 5F. DZGM V\$ CFY 5KL , UFOL VF5JFG Kp X8; "0L8 SZJF DF8GA TDFD ; FwGM IJP S}8FS8Z[, FJJFG) ZC[X] TPDH , FSOGL 08FV08LVMI IJP H[SA INJF, MDA GFBJFDFVVFJ[T] GM SM. 56 EFJ V, U VF5JFDFVVFJX[GICR X8; GL TDFD ZLA ; RGF DHAGAV\$; ZBL HFOF. GA5TZFGL AG[L CMUL HF. Vp Tq FZ X8; GL pRF. 8M5 SJZGL 5FK/YL T[, FNLGA8M5 ; jL DF5 , jFDFAVFJXP 8M5 SJZ 5Z UM/F. DADhZ85 QZJLG)DF5 , jFDFAVFJX[GICR 5CM/F. G)DF5 ; F. OGL AG[; F. 0 ; FY[, jFDFAVFJXP Tq FZ SFDG)DF5 , jFDFAVFJX[TYF EFJ NZ\$ V\$ RMPDLP 5Z ; DHJFGM Kp

(23) ZM, LU X8Z GL :8Fg00" :5]LU : 5, FI 40L8LU SFDp

dI P SM5M wJZF 5F; SZJFDFVVFJ[T] jL ZM, LU X8; "GL Z*P5 ; PDIP , FAL :8Fg00" :5]LU UpvZ , FJL H-ZL TDFD 5\$FZGF 0L8LU OLS; LU ; FY[H-ZL VM. , LU4 Uj; LU SZL X8Z BM, L 0L8 SZL VF5JFG)Sd5, L8 SFD SZJFG) Kp VF SFD DF8[V\$ GU 5Z EFJ ; DHJFGM Kp

(24) ZM, LU X8Z G)Cj SJZ ; 5, FI 40L8LU SFDp

dI P SM5M 5F; SZ[T] jL ZM, LU X8; "DF8G)Cj SJZ , FJL H-ZL S\$; FY[T] DH H-ZL TDFD 5\$FZGA0L8LU VOLS; LU ; FY[0L8 SZL ZMIS; F. OGM V\$ CFY VG[T] GF 5Z ; FZL S5GLGF VM. , 5[g8GAA[CFY , UFJL VF5JFG)Sd5, L8 SFD SZJFG) Kp Tq FZ SFDG)DF5 , jFDFAVFJX[TYF VF SFD DF8[V\$ ZGLU DL8Z 5Z EFJ ; DHJFGM Kp



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(25) u, F; ; 5, FI 40L8LU

dI P SM5IP 5F; SZ[TJL HFOF. GA; FNF 8F. 5v; L S, F; , FJL ; Rj I F DJHAGADF5 ; F. hDA0L8 SZL H-ZL , F5LYL 0L8 SZL 0LGLXLU TYF H-ZL 0L8LU; vOLS; LU SZL VF5JFG)SFD Sd5, L8 SFD Tq FZ SFDG)DF5 , jFX|TYF EFJ NZ V\$ RMPDIP 5Z ; DHJFGM KP

(26) UFpg0 q OM: 8B q VMAF: 80"u, F; ; 5, FI 40L8LU

dI P SM5IP 5F; SZ[TJL HFOF. GROM: 8B VYJF VMA: 80" SFR , FJL ; Rj I F DJHAGADF5 ; F. hDA0L8 SZL H-ZL , F5LYL 0L8 SZL 0LGLXLU TYF H-ZL 0L8LU; vOLS; LU SZL VF5JFG)SFD Sd5, L8 SFD Tq FZ SFDG)DF5 , jFDAVFJX|TYF EFJ NZ V\$ RMPDIP 5Z ; DHJFGM KP

(27) JFI Z ZLgOM: 0lu, F; 0L8LU

dI P SM5IP 5F; SZ[TJL HFOF. GA 8F. 5v; L S, F; GF & DLDL HFOF. GF JFI Z ZLgOM: 0lu, F; , FJL ; Rj I F DJHAGADF5 ; F. hDA0L8 SZL H-ZL , F5LYL 0L8 SZL 0LGLXLU TYF H-ZL 0L8LU; vOLS; LU SZL VF5JFG)SFD Sd5, L8 SFD Tq FZ SFDG)DF5 , jFDAVFJX|TYF EFJ NZ V\$ RMPDIP 5Z ; DHJFGM KP

(28) DFA", : 8MG O, MZLU

VF SFDDAFJF5ZJFGMYTMDFA", : 8MG Z_ VDPVDP HFOM dI P SM5IP 5F; SZ[T]S, Z TYF DF5 ; F. hDA, FJL ! o& GF ; LPDIP GF 5PF6DAZ_ VDPVDP HFOM YZ 5FYZLG|TGF 5Z jCF. 8 I; Dq8 : , ZL GFBL , F. G , j, DA; OF. NFZ H-Z H6FI |T]DH ; RGF V5FI T]L ZLT|OLUZ D|JLG|DFZA, : 8MG 0L8 SZL VF5L : 8MG JrRGA; FWFVM H|T]S, Z JF5ZL jCF. 8 I; Dq8DA E|JL 5ZL VF5JFG)ZCXP TYF N; INJ; ; jML TDFD SFDG|5F6L KfBJG)KP AFNDA; Rj I F DJHA 5M, L; LU TYF J\$; LU SZL VF5JFG)Sd5, L8 SFD KP TDFD Tq FZ SFDG)DF5 , jFDAVFJXP TGM EFJ NZ RMPDIP 5Z ; DHJFGM KP VF SFDDA DXLGZL TYF DXLG R, FJJF . , \$8E; L8L TYF DF6; M IJP TDFD ; UJO Sjq8FS8Z|SZJGL KP TGM SM. 56 V, U EFJ VF5JFDAVFJX|GICR

(29) SM8F : 8MG O, MZLU

dI P SM5IP 5F; SZ[T]L _P&_ DLP 2 _P\$5 DLP TYF _P\$5 DLP 2 _P\$5 DL8ZGL DF5 ; F. h VG; RJJFDAVFJ|T]HFOF. GM 5M, L:0 V\$ ZUGM SM8F : 8MG , FJL ! o(GF I; Dq8 Z|TLGF 5PF6DA\$ _YL 5_ VDPVDP HFOM YZ 5FYZL TGA 5Z I; Dq8 : , ZL GFBL , F. G4 , j, 4 ; OF. NFZ4 NMZLDA 5M, L:0 SM8F : 8MG 0L8 SZL JrRGA; FWFVM U|; LDq8DA EZL N; INJ; ; jML SI MZLU SZL VF5L ; Rj I F DJH 5M, LXLU TYF J\$; LU SZL VF5JFG)SFD KP TDFD Tq FZ SFDG)DF5 , jFDAVFJXP TGM EFJ NZ V\$ RMPDIP 5Z ; DHJFGM KP VF SFDDADXLGZL TYF DXLG R, FJJF . , \$8E; L8L TYF DF6; M IJP TDFD ; UJO Sjq8FS8Z|SZJGL KP TGM SM. 56 V, U EFJ VF5JFDAVFJX|GICR



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(30) ZF. hZq80q: S8L!Uq; L, q5F8L!KGqXk0 DF8! 5M, Lx0 S!8F : 8MG ; 5, F1 4 0L8LU

d!P S!5!P 5F; SZ!DF5 ; F. h VG! ; RJJFDAVFJ!T!HFOF. GM 5M, L:0 V\$ ZUGM S!8F :8MG , FJL !o# GA5DF6DAI; PDIP YL ! Z YL ! 5 VDPVDP G!ADLU % F:8Z SZL I; Dg8 5f:8 J0!, F. G4 , j, 4 ; OF. NFZ4 NMZLDA 5M, L:0 S!8F :8MG 0L8 SZL JrRGA; FWFVM UJ ; LDg8DAEZN; INJ; ; j! S!MZLU SZL VF5L ; Rj!F DH 5M, LXLU TYF J\$; LU SZL VF5JFG!SFD K! TDFD T! FZ SFDG!DF5 , jFDA VFJXP TGM EFJ NZ V\$ R!PDIP 5Z ; DHJFGM K! S!8F :8MG GL WFZ 5M, XLU V, U YL U6JFDA VFJXP VF SFDDA DXLGLZ TYF DXLGR, FJJF. , j8E; L8L TYF DF6; MIJP TDFD ; UJO S!g8FS8Z!SZJFGL K! TGM SM. 56 V, U EFJ VF5JFDAVFJX!G!C!

(31) u. jh 8F. , 0L8LU ! o# % F:8Z : FY!

d!P S!5!P 5F; SZ! T!jF ZU VG! ; F. hGL ; FZL S5GLGL ; FZL SJM, L8LGL u, jh0 8F. < ; , FJL !o# ; LPDIP 5DF6DAI ; 5F8L 5Z 9. I!VM/E! NMZLV! % F:8Z SZL u, jh0 8F. < ; G!I; Dg8 5f:8DA; OF. NFZ4 NMZLDA , j, DA ; Rj!F DHAGL 0Lhf. G DAFR!BS SZL VF5JFG!TYF u, jh0 8F. < ; G!S, Z DHAGM S, Z , FJL jCF. 8 I; Dg8 , FJL TDAE!JL ; FWFVM EZL VF5JFG!Sd5, L8 SFD K! VF SFDG!N; INJ; ; j! 5F6LYL ELG!ZFBL S!MZLU SZJFG!K! T! FZ SFDG!DF5 , jFDAVFJXP EFJ NZ R!PDIP 5Z ; DHJFGM K!

(32) VF. P 5!P V! P

d!P S!5!P 5F; SZ! T!jL ; FZL HFTGL DXLGL S!0 ! _ YL ! 5 VDP VDP HFOF. GL 5FSL S5RL , FJL JF5ZL ! oZoS GA5DF6DAI ; RGF V5F! T!HFOF. VG!-F/DA, F. G , j, NMZLDA S!MSZL8 SFD SZLGL!S!g; M, LQXG ; FY!TGA5Z H-Z H6F! TM! o\$ GA I; Dg8 DMBFZGM 5 VDPVDP HFOF. GM YZ 5FYZL TZT TGf 5Z ; Rj!F DHA I; Dg8 : , ZL VYJF I; Dg8 5f:8 5FYZL ; 5F8L 0LGLX SZL ; RGF DHA NMZLVM KF5L OZLYL ; 5F8L :Dj SZL N; INJ; S!MZLU IJP ; CLTG!Sd5, L8 SFD K! T! FZ SFDG! DF5 , jFDAVFJXP EFJ NZ V\$ R!PDIP 5Z ; DHJFGM K!

(33) : LZFDLS 8F. < : 0. MZLU G!SFDP

5F; SZJFDAVFJ!T!S5GL VG!X!DGL V!vUP ; LZFDLS 8F. < ; , FJL! o\$ GF 5DF6DAI; Dg8 Z!TLG!IDz6 SZL Z_ DIPDIP HFOF. GF ADLU 5Z , F. G , j, VM/E! R!BFOJFGL ZCXP ; FWFVM , FNL S, ZGL I; Dg8YL 5ZJFGF ZCXP N; INJ; ; j! S!MZLU SZJFG!ZCXP DF5 T! FZ SFDG! RMZ; DL8Z U6JFGF ZCXP

(34) IJ8!OF. 0 8F. < : 0. MZLU G!SFDP

5F; SZJFDAVFJ!T!S5GL VG!X!DGL V!vUP IJ8!OF. 0 8F. < ; , FJL! o(GF 5DF6DAI; Dg8 Z!TLG!IDz6 SZL \$_ YL 5_ DIPDIP HFOF. GF ADLU 5Z , F. G , j, VM/E! R!BFOJFGL ZCXP ; FWFVM , FNL S, ZGL I; Dg8YL 5ZJFGF ZCXP N; INJ; ; j! S!MZLU SZJFG!ZCXP DF5 T! FZ SFDG! RMZ; DL8Z U6JFGF ZCXP

(35) A!S A8 0. MZLU

5F; SZJFDAVFJ!T! ; Rj!F DHA GL ; F. h GA. 8G!S8SF VM!SZL ! o& I; Dg8 Z!TL 5DF6DAI TYF V+Y! ; RJJFDAVFJ!T! S5GLG!JMBZ 5!PLU , FJL H-ZL! FT DHAG!IDz6 SZL (_ DIPDIPYL ! __ DIPDIPHFOF. GF ADLU SZL VF5L N; INJ; ; j! S!MZLU SZL VF5JF ; FYG!Sd5, L8 SFD SZL VF5JFG!ZCXP VF T! FZ SFDG!DF5 , jFX!EFJ NZ V\$ R!PDIP 5Z ; DHJFGM K!



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(36) RIGLU, HLUO, NZLU

5F; SZJFDAVFJ[T]; RjIF DHA GL; F. h GAU, h 8F. <; GAs8SF VM SZL ! o& l; Dg8 Z[TLGA5PF6DFAVDz6 SZL #_ DLPDLPYL \$ _ DLPDPHFOF. GF ADLU 5Z, F. G, U, NMZLDA RMB S SZL VF5L; FWFVM jCF. 8 l; Dg8YL 5ZL N; INJ; ; ML SI NZLU SZL V; LO YL; FO SZJF; FYG)Sd5, l8 SFDP Tq FZ SFDG)DF5, UFX)EFJ NZ V\$ RMPDLP 5Z; DHJFGM KP

(37) .g8Z, MSLU; FNF a, MSG)SDFP

; RjIF DHA SCJFDAVFJ[T]HFOF. GF4 SCJFDAVFJ[T]UL 5B8"VG[U]6JTTFG. .g8Z, MSLU a, MS, FJJFGF KP ! 5 YL Z_ ; DIP BINF6 SZL TPA (YL ! _; PDIP GJZITL TYF S5RL 5FJ0ZG)ADLU AGFJL, F. G4, U, Dfa, MS OL8 SZJFGF ZCXP DF5 Tq FZ SFDGF RMZ; DL8Z, UFDAVFJXP

(38) SM-U8D HLPVF. P XL8 ~10U

dIP SM5MP 5F; SZ[T]UL, AF. TYF 5CMF. GA; FZL S5GLGA_P (_ VDPVDP HFOF. GAHLP VF. P SM-U8D XL8 SF8 JUZGA ; LWF, FJL (VDPVDP GAHLPVF. P VFI GA H)Aik84 V, Aik84 TYF UJJP VG)A18D)GG JIMZ JF5ZL VFOF ! _; PDIP VMUZ, l5LU ZC)T)ZL)UM9JL TYF pEF VMUZ, J ! 5; PDIP ZC)T)ZL)OL8 SZJF TYF H-ZL OLS; LU, FJL OL8 SZJF; FYG) Sd5, l8 SFDP Tq FZ SFDG)DF5, UFDAVFJXP EFJ NZ V\$ RMPDLP p5Z; DHJFGM KP s0A)S)XG SFD V, U U6JFG)KP

(39) HLPVF. PXL8 CL%; ZLHL; ; 5, FI 4 OL8LU

HLP VF. P SM-U8D XL8 DF8)H-ZL ZLH S)CM5, FJL :8f900"H)Aik84 V, Aik8 lJP YL OL8 SZL VF5JFG)Sd5, l8 SFD KP Tq FZ SFDG)DF5, UFDAVFJXP EFJ NZ V\$ ZPDLP 5Z; DHJFGM KP

(40) : LU, SM8 %, F: 8Z ! YL ! Z DLPDLP HFOF.

dIP SM5MP 5F; SZ[T]UL; FZL RF)U, L ZITL, FJL; RGF VF5JFDAVFJ[T]UFI; Dg8 Z[TLGA5PF6DFAVDS; SZL %, F: 8Z X- SZTFA 5J)H)T); 5F8L 5F6LYL TZ(SI"AFN TYF; RGF VF5JFDAVFJ[D]HA GL HFOF. G)%, F: 8Z SZJF DF8)H-ZL 9I FVM SZL V\$; ZB)NMZLDA VM)E), F. G, U, (BFOF BOLI F JUZG)50; F-; OF. NFZ %, F: 8Z SZJFG)KP %, F: 8Z SFDDAHI FAHI F)58F 58L4 3L; L4 DIMOLU lJP H)SCJFDAVFJ[T]OLGLXLU SZL VF5JFG)N; INJ; SI NZLU; FYG)Sd5, l8 SFDP Tq FZ SFDG)DF5, UFDAVFJXP EFJ NZ V\$ RMPDLP 5Z; DHJFGM KP %, F: 8ZDF)58Fv58L4 3L; LvVFS)8S4 5F6L 58L JUJZGM EFJ V, U VF5JFDAVFJX)GICR H-ZL TDFD :SPikOLUGL j)J: YF Sltg8FS8Z(SZJFGL KP

(41) : LU, SM8 %, F: 8Z ! 5 DLPDLP HFOF.

sVFP GR \$ _ D)HAF

(42) : LU, SM8 %, F: 8Z Z DLPDLP HFOF.

sVFP GR \$ _ D)HAF



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(43) GL~ q l; Dg8 OLGLX %, F: 8Z ! YL ! Z DLPDLP HFOF.

dI P SM5MP 5F; SZ[T]UL; FZL RF/[, L Z[TL, FJL; RGF VF5JFDA VFJ[T]P I; Dg8 Z[TLGA5DF6DAFDS; SZL %, F: 8Z X- SZTA 5J]H[T]; 5F8L 5F6LYL TZ[SI F'AFN TYF; RGF VF5JFDA VFJ[D]HA GL HFOF. G]%, F: 8Z SZJF DF8[H-ZL 9I FVM SZL V\$; ZB)NMZLDF VM/E[, F. G , U, [BFOF BOLF JUZG]50 ; F~ ; OF. NFZ %, F: 8Z SZJFG]KP %, F: 8Z SFDDAHI FAH I FA 58F 58L4 3L; L4 DIKOLU IJP H[SCJFDA VFJ[T]; FY[T]DH TGF 5Z RGF I; Dg8G]I Mi I 5DF6DAFDS; LU SZL 5[8 , UFJL VF5L GLO OLGLXLU SZL VF5JFG]N; INJ; SI MZLU ; FY[Sd5, l8 SFDP T] FZ SFDG]DF5 , UFDA VFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP %, F: 8ZDA 58Fv58L4 3L; LvVFSL8\$4 5F6L 58L JUZGM EFJ V, U VF5JFDA VFJX[GICR H-ZL TDFD :SPMOLUGL jI J: YF S]g8FS8Z[SZJFGL KP

(44) GL~ q l; Dg8 OLGLX %, F: 8Z ! 5 DLPDLP HFOF.

sVFP GR \$# D]HAF

(45) GL~ q l; Dg8 OLGLX %, F: 8Z Z DLPDLP HFOF.

sVFP GR \$# D]HAF

(46) V\$: 8F OMZ CF. 0, MZ A[DF/ SZTF JWFZFGF 0, MZ DF8]JWFZFGF DF/ NL9 JWFZM

sVf ; LU, SM8 %, F: 8Z ov

VF. 8D GR \$_4\$Z D]HA H[, FU]50T]CMI T[SFDULZL V\$: 8F CF. 8 0, MZ A[DF/ SZTAJWFZGL CF. 8 DF8]H[V]T[SFDULZLGF EFJDAJWFZM VF5JFDA VFJXP T] FZ SFDG]DF5 , UFDA VFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP

sALF ; LU, SM8 jCF. 8 GL~ q l; Dg8 OLGLX %, F: 8Z ov

VF. 8D GR \$#4\$4\$5 D]HA H[, FU]50T]CMI T[SFDULZL V\$: 8F CF. 8 0, MZ A[DF/ SZTAJWFZGL CF. 8 DF8]H[V]T[SFDULZLGF EFJDAJWFZM VF5JFDA VFJXP T] FZ SFDG]DF5 , UFDA VFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP

(47) 0A, SM8 ; g0 O] : %, F: 8Z s ! DL8Z VGI ! DL8Z YL Z DL8Z pRF. , U, ; ML f

dI P SM5MP 5F; SZ[T]UL; FZL RF/[, L Z[TL, FJL; R]I F D]HAGL pRF. CF. 8 , U, ; M]GL H[T]; 5F8L 5F6LYL TZ[SI F'AFN H-ZL 9I FVM SZL V\$; ZB)NMZLV] VM/A[, F. G , U, [BFOF BOLF JUZ ! o# I; PDMG A5DF6DA! Z VDPVDP HFOM 5YD SM8 G]%, F: 8Z SZJFG]KP tI FZAFN ALHF INJ; [VF 5YD SM8 5Z dI P SM5MP 5F; SZ[T]UM; Z]gNGUZGM 56M, FJL VF5L ! oZ GA5DF6DA (VDPVDP HFOM ALHF SM8 G]%, F: 8Z SZJFG]KP VF ALHF CFY 5Z ccZAZ : 5]gH; cc JO[0A, SM8 Vg0 O] : 0 %, F: 8Z SZL VF5JFG]KP T] FZ SFD 5Z N; INJ; ; M]L 5F6L KFB L SI MZLU SZJFG]KP T] FZ SFDG]DF5 , UFDA VFJXP EFJ NZ V\$ RMPDLP D]HA ; DHJFGM KP



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(48) . 8 R6TZ JF8F SFD ! o# ; LPDMP

d1P SM5MP ; RGF VF5[TjL 5wWIT VG; FZ ! o# I; PDMP DA C I FT . 8 R6TZ SFD G[H-ZL :SDM-KOLU ; FY[! Z YL ! 5 VDPVDP GM; FWF BMTZL 5F6LYL ; FZL ZLT[TZ[SIF"AFN JF8FVM EZL N; INJ; S1MZLU SZJF ; ICTG)Sd5, l8 SFD Kp Tq FZ SFDG)DF5 , jFDfVfJXp EFJ NZ V\$ RMPDLP 5Z ; DHJFGM Kp

(49) . 8 R6TZ JF8F SFD ! o\$; LPDMP

d1P SM5MP ; RGF VF5[TjL 5wWIT VG; FZ ! o\$ I; PDMP DA C I FT . 8 R6TZ SFD G[H-ZL :SDM-KOLU ; FY[! Z YL ! 5 VDPVDP GM; FWF BMTZL 5F6LYL ; FZL ZLT[TZ[SIF"AFN JF8FVM EZL N; INJ; S1MZLU SZJF ; ICTG)Sd5, l8 SFD Kp Tq FZ SFDG)DF5 , jFDfVfJXp EFJ NZ V\$ RMPDLP 5Z ; DHJFGM Kp

(50) 5yYZ R6TZ JF8F SFD! o# ; LPDMP

d1P SM5MP ; RGF VF5[TjL 5wWIT VG; FZ ! o# I; PDMP DA C I FT 5yYZ R6TZ SFD G[H-ZL :SDM-KOLU ; FY[! Z YL ! 5 VDPVDP GM; FWF BMTZL 5F6LYL ; FZL ZLT[TZ[SIF"AFN JF8FVM EZL N; INJ; S1MZLU SZJF ; ICTG)Sd5, l8 SFD Kp Tq FZ SFDG)DF5 , jFDfVfJXp EFJ NZ V\$ RMPDLP 5Z ; DHJFGM Kp

(51) l+SM6LLM , M-LI M JF8M ! o! ; LPDMP4! _2 ! ; PDLP: F. h

lP SM5MP ; RGF VF5[T[ZLT[! o! I; Dq8 DM8FZDA! _2! _ ; PDLP ; F. hGM, M-LI M JF8M SZL TGF 5Z TjTH GL8 I; Dq8 GL-ROFJL VF5L OLGXLU SZL VF5JFG)N; INJ; S1MZLU ; ICTG)Sd5, l8 SFD Kp Tq FZ SFDG)DF5 , jFDfVfJXp EFJ NZ V\$ ZPDLP 5Z ; DHJFGM Kp

(52) jCF. 8 JMX q S, Z JMX

Vf SFDdAJF5ZJFGM YTM S/L RGM d1P SM5MP 5F; SZ[T[S5GLGM, FJL4 ONDL UF/L4 TPA; RGF V5FI T[D]HA OjLSM, q VpChLJ VG[S, ZGL 5f8 pDZLG[TDFD INJF, G[3; L ; FO SZL H-Z H6FI tIF%, F:8Z VMO 5[Z; , FJL , UFJL 3; LG[S, Z JMXGF +6 CFY +6 V, U V, U INJ; [, UFJL VF5JFG)Kp Tq FZ SFDG)DF5 , jFDfVfJXp EFJ NZ V\$ RMPDLP 5Z ; DHJFGM Kp

(53) jCF. 8 JMX q S, Z JMX ; LU, SM8

Vf SFDdAJF5ZJFGM YTM S/L RGM d1P SM5MP 5F; SZ[T[S5GLGM, FJL4 ONDL UF/L4 TPA; RGF V5FI T[D]HA OjLSM, q VpChLJ VG[S, ZGL 5f8 pDZLG[TDFD INJF, G[3; L ; FO SZL H-Z H6FI tIF%, F:8Z VMO 5[Z; , FJL , UFJL 3; LG[S, Z JMXGF OST V\$ SM8 , UFJL VF5JFG)Kp Tq FZ SFDG)DF5 , jFDfVfJXp EFJ NZ V\$ RMPDLP 5Z ; DHJFGM Kp



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(59) , FNL O, MZLU TMO SFD

d1P SM5MP wJZF ; RJJFDA VFJ[T]AFWSFDG)SM. 56 5SFZGAVO, MZLU SFD G)TMO SFD VgI AFWSFD S[C]I FT AFWSFDGA VgI EFUMG[G]SXF G YFI T[Z]L[H-ZL : SPKOLU TYF TMOOM DF, v; FDFG4 DF6; MJUZ[, FJL TMO VF5JFG)K P TBL 50[, F BZFAFG[(SLPDIP GL , LODA; RJJFDA VFJ[T]ZLT[: 8]SLU SZL 5FYZL VF5JF ; FYG)Sd5, l8 SFD SZJFG)K P VF SFDDA p5I MU DA, [JTF DF6; MGL HFGCFGL VYJF SM. VS: DFTGL ; '5]HJFANFZL S]8FS8ZGAXLZ[ZC]X P p5I MUL D8LZL I , d1P : 8MZ S[; RGF V5FI tI F5CMRFOL VF5JFG)K P YI[, ASFDG)DF5 , [JFDA VFJX P EFJ NZ V]S RMPDIP 5Z ; DHJFGM K P

(60) XL8 -OLU BM, J]q TMOJ]

d1P SM5MP wJZF ; RJJFDA VFJ[T]AFWSFD G)VP; IP XL8qHLPVF. P XL8 C I FT AFWSFDGA VgI EFUMG[G]SXF G YFI T]D H-ZL : SPKOLU TYF TMOOM DF, v; FDFG4 DF6; MJUZ[, FJL VP; IP XL8qHLPVF. P XL8 T]B[GIC T]D BM, l4 GLR[pTFZL J[, l4 U8Z4 ZLH JUZ[; Cl; , FDT pTFZL4 TMO VF5JFG)K P TBL 50[, F BZFAFG[(SLPDIP GL , LODA; RJJFDA VFJ[T]ZLT[: 8]SLU SZL 5FYZL VF5JF ; FYG)Sd5, l8 SFD SZJFG)K P VF SFDDA p5I MU DA, [JTF DF6; MGL HFGCFGL VYJF SM. VS: DFTGL ; '5]HJFANFZL S]8FS8ZGAXLZ[ZC]X P p5I MUL D8LZL I , d1P : 8MZ S[; RGF V5FI tI F5CMRFOL VF5JFG)K P YI[, ASFDG)DF5 , [JFDA VFJX P EFJ NZ V]S RMPDIP 5Z ; DHJFGM K P

(61) AFAO JFI Z Oj; LU ZLDJ,

d1P SM5MP wJZF ; RJJFDA VFJ[T]AFAO JFI Z Oj; LU ZLDJ SZJF TMOOM GM DF, v; FDFG4 DF6; MJUZ[, FJL AFAO JFI Z Oj; LUGA B]B F VG[Oj; LU BM, l K]BL 5FOL Oj; LU JFI ZGAV]l8F JF/LG[T]BL 50[, F BZFAFG[(SLPDIP GL , LODA; RJJFDA VFJ[T]ZLT[: 8]SLU SZL 5FYZL VF5JF ; FYG)Sd5, l8 SFD SZJFG)K P VF SFDDA p5I MU DA, [JTF DF6; MGL HFGCFGL VYJF SM. VS: DFTGL ; '5]HJFANFZL S]8FS8ZGAXLZ[ZC]X P p5I MUL D8LZL I , d1P : 8MZ S[; RGF V5FI tI F5CMRFOL VF5JFG)K P YI[, ASFDG)DF5 , [JFDA VFJX P EFJ NZ V]S ZPDIP 5Z ; DHJFGM K P

(62) : GL8ZL O8L]u: JMX Af LG4 l ZLG, 40A<l P: lP5FG40, X 8]S ZLDJ,

d1P SM5MP wJZF ; RJJFDA VFJ[T] ; G]BZL O8L]u: JMX Af LG4 l ZLG, 4 0A<l P; lP5FG4 0, X 8]S ZLDJ, SZJFGM DF, v; FDFG4 DF6; MJUZ[, FJL D8LZL I , d1P : 8MZ S[; RGF V5FI tI F5CMRFOL VF5JF ; FYG)Sd5, l8 SFD SZJFG)K P VF SFDDA p5I MU DA, [JTF DF6; MGL HFGCFGL VYJF SM. VS: DFTGL ; '5]HJFANFZL S]8FS8ZGAXLZ[ZC]X P YI[, ASFDG)DF5 , [JFDA VFJX P EFJ 5]T GU 5Z ; DHJFGM K P

(63) % F: 8Z TMO SFD

d1P SM5MP wJZF ; RJJFDA VFJ[T]AFWSFD G)% F: 8Z AFWSFD S[C]I FT AFWSFDGA VgI EFUMG[G]SXF G YFI T]D H-ZL : SPKOLU TYF TMOOM DF, v; FDFG4 DF6; MJUZ[, FJL TMO VF5JFG)K P TBL 50[, F BZFAFG[(SLPDIP GL , LODA; RJJFDA VFJ[T]ZLT[: 8]SLU SZL 5FYZL VF5JF ; FYG)Sd5, l8 SFD SZJFG)K P VF SFDDA p5I MU DA, [JTF DF6; MGL HFGCFGL VYJF SM. VS: DFTGL ; '5]HJFANFZL S]8FS8ZGAXLZ[ZC]X P YI[, ASFDG)DF5 , [JFX P EFJ NZ V]S RMPDIP 5Z ; DHJFGM K P



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(64) AFZL4AFZ6F4UJ, 4UJ. 8 IJP ZLDJ,

dI P SM5MP wJZF ; RJJFDFVVFJ[T]AFZL4AFZ6F4UJ, 4UJ. 8 IJUJ[ZLDJ], SZJFGMDF, v; FDFG4 DF6; MJUJZ[, FJL D8LZLI ,
dI P :8MZ S] ; RGF V5F1 tI A 5CIRFOL VF5JF ; FYG]Sd5, L8 SFD SZJFG] KP VF SFDDA\p5I MUJDA , UFTF DF6; IGL
HFGCFGL VYJF SM VS:DFTGL ; 5b"HJFANFZL SM]8FS8ZGAXLZ[ZCXP YI], A SFDG]DF5 , UFDVVFJXP EFJ 5]T GU 5Z
; DHJFGM KP

(65) JM8Z 8pS OL8 SZJFG]SFDP

; RJIF DHA S5GL TYF SCUFDA VFJ[T] ; F. hGL I; I, gOZ 8F. 5 8FSL , FJL SCUFDA VFJ[T] :Y/[OL8 SZJFGL ZCXP TG]
; \ uG . G, B4 Vfp8, B4 VUZO, M 5F. 54I GLI G , FJL OL8 SZJFGF ZCXP VF ; \ uG VF. 8DINGM BR" V, UYL VF5JFDA
VFJX[GICP SM. 56 HuI FV]YL 5f6L , LSH G YJ]HF. VP EFJ 8pSGL ; F. h 5DF6[V5 GU DHA ; DHJFGM ZCXP

(66) 5LJL; L 5F. 5 Sq; L<ODFAOL8LU

dI P SM5MP ; RJ[T]S5GLGF4 5LJL; L 5F. 5 , FJL TG]OL8LU SFD TDFD H-ZL OL8LUM sS5, LG4GL5, 4I GLI G48L4V, AMIJUJZ]
f , FJLG]INJF, 4VFZP; IP; LPDARZDL 5FOL , F. G , U, DA; RGF VF5JFDA VFJ[T]DHA OL8 SZL VF INJF, 4VFZP; IP; LPDA
RZDL SZ] EFUDA H-ZL D8LZLI , YL , F. G , U, DA OLGLXLU SZL VF5JF ; FYG]Sd5, L8 SFD SZJFG]KP T] FZ SFDG]DF5
, UFDVVFJXP EFJ NZ V5 ZGLU DL8Z 5Z ; DHJFGM KP

(67) 5LJL; L 5F. 5 HDLG DFAOL8LU

dI P SM5MP ; RJ[T]S5GLGF4 5LJL; L 5F. 5 , FJL TG]OL8LU SFD H-ZL TDFD OL8LUM sS5, LG4GL5, 4I GLI G48L4V, AMIJUJZ]
, FJLG] ; RGF D?I]YL H-ZL VNFH]! P___ DL8ZGL pOF. DA BINF6 SFD SZLG] , F. G , U, DA; RGF VF5JFDA VFJ[T]DHA
OL8 SZL BINF6 SZ] EFUDA H-ZL ZLOL LU SZL , F. G , U, DA OLGLXLU VF5JF ; FYG]Sd5, L8 SFD SZJFG]KP T] FZ
SFDG]DF5 , UFDVVFJXP EFJ NZ V5 ZGLU DL8Z 5Z ; DHJFGM KP VF SFDDA! P___ DL8ZYL JW] BINF6 q 5ZF6 SZJFDA
VFJX[TM]! P___ DL8Z p5ZGF JWFZFG]BINF6 q 5ZF6G]V, UYL H[T]VF. 8D DHA R5J6]SZJFDA VFJXP

(68) SF: 8 VFI G" : 5LUM8 VG] ; M. , ; MSB4J] : 8 Vp0 Jp8L, BLU 5F. 5

dI P SM5MP ; RGF VF5] T]DF5 ; F. h VG] : 8fg00" S5GLGF4 SF: 8 VFI GGF: 5LUM8 VG] ; M. , ; MSB4 J] : 8 Vp0 Jp8L, BLU
5F. 5 , FJL S, p5 OL8 SZL H-ZL ; FWFVM! o! ; LPDM TYF : 5G I FG" 5ZL VF5L OL8 SZL VF5JFG]Sd5, L8 SFD SZJFG]KP
T] FZ SFDG]DF5 , UFDVVFJXP EFJ NZ ZGLU DL8Z 5Z ; DHJFGM KP

(69) SF: 8 VFI G" Z] G JM8Z 5F. 5

dI P SM5MP 5F; SZ[T]UL ; FZL S5GLDA*5 VDPVDP OFI FGF OF: 8 VFI G" Z] G JM8Z 5F. 5 , FJL H-ZL OL8LU4 Aq04 HF. g84
S, p54 HF. g8DA : 5G I FG" ; FY[I; Dp8 5] : 8YL JF8F ; FY[OL8 SZL VF5JF ; FYG]SFD KP T] FZ SFDG]DF5 , UFDVVFJXP
EFJ NZ V5 ZPDIP 5Z ; DHJFGM KP



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(70) 5LJL; L 5F. 5 VM5G DAOL8LU

dI P SM5MP ; RJ[T[S5GLGF 5LJL; L 5F. 5 , FJL T[G]OL8LU SFD TDFD H~ZL OL8LUMsS5, LG4GL5, 4I JLI G48L4V[, AMIJUZl f , FJLG[, F. G , U, DA; RGF VF5JFDA VFJ[T[D]HA OL8 SZL VF5JF ; FY[G]Sd5, L8 SFD SZJFG]K P T[FZ SFDG]DF5 , UFDAVFJXP EFJ NZ V\$ ZGLU DL8Z 5Z ; DHJFGM K P

(71) VP; L ZI. G JMBZ 5F. 5

dI P SM5MP 5F; SZ[T[S5GLGF VP; IP ; LDj8 ZI. G JMBZ 5F. 54 TYF H~ZL OL8LU4 Aq04 Hf. q8; 4 S, f5 , FJL OL8 SZL VF5JFG]Sd5, L8 SFD K P T[FZ SFDG]DF5 , UFDAVFJXP EFJ NZ V\$ ZPDIP 5Z ; DHJFGM K P

(72) VP; L ; LDj8 GF : 8fg00" OL8LU; ; 5, FI 4 OL8LU

dI P SM5MP 5F; SZ[T; FZL S5GLGF TYF DF5 ; F. hGA VP; IP ; LDj8GAZl. G JMBZ 5F. 5 DF8GA: 8fg00" OL8LU , FJL H~ZL OL8LU ; FY[OL8 SZL VF5JFG]Sd5, L8 SFD K P T[FZ SFDG]DF5 , UFDAVFJXP EFJ NZ V\$ GU 5Z ; DHJFGM K P

(73) SF: 8 VFI G" GL GFGL 8f5

dI P SM5MP 5F; SZ[T]: 8fg00" S5GLGL ! __ VDPVDP . g, B VG[5_ VDPVDP Vfp8, B JF/L ALOGL Cf. 0 UBLU WZFJTL GFGL 8f5 , FJL4 ; RGF V5FI TYF H~ZL TMOIB SZL ! o! ; LPDIP DA, U, DAOL8 SZL VF5JFG]Sd5, L8 SFD SZJFG]K P T[FZ SFDG]DF5 , UFG]K P EFJ NZ V\$ GU 5Z ; DHJFGM K P

(74) 5LJL; LGL GFGL 8f5

dI P SM5MP 5F; SZ[T]: 8fg00" S5GLGL ! __ VDPVDP . g, B VG[5_ VDPVDP Vfp8, B JF/L 5LJL; L 5F. 5GL GFGL 8f5 , FJL4 ; RGF V5FI TYF H~ZL TMOIB SZL ! o! ; LPDIP DA, U, DAOL8 SZL VF5JFG]Sd5, L8 SFD SZJFG]K P T[FZ SFDG]DF5 , UFG]K P EFJ NZ V\$ GU 5Z ; DHJFGM K P

(75) VMZL; : F 8F. 5 5LPqV; P 8f5 ; FY[G]JMBZ S, MhB 5FG

dI P SM5MP 5F; SZ[T]L : 8fg00" S5GLG; ON S, ZG]5(__ VDPVDP ; F. hG]VMZL; F 8F. 54 JMBZ S, MhB 5FG 5L VYJF V; 8f5 , FJL ; FY[, FJL ; RJJFDA VFJ[T]: Y/[H~ZL BINf6 SZL , F. G , U, DAH~ZL TDFD OLS; LU TYF OL8 SZL VF5JFG] Sd5, L8 SFD SZJFG]K P T[FZ SFDG]DF5 , UFDAVFJX[EFJ NZ V\$ GU 5Z ; DHJFGM K P

(76) I ZM5LI G OA<I P: LP5FG

dI P SM5MP wJZF 5F; SZJFDA VFJ[T]I ZM5LI G 8F. 5c JMBZ S, MhB 5FG , FJL H~ZL TDFD OL8LUVOLS; LU ; FY[; RJJFDA VFJ[T]: Y/[! o! ; LPDIP DA; M. , 5F. 5 ; FY[OL8 SZL RF,]SZL VF5JF ; FY[G]Sd5, L8 SFD K P T[FZ SFDG]DF5 , UFDA VFJX[EFJ NZ V\$ GU 5Z ; DHJFGM K P



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(77) 5LPqVf; P8f5 ; 5, F1 4 OL8LU

dI P SM5MP ; RJ[Tf :8fg00"S5GLGf ! __ VDPVDP OFI FGL 5L VYJf Vf; 8f5 , FJL ; RGF V5FI tI fH-ZL TMOI8 SZL KANfvKfNL SZL OL8 SZL VF5JFGfSd5, l8 SFD Kf Tf FZ SFDGfDF5 , fFDfVfJXf EFJ NZ V\$ GU 5Z ; DHJFGM Kf

(78) . Mv, U, O, XLU ; L:8G" : 5, F1 4 OL8LU

dI P SM5MP ; RJ[Tf :8fg00"S5GLGf ! ZP5 , l8Z S5f l8LGL , Mv, U, O, XLU ; L:8G" , FJL H-ZL TDFD 5\$FZGfOl8LU TYF Af; Af\$B4 Cf0, 4 . g, B VfP8, B DF8GfSGfSXGGfHfPVf. P S5, lU4 lGfL G JUZf, FJL4 ; RGF V5FI tI fH-ZL VDPVDP OFI FGM 5M; fAlG VGD<0 O-X Af0 , FJL lNJf, DfCM, SZJf ; FY[TDFD Vf; fA, l OL8 VF5Jf ; FYGfSd5, l8 SFD SZJFGfKf Tf FZ SFDGfDF5 , fFDfVfJXf EFJ NZ V\$ GU 5Z ; DHJFGM Kf

(79) Xl8 SJZ l ZM5LI G OA<l P: L 5FG DF8f

dI P SM5MP 5f; SZ[Tf :8fg00"S5GLGfTYF S, ZGf l ZM5LI G JMBZ S, MhB 5FG DF8GfH-ZL Xl8 SJZ4 ; l5l4 AM 8lH Vg[ZAZ A0Z ; lCT , FJL ; RGF V5FI tI fH-ZL Ol8LU Ols; lU ; FY[Ol8 SZL VF5JFGfKf Tf FZ SFDGfDF5 , fFDfVfJXf EFJ NZ V\$ GU 5Z ; DHJFGM Kf

(80) : lU, CM, Jf/fJlMx Af; lG ; 5, F1 4 OL8LU

dI P SM5MP 5f; SZ[Tf :8fg00"S5GLGf Vg[DF5 ; f. hGL ; lZFDlS JlMx AfXlG4VDPVf; P Af\$B TYF H-ZL Ol8LU Ols; lU % , U 8l ; FY[, FJL ; RJfI tI fH-ZL lU4 lGfL G JUZf, FJL4 ; RGF V5FI tI fH-ZL Ol8LU Ols; lU ; FY[Ol8 SZL VF5JFGfSd5, l8 SFD SZJFGfKf Tf FZ SFDGfDF5 , fFDfVfJXf EFJ NZ V\$ GU 5Z ; DHJFGM Kf

(81) SlRG ; lS :8G, f; :8L, GL ; 5, F1 4 OL8LU

dI P SM5MP 5f; SZ[Tf ! DLDL HfOF:8fg00"S5GLGf Vg[&__2\$5_2! 5_ VDPVDP ; f. hGL lSRG ; lqS4 VDPVf; P Af\$B TYF H-ZL Ol8LU Ols; lU % , U 8l ; FY[, FJL ; RJfI tI fH-ZL lU4 lGfL G JUZf, FJL4 ; RGF V5FI tI fH-ZL Ol8LU Ols; lU ; FY[Ol8 SZL VF5JFGfSd5, l8 SFD SZJFGfKf Tf FZ SFDGfDF5 , fFDfVfJXf EFJ NZ V\$ GU 5Z ; DHJFGM Kf

(82) : lP5lPAf; Jf: 8 ; 5, F1 4 OL8LU

dI P SM5MP5; N SZ[TfS5GLGf TYF DF5 ; f. hGL SMDl D % , Bf Af; Jf:8 sJlMx Afhlgq; lS DF8f , FJL ; RJfJfDfVfJ[tI fH Ol8 SZL VF5JFGfSd5, l8 SFD Kf Tf FZ SFDGfDF5 , fFDfVfJXf EFJ NZ V\$ GU 5Z ; DHJFGM Kf

(83) VlDPVf. OlXZ lGfL G ; 5, F1 4 OL8LU

dI P SM5MP5; N SZ[TfS5GLGf TYF DF5 ; f. hGL VlDPVf. P OlXZ lGfL G sJlMx Afhlgq; lS DF8f , FJL ; RJfJfDfVfJ[tI fH Ol8 SZL VF5JFGfSd5, l8 SFD Kf Tf FZ SFDGfDF5 , fFDfVfJXf EFJ NZ V\$ GU 5Z ; DHJFGM Kf



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- (84) ALO GF : S\OfpG 8F. 5 8\5 ; 5, FI 4 OL8LU
 dI P SM5MP ; RGF VF5(T\JF VG[; F. hGFAALOGA:S\OfpG 8F. 5 8\5 , FJL ; RGF V5FI T[ZLT[NMZF JL8LG[OL8 SZL VF5JFG]Sd5, l8 SFD K\ T\ FZ SFDG\DF5 , \JFDAVFJXP EFJ NZ V\ GU 5Z ; DHJFGMKP
- (85) : lP5LPAF; GF : S\OfpG 8F. 5 ALA 8\5 ; 5, FI 4 OL8LU
 dI P SM5MP ; RGF VF5(T\JF VG[; F. hGAS\MDLI D %, \D AF; GA:S\OfpG 8F. 5 ALA 8\5 , FJL ; RGF V5FI T[ZLT[NMZF JL8LG[OL8 SZL VF5JFG]Sd5, l8 SFD K\ T\ FZ SFDG\DF5 , \JFDAVFJXP EFJ NZ V\ GU 5Z ; DHJFGMKP
- (86) S\%: 8G CDD : S\OfpG CF. 5\XZ S\5; L8L 5L, Z SMS ; 5, FI 4 OL8LU
 dI P SM5MP ; RGF VF5(T\JF VG[; F. hGAS\MDLI D %, \D AF; GA:S\OfpG :8M5 SMS , FJL ; RGF V5FI T[ZLT[NMZF JL8LG[OL8 SZL VF5JFG]Sd5, l8 SFD K\ T\ FZ SFDG\DF5 , \JFDAVFJXP EFJ NZ V\ GU 5Z ; DHJFGMKP
- (87) AF; : S\OfpG 8F. 5 :8M5 SMS ; 5, FI 4 OL8LU
 dI P SM5MP ; RGF VF5(T\JF VG[; F. hGAS\MDLI D %, \D AF; GAS\5: 8G CDD 5L, Z SMS s:S\OfpG CF. 5\XZ S\5; l8lf , FJL ; RGF V5FI T[ZLT[NMZF JL8LG[OL8 SZL VF5JFG]Sd5, l8 SFD K\ T\ FZ SFDG\DF5 , \JFDAVFJXP EFJ NZ V\ GU 5Z ; DHJFGMKP
- (88) UGD\8, R\sqG\G ZL8G*O, J\jCL, JF<J ; 5, FI 4 OL8LU
 dI P SM5MP ; RGF VF5(T\JF VG[; F. hGAS\MDLI D %, \D AF; GAUGD\8, GAR\sqG\GZL8G*O, J\jCL, JF<J , FJL ; RGF V5FI T[ZLT[NMZF JL8LG[OL8 SZL VF5JFG]Sd5, l8 SFD K\ T\ FZ SFDG\DF5 , \JFDAVFJXP EFJ NZ V\ GU 5Z ; DHJFGMKP
- (89) : lP5L AF; CF0 8G*O, X SMS ; 5, FI 4 OL8LU
 dI P SM5MP ; RGF VF5(T\JF VG[; F. hGAS\MDLI D %, \D AF; GACF0 8G*O, X SMS , FJL ; RGF V5FI T[ZLT[NMZF JL8LG[OL8 SZL VF5JFG]Sd5, l8 SFD K\ T\ FZ SFDG\DF5 , \JFDAVFJXP EFJ NZ V\ GU 5Z ; DHJFGMKP
- (90) I ZLG, 5FG ; 5, FI 4 OL8LU
 dI P SM5MP 5F; [SZ\T]; F. hG\VG[: 8fg00*S5GLG]H~ZL SG\$XG ; FYG\I ZLG, 5FG TYF J\ 8 5F. 5 8\5 ; FY[, FJL OL8 SZJF ; FYG\]Sd5, l8 SFD SZJFG\K\ T\ FZ SFDG\DF5 , \JFDAVFJXP[EFJ NZ V\ GU 5Z ; DHJFGMKP
- (91) AM, SMS ; 5, FI 4 OL8LU
 dI P SM5MP 5F; SZ\T\JL : 8fg00*S5GL TYF ; F. hGFAF; GFAAM, SMS , FJL ; RGF V5FI TYF H~ZL OL8LUvOLS; lU ; FY[OL8 SZL VF5JFG]Sd5, l8 SFD SZJFG\K\ T\ FZ SFDG\DF5 , \JFDAVFJXP EFJ NZ V\ GU 5Z ; DHJFGMKP



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(92) SF: 8 VF1 G*c5Ufc s: 8|5f ; 5, FI 4 OL8LU

dI P SM5IP 5F; SZ[T]UL SJM, l8LDfSF: 8 VF1 G*5__2! 5_2ZZP5 VDPVDP ; F. hGA: 8|, FJL ; RGF VF5JFDA VFJ[t]tI FA H~ZL TMO0MB SZL OL8 SZL VF5L !oZ ; lPDMP DA KANF KNL SZL VF5JF ; FYI TYF T[|FZ SFDG[V]8L SMZMHU S, Z SZL VF5JFG|K P T[|FZ SFDG|DF5 , JFDAVFJXP EFJ NZ V\$ GU 5Z ; DHJFGMKP

(93) pW. 8L8Dj8 , FSOF DF8|

dI P SM5IP ; RJ[T]UL : 8fg00*S5GLGfVj8L pW. SDLS, , FJL H~ZL H6FI T[Hu]FV[H~ZL ; RGF DJHA p0F. Df0E, YL CM, SZL . H\$XG wJZF VYJF A|; YL ; 5f8L p5Z SM8LU : J~5|pW. 8L8Dj8 SZL VF5JFG|Sd%, l8 SFDP +6 J0FGL UZBL 5LZLl 0 OZHlI FT K P YI|, F SFDG|DF5 , JFDAVFJXP EFJ NZ V\$ RMPDlP 5Z ; DHJFGMKP

(94) pW. 8L8Dj8 NLJF, M.O, MZLU DF8|

dI P SM5IP ; RJ[T]UL : 8fg00*S5GLGfVj8L pW. SDLS, , FJL H~ZL H6FI T[Hu]FV[H~ZL ; RGF DJHA p0F. Df0E, YL CM, SZL . H\$XG wJZF VYJF A|; YL ; 5f8L p5Z SM8LU : J~5|pW. 8L8Dj8 SZL VF5JFG|Sd%, l8 SFDP +6 J0FGL UZBL 5LZLl 0 OZHlI FT K P YI|, F SFDG|DF5 , JFDAVFJXP EFJ NZ V\$ RMPDlP 5Z ; DHJFGMKP

(95) pW. 8L8Dj8 , FSOF DF8|

dI P SM5IP ; RJ[T]UL : 8fg00*S5GLGfVj8L pW. SDLS, , FJL H~ZL H6FI T[Hu]FV[H~ZL ; RGF DJHA p0F. Df0E, YL CM, SZL . H\$XG wJZF VYJF A|; YL ; 5f8L p5Z SM8LU : J~5|pW. 8L8Dj8 SZL VF5JFG|Sd%, l8 SFDP +6 J0FGL UZBL 5LZLl 0 OZHlI FT K P YI|, F SFDG|DF5 , JFDAVFJXP EFJ NZ V\$ RMPDlP 5Z ; DHJFGMKP

(96) pW. 8L8Dj8 NLJF, M.O, MZLU DF8|

dI P SM5IP ; RJ[T]UL : 8fg00*S5GLGfVj8L pW. SDLS, , FJL H~ZL H6FI T[Hu]FV[H~ZL ; RGF DJHA p0F. Df0E, YL CM, SZL . H\$XG wJZF VYJF A|; YL ; 5f8L p5Z SM8LU : J~5|pW. 8L8Dj8 SZL VF5JFG|Sd%, l8 SFDP +6 J0FGL UZBL 5LZLl 0 OZHlI FT K P YI|, F SFDG|DF5 , JFDAVFJXP EFJ NZ V\$ RMPDlP 5Z ; DHJFGMKP



IA<OLU IJEFU

EFJGUZ DCFG; [JF ; NG

SCHEDULE - B = : 5[; LOLSXG

JQF" Z ZZvZ Z# DF8[JFIQF'S EFJGL VF. 8DM

- (1) 5FI FDA&@ , F. D OMHLU ; FY[; [0 OL, LU SZJFG\SFDp
VF SFDDA5F; SZJFDA VFJ[TJM ; FZL HFTGM QBT F IJGFGM SFRM RGM , FJJFGM KP 5FI FDA; [0 OL, LU ; DI[; [0GF &@ DJHAGM SIMZM RGM 5, F/L ; [0 VG[VF 5, F/L ; RGF 5F6LG\ I MuI DLz6 SZL VF5JFG\KP VF SFDGM EFJ NZ VS 3PDLP s; [0 OL, LUF 5Z ; DHJFGM KP T[FZ SFDG\DF5 , [JFDA VFJXP H-ZL TDPH I MuI SIMZLU SZJFG\KP
- (2) #P5 DL8Z YL JWFZF GL pOF. ; [ML AMZ 5F. < ; SZL GLS/[, DF8L) P DL8Z GL , LO DFA 5FYZL VF5JF ; FYI G\SD%, L8 SFDp ssJWFZFGL NZVS DL8Z GL pOF. DF8[ff
TDFD SFD #P5 DL8Z SZTAJW\pOF. V[s; [RJJFDA VFJ[T]D]HAF AMZ SZL VF5JFG\KP TGM EFJ NZ VS ZGLU DL8Z 5Z ; DHJFGM K[VG[T]#P5 DL8Z pOF. AFNGMH ; DHJFGM KP TDFD T[FZ SFDG\DF5 , [JFDA VFJXP
- (3) BIMNF6 SZL GLS/[, DF8LG[&@ , F. G OMh VF5L EZTL SZJFG\SFDp
5FI FGF BIMNF6 SFDDFYL GLS/[, DF8LDFYL ; F. 8 V[h]HLGLI Z ; [RJ[TB, I DF8LG[&@ DJHA , F. D OMh VF5L Z_ ; PDLP GF , [I ZDAZDLU SZL4 EZTL EZJFG\SFD SZJFG\KP DF5 T[FZ SFDG\ , [JFDA VFJXP
- (4) ! o! P5 o# GF 5[DF6YL VFZP; LP; LP SFD (M-200) DF8[; LD[8 SImS]L8 SZJFG\Sd5, L8 SFDp
VF SFDDA! 5 YL Z_ VDPVDP ; F. hGL CF0*a, [: 8IG DB, GL DXIG Sx0 S5RL , FJL JF5ZJFGL KP pDZF/F4 T/FHF4 WWSF4 5[S]GL 5F; SZJFDA VFJ[T]L W/ JUZGL RImBL4 HL6L4 RF/[, I4 S:TZ IJGGL4 zLSFZ VFSZGL , FJL JF5ZJFGL KP VF. PV[P 5# UP VMP5LP; LP I; D[8 5F; SZJFDA VFJ[T] , FJL JF5ZJFGL KP TDFD Z[T]4 WM. G[JF5ZJFGL KP TDFD SFD DXIG DIS; LU JO[H-ZL TDPH I MuI ; [8ZLU4 X8ZLU4 :SDM-OLU4 JFI ABLU sJFI ABLU DXIG JOF ! 5 INJ ; SIMZLU JUZ[; FY[Sd5, L8 SFD SZL VF5JFG\KP VF SFDDA+6 EFU S5RL4 NM- EFU Z[T]L VG[VS EFU ; LD[8 V[5DF6[DF, AGEJJFGM KP S5RL4 Z[T]4 ; LD[8 5FI , F EZL DF5JFG\KP p5ZMST TDFD IJUT[SFDGM EFJ NZ VS 3GDL8Z 5Z ; DHJFGM KP T[FZ SFDG\DF5 , [JFDA VFJXP VF TDFD SFD , F. G NMZLV[, [, [VIM/E[VF5JFDA VFJ[T]OLhf. G DJHA SZL VF5JFG\KP
- (5) ! o! o Z GF 5[DF6YL VFZP; LP; LP SFD (M-250) DF8[; LD[8 SImS]L8 SZJFG\Sd5, L8 SFDp
VF SFDDA! 5 YL Z_ VDPVDP ; F. hGL CF0*a, [: 8IG DB, GL DXIG Sx0 S5RL , FJL JF5ZJFGL KP pDZF/F4 T/FHF4 WWSF4 5[S]GL 5F; SZJFDA VFJ[T]L W/ JUZGL RImBL4 HL6L4 RF/[, I4 S:TZ IJGGL4 zLSFZ VFSZGL , FJL JF5ZJFGL KP VF. PV[P 5# UP VMP5LP; LP I; D[8 5F; SZJFDA VFJ[T] , FJL JF5ZJFGL KP TDFD Z[T]4 WM. G[JF5ZJFGL KP TDFD SFD



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DXLG DIS; LU JO[H~ZL TPDH I MuI ; j8ZLU4 X8ZLU4 :SPM-OLU4 JFI ABLU sJFI ABLU DXLG JOF ! 5 INJ; SI MZLU JUZ[
; FY[Sd5, l8 SFD SZL VF5JFG)Kp VF SFDDA[EFU S5RL4 V\$ EFU ZITL VG[V\$ EFU ; LDj8 V[5DF6[DF, AGFJJFGM
Kp S5RL4 ZITL4 ; LDj8 5FI , F EZL DF5JFG)Kp p5ZMST TDFD IJUT[SFDGM EFJ NZ V\$ 3GDL8Z 5Z ; DHJFGM Kp Tq FZ
SFDG)DF5 , jFDVVFJXP VF TDFD SFD , F. G NMZLVq , j, q VM/E[VF5JFDVVFJ[T]OLhf. G DHA SZL VF5JFG)Kp

(6) AjS Aq, F: 8 l; Dq8 SllqSL8 ! o#o&

VF SFDDA:8qS, F; ALS; GL \$ _ VDPVDP ; F. hGL AjS Aq, F: 8 sS5RLf JF5ZJFGL Kp pDZF/F4 T/FHF4 WWSf4 5SLGL
5F; SZJFDVVFJ[T]UL W/ JUZGL RmbBl4 Hl6L4 RF/, l4 S: TZ IJGFL4 zLSFZ VFSFZGL , FJL JF5ZJFGL Kp VF. PV; P 5#
Up VMP5LP; LP l; Dq8 5F; SZJFDVVFJ[T], FJL JF5ZJFGL Kp TDFD ZITL4 WM. G[JF5ZJFGL Kp TDFD SFD DXLG DIS; LU
JO[H~ZL TPDH I MuI ; j8ZLU4 X8ZLU4 :SPM-OLU4 JFI ABLU sJFI ABLU DXLG JOF ! 5 INJ; SI MZLU JUZ[; FY[Sd5, l8
SFD SZL VF5JFG)Kp VF SFDDAK EFU AjS Aq, F: 8sS5RLf4 +6 EFU ZITL VG[V\$ EFU ; LDj8 V[5DF6[DF, AGFJJFGM
Kp AjS Aq, F: 84 ZITL4 ; LDj8 5FI , FEZL DF5JFG)Kp p5ZMST TDFD IJUT[SFDGM EFJ NZ V\$ 3GDL8Z 5Z ; DHJFGM Kp
Tq FZ SFDG)DF5 , jFDVVFJXP VF TDFD SFD , F. G NMZLVq , j, q VM/E[VF5JFDVVFJ[T]OLhf. G DHA SZL VF5JFG)
Kp

(7) . 8G)BZHF ! o& ; LDm ! Z DLDL AQLU

dI P SM5MP 5F; SZITJL IRDGL E9FGL ; FZL 5FSL . 8M, FJL JF5ZL ! o& ; LPDMP ! Z VDPVDP HFOF. G)5FYZL V\$. 8G)BZHF
5JLU SZJFG)Kp NZS . 8 BZHF :8F. , DAVMPJL A[. 8 JrRGM ; FWM ! Z YL ! 5 VDPVDP YL JW[GCLT[ZIT]ZFBL ! o&
; LPDMP DA5ZL OLGXLXU SZL VF5L N; INJ; SI MZLU SZJF ; FY[G]Sd5P SFD Kp Tq FZ SFDG)DF5 , jFDVVFJXP EFJ NZ V\$
RMPDIP GL p5Z ; DHJFGM Kp

(8) S5Fp0 JM, 8M5 5Z UM/LI M JF8M

dI P SM5MP wJZF ; jRGVVF5JFDVVFJ[T]ZIT[Sd5Fpg0 JM, GA8M5 p5Z ! ; FZL 5FSL RLDGL . 8 , FJL DJS ! o\$ GAI; PDMP DA
UM/LI M JF8M SZL TGAJF8F EZL TGAOZT[% , F: 8Z SZL ING v (; jM SI MZLU SZJFG)Kp Tq FZ SFDG)DF5 , jFDVVFJXP EFJ
NZ V\$ ZGLU DL8Z 5Z ; DHJFGM Kp

(9) S5Fp0 JM, 8M5 5Z SFRGF 8SOF DJS UM/LI M JF8M

dI P SM5MP wJZF ; jRGVVF5JFDVVFJ[T]ZIT[Sd5Fpg0 JM, GA8M5 p5Z H~ZL ; F. hGF SFRGF 8SOF DJS ! o\$ GAI; PDMP DA
UM/LI M JF8M SZL TGAJF8F EZL TGAOZT[% , F: 8Z SZL ING v (; jM SI MZLU SZJFG)Kp Tq FZ SFDG)DF5 , jFDVVFJXP EFJ
NZ V\$ ZGLU DL8Z 5Z ; DHJFGM Kp



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(10) : FUGL, FSOI ; %, FI OL8LU OLGXLU ; FYI

dI P SM5MP wJZF ; RJJFDAVFJ[T]DF5 ; F. h VG[Olhf. G DHAGA; FUL , FSOI , FJL H-ZL OLGXLU SZL4 ; RJJFDAVFJ[T]HuI FV[H-ZL V[I]DIGI D OL8LuhvOLS; LU , FJL OL8 SZJF ; FYG]Sd5, l8 SFD SZJFG]K P T[FZ SFD 5Z Jp 5f. DZGM V[CFY TYF :8fg00"S5GLGAVM. , 5[g8GA[A[CFY , FJL , UFJL VF5JFG]K P T[FZ SFDG]DF5 , [JFDAVFJXP EFJ NZ V[3GDL8Z 5Z ; DHJFGM K P

(11) AFZL q NZJFHFG]ZL5ZLU SFD P

OL8LU SZL F AFSL NZJFHFG]OPDFYL BM, l4 T[B[]BZFA , FSO]NZ SZL ; RJJFDAVFJ[T]JL ; F. h VG[U[BJTFG] , FSO] , FJL NZ SZL F D[AZGL HuI FV[OL8 SZL VF5JFG]K P ; 5["AFZLqNZJFHFG]ZL OL8LU SZL , F. G4 , [, [VM/E[SZJFG]K P G[, 4 :S[O[LSM, 4 DLHFUF IJP GM VF VF. 8DDA H ; DFJX SZJFGM K P , FSO] OLSRZ TYF OF:8GZGM BR" V, U VF. 8DYL VF5JFGM K P ZL5ZLU G]DF5 X8ZGF RMPDL8Z , [BU6JFDAVFJXP

(12) I P DLPDI HFOF. GM ; GDF. SF , FJL OL8 SZJFG]SFD P

; RJJFDAVFJ[T]S5GL VG[XDG] ; GDF. SF , FJL SC[JFDAVFJ[T]HuI FV[OL8 SZL ; FYG]Sd5, l8 SFD SZJFG]K P VFDA OL8LU DF8[H-ZL TDFD VF. 8DMGM ; DFJX YXP T[FZ SFDG]DF5 , [JFDAVFJXP EFJ NZ V[RMZ; DL8Z 5Z ; DHJFGM K P

(13) JLGLI Z ; %, F. TYF OL8LU

; RjIF DHAGL Olhf. GJF/]s5F; [SZL Olhf. GJF/] ! P5 VDPVDP VYJF \$ VDPVDP HF0]JLGLI Z , FJL ; RjIF DHAGA :Y/[; RGF DHAGL Olhf. G DF5 ; F. hDA IJGLI Z SF5L BL, l4 O[LSM, JO[OL8LU SZL VF5JFG]DL: +L DHZL ; FYG] Sd5, l8 SFD SZJFG]K P T[FZ SFDG]DF5 , [JFDAVFJXP EFJ NZ V[RMZ; DL8Z 5Z ; DHJFGM K P

(14) JM8Z5]O %, FI OL8 SZJFG]SFD P

; RJJFDAVFJ[T]JL VF. PV[P o :8fg00"S5GLGL JM8Z5] TYF SC[JFDAVFJ[T]HF0F. GL , FJJFGL ZCXP SC[JFDAVFJ[T] :Y/[BL, l4 O[LSM, JO[OL8LU SZL VF5JFG]DL: +L DHZL ; FYG]Sd5, l8 SFD SZJFG]K P T[FZ SFDG]DF5 , [JFDAVFJXP EFJ NZ V[RMZ; DL8Z 5Z ; DHJFGM K P NZ HF0F. 5P[6]VF5JFGF ZCXP

(15) : FUGL, FSOFGI ALOLU 5TL ; %, FI OL8LU OLGXLU ; FYI

dI P SM5MP wJZF ; RJJFDAVFJ[T]DF5 ; F. h VG[Olhf. G DHAGA; FUGL , FSOFGI ALOLU 5TL , FJL H-ZL OLGXLU SZL4 ; RJJFDAVFJ[T]HuI FV[H-ZL OL8 SZJF ; FYG]Sd5, l8 SFD SZJFG]K P T[FZ SFD 5Z Jp 5f. DZGM V[CFY TYF :8fg00" S5GLGAVM. , 5[g8GA[A[CFY , FJL , UFJL VF5JFG]K P T[FZ SFDG]DF5 , [JFDAVFJXP EFJ NZ V[ZGLUDL8Z 5Z ; DHJFGM K P



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(16) VDPV; POALSXG UL, 40MZ4JgOM VM. , 5[. g8LU ; FYP

VF SFD DF8[VF5JFDAVFJ[VG]; RJJFDAVFJ[T]DF5 ; F. h TYF Olhf. G VG; FZG\VF. PV[P :5XLI , :8L, DAH6FJIF DHAG); F~4 SF8 JUZG)5F; SZJFDAVFJ[T]DF. <0 :8L, , FJL VF5JFDAVFJ[T]Olhf. G DHA OALSXG JS"TI FZ SZL H~ZL TDFD 5SFZGF , MB0GF Ol8Luh OLS; LU ; FY[VG[H~ZL :Y/ p5Z JkOLU SFD ; FY[:Y/]; RJJFDAVFJ[T]DHA H~ZL ! oZ GF ; LPDIP JO[KFNF KNL ; FY[TYF INJF, VUZTM VFZP; LP; LP JSDAH~ZL I MuI TMOOMD ; FY[Ol8 SZL VF5JFG)KP H~ZL H6FI [VFJ]OALSXG JS", FSO SFDDA56 H~ZL :S]JUZYL Ol8 SZJFG)KP H~Z H6FI [SCJFDAVFJ[T]M VFJ]OALSXG JS"INJF, M S[VFZP; LP; LP SFDDA H~ZL Oe, LU DXLG JO[H~ZL CM, 5FOL , FSOFGL Ol8LVMDA :S] JO[Ol8 SZJFG)KP TDFD SFDG]5F; SZJFDAVFJ[T]JF 5F I DZ , FJL TGM V\$ CFY DFZJFGM KP VG]5F; SZJFDAVFJ[T]JM ; FZL S5GLGM VM. , 5[. g8 , FJL TGf TDFD SFDG[A]CFY DFZL VF5JFG KP VF p5ZMST IJUT[SFDGF EFJ NZ V\$ ISPUF 5Z ; DHJFGF KP TI FZ SFDG] DF5 , JFDAVFJXP

(17) ZM, LU X8ZG)SFDP

VF SFD DF8[dI P SM5IP GL ; RGF DHAGA; FZF Dji DSRZGAVM, LU X8; ", FJJFGAKP TDFD X8; "DF8[; R]I F DHA s! & YL ! (UHF GL HFOF. GADF. <0 :8L, GA5TZGF, FJJFGAKP TDFD X8; GL AG; F. OGL UF. OM A\$B; "TYF ; FZL SJM, L8GL DHAJF UM/ VYJF O, B :5LU . u, LX AGFJ8GL JF5ZL , UF0JFGL KP TDFD X8; GF ; :5jXG XF084 , M0LU VZjHDj84 5) , LU CP4 Cj0< ; TYF 8M5 SJZ IJP JF5ZLG[NZJHFVMI Ol8 SZJFG)KP TDFD X8; "INJF, DA, FSOFGL Ol8LVMI ; Dji8 ZILYL KFNL TPA :S]AM:8L , UFOL Ol8 SZJFGF KP VFZP; LP; LP SFD p5Z X8; "TDFD ZLT[DHAJTYL Ol8 YFI T]5Df6[SZJFG)KP TDFD X8; "; Cj F. YL BM, L AW SZL XSFI T]DF8[V\$ NZJHFDFV\$ GU AM, AZLUGL HFOL JF5ZL VF5JFG)SFD SZJFG)KP TDFD X8; G[SCJFDAVFJ[T]JL ; FZL S5GLGF VM. , 5[. g8GRA[CFY 5F. DZGM V\$ CFY 5KL , UFOL VF5JFGF KP X8; "Ol8 SZJF DF8GA TDFD ; FwGM IJP Sli8FS8Z[, FJJFGA ZCXI TDI , FSOFGL Ol8V08LVMI IJP H[SA INJF, MDAGFBJFDAVFJ[T]GM SM. 56 EFJ V, U VF5JFDAVFJX[GICR X8; GL TDFD ZLA ; RGF DHAGAV\$; ZBL HFOF. GA5TZGL AG, L CMUL HF. VP TI FZ X8; GL pRF. 8M5 SJZGL 5FK/YL T], FNLGA8M5 ; JM DF5 , JFDAVFJXP 8M5 SJZ 5Z UM/F. DADh285 OZJLG]DF5 , JFDAVFJX[GICR 5CM/F. G]DF5 ; F. OGL AG; F. 0 ; FY[, JFDAVFJXP TI FZ SFDG]DF5 , JFDA VFJX[TYF EFJ NZ\$ V\$ RMPDIP 5Z ; DHJFGM KP

(18) VDPV; P R[. G, LS : SJZ HF/L Ol8LU

dI P SM5IP wJFZF SCJFDAVG; RJJFDAVFJ[T]DHA ! _ UHGL VDPV; P R[. G, LS : SJZ HF/L , FJL4 H[T] :Y/[OALSXG JS"; FY[; RJFI T]ZLT[Ol8 SZL VM. , 5[. g8GRA[CFY , UFJL VF5JF ; FYG]Sd5, L8 SFD SZJFG)KP TI FZ SFDG]DF5 , JFG) KP TYF EFJ NZ V\$ RMPDIP 5Z ; DHJFGM KP

(19) OALSXG ZL5ZLU

dI P SM5IP wJFZF ; RJFI T] HuI FV[H~ZL 38T] VDPV; P , MB0 , FJL CI FT AfZLqNZJHFVMI 38T] Ol8LUvOLS; LU , FJL JkOLU %, Fg8 , FJL Jk0 SZL4 TI FZ SFDG[V\$ CFY ZPMS; F. 0 VG[+6 CFY VM. , 5[. g8GA, FJL , UFJL VF5JFG)Sd5, L8 SFD SZJFG)KP DF+ GJF YI], FATI FZ SFDGA EFJ NZ V\$ ISPUF 5Z ; DHJFGM KP



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(20) 0A\|S\|XG , |AZ q DH\|Z\ SFD

VF5| DF. <0:8L, DFYL ; Rj\|F D\|HA VF5JFDA VFJ\|T\|Olhf. G D\|HA U|, 4 AFZL4NZJFHf4 Z| LU4 C|jOZ| , 4 ~OLU4 S|R\|
|JUZ\|S\|Vg\| DF8| H~ZL DF5 ; F. h DAVF5| DF. <0:8L, DF\H~ZL OZOFZ S\|S8LU SZL4 TDFD O\8LU ; OLS ; LU ; FY\|O\|S\|B
SZL VF5JF G\|S\|%, l8 SFDPHD\|VF5| DF. <0:8L, l ; JF\| JWfZF G\|:8L, V, U GJF O\|S\|XG SFD GL VF. 8D D\|U6JF G\|
ZC\|P

(21) R\|SG D| , UFOL VF5JFG\|SFDP

5F ; SZJFDA VFJ\|T\|UL R\|SG D| , FJL ; Rj\|F D\|HA :Y\|O\|8 SZJFGL ZC\|P O\8LU DF8GL H~ZL VF. 8DGM VFDAH ; DFJ\|X
SZJFGM ZC\|P BL, l4 WMAF JUZ\|SC\|JFDA VFJ\|T\| ; F. hGF , FJJFGF ZC\|P DF5 O\8LU Y\|l, l D| GF R\|Z ; D\|8Z , |B\| , |JFDA
VFJXP % , F:8Z SFD V, U VF. 8DYL U6JFDA VFJXP

(22) INJF, 5Z JFI Z Oj; LU G\|SFDP

INJF, 5Z ZPZ5 D\|8ZGF VTZ\|5_25_2& VDPVDP GL ! PZ5 D\|8Z , FAL V\|U , , FJL S\|G\|S\|8 a, MSD\|A V\|S\| LU SZJFGL
ZC\|P S\|G\|S\|8 a, MSGL ; F. h _PZ#2_P#*2_P#_ D\|P ZC\|T\|YF ! oZoS 5DP6G\|S\|G\|S\|8 ZC\|P V\|U, 5Z ! \$ UHGF AFAO
JFI ZGL VFOL VF9 , F. G B\|R\|l c\|l ; 5LGYL O\8 SZJFGL ZC\|P S\|G\|S\|8 SFDG\|VF9 INJ ; ; |M\| S\|MZLU SZJFG\|ZC\|P V\|U, SFDG\|
5F. DZGM V\|S\| SMB TYF VM. , 5| g8GF A\|SMB , UFJJFGF ZC\|P DF5 T\|FZ SFDGF ZGLU D\|8Z , |JFDA VFJXP

(23) ZM, LU X8Z ZL5Z\|LU SZJFG\|SFDP

ZM, LU X8ZG\|, F. G4 , |U, 4 VM\|E\|SZL4 A\|S\|B % , |B ; 4 UF. O R\|G, 4 , MS ; TYF H~ZL O\8LU4 OLS ; LU ZL5Z SZL4 U| ; LU SZJF
; FY\|G\|SFD ZC\|P DF5 X8ZGF R\|P D\|8Z , |JFDA VFJXP ZL5Z\|LUD\|H~Z 50TL TDFD ; FDU\|GM VF VF. 8DD\|AH ; DFJ\|X YXP

(24) ZM, LU X8Z DF8| . g8Z , MSLU , MS ; O\8 SZJFG\|SFDP

VF VF. 8DD\|A 5F ; SZJFDA VFJ\|T\|U\|. g8Z, MSLU , MS ; , FJL O\8 SZJFG\|ZC\|P O\8LU DF8\|H~ZL TDFD J:TV\|MG\|M VF
VF. 8DD\|AH ; DFJ\|X SZJFGM ZC\|P

(25) AFAO JFI Z O\8 SZL VF5JFG\|SFDP

VF SFD\|A ! \$ UHGM AFAO JFI Z , FJJFGM ZC\|P C\|FT JFI Z Oj; LUDA ; RJJFDA VFJ\|T\|:Y\|O\|8 SZL VF5JFGM ZC\|P DF5 ; LU,
, F. GGF ZGLU D\|8Z , |JFDA VFJXP

(26) JFI Z a, |DD Oj; LU SFDP

INJF, 5Z ZPZ5 D\|8ZGF VTZ\|5_25_2& VDPVDPGL ! P55 D\|8Z , FAL VDPV\| P V\|U , , FJL S\|MS\|B a, MSD\|A V\|S\| LU
SZJFGL ZC\|P S\|MS\|B a, MSGL ; F. h _PZ#2_P#*2_PZ_D\|8Z ZC\|T\|YF ! oZoS 5DP6G\|S\|MS\|B SZJFG\|ZC\|P V\|U, 5Z \$
UHGL AFAO JFI ZGL VFOL \$, F. G B\|R\|l |5LGYL O\8 SZJFGL ZC\|P TYF ZHZ a, |DD JFI Z H\|G\|JHG ! PZ_ IS, MUFD 5\|T
ZGLU D\|8Z 5DP6\|C\|M\|H\|M. VPH\|a, |DD JFI Z , FJL a, |DD JFI Z p5Z \$5_ VDPVDPGL UM\|F. D\|A O\8 SZJFGF ZC\|P T\|FZ



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SFD 5Z AFA0 JFI Z I; JFI 5F. 5ZGM VŞ CFY TYF : 8fg00* S5GLGF VM. , 5[g8GFA[CFY , UFJL VF5JFGAKP Tİ FZ SFDG\ DF5 , İFDÄVFJXP EFJ NZ VŞ ZGLU DL8Z 5Z ; DHJFGM KP

(27) Vİ: PVİ: POİALSİXG Zİ, İU SZJFG\ SFD P

VF SFD DF8[VF5JFDÄ VFJ[VG[; İJJFDÄ VFJ[Tİ DF5 ; F. h TYF Olhf. G VG[FZG\ VF. PVİ P : 5İLI , Vİ PVİ P : 8L, DÄ H6Fİ F DİHAG[; F~ 5F; SZJFDÄ VFJ[Tİ] Uİ İF/İ Vİ PVİ P: 8L , İJL VF5JFDÄ VFJ[Tİ Olhf. G DİHA Vİ PVİ P Zİ İU SFD Tİ FZ SZL H~ZL TDFD 5ŞFZGF Vİ PVİ P GF Ol8Luh OLS; İU ; FY[VG[H~ZL : Y/ p5Z İİOLU SFD ; FY[: Y/ ; İJJFDÄ VFJ[Tİ DİHA H~ZL ! öZ GF ; İPDİP İOİ KİNF KİNL ; FY[TYF İNJF, VUZTM VFZP; İP; İP İSDÄ H~ZL İ İU İ TİDİDİ ; FY[Ol8 SZL VF5JFG\ KP H~ZL H6Fİ [VFJ] Vİ PVİ P OİALSİXG JS" , FŞOF SFD DÄ 56 H~ZL : Sİ İU İZİYL Ol8 SZJFG\ KP H~Z H6Fİ [; İJJFDÄ VFJ[Tİ VFJ] Vİ PVİ P OİALSİXG JS" İNJF, M S[VFZP; İP; İP SFD DÄ H~ZL Oİ, İU DXİG İOİ H~ZL CM, 5FOL , FŞOİGL Ol8 İMDÄ : Sİ İOİ Ol8 SZJFG\ KP VF p5Z İST İJUT[SFDGF EFJ NZ VŞ İSPUP 5Z ; DHJFGM KP Tİ FZ SFDG\ DF5 , İFDÄVFJXP

(28) DrKZ HF/L Ol8 SZL VF5JFG\ SFD

dİP SİMİP İWİZF ; İJİFİ Tİ İU İ FV[5F; SZJFDÄ VFJ[Tİ 5ŞFZGL DrKZ HF/L , İJL H~ZL Ol8 İU SZL VF5JF ; FYG\ Sd5 , İ8 SFD SZJFG\ KP Tİ FZ SFDG\ DF5 , İFDÄVFJXP EFJ NZ VŞ İMİZ ; DL8Z 5Z ; DHJFGM KP

(29) SAİTZ HF/L Ol8 SZL VF5JFG\ SFD

dİP SİMİP İWİZF ; İJİFİ Tİ İU İ FV[5F; SZJFDÄ VFJ[Tİ 5ŞFZGL SAİTZ HF/L , İJL H~ZL Ol8 İU SZL VF5JF ; FYG\ Sd5 , İ8 SFD SZJFG\ KP Tİ FZ SFDG\ DF5 , İFDÄVFJXP EFJ NZ VŞ İMİZ ; DL8Z 5Z ; DHJFGM KP

(30) İG ÇİS ; 5, Fİ 4Ol8 İU SFDP

İ Z VİP VİP Oİ İFGÄ : 8fg00* 8İP VİP 8İP ; İLİ İDÄYL İG ÇİS , İJL AGEİL dİP SİMİP ; İJİ Tİ İU İ FV[SF: 8İU SZİ Fİ , İDÄ H~ZL TİDİDİ SZL H~ZL ! öZ GÄ ; İDİİ Z İTİGÄ DİBİZ DÄ OlGL; İU TYF KİNF KİNL SZL VF5L S, Z SZL VF5L Ol8 SZL VF5JFG\ Sd5 , İ8 SFD KP Tİ FZ SFDG\ EFJ VŞ İU İL9 ; DHJFGM KP

(31) . İhİİZ* ; İSXG , İJL İFZL İZ İFİİGL ÖST İP AGEİJİ G\ SFD

dİP SİMİP ; İJİ Tİ DF5 ; F. İGÄ İFZL İZ İFİİ DF8[. İhİİZ* ; İSXG , İJL ÖST İP AGEİL İP 5Z ; İJJFDÄ VFJ[Tİ Olhf. G DÄ VİP Vİ P : SİZİ İFZ , İJL SF5İ4 İ Z ; İDİP İL İWİ VİTZ G ZCİ Tİ 5İP 6İ İİİ SZL Tİ FZ SFDG[; İJİFİ Tİ İU İ FV[H~ZL Ol8 İU VİLS; İU ; FY[Ol8 SZL VF5JFG\ Sd5 , İ8 SFD KP Tİ FZ SFDG\ 5F. DZGM VŞ CFY VG[VM. , 5[g8 , İJL İGÄ İCFY , UFJL VF5JFGAKP Tİ FZ SFDG\ DF5 , İFDÄVFJXP TYF EFJ NZ VŞ İMİDİP 5Z ; DHJFGM KP



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(32) JD JS|CF0|JZ OL8LU

dI P SM5MP wJFZF ; RJJFDA VFJ|T| : 8fg00° S5GLGFAH~ZL 0L8LUhv0F:8GLu ; , FJL ; RJFI T|HuIFV|0L8 SZL VF5JFG|Sd5, l8 SFD SZJFG|Kp T|FZ SFDG|DF5 , JFDAVFJXP EFJ NZ V\$ GU 5Z ; DHJFGMKP

(33) D8F, LS q %, F: 8LS SAF8 q JMO° ZMA DF8|OL8LU

dI P SM5MP wJFZF ; RJJFDA VFJ|T| : 8fg00° S5GLGFAH~ZL 0L8LUhv0F:8GLu ; , FJL ; RJFI T|HuIFV|0L8 SZL VF5JFG|Sd5, l8 SFD SZJFG|Kp T|FZ SFDG|DF5 , JFDAVFJXP EFJ NZ V\$ GU 5Z ; DHJFGMKP

(34) : LZFDLS 8F. <: O, MZLU G|SFDp 8F. , VMG 8F. ,

5F; SZJFDA VFJ|T|S5GL VG|XpGL V|vUp ; LZFDLS 8F. <: , FJL : 5kI , Up I; Dg8 A| h0 5M, LDZ VpC| LJ SPDS, 5 DIPDIP HFOF. DAJF5ZL 8F. , vVMGv8F. , 0L8 SZJFG|SFDp ; AWFVM VF SPDS, DA, FNL S, ZGM Xp , FJL EZJFGF ZCXP ; FT INJ ; ; ML SI MZLU SZJFG|ZCXP

(35) IJ8tOF. 0 8F. <: G|SFDp 8F. , VMG 8F. , O, MZLU

5F; SZJFDA VFJ|T|S5GL VG|XpGL V|vUp IJ8tOF. 0 8F. <: , FJL : 5kI , Up I; Dg8 A| h0 5M, LDZ VpC| LJ SPDS, 5 DIPDIP HFOF. DAJF5ZL 8F. , vVMGv8F. , 0L8 SZJFG|SFDp ; AWFVM VF SPDS, DA, FNL S, ZGM Xp , FJL EZJFGF ZCXP ; FT INJ ; ; ML SI MZLU SZJFG|ZCXP

(36) Z: 8LS Vg8L : SLO 8F. <: O, MZLU

RjI F DHA S5GL VG|XpGL V|vUp Z: 8LS Vg8L : SLO 8F. <: , FJL ! o(I; Dg8 ZTLGA5pF6DA IDz6 SZL #_ DIDL YL \$_ DIDL HFOF. GF ADLU 5Z , F. G , J, NMZDARMBS SZL VF5L ; AWFVM, FNL S, ZGL I; Dg8YL 5ZLN ; INJ ; ; ML SI MZLU SZJF ; FYG|Sd5, l8 SFDp T|FZ SFDG|DF5 , JFX|EFJ NZ V\$ RMPDIP 5Z ; DHJFGMKP

(37) UJGF. 8 !)vZ DIDL HFOF. O, MZLU ! o& I; DM A|OLU ; FY|

VF SFDDAJF5ZJFGM YTM UJGF. 8 : 8MG Z_ VDPVDP HFOM dI P SM5MP 5F; SZ|T|S, Z TYF DF5 ; F. hDA, FJL ! o& GF ; IPDIP GF 5pF6DA Z_ VDPVDP HFOM YZ 5FYZLG| VYJF %, F:8Z SZL G|TGF 5Z I; Dg8 : , ZL GFBL , F. G , J, DA ; OF. NFZ H~Z H6FI |TDH ; RGF V5FI T|JL ZLT|OLhf. G D|JLG|UJGF. 8 : 8MG 0L8 SZL VF5L : 8MG JrRGA; AWFVM H|T| S, Z JF5ZL jCF. 8 I; Dg8DA E|JL 5ZL VF5JFGA ZCXP TYF N ; INJ ; ; ML TDFD SFDG|5F6L KFBJFG|Kp AFNDA; RjI F DHA 5M, L; LU TYF JS; LU SZL VF5JFG|Sd5, l8 SFD Kp TDFD T|FZ SFDG|DF5 , JFDAVFJXP TGM EFJ NZ RMPDIP 5Z ; DHJFGMKP UJGF. 8 : 8MG GL WFZ 5M, XLU V, U YL U6JFDA VFJXP VF SFDADXLGZL TYF DXLGR, FJJF . , \$8E; l8L TYF DF6; MIJP TDFD ; UJO S|g8F58Z|SZJGL Kp TGM SM. 56 V, U EFJ VF5JFDAVFJX|GICR



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(38) . q8Z, MSLU ZAZ DIM:0 a, MSG\SFDP

sVf & YL & 5 DIDL HFOF. WZFJTF ov

VF SFD H-Z DHAG\BINF6 SFD SZL4 OL8LUGF :Y/[H-ZL , U, LU SZL4 H-ZL SIM5\$XG SZFJL4 ! cc YL ! v! qZcc HFOF. DA Z[TL VYJF U|8 5FYZL4 TGF 5Z :8MG 0:8 5FYZL A| h T|FZ SZL4 ZAZ DIM:0P &_ YL & 5 DIDL HFOF. WZFJTF v \$ _ g| BG q RM DIDL :8huY WZFJTF s 40 N / sq.mm compressive strengthf TPDH VMOL; wJZF 5F; SZJFDA VFJ| T|L Olhf. G TYF S, Z DHAGF I5\$F:8 ; LD|8 S|qS|8 5|JU a, MS SFDGF :Y/[; % , FI SZL4 5|JU a, MS OL8 SZJFGF ZCXP TPDH 5|JU a, MSGF K|D| ; LD|8 S|qS|8 ! oZoS GF 5|DF6DAJF8F SZL4 5|JU a, MSGF JrRGAHIM. g8; DA:8MG 5FJ0Z S|56F YL OL, LU SZL4 SI FZLU JFBZLU ; FY|Sd5, l8 SFD SZL VF5JFG| ZCXP 5|JU a, MS ; F. 8 5Z , fj|F AFN TYF OL8U SZF|F AFN UD|t|FZ|NZ #__ RMPDIP NL9 TYF DLGLDD V\$ JBT V+GL CFHZLDAa, MSGAGDGFVM , . 8|8LU DF8|H-ZL TDFD j|J:YF SZL UZL q ; ZSFZL SM, H VYJF ; RJJFDA VFJ|T| , AMZBZLDA S|q8F8Z| : JBR|8|8LU SZFJL 8|8LU ZL5M8; ZH| SZJFGM ZCXP 8|8LU SZFJTF|IGI T : 8|Y GIC D/[TM T|JF a, MS ; F. 8 5ZYL NZ SZFJFGF ZCXP 8|8LU AFNH IGI T : 8|Y WZFJTF 5|JU a, MSG|H OL8LU SZFJFG|ZCXP ! _ ; DL ; |WG|BINF6 VF VF. 8DDAU6JFDA VFJX|H|DF8|BINF6G|SFD qZSD V, UYL GIC V5F|P VF SFDGM EFJ ! RMPDIP DJHA VF5JFDA VFJXP

sALF (_ DIDL HFOF. WZFJTF ov

VF SFD H-Z DHAG\BINF6 SFD SZL4 OL8LUGF :Y/[H-ZL , U, LU SZL4 H-ZL SIM5\$XG SZFJL4 ! cc YL ! v! qZcc HFOF. DA Z[TL VYJF U|8 5FYZL4 TGF 5Z :8MG 0:8 5FYZL A| h T|FZ SZL4 ZAZ DIM:0P (_ DIDL HFOF. WZFJTF v 5_ g| BG q RM DIDL :8huY WZFJTF s 50 N / sq.mm compressive strengthf TPDH VMOL; wJZF 5F; SZJFDA VFJ| T|L Olhf. G TYF S, Z DHAGF I5\$F:8 ; LD|8 S|qS|8 5|JU a, MS SFDGF :Y/[; % , FI SZL4 5|JU a, MS OL8 SZJFGF ZCXP TPDH 5|JU a, MSGF K|D| ; LD|8 S|qS|8 ! oZoS GF 5|DF6DAJF8F SZL4 5|JU a, MSGF JrRGAHIM. g8; DA:8MG 5FJ0Z S|56F YL OL, LU SZL4 SI FZLU JFBZLU ; FY|Sd5, l8 SFD SZL VF5JFG| ZCXP 5|JU a, MS ; F. 8 5Z , fj|F AFN TYF OL8U SZF|F AFN UD|t|FZ|NZ #__ RMPDIP NL9 TYF DLGLDD V\$ JBT V+GL CFHZLDAa, MSGAGDGFVM , . 8|8LU DF8|H-ZL TDFD j|J:YF SZL UZL q ; ZSFZL SM, H VYJF ; RJJFDA VFJ|T| , AMZBZLDA S|q8F8Z| : JBR|8|8LU SZFJL 8|8LU ZL5M8; ZH| SZJFGM ZCXP 8|8LU SZFJTF|IGI T : 8|Y GIC D/[TM T|JF a, MS ; F. 8 5ZYL NZ SZFJFGF ZCXP 8|8LU AFNH IGI T : 8|Y WZFJTF 5|JU a, MSG|H OL8LU SZFJFG|ZCXP ! _ ; DL ; |WG|BINF6 VF VF. 8DDAU6JFDA VFJX|H|DF8|BINF6G|SFD qZSD V, UYL GIC V5F|P VF SFDGM EFJ ! RMPDIP DJHA VF5JFDA VFJXP

(39) . q8Z, MSLU a, MSG|SALU SZJFG|SFDP

; Rj|F DJHA . q8Z, MSLU a, MS B|, [GCL T|ZLT|#_ ; D|P pOF. ; |WL ; F. ODA5tYZ D|S|4 B|k, F ZC|TF VM5GLUDFA! o! P5o# GF 5|DF6DA S|qS|8 JF5ZL WfZ AFWL VF5JFG| KP VG|VF9 INJ; ; |WL SI MZLU SZJFG|KP DF5 ZGLU DL8ZDA, |JFDA VFJXP

\$ _ f _ : |DL DLZZ 5M, L: LU SZJFG|SFDP 0, MZLU SFDG|5M, LXLU SZJFG|SFDP

; Rj|F DJHA SC|JFDA VFJ|T| T|B, F 5M, L: LU SZ|, 0, MZLU G|; |DL DLZZ 5M, L: LU J|S; LG ; FYG|SFD SZJFG| KP DF5 YI|, SFDGF RMZ; DL8Z , |JFDA VFJXP



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s\$! f UGF. 8 TbTL AGEJJFG|SFDp

; RJJFDA VFJ| T|S, Z TYF ; FZL SJM, L8LGF UGF. 8 , FJL ; RGF DJHA GL ; F. hDATbTLGL AMOZ , F. G ; RGF DJHAGF , MUM TYF H| , BF6 VF5JFDA VFJ| , BF6 SZL ; RJJFDA VFJ|T| :Y/[XL08LU SZL H-ZLIFT DJHA INJF, VYJF TbTL :8j0DA0L8LU SZL VF5JF ; FYG|Sd5, L8 SFD VF SFDGM T| FZ TbTLGF DF5 DJHA NZ RIMDL8Z 5DF6|VF5JFDA VFJX|P

s\$Zf UGF. 8 GL OJD

sVif ! Z2* ; PDLp ; |SXG GL OJD

VF SFDFAJF5ZJFGM YTM UGF. 8 :8MG Z5 VDPVDP HFOM d|P SM5MP 5F; SZ|T|S, Z TYF DF5 ; F. hDA5M, L; LU TYF J|S; LU ; FY|VNFH| ! 5 ; PDL 5CM/F. GF 58FDA! Z 2 * ; PDL ; |SXG OJD AGEJL VF OJD DfAS8 DF8|5 ; PDL GL VMUJ , |5 OJD 0L8LU ; RGF VF5JFDA VFJ|T|JF RIBS SPDS, q D8ZL<; DfA0L8LU SZL OMZGL OJD AGEJL H-ZL D8ZL<; YL 0L8LU SZJF ; FY|VF OJDG|VNFH|! _YL ! 5 VjSZ OF:8GZYL INJF, DfA0L8LU OLS; LU SZL VF5JFG|ZCXp; FYG|Sd5, L8 SFD SZL VF5JFG|ZCX|TDFD T| FZ SFDG|DF5 , |JFDA VFJXp TGM EFJ NZ GU 5Z ; DHJFGM Kp UGF. 8 :8MG GL WFZ 5M, XLU V, U YL U6JFDA VFJX|GCLP VF SFDADXLGZL TYF DXLG R, FJJF . , |S8e; L8L TYF DF6; M|JP TDFD ; UJO S|j8fS8Z| SZJFGL Kp TGM SM. 56 V, U EFJ VF5JFDA VFJX|GICR

sALf ! 2* ; PDLp ; |SXG GL OJD

VF SFDFAJF5ZJFGM YTM UGF. 8 :8MG Z5 VDPVDP HFOM d|P SM5MP 5F; SZ|T|S, Z TYF DF5 ; F. hDA5M, L; LU TYF J|S; LU ; FY|VNFH| ! 5 ; PDL 5CM/F. GF 58FDA! _ 2 * ; PDL ; |SXG OJD AGEJL VF OJD DfAS8 DF8|5 ; PDL GL VMUJ , |5 OJD 0L8LU ; RGF VF5JFDA VFJ|T|JF RIBS SPDS, q D8ZL<; DfA0L8LU SZL OMZGL OJD AGEJL H-ZL D8ZL<; YL 0L8LU SZJF ; FY|VF OJDG|VNFH|! _YL ! 5 VjSZ OF:8GZYL INJF, DfA0L8LU OLS; LU SZL VF5JFG|ZCXp; FYG|Sd5, L8 SFD SZL VF5JFG|ZCX|TDFD T| FZ SFDG|DF5 , |JFDA VFJXp TGM EFJ NZ GU 5Z ; DHJFGM Kp UGF. 8 :8MG GL WFZ 5M, XLU V, U YL U6JFDA VFJX|GCLP VF SFDADXLGZL TYF DXLG R, FJJF . , |S8e; L8L TYF DF6; M|JP TDFD ; UJO S|j8fS8Z| SZJFGL Kp TGM SM. 56 V, U EFJ VF5JFDA VFJX|GICR

s\$#f S|8F :8MG GL OJD

sVif ! Z2* ; PDLp ; |SXG GL OJD

VF SFDFAJF5ZJFGM YTM S|8F :8MG Z5 VDPVDP HFOM d|P SM5MP 5F; SZ|T|S, Z TYF DF5 ; F. hDA5M, L; LU TYF J|S; LU ; FY|VNFH| ! 5 ; PDL 5CM/F. GF 58FDA! Z 2 * ; PDL ; |SXG OJD AGEJL VF OJD DfAS8 DF8|5 ; PDL GL VMUJ , |5 OJD 0L8LU ; RGF VF5JFDA VFJ|T|JF RIBS SPDS, q D8ZL<; DfA0L8LU SZL OMZGL OJD AGEJL H-ZL D8ZL<; YL 0L8LU SZJF ; FY|VF OJDG|VNFH|! _YL ! 5 VjSZ OF:8GZYL INJF, DfA0L8LU OLS; LU SZL VF5JFG|ZCXp; FYG|Sd5, L8 SFD SZL VF5JFG|ZCX|TDFD T| FZ SFDG|DF5 , |JFDA VFJXp TGM EFJ NZ GU 5Z ; DHJFGM Kp UGF. 8 :8MG GL WFZ 5M, XLU V, U YL U6JFDA VFJX|GCLP VF SFDADXLGZL TYF DXLG R, FJJF . , |S8e; L8L TYF DF6; M|JP TDFD ; UJO S|j8fS8Z|SZJFGL Kp TGM SM. 56 V, U EFJ VF5JFDA VFJX|GICR



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sALF ! _ 2* ; PDLP ; SXG GL QD

VF SFDDAFJF5ZJFGM YTM SIBF : 8MG Z5 VDPVDP HFOM dI P SM5MP 5F; SZ(T)S, Z TYF DF5 ; F. hDA5M, L; LU TYF JS; LU ; FY(VNFH) ! 5 ; PDL 5CM/F. GF 58FDA! _ 2* ; PDL ; SXG QD AGFJL VF QD DAFS8 DF8]5 ; PDL GL VMUZ ,]5 QD OL8LU ; RGF VF5JFDA VFJ(T)F RIBS SPDS, q D8ZL<; DAFOL8LU SZL OMZGL QD AGFJL H-ZL D8ZL<; YL OL8LU SZJF ; FY(VF QDGI(VNFH) ! _YL ! 5 VgSZ OF:8GZYL INJF, DAFOL8LU OLS; LU SZL VF5JFG)ZCX; FYG]Sd5, l8 SFD SZL VF5JFG) ZCX(TDFD T(FZ SFDG)DF5 ,]FDA VFJXP TGM EFJ NZ GU 5Z ; DHJFGM KP UGF. 8 :8MG GL WFZ 5M, XLU V, U YL U6JFDA VFJX(GCL P VF SFDDAFDXLGZL TYF DXLG R, FJJF . ,]8E; l8L TYF DF6; M IJP TDFD ; UJO SMg8FS8Z(SZJFGL KP TGM SM. 56 V, U EFJ VF5JFDA VFJX(GICR

(44) VP; LP XL8 qHLPVF. P XL8 ~OLU ,]AZ SFD OST OL8LU

dI P SM5MP wJZF VF5JFDA VFJ(T) 5]ZF VG] ; F. hGA5TZFVM H-ZL TDFD 5]FZGA OL8LUhvOLS; LU , FJL sH(AMk84 V, AMk84 JFI ; Z JUZF ; RJ] :Y/(OL8 SZL VF5JFG)Sd5, l8 SFD SZJFG)KP T(FZ SFDG)DF5 ,]FDA VFJXP EFJ NZ VS RMPDIP 5Z ; DHJFGM KP

(45) Du, MZ TYF Sg8L G/LI FGA ~OLUG(RF/JFG)SFD

dI P SM5MP ; RJ(T)HuI FV(CI FT Du, MZ TYF Sg8L G/LI FGA ~OLUG(RF/JFG)SFD KP VF SFD DF8GL H-ZL :SPMkOLU DF6; M JUZ(j)J :YF SMg8FS8Z(SZJFGL KP TGM EFJ V, UYL VF5JFDA VFJX(GCLP T(FZ SFDG)DF5 ,]FDA VFJXP EFJ NZ VS RMPDIP 5Z ; DHJFGM KP

(46) Du, MZ TYF Sg8L G/LI FGA KF5~ ZLvOL8LU SZJFG) SFD

dI P SM5MP ; RJ(T)HuI FV(YL CI FT Du, MZ TYF Sg8L G/LI FGA KF5~ ZLvOL8LU SZJFG) SFD_KP VF SFD DF8GL H-ZL :SPMkOLU DF6; M JUZ(j)J :YF SMg8FS8Z(SZJFGL KP TGM EFJ V, UYL VF5JFDA VFJX(GCLP T(FZ SFDG)DF5 ,]FDA VFJXP EFJ NZ VS RMPDIP 5Z ; DHJFGM KP

(47) G/LI F : % , FI SZJFG)SFD

dI P SM5MP wJZF ; RJ]FDA VFJ(T)DF5 ; F. hGAJUNXlqNXL G/LI FVM ; RJFI T] ; F. 8 5Z T]80] G YFI T(ZL(T) ; % , FI SZL VF5JFG)KP ; F. 8 5Z T]80] JUZGAGU U6LG(T)D]HA EFJ NZ VS GU 5Z ; DHJFGM KP

(48) JL, FI TL DMELI F ! oZ : LPDM DAFOL8LU : FY] : % , F.

dI P SM5MP wJZF ; RJ]FDA VFJ(T)HuI FV(H-ZL lJ, FI TL G/LI FVNGF DMELI F , FJL ! oZ 5]DF6DAI; PDM DAFKFNl OL8 SZL VF5JFG)Sd5, l8 SFD SZJFG)KP T(FZ SFDG)DF5 ,]FDA VFJXP EFJ NZ VS GU 5Z ; DHJFGM KP



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(49) Jg8L, XG DAFHLP VF. P XL8 DFZJFG\SFDp

; RJJFDFVJ[T[S5GLGL %, G HLPVF. P XL8 ZZ UH GL , FJL4 SCJDFDFVJ[T[:Y/], UFJL VF5JFGL KP XL8DA; RJIF DHAGAVTZ[# VDPVDP OFI FGF CM, SZJFGF KP TPDH I MuI , AF. GAs8LU SZLG[TG], FSOV VYJF , MBODAFOL8 SZL VF5JFG) KP CF. 8 %, FGDANXF]IF DJHA ZCXP G84 AMK84 JMXZ IJP H~ZL TDFD J: T]VMGM VF VF. 8DDAH ; DFJX SZJFGMZCXP DF5 YI], SFDG), JDFDFVJXP

(50) : L, G8 EZJFG\SFDp

KF5ZDFAINJF, TYF XL8GFAHF] g8DA! oZ ; LPDMP DAFJ8F TPDH SCJDFDFVJ[T[S5GLG]; L, g8 , FJL4 ; FWFDFE ZL VF5JFG) Sd5, l8 SFDp DF5 ZGLU DL8ZDA, JDFDFVJXP

(51) HL%: D AMO*OMk: : L, LU

VF5], l0hf. G q :85 DJHA ; :5g0D HL%: D AMO*OMk; ; L, LU SZJF DF8[HL5AMO*S5GL GATGA:5f LOLSXG DJHAGF ; g8Z] :8fg00M]; SXG q D8LZL , ; MIO8 SI, 8 JF5ZL4 , FAF VG[HFOF OMk; ; L, LU DF8GF :5kI , AMK8 G[; L, LUDAsZfp , %, U , UFJL FVBF ROFJL 5L, L G[OL8 SZLG[TGL ; FY[V5]0 SZFJ], ; L, LU VgU, q ; :5g0D 58L , UFJLG[TGL ; FY[VgI D]AZ , UFJL ! Z DLDL HFOF. GF HL5; D AMO*GF HM. g8 HIFVJTF CM t I FHM. g8 G[SM; DAFBMTZL G[5LVMSL q , F5L JOI OLGLXLU SZL VPC] LJ 85 JOIHM. g8 G[5S SZJF ; FY[INJF, M 5F; [GAFHM. g8qU]5 5 DLDL YL JW]G ZC[TD HL5AMO*G) OL8LU SZL OMk; ; L, LU T]FZ SZL VF5JFG)Sd5, l8 SFDp

s5Zf 5L SM8D S, Z HLPVF. P XL8 ~10U

dI]P SM5MP 5F; SZ[T]UL , AF. TYF 5CM/F. GA; FZL S5GLGA; JRGF DJHAGL HFOF. GAs] S, Z SM8D HLP VF. P SM-U8D XL8 , FJL (VDPVDP GAHLPVF. P VFI G4 H[AMK84 V], AMK84 TYF U]JP VG[AL8DLGG JMXZ JF5ZL VF0F ! __ ; PDIP VMUZ , l5LU ZC[T]ZLT] UMPJL TYF pEF VMUZ ,]5 ! 5 ; PDIP ZC[T]ZLT]OL8 SZJF TYF H~ZL OLS; LU , FJL OL8 SZJF ; FYG] Sd5, l8 SFDp T]FZ SFDG)DF5 , JDFDFVJXP EFJ NZ V\$ RMPDIP p5Z ; DHJFGM KP s0]A]SXG SFD V, U U6JFG)KP

(53) JL GMR S]q TLZFO OL, LU

dI]P SM5MP ; RJ[T]VG] FZ VFZP; LP; LP SFD TYF . 8 R6TZ SFDDAYI], L TLZFMG[R]H, LUYL ; JRGF V5FI T]UL pOF. DAF R]H, LUYL cJc GMR SZL4 ; 5F8L ; FO SZL4 5F6LYL TZ[SZL ! o# GAF; PDMP DAFU]p8LU SZL INGv (;]L S]MZLU SZL VF5JFG) KP T]FZ SFDG)DF5 , JDFDFVJXP EFJ NZ V\$ ZGLU DL8Z 5Z ; DHJFGM KP

(54) OA, SM8 DF, F %, F:8Z s ! DL8Z VG[! DL8Z YL Z DL8Z pRF. , U, ; ML f

dI]P SM5MP 5F; SZ[T]UL ; FZL RF/] L ZTL , FJL ; RJIF DJHAGL pRF. CF. 8 , U, ;]MLG H[T] ; 5F8L 5F6LYL TZ[SIF]AFN H~ZL 9IFVM SZL V\$; ZB]NMZLV] VM/A], F. G , U, [BFOF BOLF JUZ ! o# I; PDMP GAs]p6DA] Z VDPVDP HFOM 5YD SM8 G)%, F:8Z SZJFG)KP t I FZAFN ALHF INJ ; [VF 5YD SM8 5Z dI]P SM5MP 5F; SZ[T]UM ; Z]NGUZZGM 56M, FJL VF5L ! oZ



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GA5DF6DA (VDPVDP HFOM ALHF SIMB G)% , F:8Z SZJFG)KP TQ FZ SFD 5Z N; INJ; ; ML 5F6L KF8L S1MZLU SZJFG)KP TQ FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDLP DJHA ; DHJFGM KP

(55) VM. , 5[. g8LU G)SFD s, F5L 8RLU OSTFP

dIP SM5MP wJZF 5F; SZJFDVVFJ)T(S5GLGATYF S, Z XP; GM VM. , 5[. g8 , FJL H(T; 5F8L 3; L4 ; FO SZL4 , F5L EZL4 ; 5F8L :DJW SZL , MB0 SFD4 , FSO SFDqINJF, 5Z 5YD 5F. DZGM CFY , UFJL TGA 5Z VM. , 5[. g8GVA(CFY , UFJL VF5JFG)Sd5, l8 SFD KP TQ FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP

(56) VPLxG, SIMB VM. , 5[. g8LU

VF. 8D GR 55 DJHAGF SFDFA VPLxG, SIMB H~ZL ; RGF DJHA SZL VF5JFG)SFD TQ FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP

(57) OqR 5M, LX 5[. g8LU G)SFD

dIP SM5MP 5F; SZ(TJF OqR 5M, LX DF8; RGF DJHAGF , SOSFD 5Z ; 5F8L ; FO SZL4 3; L4 , F5L EZL ; 5F8L :DJW SZL4 JP OL, Z SIMB E I"5KL TGF p5Z V\$ CFY 5FI DZGM , UFJL A(CFY OqR 5M, LX , FJL , UFJL VF5JFG)Sd5, l8 SFD KP TQ FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP

(58) SM, 8FZ 5[. g8LU G)SFD

dIP SM5MP wJZF ; RJJFDVVFJ(TJF , FSO SFD 5Z SM, 8FZ , FJL TGA, FSO SFD 5Z A(CFY , UFJL VF5JFG)KP 5YD SIMBFA _P! & , l8ZqRMPDLP TYF ALHF SIMBFA_P! Z , l8ZqRMPDLP DJHA SM, 8FZ JF5ZJFGM KP TQ FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP

(59) :5(S, Z VM. , 5[. g8LU G)SFD

; 5F8L ; FO SZL4 H~Z H6FI tIF%, F:8Z VMO 5ZL; Ylq, F5LYL 8RLU SZL4 SM5MZ)XG 5F; SZ(TJM :8f00" S5GL VG(XDGM VM. , 5[. g8 , FJL :5(JO)A(SIMB S, Z SFD SZJFG)KP TGM EFJ NZ V\$ RMZ; DL8Z 5Z ; DHJFGM KP

(60) .FSOF SFDGL ; 5F8LGI 5M, LX SZJFG)SFD

; RGF DJHA GJF S(Vgl , FSOF SFDGL ; 5F8L 3; L ; FO SZJGL ZCXP tIFZAFN V\$ SIMB JP OL, Z , UFJL VF5L tIFZAFN SCJFDVVFJ(T(S5GLGM 5M, L; , FJL A(SIMB , UFJL VF5JFG)ZCXP EFJ V\$ RMZ; DL8Z 5Z ; DHJFGM KP

(61) VM. , 5[. g8LU G)O], , F5L SZJF ; FY(G)SFD

dIP SM5MP wJZF 5F; SZJFDVVFJ(T(S5GLGF TYF XDGM VM. , 5[. g8 , FJL H(T; 5F8L 3; L4 ; FO SZL4 ; 5B"; 5F8L 5Z , F5L EZL4 ; 5F8L :DJW SZL 5YD 5F. DZGM V\$ CFY , UFJL TGF 5Z A(SIMB VM. , 5[. g8GF , UFJL VF5JGF KP TQ FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGM KP



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(62) VpLxG, SIB VM, 5[. g8LU O], , F5L ; FYI

VF. 8D GR &! DHAGF SFDDA VpLxG, SIB H~ZL ; RGF DJHA SZL VF5JFG)SFD P T(I FZ SFDG)DF5 , (JFDA VFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGMKP

(63) % . F: 8LS . dI], hG 5[. g8LU G)SFD P

; NZC)SFD DF8[; l8L VgHLGLI ZZL ; RJ(T(D)HA A[; 8 DGRGM, FJJFGMKP ; F. 8 p5Z , FJL 5F; SZJIF AFN p5I MUDA , (JFGMKP HJF S, ZG)SFD SZJFG)SCJFDA VFJ(T)JF S, ZGF ccX(cc G)SFD SZL VF5JFG)KP VF SFD DF8[S, ZGAH)NF H)NF GDGF T(I FZ SZL TDFYL 5F; SZJFDA VFJ(T); ZOf SFR 5FV[F SFU/YL 3; L ; FO SZL H~Z H6FI tIF%, F:8Z VM0 5ZL; , UFJL TGF 5Z 5YD V\$ CFY 5FI DZ , UFOL AFN 5FSF s%, F:8LS . dI], hG 5[. g8Gff ZUGF A(CFY DFZL VF5JFG)KP TDFD SFD ; F~ ; OF. NFZ SZJFG)KP AXGF , l8F S[; / G NBFI T(5DF6(SFD SZJFG)KP T(I FZ SFDG)DF5 , (JFDA VFJXP TGM EFJ NZ V\$ RMPDLP 5Z ; DHJFGMKP

(64) VpLxG, SIB % . F: 8LS . dI], hG O], , F5L ; FYI

VF. 8D GR &# DHAGF SFDDA VpLxG, SIB H~ZL ; RGF DJHA SZL VF5JFG)SFD P T(I FZ SFDG)DF5 , (JFDA VFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGMKP

(65) Vf: S, ZG)SFD P

JFI Z AX JO[; 5F8L 3; l4 SCJFDA VFJ(T)XPGM V\$; S, Z , FJL4 V\$ SIB 5F. DZ TYF A(SIB V\$; S, Z , UFJL VF5JFG)KP TDFD SFD ; F~ ; OF. NFZ SZJFG)KP AXGF , l8F S[; / G NBFI T(5DF6(SFD SZJFG)KP T(I FZ SFDG)DF5 , (JFDA VFJXP TGM EFJ NZ V\$ RMZ; DL8Z 5Z ; DHJFGMKP

(66) VpLxG, SIB Vf: S, ZG)SFD P

VF. 8D GR &5 DHAGF SFDDA VpLxG, SIB H~ZL ; RGF DJHA SZL VF5JFG)SFD P T(I FZ SFDG)DF5 , (JFDA VFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGMKP

(67) Vf51fq: GMSL, V\$; 8LZLI Z S, ZG)SFD P

JFI Z AX JO[; 5F8L 3; l4 SCJFDA VFJ(T)XPGM V\$1fq: GMSL, vV\$; P8LP sV\$[LS VG[; L, LSMG A[hOf , FJL4 V\$ SIB 5F. DZ TYF A(SIB V\$1fq: GMSL, vV\$; P8LP S, Z , UFJL VF5JFG)KP TDFD SFD ; F~ ; OF. NFZ SZJFG)KP AXGF , l8F S[; / G NBFI T(5DF6(SFD SZJFG)KP T(I FZ SFDG)DF5 , (JFDA VFJXP TGM EFJ NZ V\$ RMZ; DL8Z 5Z ; DHJFGMKP

(68) VpLxG, SIB Vf51fq: GMSL, V\$; 8LZLI Z S, ZG)SFD P

VF. 8D GR && DHAGF SFDDA VpLxG, SIB H~ZL ; RGF DJHA SZL VF5JFG)SFD P T(I FZ SFDG)DF5 , (JFDA VFJXP EFJ NZ V\$ RMPDLP 5Z ; DHJFGMKP



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(69) Dl, MZqSg8E G/LI FGN~OLU BM, JFqTMOJF GJSFD

dIP SM5IP wJZF ; RJJFDA VFJ[T]F AFWSFDGA D, MZ VYJF Sg8E G/LI FGA KF5ZFG[G/LI FVM O]GIC T[ZLT]AFWSFD S[C I FT AFWSFDGA VgI EFUNG[G]SXFG G YFI TD H-ZL :SPM-OLU TYF TMOOM DF, v; FDFG4 DF6; M JUZ[, FJL pTFZL VF5JFGqTMO VF5JFG)Kp TBL 50[ABZFAFG[(SPDIP GL , LODA; RJJFDA VFJ[T]ZLT]:8SLU SZL 5FYZL VF5JF ; FYG] Sd5, L8 SFD SZJFG) Kp VF SFDDA p5I MUJA , [FTF DF6; MGL HFGCFGL VYJF SM. VS:DFTGL ; '5j' HJFANFZL Sth8FS8ZGAXLZ[ZCXP p5I MUL D8LZL , V, U TFZJL VF5JFG)Kp TYF dIP :8NZ S[; RGF V5FI tI A5CMRFOL VF5JFG)Kp YI[ASFDG]DF5 , [FDFA VFJXP EFJ NZ VS RMPDIP 5Z ; DHJFGM Kp

(70) , FSOFGLQID JS4 8E L; DdAZM BM, JFqTMOJF GJSFD

dIP SM5IP wJZF ; RJJFDA VFJ[T]F AFWSFDGA , FSOFGL QID JS4 8E L; DdAZM JUZ[T]GIC T[ZLT]AFWSFD S[C I FT AFWSFDGA VgI EFUNG[G]SXFG G YFI TD H-ZL :SPM-OLU TYF TMOOM DF, v; FDFG4 DF6; M JUZ[, FJL BM, L VF5JFG)q pTFZL VF5JFG)qTMO VF5JFG)Kp TBL 50[ABZFAFG[(SPDIP GL , LODA; RJJFDA VFJ[T]ZLT]:8SLU SZL 5FYZL VF5JF ; FYG] Sd5, L8 SFD SZJFG) Kp VF SFDDA p5I MUJA , [FTF DF6; MGL HFGCFGL VYJF SM. VS:DFTGL ; '5j' HJFANFZL Sth8FS8ZGAXLZ[ZCXP p5I MUL D8LZL , V, U TFZJL VF5JFG)Kp TYF dIP :8NZ S[; RGF V5FI tI A5CMRFOL VF5JFG)Kp YI[ASFDG]DF5 , [FDFA VFJXP EFJ NZ VS RMPDIP 5Z ; DHJFGM Kp

(71) MBOG]QID JS4 8E L; DdAZM BM, JFqTMOJF GJSFD

dIP SM5IP wJZF ; RJJFDA VFJ[T]F AFWSFDGF , MBOG]QID JS4 8E L; TYF TGf Sd5MG8; JUZ[G]T]GIC T[ZLT]AFWSFD S[C I FT AFWSFDGA VgI EFUNG[G]SXFG G YFI TD H-ZL :SPM-OLU TYF TMOOM DF, v; FDFG4 DF6; M JUZ[, FJL BM, L VF5JFG)q pTFZL VF5JFG)qTMO VF5JFG)Kp TBL 50[ABZFAFG[(SPDIP GL , LODA; RJJFDA VFJ[T]ZLT]:8SLU SZL 5FYZL VF5JF ; FYG] Sd5, L8 SFD SZJFG) Kp VF SFDDA p5I MUJA , [FTF DF6; MGL HFGCFGL VYJF SM. VS:DFTGL ; '5j' HJFANFZL Sth8FS8ZGAXLZ[ZCXP p5I MUL D8LZL , V, U TFZJL VF5JFG)Kp TYF dIP :8NZ S[; RGF V5FI tI A5CMRFOL VF5JFG)Kp YI[ASFDG]DF5 , [FDFA VFJXP EFJ NZ VS RMPDIP 5Z ; DHJFGM Kp

(72) JOG 5F8LXG OL; Dg8, LU

SCJFDA VFJ[T]HuI FV[5F8LXG OL; Dg8, LU SZJFG)ZCXP SFR4 IJP VF. 8DMG[G]SXFG G YFI T[ZLT]KBL 5FOJFGL ZCXP WMSF4 % , F14 58LVM JUZ[T]BIF JUZ KBL 5FOL V, U SZJFGL ZCXP VF TDFD J: T] (ISPDIPL GL , LODASCJFDA VFJ[T]:Y/[5CMRTL SZJFGL ZCXP EFJ 5F8LXGGF RMPDIP GM; DHJFGM ZCXP

(73) VkIIDLGLI D 5F8LXG OL; Dg8, LU

SCJFDA VFJ[T]HuI FV[5F8LXG OL; Dg8, LU SZJFG)ZCXP SFR4 IJP VF. 8DMG[G]SXFG G YFI T[ZLT]KBL 5FOJFGL ZCXP W 58LVM JUZ[T]BIF JUZ KBL 5FOL V, U SZJFGL ZCXP VF TDFD J: T] (ISPDIPL GL , LODASCJFDA VFJ[T]:Y/[5CMRTL SZJFGL ZCXP EFJ 5F8LXGGF RMPDIP GM; DHJFGM ZCXP



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(74) 5F. 5 , F. G VM5GLU SFD

dIP SM5MP ; RJ[T]UL 5F. 5 , F. G s; LPVF. P4:8MGJZ4 V[LF H-ZL BMNF6 SFD SZL4 5F. 5 , F. G T8[GCL T[ZLT[; FWFVMDPYL K8F 5FOLG[ACFZ SF-L4 dIP SM5MP ; RJ[T]ZLT[(SLPDIP GL , LODA:8SLU SZL VF5JFG\TYF SZL \BMNF6 5ZL VF5JF ; FYG]Sd5, l8 SFD KP YI[, F SFDG]DF5 , [FDFAVFJX[EFJ NZ V\$ ZGLU DL8Z 5Z ; DHJFGM KP

(75) 5LJL ; L 5F. 5 Z[. G JM8Z : 5fp84

dIP SM5MP 5F; SZ[T]UL ; FZL SJM, l8LGA:8fg00"VF. PV[; PVF. P Dfs"WZFJTL S5GL GA5L JL ; L 5F. 5 Z[. G JM8Z : 5fp84 VNZ UF/[_P! _ DL8Z s! ___ VDPVDPF OFI FGL ; F. h WZFJTA, FJL _P*5 DL8Z , AF. DAs8LU SZL4 ; RGF VF5JFDA VFJ[t]FA, F. G , [, DA0L8 SZL H-ZL I; D[8 DIBFZ s! o#f DAKFNL VF5JFG]Sd5, l8 SFD SZJFG]KP

(76) JMX A[LG ; 5, FI 4 0L8LU

dIP SM5MP 5F; SZ[T]UL :8fg00"S5GLGL VG[DF5 ; F. hGL ; LZFDIS JMX AXIG4VDPV[; P A\$B TYF H-ZL 0L8LU 0LS; LU % , U 8L ; FY[, FJL ; RJFI t]FASg; L<0 0L8LU SZL VF5JFG]Sd5, l8 SFD SZJFG]KP T[FZ SFDG]DF5 , [FDFAVFJXP EFJ NZ V\$ GU 5Z ; DHJFGM KP

(77) 8[5 HF/L 0L8 SZL VF5JFG]SFDP

; RJIF DHA S5GL VG[D8LZL, GL &cc2&cc GL HF/L , FJL4 , F. G4 , [, DA 0L8 SZL VF5JFGL KP EFJ V\$ GUGM ; DHJFGMZCXP D8LZL , GF 5\$FZ 5DF6[VF. 8DDANXF]IF DHA V , U V , U EFJ ZCXP

(78) AFA0 JFI Z 0[; LU SFDP

HIP VF. P :8L, GL)P#(SL, Mq ! ___ DL8Z DHAGL AFA0 JFI Z 0[; LU SFD DF8[ZP_ DIP , FAF 5_25_2& VDPVDP ; F. hGL VDPV[; P VU , , FJL KDFVM OF0L4 H-ZL CM, 5F0-L NZ ZP5_ DL8ZGAVTZ[TYF NZ\$ B[6F 5Z VG[NZ #_ DL8Z[; 5M8"DF8[H-ZL _P\$52_P\$52_P\$5 GABFOFVMSZL TDF, F. G , [, VM/E[! P55 DL8Z HDLG ACFZ ZC[TD pEF SZL DXIG S[0 S5RL ! _ YL ! Z VDPVDP ; F. hGL , FJL ! o#o& GA I; D[8 SMS]8 s_P\$52_P\$52_P\$5f SZL VU , M 0L8 SZJFGL KP ; 5M8GAVU , M H-ZL G8vAM-8 , FJL 0L8 SZJFGA KP TYF (INJ; 5F6LYL SI MZLU SI F AFM AFA0 JFI ZGL VFOL 5FR , F. GM TYF A[, F. G RISOL 50[TD VU , MGF CM, DAHIPVF. P 5LG ; FY[BRL 0L8 SZL VF5JFG]KP T[FZ SFD 5Z AFA0 JFI Z I; JFI 5[. 5ZGM V\$ CYF TYF :8fg00"S5GLGF VM , 5[g8GFA[CFY , UFJL VF5JFGA KP T[FZ SFDG]DF5 , [FDFAVFJXP EFJ NZ V\$ ZPDIP 5Z ; DHJFGM KP

(79) DMH\$QWFAF , FNL HGF JF8F OL, LU SFD

dIP SM5MP wJFZF ; RJJFDA VFJ[T]HuI FV[DMH\$QWFAF , FNLDFAH[T]XDJF/L , FNL DHAGL I; D[8 JF5ZL H-Z H6FI [TDF H-ZL S, Z pDZLG[I; D[8 5[. :8YL JF8F SZJFG]KP HGF JF8F 5YD BMTZL ; F0 SZL VF5JFGF KP TYF T[FZ SFDG]INGv (; M SI MZLU SZJFG]KP T[FZ SFDG]DF5 , [FDFAVFJX[EFJ NZ V\$ RIMPDI 5Z ; DHJFGM KP



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(80) CF. 0M, LS 0MZ S, MhZ ; %, F. H-ZL 0L8LU ; FYI

dI P SM5MP 5F; SZITJ):8fg00"VF. PVf; PVF. P DfSFJF/]CF. 0M, LS 0MZ S, MhZ , FJL ; RJIF DJHAGL HuIFV[H-ZL 0L8LU ; FY[0L8 SZL VF5JFG)KP Tq FZ SFDG)DF5 , JFDVVFJX[EFJ NZ V\$ GU 5Z ; DHJFGMKP

(81) CF. 0M, LS 0, MZ I:5JU 0MZ S, MhZ ; %, F. H-ZL 0L8LU ; FYI

dI P SM5MP 5F; SZITJ):8fg00"VF. PVf; PVF. P DfSFJF/]CF. 0M, LS 0, MZ I:5JU 0MZ S, MhZ , FJL ; RJIF DJHAGL HuIFV[H-ZL 0L8LU ; FY[0L8 SZL VF5JFG)KP Tq FZ SFDG)DF5 , JFDVVFJX[EFJ NZ V\$ GU 5Z ; DHJFGMKP

(82) VkIIDLGLI D GF CJL ; SXG G\5F8LXG

dI P SM5MP wJZF 5F; SZJFDVVFJ[T]Olhf. G DJHA G)5F8LXG DF8[VF. 8D DFNXFJ], DF5 ; F. h GAVkIIDLGLI D ; SXG , FJL H-ZL TDFD 0L8LUvOLS; LU ; FY[5FG], DA:8fg00"S5GLGM VGA\$A, OF. AZ u, F; q 5IPJLP; IP OL, Z 0L8 SZL VF5L H[T]:Y/[H-ZL TDFD 0L8LU IOS; LU ; FY[0L8 SZJFG)Sd5, l8 SFD SZJFG)KP TDFD VkIIDLGLI D ; SXG ; FM\TYF ! P5 DIDL HFOF. G)JF5ZJFG)KP Tq FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDIP 5Z ; DHJFGMKP

(83) 5FJOZ SM8D VkIIDLGLI D GF CJL ; SXG G\5F8LXG

dI P SM5MP wJZF 5F; SZJFDVVFJ[T]Olhf. G DJHA G)5F8LXG DF8[VF. 8D DFNXFJ], DF5 ; F. h GAVkIIDLGLI D ; SXG , FJL H-ZL TDFD 0L8LUvOLS; LU ; FY[5FG], DA:8fg00"S5GLGM VGA\$A, OF. AZ u, F; q 5IPJLP; IP OL, Z 0L8 SZL VF5L H[T]:Y/[H-ZL TDFD 0L8LU IOS; LU ; FY[0L8 SZJFG)Sd5, l8 SFD SZJFG)KP TDFD VkIIDLGLI D ; SXG 5FJOZ SM8D TYF ! P5 DIDL HFOF. G)JF5ZJFG)KP Tq FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDIP 5Z ; DHJFGMKP

(84) VkIIDLGLI D GF CJL ; SXG G\AFZL q NZJFHF

dI P SM5MP wJZF 5F; SZJFDVVFJ[T]Olhf. G DJHA G)5F8LXG GL AFZLqNZJFHFGL Olhf. G DF8[VF. 8DDFNXFJ], DF5 ; F. h GAVkIIDLGLI D ; SXG , FJL H-ZL TDFD 0L8LUvOLS; LU ; FY[5FG], DA:8fg00"S5GLGM VGA\$A, OF. AZ u, F; q 5IPJLP; IP OL, Z 0L8 SZL VF5L Tq FZ AFZL q NZJFHF H[T]:Y/[H-ZL TDFD 0L8LU IOS; LU ; FY[0L8 SZJFG)Sd5, l8 SFD SZJFG)KP TDFD VkIIDLGLI D ; SXG ; FM\TYF ! P5 DIDL HFOF. G)JF5ZJFG)KP AFZ6F DF8[(5 DIDL GF ; SXG JF5ZJFG ZCXP Tq FZ SFDG)DF5 , JFXP EFJ NZ V\$ RMPDIP 5Z ; DHJFGMKP

(85) 5FJOZ SM8D VkIIDLGLI D GF CJL ; SXG G\AFZL q NZJFHF

dI P SM5MP wJZF 5F; SZJFDVVFJ[T]Olhf. G DJHA G)5F8LXG GL AFZLqNZJFHFGL Olhf. G DF8[VF. 8DDFNXFJ], DF5 ; F. h GAVkIIDLGLI D ; SXG , FJL H-ZL TDFD 0L8LUvOLS; LU ; FY[5FG], DA:8fg00"S5GLGM 5 DIDL HFOM VGA\$A, OF. AZ u, F; q \$ DIDL 5IPJLP; IP OL, Z 0L8 SZL VF5L Tq FZ AFZL q NZJFHF H[T]:Y/[H-ZL TDFD 0L8LU IOS; LU ; FY[0L8 SZJFG)Sd5, l8 SFD SZJFG)KP TDFD VkIIDLGLI D ; SXG 5FJOZ SM8D TYF ! P5 DIDL HFOF. G)JF5ZJFG)KPAFZ6F DF8[(5 DIDL GF ; SXG JF5ZJFG ZCXP Tq FZ SFDG)DF5 , JFDVVFJXP EFJ NZ V\$ RMPDIP 5Z ; DHJFGMKP



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- (86) VkI DLGLI D GF 5FJ0Z S18D CJL ; SXG G\5F8LXGv Vki DLGLI D ; SXG JUZ
; YF V|VF5| Vki DLGLI D GF CJL ; SXG TYF S, L5 58L JF5ZL 5FJ0Z S18LU SZL ; RjI F DJHAG\5F8LXG VF5JFDA VFJ|T|Olhf. G DHA 38T\D8LZLI , :8fg00"S5GLGF AZAZ :8t5 q u, F; q 5G, q %, Fl qS, L5qG8 AMk8 :S| JF5ZL4 ; RjI F DJHA :Y/[0L8LU OLS; LU ; FY|Sd5, L8 SZL VF5JFG\SFDp T|FZ SFDG\DF5 , JFDA VFJXP EFJ NZ V\\$ RMPDIP 5Z ; DHJFGMKP
- (87) VkI DLGLI D ; SXG G\5F8LXG TYF OMZ v ZL v 0L8LU DHZL
; RjI F DJHA 5F8LXG BM, L4 SCJFDA VFJ|T|:Y/[ZL0L8LU SZJFG|Sd5, L8 SFDp G| , 4 :S|JUZI VF VF. 8DDAH U6JFDA VFJXP T|FZ SFDG\DF5 , JFDA VFJXP EFJ NZ V\\$ RMPDIP 5Z ; DHJFGMKP
- (88) ZAZ :8t5 u, F; q %, F. Vki DLGLI D ; SXG 5F8LXG DF8|
; YF V|VF5| Vki DLGLI D GF CJL ; SXGDA VFJ| T| Olhf. G DHA :8fg00" S5GLGF AZAZ :8t5 q u, F; q 5G, q %, Fl qS, L5qG8 AMk8 :S| JF5ZL4 ; RjI F DJHA :Y/[0L8LU OLS; LU ; FY|Sd5, L8 SZL VF5JFG\SFDp T|FZ SFDG\DF5 , JFDA VFJXP EFJ NZ V\\$ RMPDIP 5Z ; DHJFGMKP
- (89) 5LPJLP; LP ; M, LO NZJFHF sZLHLO ; M, LO 5LPJLP; LPGF J|6L WMSF JF/FFG\SFDp
; RjI, S5GL GF ZLHLO 5LPJLP; LP ; M, LO 5|DF. , GA VDP5LP *! ! \$ (FP 7114) ; SXG YfgUF AMq0 ; Mkjg8 A| h 5LPJLP; LP VPC| LJ JO|HM. g8 SZL TYF U|J DfA\$ _2Z_2!) U|H VDPV| P 5F. 5 O| cc ò cc X| 5 (MS pipe frame "C" 40x20x19g) :8LOGZ JF5ZL *! 2#_ ; DL ; F. h GAJ|6LvWMSF T|FZ SZL4! 52! 5 DIDL GL IAOLU TYF \$ DIDL HFOF. GL CF. 5XZ SM5S8 , DLG8; JF5ZL 5F; SZ|T|DJHAGF S, Z VG|10hf. G DJHA ; RjI ; F. h DAX8Z T|FZ SZL \$cc GA+6 CJL DLHFUZF4 SHDLI D %, 8D VDPV| P GF CF0|Z v VNZ ACfZ 5cc C|0, 4 ! v! GU ! _cc VDPV| P VF<0F04 (cc TFOL4 (cc :8M5Z H~ZL :S| ; FY| ; RjI F DJHA GF :Y/[0L8LU SZL VF5JF ; FY|G|Sd5, L8 SFDp T|FZ SFDG\DF5 , JFX| EFJ NZ V\\$ RMPDIP 5Z ; DHJFGMKP
- (90) 5LPJLP; LP sCM, M 5LJL; LFOMZ
; RJJFDA VFJ|T|DJHAGL :8fg00"S5GLGF CM, M 5LPJLP; LP ; SXG JF5ZL J|6LvWMSF T|FZ SZL4; RGF DJHA , DLG8; JF5ZL T|FZ 5LP JLP ; LP NZJFHF 5F; SZ|T|DJHAGF S, Z VG|10hf. G DJHA , FJL :Y/[TDFD 0L8LU OLS; LU ; FY|G|Sd5 SFDp T|FZ SFDG\DF5 , JFX| EFJ NZ V\\$ RMPDIP 5Z ; DHJFGMKP
- (91) : LDt8 DA :8fg00" J18Z 5|PLU JO|VUFXL DfA J18Z 5|PLU
d|P SM5MP wJZF SCJFDA VFJ|VG| ; RJJFDA VFJ| T|5|FZG| :8fg00" J18Z 5|PLU D8LZLI , q SDLS , , FJL JF5ZLIG|5F6LGL 8FSL q VUF; LDAU|I; Dtg8 q jCF. 8 I; Dtg8DfA J18Z 5|PLU 8t8Dtg8 SZL VF5JFG L KP T|FZ SFDG\DF5 , JFDA VFJXP TYF EFJ NZ V\\$ RMP DIP 5Z ; DHJFGMKP



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- (92) 0q; LU DF8| VU, ; %, F. VGI0L8LU OLS; LU
 dI P SM5IP wJFZF SCJFDF VGI ; RJJFDF VFJ| T| HuI FV[5_25_2& VDPVDP GL ; F. hGL ZP#_ DL8Z , FAL VGI
 VDPVDP P VU, M, FJL KDFVM OF0L4 :Y/[_P\$52_P\$52_P\$5 DL8ZGABF0F SZL TPA! oZ0\$ GA5DP6DAH-ZL D8LZL1 ,
 , FJL ; LDj8 SlljS|8 SFD SZL VF5L4 VU, MDf| H-ZL CM, 5F0L 0q; LU ; FY| 0L8 SZJFG) Sd5, L8 SFD KP T| FZ SFDGM
 ZPMS; F. 0GM V\$ CFY TYF VM , 5| g8GFA|CFY , UFJL VF5JFG)Sd5, L8 SFD SZJFG)KP T| FZ SFDG)DF5 , JFDF VFJXP
 EFJ NZ V\$ GU 5Z ; DHJFGM KP
- (93) S|SDF Ufp8LU SZJFG)SFD
 ; Rj| F DHAGL S\$G|Z_ VDPVDP 5CM/L TDPH ! Z YL ! 5 VDPVDP pOF. ; JWL BM, JFGL ZCXP t| FZAFN cc5FZv5Rcc GF
 D8LZL1 , YL IO, LU SZJFG) ZCXP VG(TPA) cc GF VTZ ! _ VDPVDP OFI FGM CM, #cc pOF. GM SZL TPA5LJL; L GMh, 0L8
 SZLGTTPA5XZ 5d5YL Ufp8LU D8LZL1 , s5FZ0L8 VF. PHIP VG|V| PAIPVFZPF YL Ufp8LU SZJFG)ZCXP|VG|; Rj| F DHA
 SI MZLU SZJFG)ZCXP EFJ ZGLU DL8ZGM; DHJFGMZCXP
- (94) 5|XZ Ufp8LU YL JMBZ5pLU SZJFG)SFD
 ; Rj| F DHA GF VTZ|! _ VDPVDP OFI FGM CM, #cc pOF. GM SZL TPA5LJL; L GMh, 0L8 SZLGTTPA5XZ 5d5YL Ufp8LU
 D8LZL1 , s5FZ0L8 VF. PHIP VG|V| PAIPVFZPF YL Ufp8LU JO|JMBZ 5pLU SZJFG)ZCXP|VG|; Rj| F DHA SI MZLU SZJFG)
 ZCXP EFJ V\$ GU NL9 ; DHJFGMZCXP
- (95) INJF, GF ACFZGF EFU|JMBZ 5pLUG)SFD
 INJF, GF ACFZGF EFU| S, ZSFD SZTF 5C| F 0LGLXLU SZJF DF8| H-ZL JMBZ 5pLU SPDS, sV\$|, LS 5M, LDZ A| h0
 ; LDj8LI ; D8LZL1 <; f wJFZF 0LGLXLU SZL4 SI MZLU SZL VF5JFG)KP EFJ RMZ; DL8ZGM; DHJFGM KP
- (96) 8Z|: Df JMBZ 5pLUG)SFD s5p VGPVDP V\$|, LS 5M, LDZ ; LDj8LI ; D8LZL1 <: f
 8Z|; ; FO SZL JMBZ 5pLU DF8| 5FZ 5p VGPVDP sV\$|, LS 5M, LDZ ; LDj8LI ; D8LZL1 <; f , FJL4 ; Rj| F DHA # YL \$
 VDPVDP HFOF. G|, |I Z AX JO|, UFJL VF5JFG)KP EFJ RMZ; DL8ZGM; DHJFGM KP
- (97) : 5P SDLS, %, F: 8Z SFD
 ; Rj| F DHA (v! _ VDPVDP HFOF. GM 5|DLS; Ah SM8 s5FZv%, F: 8f DFI F'AFN4 ; JSMB s5FZv%, F: 8vV| P; lPf GM \$
 YL & VDPVDP HFOF. GM, UFJL4 0LGLXLU SZL SI MZLU SZJF ; FYG)Sd5, L8 SFD SZL VF5JFG)KP D8LZL1 , ; Rj| F DHAGL
 : 8f00"S5GLG), FJJFG)ZCXP EFJ V\$ RMZ; DL8ZGM; DHJFGM KP
- (98) SM8F q DFA", : 8MGG)WFZ DM:OLU SFD
 ; Rj| F DHA SCJFDF VFJ|T|ZLT|DM:OLU JS'SZL ; Rj| F DHAGL HuI FV[0L8 SZL VF5JFG) KP V, U V, U DM:OLU SFD
 DF8|V, U V, U EFJ VF. 8DDANX|J| F DHA ZCXP EFJ V\$ ZGLU DL8ZGM; DHJFGM KP



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(99) UJGF: 8 : 8MGG\ DMKOLU SFD

; RjI F DHA SCJFDFVFEJITZLTIDMKOLU JS'SZL ; RjI F DHAGL HuI FV[OL8 SZL VF5JFGF KP V, U V, U DMKOLU SFD DF8[V, U V, U EFJ VF. 8DDANXFJIF DHA ZCXP EFJ V\$ ZGLU DL8ZGM ; DHJFGMKP

(100) I5SF: 8 INJF, AGFJJFG\ SFD

; RjI F DHA 5cc25cc ; SXGGF I5SF: 8 YFE, F4 TYF TDFOL8 Af [TJF Zcc HFOF. GF I5SF: 8 5F5OF , FJL4 YFE , FG ; RjI F DHA ! P5 DL8ZGF VTZ[! oZoS GF SltjS8 JO[HDLGDAVtjSf LU SZJFGF K[VG[TDF5F5OF OL8 Af FOL VF5JFGF KP SltjS8 SFDG[N; INJ ; ; ML S1MZLU SZL VF5JFG\KP INJF , F. G , U, VM/E[SZL VF5JFGL KP YFE, F HDLGDA VMKFDA VMKF _P&_ DIP GFBJFGF ZCXP 5F5OF SCJFDFVFEJITB, F H HDLGDA ZFBJFGF KP DF5DA 5F58FGL AMBDYL 5F50FGL 8M5 ; MLGL 5CM/F. U6JFGL KP 5F50FGL GLR[AFSL ZC[TF B\$BGF,DF5 VF5JFDFVFEJX[GICP Tq FZ SFDGF RMZ ; DL8Z , B[EFJ ; DHJFGMZCXP

(101) I5SF: 8 OMZqI JgOM OJDG\ SFD

! o! P5o# GF 5DF6DA5J"IGIDT sI5SF: 8f #cc2\$cc ; SXG WZFJTL OJD BFTF wJZF GDJGM 5F; SZFJIF AFN , FJL4 ; RjI F DHA : YZ/, F. G4 , U, 4 VM/E[OL8 SZL VF5JFGL KP ODDA I MuI 5DF6DA ZtjOM; Dtg8 JF5Z, JCMUJHF. VP EFJ ZGLU DL8ZGM ; DHJFGMKP

(102) I05F8Dtg8 SFD DF8[5]-OF DHIZ Af, NFZ 5ZF 5FOJFG\ SFD

VF SDDAOL5F8Dtg8 SFD DF8[5ZDF DHIZvA, NFZ 5ZF 5FOJFGA KP ; F. 8 5Z VFJIFYL VF9 S, FSGM V\$ INJ ; sHDJF DF8GFAA\$ZL ; f DF8GFAV\$ S, FS p5ZFTGF VF9 S, FSF DHA ZMH VF5JFDFVFEJXP : ff. 8 5Z 5CMRJFGM BR" Sltj8FS8ZGF XLZ[ZCXP

(103) I05F8Dtg8 SFD DF8[: +L DHIZ 8M5, F 5ZF 5FOJFG\ SFD

VF SDDAOL5F8Dtg8 SFD DF8[: +L DHIZv8M5, F 5ZF 5FOJFGA KP ; F. 8 5Z VFJIFYL VF9 S, FSGM V\$ INJ ; sHDJF DF8GFA A\$ZL ; f DF8GFAV\$ S, FS p5ZFTGF VF9 S, FSF DHA ZMH VF5JFDFVFEJXP : ff. 8 5Z 5CMRJFGM BR" Sltj8FS8ZGF XLZ[ZCXP

(104) 8\$8Z v 8M, L EFO[VF5JFG\ SFD

VF SDDAOL8\$8Z 8M, L ; FY[EFO[VF5JFG\KP VF SFD DF8[OF. JZ4 I0h, 4 TYF Vgl BR" Sltj8FS8ZGF XLZ[ZCXP ; F. 8 5Z VFJIFYL VF9 S, FSGM V\$ INJ ; sHDJF DF8GFAA\$ZL ; f DF8GFAV\$ S, FS p5ZFTGF VF9 S, FSF DHA EFO[VF5JFDFVFEJXP OF. JZ4 I0h, S[Vgl SFZ6M; Z HB, F S, FS p5I MU AW ZCXP[T[DHZ[AFN , UFXP



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(105) HP; LPAL, MOZ q V1SJBZ EFOJ VF5JFG\ SFD

VF SFDDFAHP; LPALP, MOZqV1SJBZ EFOJ VF5JFG\KP VF SFD DF8\OF. JZ4 S, LGZ4 10h, 4 TYF VgI BR"SMg8FS8ZGF XLZ| ZCXP ; F. 8 5Z VFjI FYL VŞ S, FS DHA EFOJ VF5JFDFVFXP OF. JZ4 S, LGZ4 10h, S|VgI SFZ6M; Z HŞ, F S, FS p5I MU AW ZCXP|T|U6TZL DFGIC, |FIP

(106) AJSZ EFOJ VF5JFG\ SFD

VF SFDDFAJSZ EFOJ VF5JFG\KP VF SFD DF8|VM5ZBZ4OF. JZ4 10h, 4 TYF VgI BR"SMg8FS8ZGF XLZ| ZCXP ; F. 8 5Z VFjI FYL VŞ S, FS DHA EFOJ VF5JFDFVFXP VM5ZBZ4 OF. JZ4 10h, S|VgI SFZ6M; Z HŞ, F S, FS p5I MU AW ZCXP|T|U6TZL DFGIC, |FIP

(107) ZM, Z Vlg0 Sg: M, LOXG SZJFG\ SFD

; %, FI SZ| DB, G|; RGF DHAGL HFOF. 4 5CM/F. 4 , F. G, |, TYF S|AZDA 5FYIF"AFN ZMD ZM, ZYL ZM, LU Z: TFGI WFZY| XZ| SZL ZM, ZGA 5FK/GF 5DFG| NMFJL ; |BZ ; |M, FJFG\KP VF ZLT| ZM, LU 5B" YIF AFN TDFD SFDG| 5|S/ 5F6LYL TZ SZL RL, F G 50|t|F; |M ZM, LU SZJFG\KP VFD SZTAHMHMA 50|TMD|B, GFBL, |, SZJFG\KP, |, YIF AFN DMZD ; %, FI SZL4 NFHLIF G ZC|T|ZLT|5FYZL ZM, LU SZL 5|S/ 5F6LYL TZ SIF"AFN s! Z___ RMPDIP DA)___ , L8Z 5F6L KFBL ZM, LU SZJFG\ZCXP t|FZAFN HM NFHLIF ZC| TM OZL DMZD GFBL NFHLIF 5ZJFGF ZCXP|t|FZAFN OZL ZM, LU SZJFG\ ZCXP VF S5, L8 ZM, LU SFDGM DHZLGM EFJ s5F6L ; %, F. SZJF ; FYF NZ VŞ RMPDIPGM VF5JFDFVFXP

(108) સી.આઈ (કાસ્ટ આયર્ન) માંથી યુલ બનાવી સ્થળ પર સપ્લાય કરી ફીટ કરી આપવાનું કામ.

ભાવનગર મહાનગરપાલિકા દ્વારા સુચવવામાં આવે તે ડીઝાઇન, સ્પેસીફિકેશન મુજબ સી.આઈ (કાસ્ટ આયર્ન) માંથી બનાવવામાં આવેલ, અગ્નીદાહ માટે યુલ (સગડી) સ્મશાનમાં પહોચાડવાનું તેમજ ફીટ કરી આપવાનું કમ્પલીટ કામ કરી આપવાનું રહેશે. માપ તૈયાર કામના પ્રતી નંગ પર ગણતરી કરવામાં આવશે.

(109) ફ્રસ્ટ ક્લાસ કવોલીટી ગ્રીન શીટ ફીટ કરવાનું કામ.

ભાવનગર મહાનગરપાલિકા દ્વારા સુચવવામાં આવે તેવી જાડાઈમાં તેમજ ડીઝાઇન મુજબ ગ્રીન શીટ લાવી, કર્ટીંગ, ફીનીશીંગ કરી જરૂરી નટ બોલ્ટ, સ્ક્રુ વગેરે મટીરીયલ સાથે સુચવવામાં આવે તે મુજબ સહીત ફીટ કરી આપવાની રહેશે. માપ તૈયાર કામના પ્રતી નંગ પર ગણતરી કરવામાં આવશે.

(110) બોર કરવાનું કામ

સુચના આપવામાં આવે તે સ્થળે ૨૦ સે.મી. ડાયામીટરમાં મશીનથી ૯૦ મીટર સુધીની ઉડાઈમાં બોર કરી ૨૦૦ એમ.એમ ડાયા. કેસીંગ પાઈપ સામે ૧ H.P સીંગલ સબમર્શીયલ પમ્પ, મોટર શેટ તથા ૧ " ડાયામીટરનો જરૂરીયાત મુજબનો પીવીસી બ્લેક પાઈપ લાવી જરૂરી ફીટીંગ કરવા સાથે (૧ * ૩ * ૧.૫) એમ એસ પાવર કોટેડ ૩૦૦ * ૩૦૦ એમ.એમ પેનલ બોર્ડ સાથે ૧૬ એમ્પીયર MCB તથા જરૂરીયાત મુજબનાં માપ સાઈઝના કેબલ સાથે પાણી પમ્પીંગ કરી ઉપયોગ થાય ત્યા સુધી કમ્પલીટ કામ કરી આપવાનું રહેશે આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(111) બોર કરવાનું કામ



Bhavnagar Municipal Corporation



સુચના આપવામાં આવે તે સ્થળે ૨૫ સે.મી. ડાયામીટરમાં મશીનથી ૯૦ મીટર સુધીની ઉડાઈમાં બોર કરી ૨૦૦ એમ.એમ ડાયા. કેસીંગ પાઈપ સામે ૧ H.P સીંગલ સબમર્શીબલ પમ્પ, મોટર શેટ તથા ૧ " ડાયામીટરનો જરૂરીયાત મુજબનો પીવીસી બ્લેક પાઈપ લાવી જરૂરી ફીટીંગ કરવા સાથે (૧ * ૩ * ૧.૫) એમ એસ પાવર કોટેડ ૩૦૦ * ૩૦૦ એમ.એમ પેનલ બોર્ડ સાથે ૧૬ એમ્પીયર MCB તથા જરૂરીયાત મુજબનાં માપ સાઈઝના કેબલ સાથે પાણી પમ્પીંગ કરી ઉપયોગ થાય ત્યા સુધી કમ્પલીટ કામ કરી આપવાનું રહેશે આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(112) પાણી કનેક્શનનું કામ

સુચવવામાં આવે તે સ્થળેથી જે સાઈઝના ડાયામીટરની પાણીની લાઈન પસાર થતી હોય તેમાથી જરૂરીયાત મુજબના ડાયામીટરનું કનેક્શન / જોડાણ જરૂરી કલેમ્પ, સાધન સામગ્રી વગેરે લાવી જોડાણ કરી આપવાનું કામ. આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(113) ડ્રેનેજ કનેક્શનનું કામ

સુચવવામાં આવે તે સ્થળેથી જે સાઈઝના ડાયામીટરની ડ્રેનેજ લાઈન પસાર થતી હોય તેમાથી જરૂરીયાત મુજબના ડાયામીટરનું કનેક્શન / જોડાણ જરૂરી કલેમ્પ, સાધન સામગ્રી વગેરે લાવી જોડાણ કરી આપવાનું કામ. આ કામનો ભાવ જોબ પર સમજવાનો રહેશે.

(114) ફલશ ડોર

સુચવવામાં આવે તે કંપનીના સારી ક્વોલીટીના સોલીડ કોર થટર્સ લાવી સારી ક્વોલીટીના લાકડાની ફ્રેમ સાથે જરૂરી સ્ક્રુ, મીજગરા સ્ટોપર, પવન આંકડી, આલ્ડ્રાફ વગેરે ફીટીંગ, ફીક્સીંગ સાથે ફીટ કરી આપવાનું કમ્પલીટ કામ. આ કામનો ભાવ પ્રતી ચો.મીટર મુજબ સમજવાનો રહેશે.

(115) ACP WORK

સુચવવામાં આવે તે કલરમાં ૩ mm જાડાઈનું પ્લેન ACP (એલ્યુમીનીયમ કોમ્પોઝાઇટ પેનલ) લાવી જરૂરીયાત મુજબની ડીઝાઇનમાં સુચના આપવામાં આવે તે માપ સાઈઝમાં / પેટર્ન મુજબ જે હાઇટમાં ફીટીંગ, ફીક્સીંગ કરી જોઇન્ટમાં જોઇન્ટમાં જરૂરી સીલન્ટ ભરી કમ્પલીટ કરવા સાથેનું કામ. કમ્પલીટ કામ. આ કામનો ભાવ પ્રતી ચો.મીટર મુજબ સમજવાનો રહેશે.

- ❖ GMM ov X|PI |, V|DF; DFJ|X SZFI |, VF. 8DM 5|SL SM. VF. 8D G| : 5|; LOLS|XG p5ZMST VF. 8DM GF : 5|; LOLS|XG DA ; DFJJFDF|G VFJ|, CMI TM T|JL VF. 8DM DF8| 5|P0A<|P0LP GF : 5|; LOLS|XG w| FG| , |JFGF ZC|XP
- ❖ p5ZMST TDFD : 5|; LOLS|XG VDM V| JFRL4JRFJL4; DHL4JRFZLG|8|g0ZDF|EFJM EZ|, K|H|D|HA VDM SFD SZJF AWF. V|KLVF

SI|g8FS8ZGL ; CL

P

SI|g8FS8ZG|VFB|GFD

P

SI|g8FS8ZGM|; SSM

TFZLB

**GENERAL TECHNICAL
SPECIFICATIONS
FOR
BUILDING WORKS**

SPECIFICATIONS OF MATERIALS

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GENERAL TECHNICAL SPECIFICATIONS FOR BUILDING WORKS

GENERSL:

1. In the specifications " as directed "/"approved" shall be taken to mean " as directed "/"approved by the Engineer-in-Charge.
2. Wherever a reference to any Indian Standard appears in the specifications, it shall be taken to mean as a reference to the latest edition of the same in force on the date of agreement.
3. In"" Mode of Measurement" in the specifications wherever a dispute arises in the absence of specific mention of a particular point of aspect the provisions on these particular points, or aspects in the relevant Indian Satandards shall be referred to
4. Ail measurements and computations, unless otherwise specified, shall be carried out nearest to the follow-
ing limits ;

(i) Length, width and depth {height}	0.01 metre "
(ii) Areas	0 01 Sq.Mt.
(iii) Cubic Contents	0 01 Cu. Mt.

In recording dimensions of work, the sequence of length, width and height { depth } or thickness shall be followed.
5. The distance which constitutes lead shall be determined along the shortest practical route and note neces-
sarily the route actually taken. The decision of the Engineer-in-charge in this regard shall be taken as final.
6. Where no lead is specific, it shall mean " all leads ".
7. Lift shall be measured from plinth level.
8. Up to" floor two level" means actual height of floor (Maxi. 4 .M) upto 3 Mt.above plinth level.
9. Definite particulars covered in the items of work, though not mentioned or elucidated in it specifications shall be deemed to be included therein.
- 10./ Reference to specifications of materials as made in the detailed specification of the items of works is in the form of a designation containing them kuber of the specification of the material and prefix 'M'e.g. "M-5\
11. Approval to the samples of various materials given by the Engineer-in-charge shall not absolve the contrac-
tor from the responsibility of replacing defective material brought on site or materials used in the work found defective at a later date. The contractor shall have no claim to any payment or compensation whatsoever on account of any such materials being rejected by the Enginnef-in-charge.
12. The contract rate of the item of work shall be for the work completed in all aspects.
13. No collection of materials shall be made before it is got approved from the Engineer-in-charge.
14. Collection of approved materials shall be done at site of work in a systematic manner. Materials shall be stored in such a manner as to prevent damage, deterioration or intrusion of foreign matter and to encure the preservation of their quality and fitness for the work.
15. Materials, if and when rejected by the Engineer-in-cha; >2, shall be immediately removed from the site of work.
16. No materials shall be stored prior to, during and after execution of a structure in such a way as to cause or lead to damage or overloading of the various components'of the structure.
17. All works shall be carried out in a workmanlike manner as per the best techniques for the particular item.
18. All tools, templates, machinery and, equipment for correct execution of the work as well as for checking lines, levels, alignment of the works during execution shall kept in sufficient numbers and in good-working condition on the site of the work.
19. The mode, procedure and manner of execution shall be such that it does not cause damage or over-loading of the various components of the structure during execution or after completion ot he structure.
20. Special modes of construction not adopted in general Engineering practice if proposed to be adopted by the Contractor, shall be considered only if the contractor provides satisfactory evidence that such special mode

of construction is safe, sound and helps in speedy construction and completion of work to the required strength and quality. Acceptance of the same by the Engineer-in-Charge shall not, however absolve the contractor of the responsibility of any adverse effects and consequences of adopting the same in the course of execution of completion of the work

21. All installations pertaining to water supply and fixtures there of as well as drainage lines and sanitary fittings shall be deemed to be completed only after giving satisfactory tests by the contractor
22. The contractor shall be responsible for observing the rules and regulations imposed under the " Minor Minerals Act", and such other laws and rules prescribed by Government from time to time.
23. All necessary safety measures and precautions (including those laid down in the various relevant Indian Standards) shall be taken to ensure the safety of men, materials and machinery on the works as also of the work itself.
24. The testing charges of all materials shall be borne by the Contractor.
25. Approval to any of the executed items for the work does not in any way relieve the contractor of his responsibility for the correctness, soundness and strength of the structure as per the drawings and specifications

GENERAL

STANDARD TECHNICAL SPECIFICATIONS

Sr.' No. of the item in the Schedule 'B' of tender	Sr. No. of applicable Specification	Sr. No. of the item in the Schedule 'B' of tender	Sr. No. of applicable Specification <	Sr. No. of the item in the Schedule 'B' of tender	Sr. No. of applicable Specification
1		25		49	
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3		27		51	
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6		30		54	
7		31		55	
8		32		56	
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10		34		58	
11		35		•59	
12		36		60	
13		37		6!	
14		38		62	
15		39		63	
16		40		64	
17		41	•	65	
18		42		• 66	
* 19		43		67	
20		44		68	
21		45		69	*•
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Sr. No. of the item in the Schedule 'B*' of tender	Sr. No. of applicable Specification	Sr. No. of the item in the Schedule ~LT of tender	Sr. No. of applicable Specification	Sr. No. of the item in the Schedule 'B' of tender	Sr. No. of applicable Specification
73		99		125	
74		100		126	
75		101		127	
76		102		128	
77		103		129	
78		104		130	
79		105		131	
80		106		132	
81		107		133	
82		108		134	
83		109		135	
84		110		136	
85		111		137	
86		112		138	
87		113		139	
88		114		140	
89		115		141	
90		116		142	
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SPECIFICATIONS OF MATERIALS

M-1. Water

1.1 Water shall not be salty brackish and shall be clean, reasonably clear and free objectionable quantities of silt and traces of oil and injurious alkalies, salts, organic matter and other deleterious material which will either weaken the mortar of concrete or cause efflorescence or attack the steel in R.C.C. Container for transport, storage and handling of water shall be clean. Water shall conform to the standard specified in IS 456-1978.

1.2 If required by the Engineer-in-Charge it shall be tested by comparison with distilled water. Comparison shall be made by means of standard cement tests for soundness, time of setting and mortar strength as specified in I.S. 269-1976. Any indication of unsoundness, change in time of setting by 30 minutes or more or decrease of more than 10 per cent in strength, of mortar prepared with water sample when compared with the results obtained with mortar prepared with distilled water shall be sufficient cause for rejection of water under test.

1.3 Water for curing mortar, concrete or masonry should not be too acidic or too alkaline .

It shall be free of elements which significantly affect the hydration reaction or otherwise interfere with the hardening of mortar or concrete during curing or those which produce objectionable stains or other unsightly deposits on concrete or mortar surfaces.

1.4 Hard and bitter water shall not be used for curing.

1.5 Potable water will generally found suitable for curing mortar or concrete.

M-2 Lime

2.1 Lime shall be hydraulic lime as per I.S. 712-1973 Necessary tests shall be carried out as per I.S. 6932 (Parts I to X) 1973

2.2 - The following field tests for limes are to be carried out:

(1) A very rough idea can be formed about the type of lime by its visual examination i.e. fat lime bears pure white colour, lime in form of porous lumps of dirty white colour indicates quick lime, and solid lumps are the unburnt lime stone.

(2) Acid tests for determining the carbonate content in lime Excessive amount of impurities and rough determination of class of lime.

2.3 Storage shall comply with I.S. 712-1973. The slaked lime, if stored, shall be kept in a weather proof and damp-proof shed with impervious floor and sides to protect it against rain, moisture, weather and extraneous materials mixing with it. All lime that has been damaged in any way shall be rejected and all rejected materials shall be removed from site of work.

2.4 Field testing shall be done according to I.S. 1624-1974 to show the acceptability of materials.

M-3 Cement

3.1 Cement shall be ordinary portland slag cement as per I.S.269-1976 or Portland slag cement as per I.S. 455-1976

M-4 White Cement

4.1 The white cement shall conform to I.S. 8042-E-1978.,

M-5 Coloured Cement

5.1 Coloured cement shall be with white or grey portland cement as specified in the item of the work.

5.2 The pigments used for coloured cement shall be of approved quality and shall not exceed 10% of cement used in the mix. The mixture of pigment and cement shall be properly ground to have a uniform colour and shade. The pigments shall have such properties as to provide for durability under exposure to sunlight and weather.

5.3 The pigment shall have the property such that it is neither affected by the cement nor detrimental to it M-6

Sand

Sand shall be natural, graded, hard strong, free from injurious amounts of dust, clay lumps, nodules, soft or flaky particles, shale, alkali salts, organic matter, loam, mica or other deleterious substances and shall be got approved from the Engineer-in-Charge The sand shall not contain more than 8 percent of silt as determined by field test. If necessary the sand shall

be washed to make it clean.

6.2. Coarse Sand :The fineness modulus of coarse sand shall not be less than 2.5 and shall not exceed 3.0. The sieve analysis of coarse shall be as under

I.S. Sieve Designation	Sieve passing sieve	Percentage by weight	I.S. Sieve Designation	Percentage by weight
4.75 mm	100	100	600 Micron	30-100
2.36 mm	90 to 100	100	300 Micron	5-70
1.18 mm	70-100	100	150 Micron	0-50

6.3. Fine Sand :

The fineness modulus shall not exceed 1.0. The sieve analysis of fine sand shall be as under:

I.S. Sieve Designation	Sieve passing sieve	Percentage by weight	I.S. Sieve Designation	Percentage by weight
4.75 mm	100	100	600 Micron	40-85
2.36 mm	100	100	300 Micron	5-50
1.18 mm	75-100	100	150 Micron	0-10

M-7 Stone Dust

7.1. This shall be obtained from crushing hard black trap or equivalent. It shall not contain more than 8% of silt as determined by field test using measuring cylinder. The method of determining silt contents by field test is given as under :

7.2. A sample of stone dust to be tested shall be placed without drying in 200 mm. measuring cylinder. The quantity of the sample shall be such that it fills the cylinder upto 100 mm. mark. The clean water shall be added upto 150 mm. mark. The mixture shall be stirred vigorously and the content allowed to settle for 3 hours. .

7.3. The height of silt visible as settled layer above the stone dust shall be expressed as percentage of the height of the stone dust below. The stone dust containing more than 8% silt shall be washed so as to bring the content within the allowable limit.

7.4. The fineness modulus of stone dust shall not be less than 1.80 **M-8.**

Stone Grit

8.1. Grit shall consist of crushed or broken stone and be hard, strong, dense, durable, clean of proper gradation and free from skin or coating likely to prevent proper adhesion of mortar. Grit shall generally be cubical in shape and as far as possible flakey elongated pieces shall be avoided: It shall generally comply with the provisions of I.S. 383-1970. Unless special stone of particular quarries is mentioned grit shall be obtained from the best black trap or equivalent hard stone as approved by the Engineer-in-charge. The grit shall have no deleterious with cement

8.2. The grit shall conform to the following gradation as

I.S. Sieve Designation	Percentage by weight passing sieve	I.S. Sieve Designation	Percentage by weight passing sieve
12.50 mm	0-20%	4.75 mm	0-20%
10.00 mm	25%	2.36 mm	25%
10.00 mill	100%	150 Micron	100%

8.3. The crushing strength of grit will be such as to allow the concrete in which it used to build-up the specified strength of concrete

8.4. The necessary tests for grit shall be carried out as per the requirements of I.S. 23 1963, as per instructions of the Engineer-in-charge. The necessity of test will be decided by the Engineer-in-charge. S-(parts-I of VII

M-9 Cinder

- 9.1. Cinder is will burnt furnace residue which has been fused or sintered into Jumps of varying sizes.
- 9.2. Cinder aggregates shall be well burnt furnace residue obtained from furnace using coal fuel only It shall be sound clean and free from clay, dirt, ash or other deleterious matter
- 9.3. The average grading for cinder aggregates shall be as mentioned below :

I 3. Sieve Designation	Percentage passing	I.S.Sieve Designation	Percentage passing
20 mm	100	4.75 mm	70
10 mm	86	2.36 mm	52

M-10. Lime Mortar

10.1. Lime : Lime shall conform to specification M-2 Water ; Water shall conform to specification M-1 Sand: Sand shall conform to specification M-6

10.2. Proportion of Mix :

10.2.1. motor shall consist of such proportions of slaked lime and sand as may be specified in item. The slaked lime and sand shall be measured by volume

10.3 Preparation of mortar :

10.3.1. Lime mortar shall be prepared by wet process as per I.S.1625-1971. Power driven mill shall be used for preparation of lime mortar. The slaked lime shall be placed in the mill in an even layer and ground for 180 revolutions with a sufficient water. Water shall be added as required during grinding (care being taken not to add more water) that will bring the mixed material to a consistency of stiff paste. Thoroughly wetted sand shall then be added evenly and the mixture ground for another 180 revolutions.

10.4. Storage :

10.4.1. Mortar shall always be kept damp, protected from sun and rain till used up, covering it by tarpaulin or open sheds.

10.5 Use :

10.5.1. All mortar shall be used as soon as possible after grinding. It should be used on the day on which it prepared, But in no case mortar made earlier than 36 hours shall be permitted for use.

M-11 Cement Mortar

11.1 Water shall conform to specification M-1 Cement : Cement shall conform to specifications M-3 Sand : Sand shall conform to M-6

11.2 Proportion of Mix

11.2.1. Cement and sand shall be mixed to specified proportion, sand being measured by measuring boxes, the proportion of cement will be by volume on the basis of 50 Kg/Bag of cement being equal to 0.0342 Cu.m. The mortar may be hand mixed or machine mixed as directed.

11.3. Proportion of Mortar :

11.3.1. In hand mixed mortar, cement and sand in the specified proportions shall be thoroughly mixed dry on a clean impervious platform by turning over at least 3 times or more till a homogeneous mixture of uniform colour is obtained. Mixing platform shall be so arranged that no deleterious extraneous material shall get mixed with mortar or mortar shall flow out. While mixing, the water shall be gradually added and thoroughly mixed to form a stiff plastic mass of uniform colour so that each particle of sand shall be completely covered with a film of wet cement. The water cement ratio shall be adopted as directed.

11.3.2. The mortar so prepared shall be used within 30 minutes of adding water. Only such quantity of mortar shall be prepared as can be used within 30 minutes.

M-12 Stone Coarse Aggregate For Nominal Mix Concrete

12.1 coarse aggregate shall be of machine crushed stone of black trap or equivalent and be hard, strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.

12.2 The aggregate shall generally be cubical in shape. Unless special stones of particular quarries are mentioned aggregates shall be machine crushed from the best black trap or equivalent hard stone as approved. Aggregate shall have no deleterious reaction with cement. The size of the coarse aggregate for plain cement and ordinary reinforced cement concrete shall generally be as per the table given below

However, in case of reinforced cement concrete the maximum limit may be restricted to 6 mm. less than the minimum lateral clear distance between bars or 6 mm. less than the cover whichever is smaller.

TABLE

I.S. Sieve Designation	Percentage passing for single Sized aggregates of Nominal size			IS.Sieve Designation	Percentage passing for single Sized aggregates of Nominal size		
	40mm	20mm	16mm		40mm	20mm	16mm
80 mm	-	»		12.5 mm	-		-
63 mm	100	.		10 mm	0.5	0.20	0.30
40 mm	85-100	100		4.75 mm		0.5	0.5
20 mm	0.20	85-100	100	2.35 mm	-		-
16 mm		85-100					

Note : This percentage may be varied some what by the Engineer-in-charge when considered necessary for obtaining better density and strength of concrete.

12.3. The grading test shall be taken in the beginning and at the change of source of materials. The necessary tests, indicated in I.S. 383-1970 and 456-1978 shall have to be carried out to ensure the acceptability. The aggregates shall be stored separately and handled in such a manner as to prevent the intermixing of different aggregates, if the aggregates are covered with dust, they shall be washed with water to make them clean.

M-13 Black Trap or Equivalent Hard Stone Coarse

13.1. Aggregate For Design Mix Concrete : Coarse aggregate shall be of machine crushed stone of black trap or equivalent hard stone and be hard, strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.

13.2. The aggregates shall generally be cubical in shape. Unless special stones of particular quarries are mentioned, aggregates shall be machine crushed from the best, black trap or equivalent hard stones as approved. Aggregate shall have no deleterious with cement.

13.3. The necessary tests indicated in I.S. 383-1970 and I.S.456-1978 shall have to be carried out to ensure the acceptability of the material.

13.4. If aggregate is covered with dust it shall be washed with water to make it clean.

M-14. Brick Bats Aggregate

14.1. Brick bat aggregate shall be broken from well burnt or slightly over burnt and dense bricks. It shall be homogeneous in texture, roughly cubical in shape, clean and free from dirt of any other foreign material! The brick bats shall be of 40 mm 50 mm. size unless otherwise specified in the item. The underburnt or overburnt brick bats shall not be allowed.

14.2 The brick bats shall be measured by suitable boxes or as directed.

M-15 Bricks

15.1 The bricks shall be hand or machine moulded and made from suitable soils and kiln burnt. They shall be free from cracks and flaws and nodules of free lime. they shall have smooth rectangular faces with sharp corners and shall be of uniform colour.

The bricks shall be moulded with a frog of 100 mm. x 40 mm. and 10 mm. to 20 mm. deep on one of its flat sides. The bricks shall not break when thrown on the ground from a height of 600 mm.

15.2. The size of modular bricks shall be 190 mm.x 90 mm.x 90 mm.

15.3 The size of the conventional bricks shall be as under :

(9" x 4:3/8" x 2,3/4") 225 x 112.5 x 75 mm.

15.4. Only bricks of one standard size shall be used on one work. The following tolerances shall be permitted in the conventional size adopted in a particular work.

Length + 1/8" (3.0 mm.) Width. + 1/16" (1.50 mm.) Height + 1/16" (1.50 mm.)

15.5. The crushing strength of the bricks shall not be less than 35 Kg/Sq. Cm The average water absorption shall not be more than 20 percent by weight Necessary tests for crushing strength and water

absorption etc, shall be carried out as per IS. 3495 (Part-I to IV) - 1976

M-16 Stone

16.1 The stone shall be of the specified variety such as Granite/Trap Stone/ Quartzite or any other type of good hard stones. The stones shall be only from the approved quarry and shall be hard sound, durable and free from defects like cavities, cracks, sand holes, flaws injurious veins, patches of loose or soft materials etc., and weathered portions and other structural defects or imperfections tending to affect their soundness and strength. The stone with round surface shall not be used. The percentage of water absorption shall not be more than 5% of dry weight. When tested in accordance with IS. 1124-1974. The minimum crushing strength of stone shall be 200 Kg/Sq. Cm. unless otherwise, specified

16.2 The samples of the stone to be used shall be got approved before the work is started.

16.3 The Khanki facing stone shall be dressed by chisel as specified in the item for khanki facing in required shape and size. The face of the stone shall be so dressed that the bushing on the exposed face shall not project by more than 40 mm. from the general wall surface and on face to be plastered it shall not project by more than 19 mm. nor shall it have depressions more than 10 mm. from the average wall surface.

M-17 Laterite Stone

17.1 Laterite stone shall be obtained from the approved quarry. It shall be compacted in texture-sound, durable and free from soft patch. It shall have minimum crushing strength of 100 Kg/Sq. Cm. in its dry condition. It shall not absorb water more than 20% of its own weight, when immersed for 24 hours in water. After quarrying, the stone shall be allowed to weather for some time before using in work.

17.2 The stone shall be dressed into regular rectangular blocks so that all faces are free from waviness and unevenness, and the edges true and square.

17.3 Those types of stone in which white clay occurs should not be used.

17.4 Special corner stones shall be provided where so directed. **M-**

18 Mild Steel Bars

18.1 Mild steel bars reinforcement for R.C.C. work shall conform to I.S. 432 (Part-II) 1966 and shall be of tested quality. It shall also comply with relevant part of I.S. 456-1978.

18.2 All the reinforcement shall be clean and free from dirt, paint, grease, mill scale or loose or thick rust at the time of placing.

18.3 For the purpose of payment, the bar shall be measured correct up to 10 mm. length and weight payable worked out at the rate specified below. ;

1.	6 mm.	0.22 Kg/Rmt	8.	20 mm	2.47 Kg/Rmt.
2.	8 mm.	0.39 Kg/Rmt.	9.	22 mm	2.98 Kg/Rmt.
3.	10 mm.	0.62 Kg/Rmt	10.	25 mm	3.85 Kg/Rmt.
4.	12 mm.	0.89 Kg/Rmt.	11.	28 mm	4.83 Kg/Rmt.
5.	14mm	1.21 Kg/Rmt	12.	32 mm	6.31 Kg/Rmt.
6.	16mm.	1.58 Kg/Rmt.	13.	36 mm	7.99 Kg/Rmt
7.	18 mm.	2.00 Kg/Rmt.	14.	40 mm	9.86 Kg/Rmt.

M-19. High Yield Strength Steel Deformed Bars

19.1 High yield strength steel deformed bars shall be either cold twisted other rolled and shall conform to I.S. 1786-1966 and I S. 1139-1966 respectively.

19.2 Other provisions and requirements shall conform to specification No. M-18 for Mild Steel Bars.

M-20. High Tensile Steel Wires

20.1. The high tensile wires for use in prestressed concrete work shall conform to I.S.2090-1962.

20.2. The tensile strength of the high tensile steel bars shall be as specified in the item. In absence of the given strength the minimum strength shall be taken as per para 6-1 of the I.S. 1785-1952. Testing shall be done as per I.S requirements.

20.3. The high tensile steel shall be free from loose mill scale, rust, oil, grease, or any other harmful matter. Cleaning of steel bars may be carried out by immersion in solvent solution, wire brushing or passing through

pressure box containing Carborundum.

20.4 The high tensile wire shall be obtained from manufactures in coils having diameter not less then 350 times the diameter of wire itself so that wire springs back straight on being uncoiled **M-21. Mild Steel Binding Wire**

21.1. The mild steel wire shall be of 1.63 mm, or 1.22 mm. (16 to 18 gauge) diameter and shall conform to IS. 280-1972.

21.2. The use of black wire will be permitted for binding reinforcement bars. It shall be free from rust, oil paint, grease, loose mill scale or any other undesirable coating which may prevent adhesion of cement mortar.

M-22. Structural Steel

22.1. All structural Steel shall conform to I.S. 226-1985. The steel shall be free from the defects mentioned in I.S. 226-1975 and shall have a smooth finish. The material shall be free from loose mill scale, rust pits or othr defects affecting the strength and durability. River bars shall conform to I.S. 1148-1973.

22.2. When the steel is supplied by the Contractor test certificate of the manufacturers shall be obtained according to I.S. 226-1975 and other relevant Indian Standards.

M-23. Galvanised Iron Sheets

23.1. The galvanised iron sheets shall be plain orcorrugated sheets of gauges as specified in item. The G.I. Sheets shall conform to I.S.277-1977. The sheets shall be undamaged in carriage and handling either by rubbing off of zinc coating or otherwise. They shall have clean and brigh surface and shall be free from dents, bends, holes, rust or white powdery deposit.

23.2. The length and width of G.I. sheets shall be as directed as per site condition.

M-23.A :G.I.Valleys gutter, ridges

23.A. 1. The G.I. ridges and hips shall be of plain galvanised sheets Class - 3,of the thickness as specified in item. These shall be 600 mm. in width and properly bent up to shape without damage to the sheets in process of bending.

23.A. 2, Valleys gutters and flashings shall also be of galvanised sheet of thickness as specified in item Valleys shall be 900 mm, wide overall and flashing shall be 380 mm wide overall. They shall be bent to the required shape without damage to the sheet in the process of bending.

M-24. Asbestos Cement Sheets

24.1 Asbestos cement sheets plain, corrugated of semi-corrugated shall conform to I S.459-1970, The thickness of the sheets shall be as specified in the item. The sheets shall be free from all defects such as cracks, holes, deformities chipped edges or otherwise damaged.

24.2. Ridges & Hip's :

24.2.1. Ridges and hips shall be of same thickness as that of AC sheets. The types, of ridges shall be suitable for the type of sheets and location.

24.2.2. Other accessories to be used in roof such as flashing pieces eaves filler pieces, valley gutters, northe light and ventilator curves, barge boards etc, shall be of standard manufacture and shall be suitable for the type of sheets and location.

M-25 Manglore Pattern Roof Tiles

25.1. The mangalore pattern tiles shall conform to I.S. 654-1972 for Class AA or Class A type as specified *in* item. Samples of the tiles to be provided shall be got approved from the Engineer-in-charge Necessary tests shall be carried out as directed.

M-26 Shuttering

26.1. The shuttering shall be either of wooden planking of 30 mm. minimum thickness with or without steel lining or of steel plates stiffened by steel angles. The shuttering shall be supported on battens and beams .and props of vertical bailies properly cross braced together so as to make the centering rigid In places of bullie props, brick pillar of adequate section built in mud mortar may be used

26.2. The form work shall be sufficiently strong and shall have camber, so that it assumes correct shape after deposition of the concrete and shall be able to resist forces caused by vibration of live load of men workm over it and other incidental loads associated with it The shuttering shall have smooth and even

surface and its joints shall permit leakage of cement grout

26.3. If at any stage of work during or after placing concrete in the structure, the form work sags or bulges out beyond the required shape of the structure, the concrete shall be removed and work redone with fresh concrete and adequately rigid form work. The complete form work shall be got inspected by and got approved from the Engineer-in-charge, before the reinforcement bars are placed in position

26.4. The props shall consist to bullies having 100 mm. minimum diameter measured at mid length and 80 mm. at thin end shall be placed as per design requirement. These shall rest squarely on wooden sole plates 40 mm. thick and minimum bearing area of 0-10, sq. m. laid on sufficiently hard base.

26.5. Double wedges shall further be provided between the sole plate and the wooden props so as to facilitate tightening and easing of shuttering without jetking the concrete.

26.6. The timber used in shuttering shall not be so dry as to absorb water from concrete and swell or bulge nor so green or wet as to shrink after erection. The timber shall be properly sawn and planed on the sides and the surface coming in contact with concrete.-Wooden form work with metal sheet lining or steel plates stiffened by steel angles shall be permitted.

26.7. As far as practicable, clamps shall be used to hold the forms together and use of nails and spikes avoided

26.8. The surface of timber shuttering that would come in contact with concrete shall be wellwetted and coated with soap solution before the concreting is done Alternatively coat of raw linseed oil or oil of approved manufacture may be applied in place of soap solution. In case of steel shuttering either soap solution or raw linseed oil shall be applied after thoroughly cleaning the surface Under no circumstances black' or burnt oil shall be permitted.

26.9: The shuttering for beams and slabs shall have camber of 4 mm. per metre (1 in 250) or as directed by the Engineer-in-charge so as to offset the subsequent deflection. For cantilevers, the camber at free end shall be 1/50 of the projected length or as directed by the Engineer-in-charge.

M- 27. Expansion Joints - Permoulded filler

27.1. The item provides for expansion joints in R C.C. frame structures for internal joints, as well as exposed joints, with the use of permoulded bituminous joint filler.

27.2 Permoulded bituminous joints filler i.e. performed strip of expansion joints filler shall not get deformed or broken by twisting bending or other handling when exposed to atmospheric condition. Pieces of joints filler that have been damaged shall be rejected.

27:3 Thickness of the per-moulded joints filler shall be 25 mm. unless otherwise specified.

27.4 Permoulded bituminous joints filler shall conform to I S. 1838-1961.

M- 28. Expansion joints-Copper strips & hold fasts

28.1 The item provide for expansion joints in R.C.C frame structure for internal joints, as well as exposed joints, with the use of permoulded bituminous joints filler

28.2. Copper sheet shall be of 1.25 mm. width and .-. 1 25 mm width and the " U " shape in the middle Copper strip shall have holdfast of 3 mm diameter cop. jr rod fixed to the plate soldered on strip at intervals of about 30 cm or as shown in the drawing or as directed. The width of each flange (horizontal side) of the copper plate to be embedded in the concrete work shall be 25 mm depth of "U" to be provided in the expansion joint, in the copper plate shall be of 25 mm.

M-29 Teak wood

29.1 The teak wood shall be of good quality as required for the item to be executed. When the kind of wood is not specifically mentioned, good Indian teak wood as approved shall be used.

29.2 Teak wood shall generally be free from large, loose dead or cluster knots, flaws shakes, warps, twists, bends or any other defects It shall generally be uniform in substance and of straight fibres as far as possible, it shall be free from rot decay, harmful fungi and other defects of harmful nature which will affect the strength, durability or its usefulness for the purpose for which it is required. The colour shall be uniform as far as possible. Any effort like painting using any adhesive materials made to hide the defects shall render the pieces liable to rejection by the Engineer-in-charge

29.3 All scantlings, planks etc., shall be sawn in straight lines and planes, in the direction of grain and of uniform thickness.

29.4 The tolerances in the dimensions shall be allowed at the rate of 1.5 mm. per face to be planed.

29.5. First class teak wood

29.5.1. First class teak wood shall have no individual hard and sound knots, more than 6 sq. cm in size and the aggregate area of such knots shall not be more than 1% of area of piece, The timber shall be colsed grained.

29.6. Second Class Teak Wood :

29.6.1.No individual hard and sound knots shall be more than 15 sq. cms. in size and aggregates area of * such knots shall be not exceed 2% of the area of piece.

M-29. A Non-teak wood :

The non-teak wood shall be chemically treated, seasoned as per i S. Specifications and of good quality. The type of wood shall be got approved before collecting the same on site Fabrication of wooden members shall be started only after approval.

For this purpose wood of Bio, Kalai, Sires. Saded, Behda, Jamun, Sisoo will be used for door where as only Kalai, Sires, Halda, Kalam etc. will be permitted for shutters after proper seasoning and chemical treatment.

The non-teak wood shall be free from large, loose dead of clustor knots, flows, shakes, warps, bends or any other defects, It shall be uniform in substance and of straight fibres as far as possible. It shall be free from rots, decay, harmful fungi and other defects'of nature which will effect the strength, durability or its usefulness for the purpose for which it is required. The colour of wood shall be uniform as far as possible. The scantalings planks etc. shall be saw in straight lines and planes in the direction of grain and of uniform thickness. The department will use the Agency to produce certificate from Forest Department in event of Dispute and the decision of the Department shall be final and binding to the contractor. The tolerance in the dimension shall be allowed at 1.5 mm. per face to be planed.

M- 30. Wooden flush door shutters (solid core)

30.1. The solid core type flush door shutters shall be of decorative or non-decorative type as specified in the drawing. The size and thickness of the shutter shall be as specified in drawings or as directed The timber species for core shai be used as per IS.2202 (part -I) 1980. The timber shall be free from decay and insect attack. Knots and knot holes less than half the width of cross-section of the members in which they occur may be permitted. Pitch pockets, pitch streaks and harmless pin holes shall be permissible except in the exposed edges of the core members The commercial plywood, cross-bands shall conform to IS. 303-1275

30.2. The face panel of the shutters shall be formed by gluing by the hot press process on both faces of the core with either plywood or cross-bands and face veneers. The hopping, rebating, opening of glazing, venetion etc., shall be provided if specified in the drawing.

30.3. All edges of the door shutters shall be "square. The shutters shall be free from twist or warp in its plane. Both faces of the shutters shall be sand papered to smooth even texture

30.4.. The shutters shall be tested for-

(1) End immersion test : The test shall be carried out as per IS.2202 (part-1) 1980. There shall be no delamination at the end of the test.

(2) Knife Test : The face panel when tested in accordance wiht IS. 1659-1979 shall pass the test.

(3) Glue adhesion test : The flush-door shall be tested for glue adhesive test in accordance with IS.2202 (part -I) 1980. The shuiters shall be considered to have passed the test if no delamination occurs in the glue lines in the plywood and if no single delamination more than 80 mm..in k ngth and more than 3 mm. in depth has occurred in the assembly glue lines between the plywood face and the style and rail. Delamination at the corner shall be measured corner shall be measured contmously around the corner. Delamination at the knots, knot hole and other permissible v/oooci d,.-fec'^ s"..."',ct be c;on:dered in assessing the sample.

In Nominal thickness + 1 2 mm. In Nominal heigh + 3 mm.

30.6. The thickness of the shutter shall be uniform throughout wiht a permissible variation of not more than 0.8 mm. when measured at any two points.

M-31. Aluminium doors, windows ventilators

31.1. Aluminium alloy used in the manufacture of extruded window sections shall conform to I. S. designation HEA-WP of I.S 733-1975 and also to I.S. Designation WVG-WP of IS 1285-1975. The section shall be as specified in the drawing and design. The fabrication shall be done as directed.

31.2. The hinges shall be cast or extruded aluminium hinges of same type as in window but of larger size.

31.3. The hinges shall normally be of 50 mm. projecting type. Non-projecting type of hinges may also be used if directed. The handles of door shall be of specified design. A suitable lock for the door operable either from outside or inside shall be provided. In double shutter door, the first closing shutter shall have concealed aluminium alloy bolt at top and bottom;

M-32. Rolling Shutters

32.1. The rolling shutters shall conform to I.S.6248-1979. Rolling shutters shall be supplied of specified type with accessories. The size of the rolling shutters shall be specified in the drawings. The shutters shall be specified in the drawings. The shutters shall be constructed with interlocking lath sections formed from cold rolled steel strips not less than 0.9 mm. thick and 80 mm. wide for shutters upto 3.5 m.width not less than 1.25 mm. thick and 80 mm. wide for shutters 3.5 m. in width and above unless otherwise specified.

32.2. Guide channels shall be of mild steel deep channel section and of rolled pressed or built up (fabricated) jointless construction. The thickness of sheet used shall not be less than 3.15 mm.

32.3. Hood covers shall be made of M.S.Sheets not less than 0 90 mm. thick. For shutters having width **3.5** Meter and above, the thickness of MS sheet for the hood cover shall be not less than 1.25 mm.

32.4. The spring shall be of best quality and shall be manufactured from tested high tensile spring steel wire of strip of adequate strength to balance the shutters in all position. The spring pipe shaft etc., shall be supported on strong M.S. of malleable C.I brackets. The brackets shall be fixed on or under the lintel as specified with rawl plugs and screws bolts etc.

32.5. The rolling shutters shall be of self rolling up to 8 Sq. m. clear area without bail bearing and up to 12 Sq m. clear area with bail bearing. If the rolling shutters are of larger, then gear operated type shutters shall be used.

32.6. The locking arrangement shall be provided at the bottom of shutter at both ends. The shutters shall be opened from outside.

i 32.7. The Shutters shall be completed with door suspension shafts, locking arrangements, pulling hooks, handles and other accessories.

M-33. Collapsible Steel Gate

33.1. The collapsible steel gate shall be in one or two leaves and size as per approved drawings or as specified. The gate shall be fabricated from best quality mild steel channels, flats etc. Either steel pulleys or ball-bearings shall be provided in every double channel. Unless otherwise specified the particulars of collapsible gate shall be as under:

(a) Pickets : These shall be of 20 mm. M.S. channels of heavy sections unless otherwise shown on drawings. The distance centre to *centre of* pickets shall be 12 cms .with *an opening or* 10 Cms.

(b) Pivoted M.S. flats shall be 20 mm.x6 mm.

(c) , Top and bottom guides shall be from tee of flat iron of approved size.

(d) The fittings iiks stoppers fixing, locking cleats, brass handles and cast iron rollers shall be of approved design and size.

M-34. Welded Steel Wire Fabric

34.1 Welded steel wire fabric for general purpose shall be manufactured from cold drawn steel wire " as drawn " or galvanised steel conforming to I.S.226-1975 with longitudinal and transverse wire securely connected at every intersection by a process of electrical resistance welding and conforming to I S.4948-1974. It shall be fabricated and finished irvworkmanlike manner and shall be free from injurious defects and shall be rust proof. The type of mesh shall be oblong or square as directed. The mesh sizes and sizes if wire for square as well as oblong welded steel wire fabric shall be as directed The steel wire fabric in panels shall be in one whole piece in eahc panel as far as stock sizes permit.

M-35. Expanded Metal Sheets

35.1. The expanded metal sheets shall be free from flaws joints, broken strands, laminations and other, harmful surface defects. Expanded metal steel sheet shall conform to I S 412-1975, except that blank sheets need not be with guaranteed mechanical properties. The size of the diamond mesh of expanded metal and dimensions of strands (width and thickness) shall be as specified. The tolerance on nominal weight of expanded metal sheets shall be of + 10 percent.

35.2. Expanded metal in panels shall be in one whole piece in each panel as far as stock sizes permit. The expanded metal sheets shall be coated with-suitable protective coating to prevent corrosion.

M-36. Mild Steel Wire (Wire Gauze Jali)

36.1. Mild steel wire may be galvanised, as indicated. All finished steel wire shall be well cleanly drawn to the dimensions, and size of wire as specified in item. The wire shall be sound, free from splits, surface flaws, rough jagged and imperfect edges and other harmful surface defects and shall conform to I.S.280-1978

M- 37. Plywood

37.1. The plywood for general purpose shall conform I.S.303-17-1975

Plywood is made by cementing together thin boards or sheets of wood into panels. There are 3 ways an odd number of layers, 3,5,7,9, ply etc. The plies are placed so that grain of each layer is at right angles to the grain in the adjacent layer.

37.2. The chief advantages of plywood over a single board of the same thickness is the more uniform strength of the plywood, along the length and width of the plywood and greater resistance to cracking and splitting with change in moisture content.

37.3. Usually synthetic resins are used for gluing, phenolic resins are usually cured in a hot press which compresses and simultaneously heats the plies between hot plates which maintain a temperature of 90 degree C to 140 degree C and a pressure of 11 to 14 Kg/Sq. Cm. on the wood. The time of heating may be anything from 2 to 60 minutes depending upon thickness.

37.4. When water glue are used the wood absorbs so much water that the finished plywood must be dried carefully. When, synthetic resins are used as adhesive the finished plywood must be exposed to an atmosphere of controlled humidity until the proper amount of moisture has been absorbed.

37.5. According to I.S. 303-1975 the plywood for general purpose shall be of the grades namely BWR, WWR and CWR, depending upon the adhesives used for bonding the veneers, and it will be further classified into six types namely AA, AB, AC, BB, BC and CC based on the quality of the two faces each face being of three kinds namely A, B and C After pressing, the finished plywood should be reconditioned to a moisture content not less than 8 percent and not more than 16 percent.

37.6. Thickness of plywood Boards :

TABLE

Board	Thickness	Board	Thickness	Board	Thickness	Board	Thickness
3 Ply-	3 mm.	5 ply.	5 mm.	7 ply.	9 mm.	9 ply	16 mm
	4 mm.		6 mm.		13 mm.		19 mm.
	5 mm.		7 mm.		16 mm.	11 ply.	19 mm.
	6 mm.		8 mm.	9 ply.	13 mm.		25 mm.

M-38. Glass

38.1. All glass shall be of the best quality, free from specks, bubbles, smoke veins, air holes blisters, and other defects. The kind of glass to be used shall be as mentioned in the item or specification or in the special provision or as shown in detailed drawings. Thickness of glass panes shall be uniform. The specifications for different kinds of glass shall be as under.

38.2, Sheet Glass

38.2.1. In absence of any specified thickness or weight in the item or detailed specifications of the item of work, sheet glass shall be weighing 7.5 Kg/Sq. m. for panes upto 600 mm x 600 mm

38.2.2. For panes larger than 600 mm x 600 mm and upto 800 mm x 800 mm the glass weighing not less than 8.75 Kg/Sq. m. shall be used For bigger panes upto 900 mm x 900 mm. glass weighing not less

than 8.75 Kg/Sq. m. shall be used. For bigger panes upto 900 mm.x 900 mm glass weighting not less than 11.25 Kg/Sq m. shall be used.

38.2.3. Sheet glass shall be patent flattened glass of best quality and for glazing and framing purposes shall conform to I.S : 1761-1960. Sheet glass of the specified colours shall be used, if so shown, on detailed drawings or so specified For important buildings and for panes with any dimension over 900 mm. plate glass of specified thickness shall be used.

38.3. Plate Glass :

38.3.1. When plate glass is specified it shall be " polished patent plate glass " of best quality It shall have both the surface ground, flate and parallel and polished to obtain clear undisturbed vision and reflection. The plate glass shall be of the thickness mentioned in the item or as shown in the detailed drawing or as specified In absence of any specified thickness, the thickness of plate glass to be supplied shall be 6 mm. and a tolerance of 0.20 mm. shall be admissible.

38.4. Obscured Glass :

38.4.1. This type of glass transmits light so that vision is partially or almost completely obscured. Glass shall be plain rolled, figured, ribbed or fluted, or frosted glass as may be specified as required. The thickness and type of glass shall be as per details on drawings or as specified or as directed.

38.5. Wired Glass :

38.5.1. Glass shall be with wire netting embedded in a sheet of plate glass. Electrically welded 13 mm. Georgian square mesh shall be used. Thickness of glass shall not be less than 6 mm. Wired glass shall be of type and thickness as specified.

M-39. Acrylic Sheets

39.1. Acrylic sheets shall be of thickness as specified in the item and of an specified shape and size as the case may be panels may be flat or curved. It should be light in weight. It shall be colourless or coloured or opaque as specified in the item. Colourless sheet shall be as transparent as the finest optical glass. Its light transmission rate shall be about 95% Transparency shall not be affected for the sheets of larger thickness. It shall be extremely resistant to sunlight weather and low temperatures.

It shall not show any significant yellowing or change in physical properties or loss of light transmission over a longer period of use. The sheet shall be impact resistant also. Sheets should be of such quality that they can be cut, bent jointed as desired. Solution for the joints shall be used as per the requirement of manufacturer.

M-40. Particle board

40.1. The particle, boards used for face panels shall of best quality free from any defects. The particle boards shall be made with phenolmaldehyde adhesive. The particle boards shall conform I.S.3087-1965. " Specification for wood particle board for general purpose ". The size and the thickness shall be as indicated.

M-41 Expanded polystyrene or framed styroper slabs

41.1. The expanded polystyrene ceiling boards and tiles shall be of approved make and shall be of sizes, thickness, finish and colour as indicated. It shall be of high density and suitable for use as insulating material. The insulating material shall be like slabe of Thermocole etc.

M-42. Resin bonded fibre glass.

42.1. The resin bonded fibre glass tiles or rolls shall be of approved make and shall be of sizes, thickness, and finish as indicated.

42.2. For test of Mineral wool thermal insulation Blanket I.S.3144-1965 shall be followed.

42.3. Insulation wool blanket shall be with the following coverings on one or both sides as indicated :

- (1) Bituminised hessian Kraft paper suitable for use in position where moisture has to be excluded.
- (2) Hessian cloth or Kraft paper, for keeping out dust.
- (3) The vertical surfaces to be plastered over.

M-43. Fixtures and fastenings

43.1. General :

43.1.1. The fixtures and fastenings, that is butt hinges tee and strap hinges sliding door bolts, tower bolts, door latch, bath-room latch, handles, door stoppers, casement window fasteners, casement

stays, and ventilators catch shall be made of the metal as specified in the item or its specification.

43.1.2. They shall be of iron, brass, aluminum chromium plated iron, chromium plated brass, copper oxidised iron, copper oxidised brass or anodised aluminium as specified.

43.1.3. The fixtures shall be heavy medium or light type. The fixtures and fastenings shall be smooth finished and shall be such as will ensue ease of operations.

43.1.4. The samples of fixtures and fastenings shall be got approved as regards, quality and shape before providing them in position

43.1.5. Brass and anodised aluminium fixtures and fastenings shall be bright fin/shed.

43.2. Holdfasts :

43.2.1. Holdfasts shall be made from mild steel flat 30 cm. length and one of the holdfasts shall be bent at right angle and two nos. of 6 mm. diameter holes, shall be made in it for fixing it to the frame with screws. At the other end, the holdfast shall be forked and bent at right angles in opposite directions.

43.3. Butt hinges :""

43.3.1. Railway standard heavy type butt hinges shall be used when so specified.

43.3.2. Tee and strap-hinges shall be manufactured from MS Sheet.

43.4. Siding door bolts (Aldrops) :

43.4.1. The aldrops as specified in the item shall be used and shall be got approved.

43.5. Tower bolts (Barrel Type) :

43.5.1. Tower bolts as specified in the item shall be used and shall be got approved.

43.6. Door Latch :

43.6.1. The size of door latch shall be taken as the length of latch.

43.7. Bathroom Latch :

43.7.1. Bathroom latch shall be similar to tower bolt.

43.8. Handle :

The size of the handles shall be determined by the inside grip length of the handles. Handles shall have a base plate of length 50 mm. more than the size of the handle.

43.9. Door Catch :

43.9.1. Door stoppers shall be either floor door stopper type or door catch type Floor stopper shall be of overall size as specified and shall have a rubber cushion

43.10. Door Stoppers :

43.10.1. Door catch shall be fixed at a height of about 900 mm. from the floor level such that one part of the catch is fitted on the inside of the shutter and the other part is fixed in the wall with necessary wooden plug arrangements for appropriate fixity The catch shall be fixed 20 mm. inside the face of the door for easy operation of catch. **43.11. Wooden Door Stop with hinges :**

43.11.1. Wooden door stop of size 100 mm x 60 mm. x 40 mm. shall be fixed on the door frame with a hinge of 75 mm. size and at a height of 900 mm. from the floor level The wooden door stop shall be provided with 3 coats of approved oil paint. **43.12. Casement Window Fastener :**

43.12.1. Casement window fastener for single leaf window shutter shall be left or right handed as directed.

43.13. Casement stays (Straight Ped Stay) :

43.13.1. The stays shall be made from a channel section having three holes at appropriate position so that the window can be opened either fully or partially as directed. Size of the stay shall be 250 mm. to 300 mm. as directed. **43.14. Ventilator Catch :**

43.14.1. The pattern and shape of the catch shall be as approved.

43.15. Pivot :

43.15.1. The base and socket plate shall be made from minimum 3 mm thick plate, and projected pivot shall not be less than 12 mm diameter and 12 mm length and shall be firmly riveted to the base plate :

case of iron pivot and in single piece plate in the case of brass pivot.

M-44. Paints :

44.1. (A) Oil paints :

44.1.1. Oil paints shall be of the specified colour and as approved. The ready mixed paints shall only be used. However, if ready mixed paint of specified shade or tint is not available white ready mixed paint with approved stainer will be allowed. In such a case, the contractor shall ensure that the shade of the paint so allowed shall be uniform

44.1.2. All the paints shall meet with the following general requirements :

(i) Paint shall not show excessive setting in a freshly opened full can and shall easily be redispersed with a paddle to a smooth homogeneous state. The paint shall show no curdling, livering, caking or colour separation and shall be free from lumps and skins.

(ii) The paint as received shall brush easily, possess good levelling properties and show no running or sagging tendencies.

(iii) The paint shall not skin within 48 hours in a three quarters filled closed container

(iv) The paint shall dry to a smooth uniform finish free from roughness, grit unevenness and other imperfections.

44.1.3. Ready mixed paint shall be used exactly as received from the manufacturers and generally according to their instructions and without any admixtures whatsoever.

44.2. (B) Enamel paints :

44.2.1. The enamel paint shall satisfy in general requirements, in specification of oil paints, Enamel paint shall conform to I.S.2933-1975. **M-45. French Polish**

45.1. The french polish of required tint and shade shall be prepared with the below mentioned ingredients and other necessary materials;

(i) Denatured spirit of approved quality (ii) Chandras (iii) Pigment.

45.2. The french polish so prepared shall conform to I.S.; 348-1968.

M-46. Marble chips for marble mosaic terrazzo

46.1. The marble chips shall be of approved quality and shades. It shall be hard, sound, dense and homogeneous in texture with crystalline and coarse grains. It shall be uniform in colour and free from stains, cracks, decay and weathering.

46.2. The size of various colours of marble chips ranging from the smallest upto 20 mm. shall be used where the thickness of top wearing layer is 6 mm. size. The marble chips of approved quality and colours only as per grading as decided by the Engineer-in-charge shall be used for marble mosaic tiles or works.

46.3. The marble chips shall be machine crushed. They shall be free from foreign matter, dust etc. Except as above, the chips shall conform to I.S.2114-1962.

IUI-47. Flooring Tiles.

47.1. (A) Plain Cement tiles. ;

47.1.1. The plain cement tiles shall be of general purpose type. These are the tiles in the manufacture of which no pigments are used. Cement used in the manufacture of tiles shall be as per Indian Standards.

47.1.2. The tiles shall be manufactured from a mixture of cement and natural aggregates by pressure process. During manufacture the tiles shall be subjected to pressure of not less than 140 Kg/Sq Cm. The proportion of cement to aggregate in the backing of the tiles shall be not less than 1:3 by weight. The wearing face, through the tiles are of plain cement, shall be provided with stone chips of 1 to 2 mm. size. The proportions of cement to aggregate in the wearing layer of the tiles shall be three parts of cement to one part chips by weight. The minimum thickness of wearing layer shall be 3 mm. The colour and texture of wearing layer shall be uniform throughout its face and thickness. On removal from mould, the tiles shall be kept in moist condition continuously at least for seven days and subsequently, if necessary, for such long period as would ensure their conformity to requirements of IS. 1237-1980 regarding strength resistance to wear and water absorption

47.1.3 The wearing face of the tiles shall be plane, free from projections, depressions and cracks and shall be reasonably parallel to the back face of the tile. All angles shall be right angle and all edges shall be sharp and true.

47.1.4. The size of tiles generally be square shaps 24.85 Cm X24.85 Cm or 25 Cm x 25 Cm. The thickness, of tiles shall be 20 mm.

47.1.5. Tolerance of length and breadth shall be plus of minus one millimeter Tolerance on thickness shall be plus 5 m.m.

47.1.6. The tiles shall satisfy the tests as regards transverse strength, resistance to wear and water absorption as per IS 1237-1980.

47.2.(B) Plain Coloured Tiles:

47.2.1. The tiles shall have the same specification as for plain cement tiles as per { A } above expect that they shall have a plain wearing surface wherein pigments are used. They shall conform ti I.S. 1237-1980

47.2.2. The pigments used for colouring cement shall not exceed 10 percent by weight of cement used in the mix. The pigments, synthetic or otherwise, used for colouring tiles shall have permanent colour and shall not contain materials detrimental to concrete.

47.2.3. The colour of the tiles shall be specified in the item or as directed

47.3. (C) Marble mosaic tiles :

47.3.1. These tiles have same specification as per plain cement tiles except the requirements as stated below ;

47.3.2. The marble mosaic tiles shall conform to I.S. 1237-1980. The wearing face of the tiles shall be mechanically ground and ■filled. The wearing face of tiles shall be free from projections depressions and cracks and shall be reasonably parallel to the back face of the tiles. All angles shall be right angles and all edges shall be sharp and true.

47.3.3. Chips used in the tiles be from smallest upto 20 mm. size. The minimum thickness of wearing layer, of tiles shall be 6 mm. For pattern of chips to be had on the wearing face, a few samples with or without their full size photographs as directed shall be approved by the Engineer-in-charge, for approval.

47.3.4.' Any particular samples if found suitable shall be approved by the Engineer-in-charge, or he may ask for a few more samples to be presented. The samples hall have ot be made by the contractor till a suitable sample is finally approved for use in the work. The Contractor shall ensure that the tiles supplied for the work shall be in conformity with the approved sample only, in terms of its dimensions, thickness of backing layer and wearing surface, materials, ingredients, colour, shade, chips, distribution etc. required.

47.3.5. The tiles shall be prepared form cement conforming to Indian Standards or coloured portland cement generally dependign upon the colour of tiles to be used or as directed.

47.4. (D) Chequered Tiles :

47.4.1. Chequered tiles shall be plain cement tiles or marble mosaic tiles The fromer shall have the same specification as per (A) above and the latter as per marble mosaic tiles as per (C) except as mentioned below

47.4. 2. The tiles shall be of nominal size of 250 mm.x 250 mm. or as specified The centre to centre distance of chequer shall not be less then 25 mm. and not more than 50 mm. The overall thickness of the tile shall be 22 mm.

47.4.3. The grooves in the chequers shall be uniform and straight. The depth of the grooves shall not be less than 3 mm. The chequered tiles shall be plain coloured or mosaic as specified. The thickness of the upper layer measured form the top of the chequers shall not be less than 6 mm. The tiles shall be given the first grinding with machine before delivery to site.

47.4.4. Tiles shall conform or relevant I.S. 1237-1980.

47.5. (E) Chequered Tiles For Stair Cases :

47.5.1. The requirements of these tiles shall be the same as chequered tiles as per (D) above except in following respects :

(1) The length of a tile is =c-udir=Cj : \z\3 shall be 300 inm. (2) The minimum thickness shall b^ 28 nun {Zj The nosing shall have also the same wearing layer as at the top. (4) The nosing edge shall be rounded (5) The front portion of the tile for a minimum length of 75 mm. from and including the nosing shall have grooves running parallel to nosing and at centers not exceeding 25 mm. Beyond that the tiles shall have normal chequer pattern.

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48. Rough Kotah Stone

48.1. The kotah stones shall be hard even, sound, and regular in shape and generally uniform in colour. The colour of the stone shall generally be green. Brown coloured shall not be allowed for use. They shall be without any soft veins, cracks or flaws.

48.2. The size of the stones to be used for flooring shall be of size 600 mm x 600 mm. and/or size 600 mm.x 450 mm.as directed. However smaller sizes will be allowed to be used to the extent of maintaining required pattern. Thickness shall be as specified.

48.3. Tolerance of minus 30 mm. on accounts of chiseled dressing of edges shall be permitted for length as well as breadth. Tolerance in thickness shall be + 3 mm.

48.4. The edges of stones shall be truly chiselled and table rubbed with coarse sand before paving. All angles and edges of the stones shall be true, square and free from chipping and surface shall be true and plain.

48.5. When machine cut edges are specified, the exposed and the edges at joints shall be machine cut. The thickness of the exposed machine cut edges shall be uniform.

NI-49. Polished Kotah Stones

49.1. Polished kotah stone shall have the same specification as per rough kotah stone except as mentioned below :

49.2. The stones shall have machine polished surface. When brought on site, the stones shall be single polished or double polished depending upon its use. The stones for paving shall generally be single polished. The stones to be used for dado, skirting, sink, veneering, sills, steps, etc, where machine polishing after the stones are fixed in situ is not possible shall be double polished. **M-50. Dholpur Stone Slab**

50.1. Dholpur stone slab shall be of best quality as approved by the Engineer-in-charge. The stone slab shall be without any veins, cracks, and flaws. The stone slab shall be even, sound and durable, regular in shape and of uniform colour.

50.2. The size of the stone shall be as specified in the item or detailed drawing or as approved by the Engineer-in-charge. The thickness of the stone shall be as specified in the item of work with the permissible tolerance of plus or minus 2 mm. The provision in respect of polishing as for polished kotah stone shall apply to polished Dholpur stone also. All angles and edges of the face of the stone slab shall be fine chiselled or polished as specified in the item of work and all the four edges shall be machine cut. All angles and edges of the stone slab shall be true and plane.

50.3. The sample of stone shall be got approved by the Engineer-in-charge for a particular work. It shall be ensured that the stones to be used in a particular work shall not differ much in shade or tint from the approved sample.

M-51. Marble Slab

51.1. Marble slab shall be white or of other and of best quality as approved by the Engineer-in-charge

51.2. Slabs shall be hard, close, uniform and homogeneous in texture. They shall have even crystalline grain and free from defects and cracks. The surface shall be machine polished to an even and perfect plane surface and edges machine cut true and square. The rear face shall be rough to provide key for the mortar.

51.3. Marble slabs with natural veins, if selected shall have to be laid as per the pattern given by the Engineer-in-charge. Size of the slab shall be minimum 460 mm.x450 mm. and preferably 600 mm. x 600 mm. However, smaller sizes will be allowed to be used to the extent of maintaining required pattern.

51.4. The slab shall not be thinner than the specified thickness at its thinnest part. A few specimens of finished slab to be used shall be deposited by the Contractor in the office for reference.

51.5. Except as above the marble slabs shall conform to I.S. 1130-1969, **M-52.**

Granite Stone slab

52.1. Granite shall be of approved colour and quality. The stone shall be hard, even, sound and regular in shape and generally uniform in colour. It shall be without any soft veins, cracks or flaws,

52.2. The thickness of the stone shall be specified in items.

52.3. All exposed faces shall be double polished to a true, smooth and even reflecting surface. The'

exposed edges and corners shall be rounded off as directed. The exposed edges shall be machine cut and shall have uniform thickness.

M-53. P.V.C.Flooring

53.1. P.V.C.sheets for P.V.C, floor covering shall be of homogenous flexible type conforming to I.S 3462-1966. The PVC covering shall neither develop any toxic effect while put to use nor shall give off any disagreeable odour.

53.2. Thickness of flexible type covering tiles shall be as specified in the description of the item.

53.3. The flexible type shall be backed with hessian or other woven fabric. The following tolerances shall be applicable on the nominal dimensions of the rolls or tiles :

(a) Thickness + 0.15 mm.

(b) Length or Width :

(1)	300 mm. Square tiles	+ 0.20 mm.	(3)	900 mm Square tiles	+ 0.60. mm
(2)	600 mm. Square tiles	+ 0.40. mm.	(4)	Sheets and roll	+0.10 percent.

53.4.- Adhesive :

53.4.1. The adhesive for PVC flooring shall be of the type and make recommended by the manufactures of PVC sheets/tiles, '

M-54. Facing Tiles

54.1. The facing tiles (burnt clay facing bricks) shall be free from cracks, and nodules of free lime. They shall be thoroughly burnt and shall have plane rectangular faces with parallel sides and sharp straight right angled faces, The texture of the finished surface that will be exposed when in place, shall conform to an approved sample consisting not less than for stretcher bricks each representing the texture desired. The facing tiles shall have a pleasing appearance, sufficient resistance to penetration by rain, and greater durability than common bricks. The tiles shall conform to I.S.2691-1972.

54.2. The standard size of facing brick tiles shall be 19 x 9 x 4 cms. The facing brick tiles shall be provided with frog which shall conform to I.S.11077-1976.

54.3. The permissible tolerance in dimensions specified above shall be as follows .

Size	Tolerance for	
	1 st class Brick	2nd class Brick
19 cm. 9	+6 mm.	+ 10 mm.
cm. 4	+ 3 mm.	+7 mm.
cm.	+ 1.5 mm.	+3 mm.
The tolerance for distortion or warpage of face or edges of individual brick from a plane surface and from a straight line respectively shall be as follows :		
Facing dimensions		Permissible tolerance
Max. below 19 cms. -		max 2.5. mm.
do-above'19 mm.		Max 3 0. mm.

54.5. The average compressive strength obtained as a sample of five tiles when tested in accordance with the procedure laid as per I.S.1077-1976 shall be not less than 175 Kg/Sq. Cm The average compressive strength of any individual bricks shall be not less than 160 Kg/Sq.Cm

54.6. The average water absorption for five bricks tiles shall not exceed 12 percent of average weight of brick before testing. The absorption for each individual bricks shall not exceed 25 percent

54.7. The brick tiles when tested in accordance with I.S. 1077-1976, the rate of efflorescence shall not be more than "Slightly effloresced "

M-55. White glazed tiles

55.1. The tiles shall be of best quality as approved by the Engineer-in-charge They shall be flat and true to shape. They shall be free from cracks, crazing spots chipped edges and corners The glazing shall be of uniform shade.

55.2 The tiles shall be nominal size of 150 mm x 150 mm unless otherwise specified. The maximum

variation the stated sizes, other than the thickness of tile shall be plus or minus 1.5 mm. The thickness of tile shall be 6 mm. Except as above the tiles shall conform to IS. 1977-1970.

M-56. Galavanised iron pipes and fittings

56.1. Galavanised iron pipes shall be of the medium type and or required diameter and shall comply with I.S.1239-1979. The specified diameter of the pipes shall refer to the inside diameter of the bore. Clamps, screw and all galvanised iron fittings shall be of the standard ' R ' or equivalent make.

M-57. Bib cock and stop cock

57.1 A bib cock is a draw off tap with a horizontal inlet and free outlet. A stop cock is a valve with a suitable means of connection for insertion in a pipe line for controlling or stopping the flow

57.2. They shall be of screw down type and or brass chromium plated and of diameter as specified in the description of the item. They shall conform to IS 781-1977 and they shall be of best Indian make. They shall be polished bright.

57.3. The minimum finished weight of bib cock and stop cock shall be as given below :

Diameter	Bib cock	Stop cock	Diameter	Bib cock	Stop cock
8 mm.	0.25 Kg.	0.25 Kg	15 mm.	0.40 kg.	0.40 Kg.
10 mm.	0.30 Kg.	0.35 Kg.	20 mm.	0.75 kg.	0.75 Kg.

M-58. Gun metal wheel valve

58.1. The gun metal wheel valve shall be of approved quality. These shall be of gun metal fitted with wheel and shall be of gate valve opening full way and of the size as specified. These shall conform to I.S.778-1971.

M-59. White glazed porcelain wash basin

59.1. Wash basin shall be of white porcelain first quality best Indian make and it shall conform to I.S.2556. (Part -IV) -1972 and I.S.771-1979. The size of the wash basin shall be as specified in the item. Wash basin shall be of one piece construction with continued over flow arrangements. All internal angles shall be designed so as to facilitate cleaning. Wash basin shall have single tap hole or two holes as specified. Each basin shall have a circular waste hole which is either reamed or bevelled internally with 65 mm. diameter at top and 10 mm. depth to suit the waste fitting. The necessary stud slot to receive the bracket on the under side of the basin shall be provided Basin shall have an internal soap holder recess which shall fully drain into the bowl.

59.2. White glazed pedestal of the quality and colour as that of the basin shall be provided where specified in the item. It shall be completely recessed at the back for reception of supply and wash pipe. It shall be capable of supporting the basin rigidly and adequately and shall be so designed as to make the height from the floor to top of the rim of basin 750 mm. to 800 mm. as directed.

M-60. European type water closet/with low flushing

60.1. The European type water closet shall be white glazed porcelain first quality and shall be of wash down type conforming to I.S.2556-1973 and I.S. 771-1979.

60.2. ' S' trap shall be provided as required with water seal not than 50 mm .The solid plastic seat and cover shall be of best Indian make conforming to I.S.2548-1980. They shall be made of moulded synthetic materials which shall be tough and hard with high resistance to solvents and shall be free from blisters and surface defects and shall have chromium plated brass hinges and_ rubber buffer of suitable size.

M-61. Orissa type water closet

61.1. The Specification of Orissa type white glazed water closet of first quality shall conform to I.S.2256 (Part-III) -1981 and relevant specification of Indian type water closet except that pan will be with the integral squatting pan of size 580 mm. x 440 mm. with raised footrest.

M-62. Indian type water closet

62.1. The Indian type white glazed water closet of first quality shall be of size as specified in the item and conforming to I.S 771-1979 and I.S. 2556- (Part-II) 1981. Each pan shall have integral flushing. It shall

also have an inlet at back an or front for connecting flush pipes as directed. The inside of the bottom of the pan shall have sufficient slope from the front towards the outlet and surface shall be uniform and smooth. Pan shall be provided with 100 mm. diameter 'P' or's' trap with approximately 50 mm. Water seal and 50 mm. diameter vent horn.

M-62. A. Foot Rests

62.A. 1. A pair of whit glazed earthen ware rectangular foot to minimum size 250 mmx 130 mm x 20 mm. shall be provided with the water closet.

M-63. Glazed Earthen Ware Sink

63.1. The glazed earthen-ware sink shall be of specified size, colour and quality. They sink shall conform, to I.S. 771 part-II- 1979. The brackets for sinks shall conform to I.S. 775-1970

63.2. The pipes shall conform to I.S 1239-part-I 1973 and I.S.404-1962. for steel and lead pfpes respectively. 32 mm. brass waste coupling of standard pattern with brass chain and rubble plug shall be provided wiht sink.

M-64. Glazed earthen-ware Lipped type flat back urinal/corner type urinal

64.1. The lipped type urinal shall be flat back or corner type as specified in the item and shall conform to I.S.771 - 1979. It shall be of best Indian make and size as specified and approved by the Engineer-in-charge. The flat back of corner type urinal must be of 1st quality free from any defects, cracks etc.

M-65. Low level Enemal flushing tank

65.1. The low level enemal flushing tank shall be of 15 litres capacity. It shall conform ot I S 774-1971. The flushing cistern shall be of best quality and free from any defects. The flushing tank shall have outlet 32 mm. diameter. The outlet shall be connected wiht W.C pan by lead pipe or P.VC. pipe as specified. The flushing tank shall be provided with inlet and outlet for fixing G.I. inlet pipes and over-flow pipes The flushing cistern shall be provided with chromium plated handle for flushing. The flushing tank shall be provided with bracket of cast iron so that it can be fiexed on wall at specified heitht. The brackets shall conform to IS.775-1970.

M-66. Cast iron flushing cistern.

66.1. The cast iron flushing cistern shall be o'f 15 litres capacity. It shall conform to I.S.774-1971. The flushing cistern shall be of best quality free from any defects. The flushing cisten shall have outlet of 32 mm. diameter. The lead pipe shall conform to I.S.404 (Part-I) - 1962. For fixing G.I inlet pipes and overflow pipe 20 mm. dia. inlet and outlet shall be provided. The flushing cistern shall be provided with galvanised iron chain and pull of sufficient length and shall be got approved from th e Engineer-in-charge. The cast iron flushing cistern shall be painted with one coat of anticorrosive paint and two coats of paints *The* flushing cistern shall be fixed on two C.(brackets The C.I.brackets shall conform to I.S 775-1970

M-67. Flush cock.

67.1. Half turn flush cock (Heavy weight) shall be of gun metal chromium plated of diameter as specified in the description of the item. The flush cock shall conform to relevant Indian Standard.

M-68. Cast iron pipes and fittings.

68.1. All soil, water vent and artis/phonage pipes and fitting shall conform to I.S.1729-1964. The pipes shall have spigot and socket ends with head on spigot end. The pipes and fitting shall be true to shape smooth, cylindrical, their inner and outer surfaces being as nearly as practicable concentric. They shall be sound and nicely cast and shall be free from carcks, laps, pinholes or ther imperfection and shall be neatly dressed and carefully fettled.

68.2. The end of pipes and fittings shall be reasonable square to their axis.

68.3. The sand of cast iron pipes shall be of the diameter as specified in the description and shall be in lengths of 1.5 M , 1 8 M. including socket ends of the oipe unless shorter lengths ae either specified or required at junctions etc. The pipes and fittings shall be supplied wihtout ears unless specified or directed otherwise.

68.4. Tolerances :

68.4.1. The Standard weights and thickness of pipes shall be as shown in the following table. A tolerance upto minus 10 per cent may however be allowed against these standard weights.

Sr. No.	Nominal dia of bore	Thickness	Overall		Weight of pipe excluding ears
			1.5 m. long	1 8 m. long	
1.	75 mm.	5.0 mm.	12.38 Kg.	16.52 Kg.	18 37 Kg.
2.	100. mm.	5.0 mm.	18.14 Kg.	21 67 Kg.	24.15 Kg.

68.4.2. A tolerance upto minus 15 percent in thickness and 20 mm. length will be allowed. For fittings tolerance in lengths shall be plus 25 mm. and minus 10 mm.

68.4.3. The thickness of fittings and their socket and spigot dimensions shall conform to the thickness and dimensions specified for the corresponding sizes of straight pipes The tolerance in weights and thickness shall be the same as for straight pipes.

M-69. Nahni Trap

69.1. Nahni trap shall be of cast iron and shall be sound and free from porosity or other defects which affect serviceability. The thickness of the base metal shall not be less than 6.5 mm. The surface shall be smooth and free from craze, chips and other flaws or any other kind of defects which affect serviceability. The size of nahni trap shall be specified and shall be of self cleaning design.

69.2. The nahni trap shall be of quality approved by the Engineer-in-charge and shall generally conform to the relevant Indian Standards.

69.3. The Nahni trap provide shall be with deep seal, minimum 50 mm. except at places where trap with deep seal cannot be accommodated. The cover shall be cast iron perforated cover shall be provided on the -trap of appropriate size.

M-70. Gully Trap

70.1. Gully trap shall conform to I.S.651-1980. It shall be sound, free from defects such as fire cracks or hair cracks. The glaze of the traps shall be free from crazing. They shall give a sharp clear note when struck with light hammer. There shall be no broken blisters

70.2. The size of the gully trap shall be as specified in the item.

70.3. Each gully trap shall have one C.I.grating of square size corresponding to the dimensions, of inlet of gully trap. It will also have a water tight C I.cover with frame inside dimensions 300 mm. x 300 mm. the cover with frame inside dimensions 300 mm.x 300 mm. the cover and weighing not less than 4.53 Kg. and the frame not less than 2.72 Kg. The grating cover and frame shall be of sound and good casting and shall have truly square machined seating faces.

M 71. Glazed Stone Ware pipe And Fittings

71.1. The pipes and fittings shall be of best quality as approved by the Engineer-in-charge The pipe shall be of best quality manufactured from stone- ware of fire clay, salt glazed thoroughly burnt through the whole thickness, of a close even texture, free from air blows, fire blisters, cracks and other imperfections, which affect the serviceability. The inner and outer surfaces shall be smooth and perfectly glazed. The pipe shall be capable to withstand pressures or 1.5 M. lead without showing sign of leakage The thickness of the wall shall not be less than 1/12th of the internal dia. The depth of socket shall not be less than 38 mm. The socket shall be sufficiently large, to allow a joining of 6 mm. around the pipe.

71.2. The pipes shall generally conform to relevant IS. 651-1980. **M-**

72. Wall Peg Rail

72.1. The aluminium wall peg rail shall have three aluminium pegs approved quality and size. It shall be fixed on teakwood plank of size 450 mm. x 75 mm. x 20 mm. The teakwood shall be trench polished or oil painted as specified.

M-73. G.I. Water Spot

73.1. The G.I.pipes of 40 mm. dia shall be of medium quality and specials shall be of ' R ' brand or equivalent brand of best approved quality

73.2. The pipe shall have length as required for the thickness of wall in which it is fixed, and at outside end tee and bend cut at half the length shall be provided and at other end coupling shall be provided to have better fixing. The water spout shall be provided as per detailed drawing or as directed

M-74 Asbestos Cement pipe (A.C. pipe)

74.1. The asbestos cement pipe of diameter as specified in the description of the item shall conform to IS. 1626-1980. Special like bends, shoes, cowls, etc shall conform to relevant Indian Standards. The interior of pipe shall have smooth finish, regular surface and regular internal diameter. The tolerance in all dimensions shall be as I.S.1626-part-I 1980.

M-75. Crydon Ball valve

75.1. Ball valve of screwed type including polythene float and necessary level etc shall be of the size as mentioned in the description of item and shall conform to I.S.17C3-1977

M-76. Bitumen Felt For Water proofing And Damp Proofing

76.1. Bitumen felt shall be on the fibre bases and shall be of type 2. self finished felt grade-2 and shall conform to I.S. 1322-1970.

M-77. Selected Earth.

77.1. The selected earth shall be that obtained from excavated material or shall have to be brought from outside as indicated in the items. If item does not indicate anything the selected earth shall have to be brought from outside.

77.2. The selected earth shall be good yellow soil and shall be got approved from the Engineer-in-charge. In no case black cotton soil or similar expansive and shrinkable soil shall be used It shall be clean and free from all rubbish and perishable materials, stones or brick bats. The clods shall be broken to a size of 50 mm. or less. Contractor shall make his own arrangement at his own cost for land for borrowing selected earth. The stacking of material shall be done as directed by the Engineer-in -charge in such a way not to interfere with any constructional activities and in proper stacks.

77.3 . When excavated material is to be used. only selected stuff got approved from the Engineer-in-charge shall be used. It shall be stacked separately and shall comply with all the requirements of selected earth mentioned above.

M-78 Barbed Wire

78.1. The barbed wire shall be of galvanised steel and it shall generally conform to I.S 278-1978. The barbed wire shall be of type-I whose nominal diameter for line wire shall be 2.5 mm. and point wire 2.24 mm. The nominal distance between two barbs shall be 75 mm. unless otherwise specified in the item The barbed wire shall be formed by twisting together two line wires. One containing the barbs The size of the line and point wires and barb spacing shall be as specified above. The permissible deviation from the nominal diameter of the line wire and point wire shall not exceed + 0.08 mm.

78.2. The barbs shall carry four points and shall be formed by twisting two point wires, each two turns, lightly round one line wire, making altogether four complete turns The barbs shall have a length of not less than 13 mm. and not more than 18 mm. The point shall be sharp and cut at an angle not greater than 35 degree of the axis of the wire forming the barbs.

78.3. The line and point wires shall be circular in section, free from scale and other defects and shall be uniformly galvanised. The line wire shall be in continuous length and shall not contain any welds other than those in the rod before it is drawn. The distance between two successive splices shall not be less than 15 metres.

78.4. The lengths per 100 Kg. of barbed wire I.S.type I shall be as under .

Nominal 1000 metre Minimum 934 Metre Maximum 1066 Metre.

SECTION -4 Excavation

4.0.0. (A) Excavation for foundation upto 1.5 M. depth including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 meter lead in loose or soft soil.

1.0. General

1.1. Any soil which generally yields to the application of pickaxes and shovels, phawaras rakes or any such ordinary excavating implement or organic soil, gravel silt, sand turf loam., clay, peat etc., fall under this category,

2.0. Clearing the site

2.1. The site on which the structure is to be built shall be cleared, and all obstructions loose stone, materials and rubbish of all kind, bush wood and trees shall be removed as directed. The materials so obtained shall be property of the Government and shall be conveyed and stacked as directed within 50 m. lead. The roots of the trees coming in the sides shall be cut and coated with a hot asphalt

2.2. The rate of side clearance is deemed to be included in the rate of earth work for which no extra will be paid.

3.0. Setting out

After clearing the site the centre lines will be given, by the Engineer-in-charge, The contractor shall assume full responsibility for alignment, elevation and dimension of each and all parts of the work. Contractor shall supply labours materials, etc., required for setting out the reference marks and bench marks and shall maintain them as long as required and directed. **4.0. Excavation**

The excavation in foundation shall be carried out in true line and level and shall have the width and depth as shown in the drawings or as directed. The contractor shall do the necessary shoring and shutting or providing necessary slopes to a safe angle: at his own cost. The payment for such precautionary measures shall be paid separately if not specified. The bottom of the excavated area shall be levelled both longitudinally and transversely as directed by removing and watering as required. No earth filling will be allowed for bringing it to level. If by mistake or any excavation is made deeper or wider than that shown on the plan or directed. The extra depth or width shall be made up with concrete of same proportion as specified for the foundation concrete at the cost of the contractor. The excavation upto 1.5 m. depth shall be measured under this item.

5.0. Disposal of the excavated stuff

5.1. The excavated stuff of the selected type shall be used in filling the trenches and plinth or levelling the ground in layers including ramming and watering etc.

5.2. The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed with lead upto 50 M. and rail lift.

6.0. Mode of measurements & payment

6.1. The measurement of excavation in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given ' ' the Engineer-in-charge. No payment shall be made for surplus excavation made in excess of above requirements or due to stopping and sloping back as found necessary on account of conditions of soil and requirements of safety

6.2. The rate shall be for a unit of one cubic metre.

4.0.0.(8) Excavation for foundation upto 1.5 M. depth including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 meter lead in dense or hard soil.

1.0. Dense or Hard Soil

Any soil which generally require close application of picks or jumpers or scarifiers to loosen it stiff clay, gravel and stone etc. fall under this category.

2.0. Workmanship

The relevant specifications of item No. 4.0.0.(A) shall be followed except that the excavation work shall be carried out in dense or hard soil.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 4.0.0, (A) shall be followed.

3.2. The rate shall be for unit of one cubic metre.

4.0.0.(C) Excavation for foundation upto 1.5 M. depth including sorting out and stacking of useful

materials and disposing of the excavated stuff upto 50 meter lead in hard murrum. 1.0**Hard murrum**

The hard murrum shall be clean of good binding quality and of approved quality obtained from approved quarries. of disintegrated rocks which contain silicons materials and natural mixture of clay of clariions origin The size of hard murrum sha!! not be more than 20 mm

2-0 Workmanship

The relevant specification of item No. 4.0.0.(A) shall be followed except that the excavation work shall be carried in hard murrum.

3.0 Mode of measurements & Payments

3.1 The relevant specifications of item No 4.0.0. (A) shall be followed.

3.2 The rate shall be for a unit of one cubic metre.

4.0.0.(D): Excavation for foundation upto 1.50 M.depth including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 meter lead-soft rock not requiring blasting.**1.0 Workmanship**

1.1. The relevant specifications of item No." 4.00.(A) shall be followed except that the excavation shall be carried out for foundation upon 1.5 M. lift in soft rock not requiring blasting.

1.2 The excavation in soft or disintegrated rock shall be carried out by crow bars, pickaxes or pneumatic drills or any other suitable means.

1.3 If contractor desires to resort to blasting, he can do so with permission of the Engineer-in-charge but nothing extra shall be paid to him.

1.4 The materials available from soft excavation shall be properly stacked within 50 M. lead and 1.5 m.lift and shall be the property of department.

1.5 The classification of strata of the foundation soil shall be done by the Engineer-in-charge and shall be acceptable to the contractor.

1.6 However this shali include the type of rock and boulder which may quarried or split with crow bars Laterite and conglomerate also come under this category

2.0 Mode of measurements & Payment

2.1 The relevant specifications of item No. 4.0.0.(A) shall be followed.

2.2 The rate shall be for a unit of one cubic metre.

4.0.0.(E) : Excavation for foundation upto 1.5 M.depth including sorting out and stacking of useful material and disposing of the excavated stuff upto 50 meter lead in hard rocks.**1.0 Workmanship**

1.1 The relevant specification of item No. 4.0.0.(A) shall be followed except that the excavation for foundation work shall be carried our in hard rock.

1.2 Excavation shall be done by blasting to the dimensions shown in the drawings or as directed. The blasting shall be carried out only with written permission of the Engineer-in-charge All the laws, regulations etc, pertaining to the precautions, acquisition, transport, landing and use of explosive shall be rigidly followed. The Magazine for the storage for the explosive shall be built to the design and specifications of explosive authority and located at the approved site. No unauthorised persons shall be admitted into the magazine and when not in use it shall be kept securely locked No matches or imflamable matenals shall be allowed in Magazine. The Magazine shall have an effective lightning conductor. The rules of explosive 1940 revised from time to time shall be followed strictly for obtaining, starting, handling, undertaking blasting work.

1.3 The contractor shali be responsible for damage to property, workmen public due to any accident due to use of explosives and operations.

1.4 Precautions

1.4.1. The blasting operation shall remain in charge of competent and experienced supervisor and workmen who are thoroughly acquainted with the detail of handling explosive and blasting operations. The blasting shall be carried our during fixed hours of the day, preferably during the mid-day lunch hours or at the close of the work as ordered in writing by the Engineer-in-charge. The hours of blasting shall be notified in advance to the people in the vicinity. Ail the charges shall be prepared by the man in charge only

1.4.2. Red danger flags shall be displayed prominently in all direction during the blasting operations.

1.4.3. People exceptjthose who actuaflly light the fuse shall be prohibited from entering into this area. The flags shall be stationed at 200 m from the firing site in all directions and all persons including workmen shall be excluded form the flagged area at least 10 minutes before the firing warning whistle being sounded for this purpose

1.4.4. During excavation in rock by blasting, the lowest 15 cm. of stratus shall be blasted with light charge so

as not to shatter or weaken the underlying rock on which the foundation will be actually laid. If excavation in rock is done, to large widths and length than those shown on the drawings or as directed no payment shall be made for such over break. If excavation is done to depths greater than shown on the drawings or directed, excess depth shall be made up with foundation grade concrete as directed at the contractor's cost.

1.4.5. The charged hole shall be drilled to the required depth and in suitable places when blasting is done with powder, the fuse cut to the required length shall be inserted in the holes and the powder dropped in. The powder shall be gently tamped with copper rod with rounded ends. The explosive powder shall then be covered with trapping materials which shall be tamped lightly out firmly. When blasting is done with dynamite and other high explosive, dynamite cartridges shall be prepared by inserting the square cut ends of fuse into the detonator, and finished with dippers at the open ends. The detonator should be gently pushed into the detonator, and finished with dippers at the opened ends. The detonator should be gently pushed explosive. Bore holes shall be of such size that the cartridges can be easily passed down. The holes shall be cleared of all debris and explosive inserted. The space for about 20 cms, above the charge shall then be gently filled with dry clay pressed home and rest of tamping is with firmed any convenient materials gently packed with a wooden cover

1.4.6. At a time not more than 10 such charge shall be prepared and fired. The man in charge shall blow a whistle in a recognised manner for cautioning the people All the people shall then be required to move to number of explosions He shall satisfy-himself that all the charges have been exploded before allowing the workmen to go to the work site.

1.4.7. The contractor shall be fully responsible to strictly follow the prevailing rules and procedures regarding blasting procedures

1.5. Misfire

1.5.1. In case of a misfire the following procedure shall be observed :

1.5.2. Sufficient time shall be allowed to account for the delayed blast. The man in charge shall inspect all the charges and determine the missed charge

1.5.3. If it is the blasting powder charge it shall be completely flooded with water. A new hole shall be drilled at about 45 cm. from the old and fired. This should blast the old charge. Should it not blast the old charge, the procedure shall be repeated till the old charge is blasted.

1.5.4. In case of charge of gelatins, dynamite etc, the man in charge shall gently remove the tamping and the primer with detonator and primer shall then be used to blast the charge. Alternatively the hole may be cleared of one foot of tamping and the direction then ascertained by placing a stick in the hole. Another hole may then be drilled 15 cm away and paralld to it. The man in charge shall report to the office all cases of misfire and cause of the same and what steps were taken in connection therewith.

1.5.6. If a misfire has been found to be due to defective or dynamite, the whole quantity in the box from which defective article was taken must be sent to authority as directed for inspection to ascertain whether all the remaining materials in the box are also defective or not.

1.6. Accidents :

1.6.1. The contractor shall be solely responsible for any accident during the entire procedure of handling explosive and blasting and shall pay necessary compensation to persons affected or damage to lands or property etc, due to the blasting, without extra claims on ; i department.

1.7. Account:

1.7.1. A careful and day to day account of explosives shs.l be maintained by the contractor in an approved manner and shall be open to inspection of the Engineer-in-charge. Surprise visits may also be paid by the Engineer-m-charge to the storage and in case of any unaccountable shortage or unsatisfactory accounting, the contractor shall be liable to be penalised by forfeiture of part or whole of his Security Deposit or by cancellation of tender in which case he shall not be entitled for any compensation.

1.8. Disposal of Excavated Materials :

1.8.1 No materials excavated from foundation trenches of whatever kind they may be, are to be placed even temporarily nearer than 1.5 m. or distance prescribed by the Engineer from the outer edge of excavation. All materials excavated shall remain the property of Government. Rate for excavation includes sorting out of useful materials and stacking them separately as directed within the specific lead. Materials suitable and useful for backfilling or other use shall be stacked in convenient places but not in such a way as to obstruct free movement of men, animals and vehicles or encroach upon the area required for constructional purpose. The site shall be left clean of all debris on completion.

1.8.2. Disposal of excavated materials is subject to the following :

Unsuitable materials obtained from clearing site and excavation shall be disposed off within a lead of 50 metres as directed. Useful materials obtained from clearing site and excavation shall be stacked within a lead of 50 M beyond the building areas as directed. Materials suitable for back-filling shall be stacked at convenient places within a lead of 50 M. from the structure for reuse. Useful stones from rock excavation shall be stacked neatly, within a lead of 50 M. and will be allowed to be used by the contractor on payment at rates laid down in the contract or if not so laid down, at scheduled rates of the Division or at a mutually agreed rates if there are no such rates in the schedule of rates. .

1.8.3. If surplus materials are required to be conveyed beyond 50 M. conveyance will be paid for under a separate item

2.0. Mode of measurements & Payment

2.1. The work shall be measured for the work limited to the dimensions shown on drawings or directed. Excavation to dimension in excess of the above will not be measured or paid for and if so ordered by the Engineer, the contractor shall have to fill up the excess depth with cement concrete specified for foundation without extra payment.

2.2. Driving of sounding bars, drill holes to explore the nature of substratum upto a total length of metre distributed in 2 or 3 places in each foundation if necessary, will be considered incidental work and will not be paid for separately

2.3. Removal of slips and blows in the foundation trenches will not be measured or paid for.

2.4. If it is necessary in the opinion of the Engineer-in-charge to carry foundation below the levels shown on the plans, the excavations for the 1.5 M of addition depth will be included in the quantity for the particular classification and will be paid for as extra at rate to be decided under the general conditions of contract unless the contractor is willing to accept payment as tendered rates.

2.5. The rate shall be for a unit of one cubic metre

4.0.0.1.(A) :Excavation for foundation for depth form 1.5 M. to 3.0 M. including sorting our and stacking or useful materials and disposing of the excavated stuff upto 50 M. lead-loose or soft soil.

1.0. Workmanship

1.1. The relevant specifications or item No. 4.0.0. (A) shall be followed except that the excavation work shall be carried out in loose or soft soil with lift 1.5 M. to 3.0 M.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 4.0.0.(A) shall be followed.

2.2. The excavation work of from 1.5 M. to 3.0 M. shall be measured under this item.

2.3. The rate shall be for a unit of one cubic metre.

4.0.0.1.(B): Excavation for foundation for depth from 1.5 M. to 3.0 M. including sorting out and stacking of useful materials and disposing of excavated stuff upto 50 M. lead in Dense or Hard soil.

1.0. Workmanship

The relevant specifications of item No. 4.0.0.(B) shall be followed except that the excavation work shall be carried out with 1.5 M. to 3.0 M. lift in dense or hard soil.

2.0 Mode of Measurement & Payment

2.1 The relevant specifications of item No.4.0.0. (A) shall be followed.

2.2. The excavation work from 1.5 to 3.0 m. shall be measured under this item.

2.3. The rate shall be for a unit of one cubic metre.

4.0.0.1.(C): Excavation for foundation for depth from 1.5 M. to 3.0 M. including sorting out and stacking of useful materials and disposing of excavated stuff upto 50 M. lead in Hard murrum.

1.0. Workmanship

1.1. the relevant specifications of item No. 4.0.0. (A) shall be followed except that the excavation work shall be carried out from 1.5 M. to 3.0 M. lift in hard murrum.

2.0 Mode of Measurement & Payment

2.1. The relevant specifications of item No. 4 0.0. (A) shall be followed.

2.2. The excavation work from 1.5 M. to 3.0 M shall be measured under this item

2.3. The rate shall be for unit of one cubic metre

4.0.0.1.(D) : Excavation for foundation for depth 1.5 M. to 3.0 M. including sorting our and stacking

of useful materials and disposing of excavated stuff upto 50 M. lead in soft rock not required blasting.

1.0. Workmanship

The relevant specifications item No. 4.0.0. (D) shall be followed except that the excavation work shall be carried out from 1.5 M. to 3.0 M. lift in soft rock not required blasting. **2.0 Mode of Measurement & Payment**

2.1. The relevant specifications of item No 4 0.0(A) shall be followed.

2.2. The excavation work from 1.5 M. to 3.0 M. lift shall be measured under this item.

2.3. The rate shall be for a unit of one cubic metre.

4.0.0.1.(E) Excavation for foundation for depth 1.5 M. to 3.0 M. including sorting out and stacking of useful materials and disposing of excavated stuff upto 50 M. lead in hard rock.

1.0. Workmanship

1.1. The relevant specifications of item No. 4.0 0(E) shall be followed except that the excavation work shall be carried out from 1.5 M. to 3.0 M. lift in hard rock.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 4.0.0. (A) shall be followed.

2.2. The excavation work from 1.5 M. to 3.0 lift shall be measured under this item.

2.3. The rate shall be for a unit of cubic metre.

4.0.0.2. (A): Excavation for foundation for depth from 3.0 M. to 5.0 M. including sorting out and stacking of useful materials and disposing of the excavated stuff Upton 50 M. lead in loose or soft soil.

1.0. Workmanship

1.1. The relevant specifications of item No. 4.0.0.(A) shall be followed except that the excavation work shall be carried out from 3.0 M. to 5.0. M. lift in loose or soft soil.

2.0. Mode of Measurement & Payment

2.1.. Relevant specifications of item No. 4 0.0.(A) shall be followed

2.2. The excavation work from 3.0 M. to 5.0 M. lift shall be measured under this item.

2.3. The rate shall be for a unit of one cubic metre.

4.0.0.2.(B): Excavation for foundation for depth from 3.0 M. to 5.0 M. including sorting our and stacking of useful materials and disposing of the excavated stuff upto 50 M. lead in Dense or Hard soil.

1.0. Workmanship

1.1. The relevant specifications of item No. 4.0.0.(B) shall be followed except that the excavation work shall be carried out from 3.0.m. to 5.0.m. lift in Dense or Hard soil.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 4.0.0.(A) shall be followed.

2.2. The excavation work from 3.0. M. to 5.0 M. lift shall be measured under this item.

2.3. The rate shall be for a unit of one cubic metre.

4.0.0.2.(C) :Excavation for foundation for depth from 3.0 M. to 5.0 M. including sorting out and stacking of useful material and disposing of the excavated stuff upto 50 M. lead in Hard murrum.

1.0. Workmanship

1.1. The relevant specifications items No. 4.0.0. (C) shall be followed except that the excavation work shall be carried out from 3.0 m. to 5.0 M in Hard murrum.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 4.0.0.(A) be followed.

2.2. The excavation work from 3.0 M. to 5.0. lift shall be measured under this item.

2.3. The rate shall be for a unit of one cubic metre

4.0.0.2.(D) Excavation for foundation for depth from 3.0 M. to 5.0 M. including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 M. in soft rock not required blasting.

1.0. Workmanship

1.1. The relevant specification of item NO 4 0 0(D) shall be followed except that the excavation work shall be carried out from 3.0. M. to 5.0. M. soft rock not requiring blasting

2.n. Mode of Measurement & Payment

- 2.1. The relevant specification of item No. 4.0.0.(A) shall be followed.
- 2.2. The excavation work from 3.0. M. to-6.0 M.lift shall be measured under this item.
- 2.3. The rate shall be for a unit of one cubic metre.

4.0.0.2.(E) : Excavation for foundation depth from 3.0 M. to 5.0 M. including sorting out and stacking of useful material land disposing of the excavated stuff upto 50 M. lead in Hard rock.

1.0. Workmanship

- 1.1. The relevant specifications of item No. 4.0.0.(E) shall be followed except that the excavation work shall be carried out from 3.0. M. to 5.0. M. in hard rock.

2.0. Mode of Measurement & Payment

- 2.1. The relevant specification of item No. 4.0.0 (A) shall be followed.
- 2.2. The excavation work from 3.0. M to 5.0 M lift shall be measured under this item.
- 2.3. The rate shall be for a unit of one cubic metre.

4.0.0.3.(A): Extra for additional depth more than 5.0 M. for excavation for foundation including sorting out and stacking of useful material disposing of the excavated stuff upto 50 M. lead in loose or soft soil.

1.0. Workmanship

- 1.1. The relevant specification of item No. 4.0 0 (A) shall be followed except that the excavation work shall be carried out from more than 5.0 M. lift in loose or soft soil.

2.0. Mode of Measurement & Payment

- 2.1. The relevant specifications of item No. 4.0 0.(A) shall be followed.
- 2.2. The rate shall be paid extra over and above the rate of item No. 4.0.0.2.(A) for carrying out excavation work for additional depth from 5.0 M. and above.
- 2.3. The rate shall be for a unit of cubic per metre

4.0.0.3.(B) : Extra for additional depth more than 5.0 M. for excavation for foundation including sorting and stacking of useful materials disposing of excavated stuff upto 50 M. lead in Dense or Hard soil.

1.0 Workmanship

- 1.1. The relevant specifications of item No. 4.0.0.(B) shall be followed except that the excavation work shall be carried out from more than 5.0. M. lift in dense or hard soil.

2.0. Mode of Measurement & Payment

- 2.1. The relevant specifications of item No. 4.0.0 (A) shall be followed.
- 2.2. The rate shall be paid extra over and above the rate of item No 4.0.0.2.(B) for carrying out excavation work for additional depth from 5.0 M. and above.
- 2.3. -The rate shall be for a unit of one cu bic metre

4.0.0.3.(C) : Extra for additional depth more than 5.0 M. for excavation for foundation including sorting out and stacking of useful materials disposing of excavated stuff upto 50 M. lead in Hard murrum.

1.0. Workmanship

- 1.1. The relevant specification of item No. 4 0.0.(C) shall be followed except that the excavation work shall be carried out from more than 5.0 M.lift in hard murrum.

2.0. Mode of Measurements & Payment

- 2.1. The relevant specification of item No. 4.0.0 (A) shali be followed.
- 2.2. The rate shall be paid extra over and above the rate item No 4 0 0 2 (C) for carrying out excavation work for additional depth from 5.0 M. and above.
- 2.3. The rate shall be for a unit of one cubic metre.

4.0.0.3.(D) : Extra for additional depth more than 5.0 M. for excavation for foundation including sorting out and stacking of useful materials disposing of excavated stuff upto 50 M. lead in soft rock not requiring blasting.

1.0. Workmanship

- 1.1. The relevant specifications of item No 4.0.0.(D) shall be followed except that the excavation work shall be carried out from more than 5.0 M. lift in soft rock not requiring blasting.

2.0 Mode of Measurement & Payment

- 2.1. The relevant specifications of item No. 4.0.0.(A) shall be followed.

2.2. The rate shall be paid extra over and above the rate of item No. 4.0.0.2.(D) for carrying out excavation work for additional depth from 5.0.(M) and above.

2.3. The rates shall be for a unit of one cubic metre per metre.

4.0.0.3.(E) : Extra for additional depth more than 5.0 M. for excavation for foundation including sorting out and stacking of useful material disposing of excavated stuff upto 50 M. lead in hard rock.

1.0. Workmanship

1.1. The relevant specification of item No. 4.0 0(E) shall be followed except that the excavation work shall be carried out from more than 50 m. lift in hard rock.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No 4.0.0 (A) shall be followed.

2.2. The rates shall be paid extra over and above the rate of item No, 4.0.0,2.(E) for carrying out excavation work for additional depth from 5.0. M. and above.

2.3. The rate shall be unit of one cubic metre per metre.

4.12. Filling available excavated earth (excluding rock) in trenches, plinth sides of foundations, etc., in layers not exceeding 20 CM. depth, consolidating each deposited layer by ramming and watering.

I.O.Workmanship

1.1. The earth to be used for filling shall be free from salts, organic or other foreign matter. All clods of earth shall be broken.

1.2. As soon as the work in foundation has been completed and measured the site of foundation shall be cleared of all debris, brick bats, mortar dropping etc., and filled with earth in layers not exceeding 20 cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid. The earth shall be rammed with iron rammers where feasible and with the but ends of crow-bars, where rammer cannot be used.

1.3. The plinth shall be similarly tilled with earth in layers not exceeding 20 cms. adequately watered and consolidated by ramming with iron or wooden rammers When filling reaches finished level the surface shall be flooded with water for at least 24 hours and allowed to dry and then rammed and consolidated.

1.4. The finished level of filling shall be kept to shape intended to be given to floor.

1.5. In case off large heavy duty flooring like factory flooring,"the consolidation may be done by power rollers, where so specified. The extent of consolidation required shall also be as specified.

1.6. The excavated stuff of the selected type shall be allowed to be used in filling the trenches and plinth. Under no circumstances black cotton soil be used for filling the plinth.

2.0. Mode of Measurements & Payment

2.1. The payment shall be made for filling in plinth and trenches. No deduction shall be made for shrinkage or voids, if consolidated as instructed above.

2.2. The rate shall be for a unit of one cubic metre

4.24. Filling in plinth with sand under floors including watering, ramming consolidating and dressing etc. complete.

1.0. Materials

1.1. Sand shall conform to **M 6 2.0**

Workmanship

The relevant specifications of item No. 4,12 shall be followed except that sand shall be filled in under floors, including watering, remming, consolidating and dressing etc., complete.

3.0. Mode of Measurements & Payment

3.1. The relevant specifications of item No. 4.12 shall be followed.

3.2. The rate includes cost of collecting, carting sand with all lead and labour for filling the same in plinth under floors.

3.3. The rate shall be for a unit of one cubic metre.

4.0.0.4. Filling in foundation and plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc., complete.

1.0. Materials

1.1. Murrum shall be clean, of good binding quality and of approved quality obtained from approved pots/ quarries of disintegrated rocks which contain silicons material and natural mixture of clay of clarions origin The size of murrum shall not be more than 20 mm.

2.0 Workmanship

2.1. The relevant specifications of item No. 4.12 shall be followed except that the murrum or selected soil shall be filled in foundations and plinth in 20 cms layer including consolidating, ramming, watering, dressing etc. complete.

3.0. Mode of Measurements & Payment

3.1. The relevant specifications of item No. 4.12 shall be followed.

3.2. The rate includes cost of collecting and carting murrum/or selected earth of approved quality with all lead and labour required for filling in trenches and plinth.

3.3. Rate shall be for a unit of one cubic meter

4.0.05. Filling in foundation and plinth with brick-bats/chhara in layers of 20 cms. thickness including watering, ramming and consolidating etc. complete. 1.0.**Materials**

Brick bats shall conform to M.14

2.0. Workmanship

The relevant specification of item No. 4.12 shall be followed except that brick bats of burnt bricks shall be filled in foundation and plinth in 20 cms layer including watering, ramming, consolidating etc., complete.

3.0. Mode of Measurements & Payment

3.1. The relevant specification item No. 4 12 shall be followed.

3.2. The rate includes cost of collecting and carting brick bats'chhara with all lead and labour required filling in trenches and plinth.

3.3. The rate shall be for a unit of one cubic metre

4.27. Boring holes 3.5 M. deep in ordinary soil (for cast in situ piles) and getting out the soil disposal of the surplus excavated soil as directed within a lead pf 50 M. for following diameter for piles, (i) 200 mm. (ii) 250 mm. (Mi) 300 mm.**1.0 Workmanship**

1.0. The ground shall be roughly leveled and after-making the position of piles, the holes shall be bored with a spiral angle to the 3.5 M. depth and specified diameter using boring guide.

2.0. The bore holes shall be truly vertical and uniform bore through out of specified diameter, After boring to the required depth, the bore shall be cleared off the loose soil and disposal of surplus excavated stuff as directed within a lead of 50 M.

2.0. Mode of Measurement & Payment

2.1. The rate for boring holes shall include :

(a) roughly leveling the ground in positions where piles are to be provided (b) Making the position of piles by pegs and boring guide and also for shifting of boring guide, (c) Baiting out water if any met with during boring, (d) Disposal or surplus excavated soil within a lead of 50 M. and (e) All tools, plants, equipments and labour required for satisfactory completion or work. 2 2. The rate shall be for a unit of one Number

4.28. Extra for under ramming inside the bore holes for under rammed piles of following nominal diameter :(i) 200 mm. (ii) 250, (iii) 300 mm.**1.0. Workmanship**

The relevant specifications of item No 4.27 shall be followed except that after boring to the required depth, the bore shall be enlarged at the bottom by an under rammer 2 to 2 1/2 times the diameter of the bore as directed It shall be ensured that the bore for the pile shall be enlarged to the correct.diameter.

2.0. Mode of Measurement & Payment

2.1. The relevant specification of item No. 4.27 for under reaming the piles.

2.2. The rate shall be paid extra over and above the rate of item No 4 27 for under ramming the piles.

2.3. The rate shall be for a unit of one number.

SECTION 5 Plain & RCC Work

- 5.1.6. -Providing and laying in foundation and plinth/under floors lime concrete with hard broken aggregate 40 mm. nominal size and 40% mortar comprising of 1 Lime putty : 2 fine sand and curing complete excluding cost of form work.**

1.0. Materials

Water shall conform to M-1. Sand shall conform to M-6. Lime shall conform to M-2. Graded aggregate 40 mm. nominal size shall conform to M-12

2.1. General

2.1.1. Before starting the concrete the bed of the foundation trenches shall be cleared of all loose materials and watered and rammed as directed.

2.2. Proportion of Mix

2.2.1. The proportion of lime, sand and aggregate shall be specified in the item of the work and shall be measured by volume.

2.2.2. The lime mortar shall consist of proportion of 1 lime putty : 2 sand by volume The lime mortar shall be prepared by wet process. Power driven mill shall be used for preparation of lime mortar. The slaked lime shall be placed in the mill in even layer and ground for 180 revolutions with sufficient water. The water shall be added as required during grinding and care shall be taken not to add more water so that it will bring the mixed materials to a consistency of stiff paste, thoroughly wetted sand shall then be added evenly and the mixture ground for another 180 revolutions.

2.2.3. Lime mortar shall be kept, protected from sun and rain till used-up covering it by tarpaulin or open sheds.

2.2.4. All the lime mortar shall be used as soon as possible after grinding It should be used on the day on which it is prepared but in no case mortar made earlier than 36 hours shall be permitted for use.

2.3. Mixing :

2.3.1. The concrete shall be mixed in mechanical mixer. Mixing shall be continued until there is uniform distribution of the materials and the mass is uniform in colour and consistency but in no case mixing shall be done for less than 2 to 3 minutes.

2.4. Laying & Compacting :

2.4.1. The concrete shall always be used while quite fresh. It shall be laid (not thrown) in layers not exceeding 150 mm. in thickness and shall be well and quickly rammed with wooden or iron rammers, till the required compaction is achieved. The concrete laid shall not be of too fluid consistency. After it has been mixed no more water shall be added, but the surface during and after compaction shall be kept damp. In laying consecutive layers, the layer cast shall be well watered and made rough before the upper layer is laid. The concrete shall be kept continuously wet for period of 7 days from the date of placing of until it is built over whichever is more.

2.5. Mode of Measurement & Payment :

2.5.1. The concrete work shall be measured in length, breadth and depth as specified on drawing or as directed, correct upto nearest centimeter and cubical content shall be worked out nearest upto two places of decimals

2.5.2. The rate shall be for unit of one cubic metre.

- 5.1.8. Providing and laying in foundation and plinth/under floors lime concrete with graded bricks aggregate 40 mm. nominal size and 40% mortar comprising of 1 lime putty : 2 fine sand and curing complete, excluding cost of form work.**

1.0. Materials

1.1. Water shall conform to M-1. Lime mortar shall conform to M-10. Brick bats aggregate 40 mm. nominal sizes shall conform to M-14.

2.0 Workmanship

2.1. The relevant specification of item No 5.1.6. shall be followed except that brick aggregate shall be used instead of graded stone aggregate.

3.0. Mode of Measurements & Payment

3.1. The concrete work shall be measured in length, breadth and depth as specified in drawing or as directed. Correct up to nearest centimeter and cubical content shall be worked out upto two places of decimals.

3.2. The rate shall be for a unit of cubic metre.

5.3.2.(A) Providing and laying cement concrete 1.3.6. (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm. nominal size) and curing complete excluding the cost of form work in foundations and plinth.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Stones aggregate 40 mm. nominal size shall conform to M-12.

2.0. Workmanship

2.1. General

2.1.1. Before stating concrete the bed of foundation trenches shall be cleared of all loose materials, levelled, watered and rammed as directed

2.2. Proportion of Mix :

2.2.1. The proportion of cement, sand and coarse aggregate shall be one part of cement 3 parts of sand and 6 parts of stone aggregates and shall be measured by volume.

2.3. Mixing :

2.3.1. The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by the Engineer-in-charge. When hand mixing is permitted by the Engineer-in-charge in case of break-down of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency However.in such case 10% more cement than otherwise period 1. 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce a dense concrete of required workability for the purpose.

2.4. Transporting & Placing the Concrete :

2.4.1. The concrete shall be handed from the place of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed into its final position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

2.4.2. The concrete shall be laid in layers of 15 cms. to 20 cms

2.5.1. The concrete shall be rammed with heavy iron rammers and rapidly to get the required compaction and to allow all the interstices to be filled with mortar.

2.6. Curing :

2.6.1. After the final set, the concrete shall be kept continuously wet if required by ponding for a period of not less than 7 days from the date of placement.

2.7. Mode of Measurement & Payment :

2.7.1. The concrete shall be measured for its length, breadth and depth, limiting dimensions to those specified on plan or as directed.

2.7.2. The rate shall be for a unit of one cubic metre.

5.3.3.(A) Providing and laying cement concrete 1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm. nominal size) and curing complete, excluding cost of form work in foundations and plinth.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6 stone aggregate 40 mm. nominal size shall conform to M-12

2.0. Workmanship

2.1. Relevant specifications of item No. 5.3.2. shall be followed except that cement concrete shall be mixed in the preparation of 1:4:8 instead of 1:3:6 by volume.

3.0. Mode of measurement and payment

3.1. The concrete shall be measured for its length, breadth and depth, limiting dimensions to those specified on plans or as directed.

3.2. The rate shall be for a unit of one cubic metre

5.3.14.(A) Providing and laying cement concrete 1.3.6 (1 cement : 3 coarse sand : 6 crushed stone aggregate 20 mm. nominal size) and curing complete including cost of form work in wall caps/coping.

1.0. Material & Workmanship

1.1. The relevant specification of item No. 5.3.2. (A) shall be followed except that the work shall be carried out for coping and wall caps, except the stone aggregate 20 mm nominal size shall be used. The concrete work of wall caps/coping

2.0. Mode of measurements and payment

2.1. The relevant specification of item No 5 3.2 (A) shall be followed except that the rate includes cost of necessary form work.

2.2. The rate shall be for a unit of one cubic metre.

5.3.3. Providing and laying brick bats cement 1:4:8 (1 cement : 4 coarse sand : 8 graded bricks bats), and curing complete excluding the cost of form work in foundation and plinth.

1.0. Materials

1.1. Water shall be conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Brick bat shall conform to M-14.

2.0. Workmanship

2.1. The specification of this item shall be followed as per item No. 5.3.J4 (A) except that the proportion of brick bat cement concrete shall be 1.4:8 i.e. 1 part of cements, 4 part of coarse sand and 8 parts of graded brick bat by volume, using graded brick bat as coarse aggregate instead of stone aggregates

3.0. Mode of Measurements & Payment

3.1. The concrete work shall be measured in length, breadth and depth as specified on drawing limiting-dimensions to those specified on drawings or as directed.

3.2. The rate shall be for a unit of one cubic, metre.

5.3.4.(A) Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm. nominal size) and curing complete, excluding the cost of form work, for foundation and plinth.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Stone aggregate 40 mm. nominal size shall conform to M-12.

2.0. Workmanship

2.1. The relevant specification of item No. 5.3.2. (A) shall be followed for the work except that the work is to be carried out in cement concrete 1:5:10.

3.0. Mode of Measurement & Payment

3.1. The concrete shall be measured for its length, breadth and depth, limiting dimensions to those specified on plans or as directed.

3.2. The rate shall be for a unit of one cubic metre.

5.3.8.(A) Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded brick bats 10 mm. nominal size) and curing complete excluding, cost of form work in foundation and plinth.

1.0. Materials

1.1. Water shall conform to M-1. Sand shall conform to M-6- Cement shall conform to M-3. Brick bats shall conform to M-14.

2.0. Workmanship

2.1. The relevant specification of item No. 5.3.4. shall followed except that brick bats aggregate shall be used instead of stone aggregate.

3.0. Mode of Measurement & Payment

3.1. The relevant specification of item No. 5.3.4. shall be followed.

3.2. The rate shall be for a unit of one cubic metre

5.3.2.(B) Providing and laying brick bat cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded-brick bats) and curing complete excluding cost of form work in foundation and plinth.

1.0. The specification of item No. 5.3.2 (A) shall be followed, except that the brick bats shall be used as coarse aggregate instead of stone aggregates

2.0. Mode of Measurement & Payment

2.1. The relevant specification of item No. 5-3.5. (A) shall be followed for mode of measurements and payment except that it excludes the cost of form work.

2.2. The rate shall be for a unit or one cubic metre.

5.4.18. Providing throating or plaster drip and molding to R.C.C. Chhajjas.

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Cement mortar shall conform to **M-11**.

2.0. "Workmanship

2.1. The work shall be carried out as directed. The proportion of mix for finishing shall be in CM.1:2 by volume. Curing shall be done for not less than 7 days The work shall be carried out in best workman like manner. The throating or plaster drip and mounding shall be one centimeter in thickness.

5.7.5. Extra for providing and mixing Water Proofing material in cement concrete in mix proportions recommended by the manufacturers.

2.0. Workmanship

2.1. The proportions of materials for the cement concrete shall be mentioned with the specifications of that item. The quantity of water proofing materials to be added and the method of addition shall be as specified by manufacturers.

2.2. Mixing :

2.2.1. The mixing of the water proofing materials in cement, water or concrete shall be done according to the specifications of the manufacture. '

3.0. Mode of Measurements and Payment

3.1. The payment is extra over and above the rate of concrete for mixing water proofing proper.

3.2. The rate shall be for a unit of one lithe or kg. per quintal of cement in which water proofing material is added.

5.7.1. Providing and laying damp proof course 25 mm. thick cement concrete 1:2:4 (1 cement : coarse sand :4 stone aggregate 10 mm. nominal size) and curing complete. 1.0.

The specifications of item No. 5.3.13. (A) of ordinary concrete with or without reinforcement shall be followed except that the size of the stone aggregate shall be 10 mm. nominal size and the concrete work shall be carried out in 25 mm. thick damp proof course.

2.0. Mode of measurements & payment

2.1. The rate includes cost of all materials and labour required to complete the item.

2.2. The rate shall be for a unit one sq. metre.

5.3.13. Providing and laying cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) and curing complete excluding cost of form work in (A) foundation and plinth, (B) Independent piers, columns and pillars upto floor two level.

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Grit shall conform to M-8. Graded stone aggregate 20 mm. nominal size shall conform to M-12.

2.0. General

2.1. The concrete mix is not required to be designed by preliminary testes. The proportion of the concrete mix shall be 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) by volume concrete work shall have exposed concrete surface or as specified in the item.

2.2. The designation ordinary M-100, M-150m M-200, M-250 specified as per I.S. correspond approximately to 1:3:6, 1:2:4, 1:1:1/2:3 and 1:1:2 nominal mix of ordinary concrete by volume respectively.

2.3. The ingredients required for ordinary concrete containing one beg of cement of 50 kg. by weight (0.0342 Cu. M.) for different proportions of mix shall be as under:

Grade of concrete	Total quantity of dry aggregate by volume per 50 Kgs. of cement to be taken as the sum of individual volume of fine and coarse aggregates, maximum	Proportion of fine aggregate to coarse aggregate	Quantity of water per 50 Kegs, of cement maximum
12	3	4	
M-100(1:3:6)	300 Liters	Generally 1:2 for line aggregate	34Liters
M-150 (1.2 4)	220 Liters	to coarse aggregate by volume	32 liters
M-200 (1.1.172:3)		160 but subject to an upper limit	30 Liters
M-250 (1:1:2)	100 Liters	of 1:1.1/2and lower limit	1:3 27 Liters

2.4. The water cement ratios shall not be more than specified in the above table. The cement content of the mix specified in the table shall be increased if the quantity of water in mix has to be increased to overcome the difficulties of placements and compaction so that the water-cement ratio specified in the table is not exceeded.

2.5. Workability of the concrete shall be controlled by maintaining a water -cement-ratio that is found to give a concrete mix which is just sufficient wet to be placed and compacted without difficulty with the means available.

2.6. The maximum size of course aggregate shall be as large as possible within the limits specified but in no case greater than one forth of the minimum thickness of the member provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form.

2.7. For reinforced concrete work, coarse aggregates having a nominal size of 20 mm. are generally considered satisfactory.

2.8. For heavily reinforced concrete members as in the case of ribs of main beams, the nominal maximum size of coarse aggregate should usually be restricted to 5 mm. less than the minimum clear distance between the main bars, or 5 mm. less than the minimum cover to the reinforcement whichever is smaller.

2.9. Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be so important, and the nominal maximum size may some times be as great as or greater than the minimum cover.

2.10. Admixture may be used in concrete only with approval of Engineer-in-charge based upon the evidence that with the passage of time, neither the compressive strength of concrete is reduced nor are other requisite qualities of concrete and steel impaired by the use of such admixtures.

3.0. **Workmanship**

3.1. Proportioning : Proportioning shall be done by volume, except which shall be measured in terms of bags of 50 kg. weight, the volume of one such bag being taken as 0.0342 cu. metre. Boxes of suitable size shall be used for measuring sand aggregate. The size of boxes (internal) shall be 35 x 25 cms. and 40 cms. deep while measuring the aggregate and sand the boxes shall be filled without shaking ramming or hammering. The proportioning of sand shall be on the basis of its dry volume and in case of damp sand, allowances for bulk age shall be made.

3.2. **Mixing :**

3.2.1. For all work, concrete shall be mixed in a mechanical mixer which along with other accessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand and cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After half a minute of dry mixing measured quantity of water required for each batch of concrete mix shall be added gradually and mixing continued for another one and a half minute. Mixing shall be continued till materials are uniformly distributed and uniform colour of the entire mass is obtained and each individual particle of the coarse aggregate shows complete coating of mortar containing its proportionate amount of cement. In no case shall the mixing be done for less than 2 minutes after all ingredients have been put into the mixer.

3.2.2. When hand mixing is permitted by the Engineer-in-charge for small jobs or for certain other reasons, it shall be done on the smooth water tight platform large enough to allow efficient turning over the ingredients of concrete before and after adding water. Mixing platform shall be so arranged that no foreign material gets mixed with concrete nor does the mixing water flow out. Cement in required number of bags shall be spread in a layer of uniform thickness on the mixing platform. Dry coarse and fine aggregate and cement shall then be mixed thoroughly by turning over to get a mixture to uniform colour. Specified quantity water shall then be added gradually through a rose can and the mass turned over till a mix of required consistency is obtained. In hand mixing quantity of cement shall be increased by 10 percent above that specified

3.2.3. Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch. Unless otherwise agreed to by the Engineer-in-charge the first batch of concrete from the mixture shall contain only two thirds of normal quantity of Coarse aggregate. Mixing plant shall be thoroughly cleaned before changing from one type of cement to another

3.3. **Consistency :**

3.3.1. The degree of consistency which shall depend upon the nature of the work and methods of vibration of concrete, shall be determined by regular slump tests in accordance with t.S. 1199-1939. The slump of 10 mm. to 25 mm shall be adopted when vibrators are used and 80 mm. when vibrators are not used.

3.4. **Inspection :**

3.4.1. Contractor shall give the Engineer-in-charge due notice before placing any concrete in the forms to permit him to inspect and accept the false work and forms as to their strength, alignment, and general fitness but such inspection shall not relieve the contractor of his responsibility for the safety of men, machinery, materials and for results obtained. Immediately before concreting, all forms shall be thoroughly cleaned.

3.4.2. Centering design and its erection shall be got approved from the engineer-in-charge. One carpenter with helper shall invariably be kept present throughout the period of concreting. Movement of labour and other persons shall be totally prohibited for reinforcement laid in position. For access to different parts suitable mobile platforms shall be provided so that steel reinforcement in position is not disturbed. For ensuring proper cover, mortar blocks of suitable size shall be cast and tied to the reinforcement. Timber, kapachi or metal pieces shall not be used for this purpose. 3.5

Transporting and laying :

3.5.1. The method of transporting and placing concrete shall be as approved. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent material takes place. All work shall be cleaned and made free from standing water dust, snow or ice immediately before placing of concrete. No concrete shall

be placed in any part of the structure until the approval of the engineer-in-charge has been obtained.

3.5.2. Concreting shall proceed continuously over the area between construction joints. Fresh concrete proper contraction joint is formed. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer. Except where otherwise agreed to by the engineer-in-charge, concrete shall be deposited in horizontal layers to a compacted depth of not more than 0.45 metre when internal vibrators are used and not exceeding 0.30 metre in all other cases.

3.5.3. Unless otherwise agreed to by the Engineer-in-charge, concrete shall be dropped in to place from a height exceeding 2 metres. When trucking or chutes are used they shall be kept close and used in such a way as to avoid segregation. When concreting has to be resumed on a surface which has hardened, it shall be roughened, swept clean, thoroughly wetted and covered with a 13 mm. thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself. This 13 mm. layer of mortar shall be freshly mixed and placed immediately before placing of new concrete. Where concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of any particles of coarse aggregate. The surface shall then be thoroughly wetted, all free water removed and then coated with neat cement grout. The first layer of concrete to be placed on this surface shall not exceed 150 mm. in thickness and shall be well rammed against old work, particular attention being given to corners and close spots.

3.5.4. All concrete shall be compacted to produce a dense homogeneous mass with the assistance of vibrators, unless otherwise permitted by the Engineer-in-charge for exceptional cases, such as concreting under water, where vibrators cannot be used. Sufficient vibrators in serviceable condition shall be kept at site so that spare equipment is always available in the event of breakdowns. Concrete shall be judged to be compacted when the mortar fills the spaces between the coarse aggregate and begins to cream up to form an even surface. Compaction shall be completed before the initial setting starts i.e, within 30 minutes of addition of water to dry mixture. During compaction, it shall be observed that needle vibrators are not applied on reinforcement which is likely to destroy the bond between concrete and reinforcement.

3.6. Curing :

Immediately after compaction, concrete weather, including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process. It shall be covered with wet sacking or jute or other similar absorbent material approved, soon after the initial set, and shall be kept continuously wet for a period of not less than 14 days from the date of placement. Masonry work over foundation concrete may be started after 48 hours of its laying but curing of concrete shall be continued for a minimum period of 14 days.

3.7. Sampling and testing of concrete :

3.7.1. Samples from fresh concrete shall be taken as per IS. 1199-1959 and cubes shall be made, cured and tested at 7 days and 28 days as per requirements in accordance with IS. 526-1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested i.e. the sampling should be spread over the entire period of concreting and cover all mixing units. The minimum frequency of sampling of concrete of each grade shall be in accordance with following :

Quantity of concrete in the work.	No of samples	Quantity of concrete in the works	No. of samples
1-5 cmt.	1	16-30 cmt.	3
6.15 cmt.	2	31-50 cmt.	4
51 and above	4+ one additional for each additional 50 mm. or part thereof,		

Note : At least one sample shall be taken from each shift, Ten test specimens shall be made from each sample, five for testing at 7 days and the remaining five at 28 days. The samples of concrete shall be taken on each day of concreting as per above frequency. The number of specimens may be suitably increased as deemed necessary by the Engineer-in-charge when procedure of tests given above reveals a poor quality of concrete and in other special cases.

3.7.2. The average of the group of cubes cast for each day shall not be less than the specified cube strength of 150 K/g Cm² at 28 days. 20% of the cubes cast for each day may have value less than the specified strength provided the lowest value is not less than 85% of the specified strength, if the concrete made in accordance with the proportions given for a particular grade does not yield the specified strength, such concrete shall be classified as belonging to the appropriate lower grade. Concrete made in accordance with the Proportions given for a particular grade shall not, however, be placed in a higher grade on the ground that the test strength are higher than the minimum specified.

3.8. Stripping:

3.8.1. The Engineer-in-charge shall be informed in advance by the contractor of his intention to strike the form work. While fixing the time of removal of form work, due consideration shall be given to local conditions,

character of the structure, the weather and other conditions that influence the setting of concrete and of the materials used in the mix. In normal circumstances (generally where temperatures are above 20.C) and where ordinary concrete is used, forms may be struck after expire or periods specified in item No.9.1 (A) for respective item of form work.

3.8.2. All form work shall be removed without causing any shock or vibration as would damage the concrete. Before the soft and struts are removed, the concrete surface shall be gradually exposed, where necessary in order to ascertain that concrete has sufficiently hardened. Centering shall be gradually and uniformly lowered in such a manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal tiles are permitted, they or their removable parts shall be extracted without causing any damage to the concrete and remaining holes filled with mortar. No permanently embedded metal part shall have less than 25 mm. cover to the finished concrete surface. Where it is intended to re-use the form work, it shall be cleaned and made good to the satisfaction of the Engineer-in-charge. After removal of form work and shutting, the Executive Engineer shall inspect the work and satisfy by random checks that concrete produced is of good quality.

3.8.3. Immediately after the removal of forms, all exposed bolts etc. passing through the cement concrete member and used for shuttering or any other purpose shall be cut inside the cement concrete member to a depth of at least 25 mm. below the surface of the concrete and the resulting holes be filled by cement mortar, all fins caused by form joints, all cavities produced by the removal of form tiles and all other holes and depressions, honeycomb spots, broken edges or corners and other defects, shall be thoroughly cleaned, saturated with water and carefully pointed and rendered true with mortar of cement and fine aggregate mixed in proportions used in the grade of concrete that is being furnished and of as dry consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure thorough filling in all voids. Surface which are pointed shall be kept moist for a period of 24 hours. If rock pockets/honeycombs in the opinion of the Engineer-in-charge are of such an extent or character as to effect the strength of the structure materially or to endanger the life of the steel reinforcement, he may declare the concrete defective and require the removal and replacement of the portions of structure affected.

4.0 Mode of Measurement & Payment

4.1. "The consolidated cubical contents of concrete work as specified in item shall be measured. No deduction shall be made for

(a) Ends of dissimilar materials such as joints, beams, posts, girders, girders, purling trusses, corbels and steps etc., upto 500 Sq. Cm. in section.

4.2. The rate includes cost of all materials labour, tools and plant required for mixing, placing in position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing concrete of specified strength. The rate excludes the cost of form work.

4.3. The rate shall be for a unit of one cubic metre.

5.4.1. Providing and laying cement concrete 1:2:4 (1 cement: 2 coarse sand :4 graded stone aggregate 20 mm. nominal size) and curing complete excluding cost of form work and reinforcement for reinforced work in : (A) Foundations, footing base of columns and mass concrete. (C) Slabs, landings, shelves, balconies, lintels, beams, girders and cantilever upto floor two level. (D) Columns, pillars, pots, and struts upto floor upto floor two level (E) Staircase upto floor two level (K) Vertical and horizontal fins upto floor two level.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.3.13 shall be followed except that the work shall be carried out for reinforced concrete work for work as specified in item 1.2. In addition, the following stipulations shall be followed for:

(a) The bars shall be kept in position by the following methods :

(i) In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2 (1 cement: 2 coarse sand) about 4 cms. x 4 cms. section and of thickness equal to the specified cover shall be placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement. In case of cantilevered or doubly reinforced beams or slabs, the main reinforcing bars shall be held in position by introducing chain spacers or supports bars at 1.0 to 1.2 metre centres.

(ii) In case of columns and walls, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them, the templates shall be removed after concreting has been done below it.

The bars may also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.

1.2. All bars projecting from pillars, columns, beams, slabs etc, to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement grout, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10 days. This coat of thin neat cement shall be removed before concreting.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 5.3.13 shall be followed.

2.2. The volume occupied by reinforcement shall not be deducted from R.C.C. work.

2.3. The rate shall be for a unit of one cubic metre.

5.4.4. Providing and laying cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) for reinforced concrete chhajjas not exceeding 10 cms. thickness upto floor two level including finishing the exposed surface with cement mortar 1:3 (1 cement 3: fine sand) to give a smooth and even surface, centering and form work and curing complete excluding cost of reinforcement.

1.0. Materials & Workmanship

1.1. The cement mortar shall conform to m-11.

1.2. The relevant specification of item No. 5.3.13 and 5.4.1 shall be followed except that the work shall be carried out for reinforced concrete chhajjas not exceeding 10 cms. in thickness.

1.3. The specifications for form work and centering shall be as per item No. 9.1.

1.4. The finishing work in cement mortar 1:3 (1 cement : 3 fine sand) shall be carried out as per specifications of item No. 17.49 (l). Before the plastering is done, the surface of the concrete shall be raked for proper bond.

2.0. Mode of measurements & payment

2.1. The relevant specification of item No. 5.3.13 and 5.4.1 shall be followed except that the work of chhajjas upto 10 cms. shall be carried out including centering form work and finishing the surface with cement mortar 1:3(1 cement : fine sand).

2.2. The rate shall be for a unit of one cubic metre.

5.4.10. Providing an Mild Steel reinforcement for R.C.C. work including bending binding and placing in position etc. complete upto floor two level.

1.0. Materials

1.1. Mild Steel bars shall conform to M-18. Mild steel binding wires shall conform, to M-21.

2.0. Workmanship

2.1. The work shall consist of furnishing and placing reinforcement to the shape and dimensions shown as on the drawings or as directed.

2.2. Steel shall be clean and free from rust and loose mill scale at the time of fixing in position and subsequent concreting.

2.3. Reinforcing steel shall conform accurate to the dimensions given in the bar bending schedules shown on relevant drawings. Bars shall be bent cold to specified shape and dimensions or as directed, using a proper bar bender, operated by hand or power to attain proper radius of bends. Bars shall not be bent or straightened in a manner that will injure the material. Bars bent during transport or handling shall be straightened before being used on the work. They shall not be heated to facilitate bending. Unless otherwise specified, a 'U' type hook at the end of each bar shall invariably be provided to main reinforcement. The radius of the bend shall not be less than twice the diameter of the round bar and the length of the straight part of the bar beyond the end of the curve shall be at least four times the diameter of the round bar. In case of bars which are not round and in case of deformed bars, the diameter shall be taken as the diameter of circle having an equivalent effective area. The hooks shall be suitably encased to prevent any splitting of the concrete.

2.4. All the reinforcement bars shall be accurately placed in exact position shown on the drawings, and shall be securely held in position during placing of concrete by annealed binding wire not less than 1 mm. in size, and by using stay blocks or metal chair spacers, metal hangers, supporting wires or other approved devices at sufficiently close intervals, Bars shall not be allowed to sag between supports nor displaced during concreting or any other operations of the work. All devices used for positioning shall be of non-corrodible material. Wooden and metal supports shall not extend to the surface of concrete, except where shown on drawings. Placing bars on layers of freshly laid concrete as the work progresses for adjusting bar spacing shall not be allowed. Pieces of broken stone or brick and wooden blocks shall not be used. Layers of bars shall be separated by spacer bars, precast mortar blocks or other approved devices. Reinforcement after being placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed. To prevent reinforcement from corrosion, concrete cover shall be provided as indicated on drawings. All the bars protruding from concrete and to which other bars are to be lapped and which are likely to be exposed for a period exceeding 10 days shall be protected by a thick coat of neat cement grout,

2.5. Bars crossing each other where required shall be secured by binding wire (annealed) of size not less than 1 mm. in such a manner that they do not slip over each other at the time of fixing and concreting.

2.6. As far possible, bars of full length shall be used. In case this is not possible. Over lapping of bars shall be done as directed. When practicable, overlapping bars shall not touch each other, but be kept apart by 25 mm. Where not feasible, overlapping bars shall be bound with annealed wires not less than 1 mm. thick

twisted tight. The overlaps shall be staggered for different bars and located at points, along the span where neither shear nor bending moment is maximum.

2.7. Whenever indicated on the drawings or desired by the Engineer-in-charge, bars shall be jointed by couplings which shall have a cross-section sufficient to transmit the full stresses of bars. The ends of the bars that are jointed by coupling shall be upset for sufficient length so that the effective cross section at the base of threads is not less than the normal cross-section of the bar. Threads shall be standard threads. Steel for coupling shall conform to I.S. 226.

2.8. When permitted or specified on the drawings, joints of reinforcement bars shall butt-welded so as to transmit their full stresses. Welded joints shall preferably be located at points when steel will not be subject to more than 75 percent of the maximum permissible stresses and welds so staggered that at any one section not more than 20 percent of the rods are welded. Only electric arc welding using a process which excludes air from the molten metal and conforms to any or all other special provisions for the work shall be accepted. Suitable means shall be provided for holding bars securely in position during welding. It shall be ensured that no voids are left in welding and when welding is done in two or three stages, previous surface shall be cleaned properly. Ends of the bars shall be cleaned of all loose scale, rust, stains, paint and other foreign matter before welding. Only competent welders shall be employed on the work. The M.S. electrodes used for welding shall conform to I.S. 814. Welded pieces of reinforcement shall be tested. Specimen shall be taken from the actual site and their number and frequency of test shall be as directed.

3.0. Mode of Measurements & Payment

3.1. For the purpose of calculating consumption, wastage shall not be permitted beyond 5 percent. Excess consumption over 5% will be charged at penal rate.

3.2. Reinforcement shall be measured in length including overlaps, separately for different diameters as actually used in the work. Where welding or coupling is resorted to, in place lap joints, such joints shall be measured for payment as equivalent length of overlap as per design requirement. From the length so measured, the weight of reinforcement shall be calculated in tones on the same basis of as per M-18 even though steel is supplied to the contractor by the department on actual weight. Length shall include hooks at the ends. Wastage and annealed steel wire for binding shall not be measured and the cost of these items shall be deemed to be included in the rate for reinforcement.

3.3. The rate for reinforcement includes cost of steel binding wires, its carting from Department store to work site, cutting, bending, placing, binding and fixing in position as shown on the drawings and as directed. It shall also include all devices for keeping reinforcement in approved position, cost of joining as per approved method and all wastage and spacer bars.

3.4. The rate shall be for a unit of One Kg.

5.4.11. High yield deform bars steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level.

1.0. Materials

1.1. Cold twisted steel bars (high, yield strength deformed bars) shall conform to M.19 Mild steel binding wires shall conform to M-21.

2.0. Workmanship

2.1. The specifications of item No. 5.4.10 shall be followed except that the cold twisted steel bars shall be used with or without hooks at the ends. Deformed bars without hooks shall, however, comply with relevant anchorage requirements.

3.0. Mode of Measurement & Payment

3.1. The relevant specifications of item No. 5.4.10 shall be followed.

3.2. The rate shall be for a unit of One kg.

5.4.13. Extra for additional lift of concrete for all R.C.C. work above floor two level excluding cost of reinforcement. 1.0.

Materials & Workmanship

The relevant specifications for item No. 5.4.1 shall be followed for the work except that the R.C.C. work shall be done for ground floor i.e. above plinth level to first floor level.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 5.4.1 shall be followed except that rate shall be for extra lift above plinth to floor two level, over and above the rate of concrete at floor two level.

2.2. The rate shall be for a unit of one cubic metre per floor.

5.4.13.(A) Extra for additional lift of reinforcement steel for all R.C.C. work above floor two level.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.4.10 as may be applicable, shall be followed except that the work shall be earned cut above floor two level for each floor.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 5.4.10 or 5.4.11 as may be applicable shall be followed except

that the work shall be carried out above floor tow level.

2.2. The rate shall be for a unit of one kg. per floor.

5.6.2. Providing upto floor two level precast cement concrete or grill 1:2:4 (1 cement : 2 coarse sand 4 graded stone aggregate 6 mm: nominal size) reinforced with 1.6 mm. dia mild steel size wire including roughening, cleaning fixing and finishing in cement "mortar 1:3 and curing complete.

(A) 50 mm. thick (B) 40. mm. thick (C) 25. mm. thick (E) 100 mm. thick.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Mortar shall conform to M-11. Aggregates shall conform to **M-12**. Mild steel wire shall conform to M-21. Shattering shall conform to M-26.

2.0. Workmanship

It shall be cement concrete 1:2:4 (1 cement 2: coarse sand :4 graded stone aggregate 6 mm. nominal size). reinforced with 1.6. mm. dia mild steel wire unless otherwise specified. The thickness of the jali shall be as specified in the item. The jali shall be set in position true to line and level before the jambs sills and soffits to the opening are plastered. It shall then be properly cemented with cement mortar 1:3 (1 cement 3: 3 sand) and rechecked for levels. Finally the jambs, sills and soffits shall be plastered gripping the jali uniformly on all sides.

3.0. Mode of measurement of payment

3.1. The item shall be measured in square metre.

3.2. The rate shall be for a unit of one square metre.

5.8.1. Providing and laying controlled concrete M-150 and curing complete excluding the cost of form work and reinforcement for reinforced concrete work in :

(A) Foundation, footings, base of columns, and mass concrete, (B) Walls from top of foundation/level upto floor two level. (C) Slabs, pillars, posts and struts, upto floor two level (E) Staircase upto floor two level. (F) Vertical and horizontal fins upto floor two level.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Grit shall conform to M-8. Course aggregate shall conform M-12.

2.0. General

2.1. The relevant specification of item No. 5.4.1. of ordinary concrete shall be followed except that the concrete mix shall be designed form preliminary tests. The proportioning of cement and aggregates shall be done by weight and necessary precautions shall be taken in the production to ensure that the required work cube strength is attained and maintained. The controlled concrete shall be in grades of M-100, M-150, M-200, M-250, M-300, M-350 & M-400 with prefix controlled added to it. The letter M refers to mix and the numbers specify 28 days works cube compressive strength of 150 mm. cubes of the mix expressed in Kg./Cmt.

2.2. The proportion of cement, sand and coarse aggregate shall be determined of weight. The weight batch machine shall be used for maintaining proper control over the proportion of aggregates as per mix design. The strength requirements of different grades of concrete shall be as under:

Grade Concrete	Compressive strength of 15 cms. cubes in Kg./Cmt. at 28 days, conducted in accordance with IS. 516-1959.	
	Preliminary test Min.	Work test Min.
M-150	200	150
M-200	260	200
M-250	320	250
M-300	380	300
M-350	440	350
M-400	500	400

In all cases, the 28 days compressive strength specified in above be the criteria for acceptance or rejection of the concrete. Where the strength of a concrete mix as indicated by tests, lies in between the strength of any two grades specified in the above table, such concrete shall be classified in for purpose as concrete belonging to the lower of the grades between which its strength lies.

3.0. Workmanship

3.1. The proportions for ingredients chosen shall be such that concrete has adequate workability for conditions prevailing on the work question and can be property compacted with means available except where it can be shown to the satisfaction of the Engineer-in-charge, that supply of properly graded aggregate of uniform quality can be maintained till the completion of work, grading of aggregate shall be controlled by obtaining the coarse aggregates in different sizes and bending them in the right proportions as required. Aggregates of different sizes shall be

stocked in separate stock piles. The required quantity of material shall be stock piled several hours, preferably a day before use. The grading of coarse and fine aggregate shall be checked as frequently as possible, the frequency for a given job being determined by Engineer-in-charge to ensure that the suppliers are maintaining the uniform grading as approved for samples used in the preliminary tests.

3.2. In proportioning concrete, the quantity of both cement and aggregate shall be determined by weight. Where the weight of cement is determined by accepting the maker's weight per bag, a reasonable number of bags shall be weighted separately to check the net weight. Where cement is weighted from bulk stocks at site and not by bags, it shall be weighed separately from the aggregate. Water shall either be measured by volume in calibrated tanks or weighed. All measuring equipment shall be maintained in clean, and serviceable condition. Their accuracy shall be periodically checked.

3.3. It is most important to keep the specified water cement ratio constant and at its correct value. To this end, moisture content in both fine and coarse aggregates shall be determined by the Engineer-in-charge according to the weather conditions. The amount of mixing water shall then be adjusted to compensate for variations in the moisture content. For the determination of moisture content in the aggregates, I.S. 2386 (Part-III) shall be referred to. Suitable adjustments shall also be made in the weights of aggregates due to variation in their moisture content. Minimum quantity of cement to be used in controlled concrete shall not be less than 220 kg/M-3 in plain concrete and not less than 250 kg/M-3 in reinforced concrete.

4.0. Mode of measurement & payment

4.1. The relevant specifications of item No.5.4.1 shall be followed, except that the controlled concrete R.C.C. work as specified in item shall be measured under this item. The rate excludes cost of form work.

5.8.2. Providing and laying controlled cement concrete M-200 and curing complete, excluding the cost of form work and reinforcement for reinforced concrete work in :
(A) Foundations, footings base of columns, and mass concrete. (B) walls from top of foundation upto floor two level (C) Slabs, landings, shelves, balconies lintels, beams, girders and cantilever upto floor two level, (D) Columns, pillars, posts and struts upto floor two level (E) Stair cases upto floor two level (K) Vertical and horizontal fins upto floor two level.

1.0. Materials & Workmanship

The relevant specifications of item No. 5.8.1 shall be followed except that the grading of concrete shall be controlled concrete M-200 grades for works as specified in item.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 5.8.1. shall be followed.

2.2. The rate shall be for one cubic metre.

5.8.3. Providing and laying controlled cement concrete M-250 and curing complete excluding the cost of reinforcement of reinforced concrete work in :
(A) Foundations, footings, bases of columns, and the like and mass concrete (B) Walls from top of foundation level upto floor two level (C) Slabs, landing, shelves, balconies, beams, girders and cantilever upto floor two level (D) Columns, pillars, struts upto floor two level.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.8.1. shall be followed except the grading of concrete shall be controlled concrete M-250 grades for the works as specified in the item.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 5.8.1. shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

5.00.1. Providing and laying ordinary concrete 1:2*4 (1 cement : 2 coarse sand :4 graded stone aggregates 20 mm. nominal size) and finishing smooth with curing etc., complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work in: (I) Slabs upto 8 cms. thickness (II) Slabs having more than 8 cms; and upto (III) Slabs having more than 10 cms. and upto 13 cms, thickness (IV) Slabs having more than 13 cms. and upto 15 cms. thickness.

1.0. Materials & Workmanship

1.1. The relevant specifications for item No. 5.4.1. shall be followed for concrete work and relevant specifications of item No. 9.1. shall be followed for form work and centering. The concrete surface shall be smooth finished with cement mortar 1:3 (1 cement : 3 fine sand) as per item No. 17.59 (I) The thickness shall be as specified in the item.

2.0. Mode of measurement & payment

2.1. The relevant specification for item No. 5.4.1 shall be followed except that item shall include the item providing from work and centering work as directed.

2.2. The rate shall be for a unit of one cubic metre.

5.00.2. Providing and laying controlled cement M-150 and finishing smooth with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work in :

(I) slabs upto 8 cms. thickness (II) Slabs more than 8 cms. 10 cms. (III) Slabs more the 10 cms. and upto 13 cms. (IV) Slabs more than 13 cms. and upto 15 cms.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.8.1. shall be followed for concrete work and item No. 9.1. shall be followed for form work and centering. The concrete surface shall be smooth finished with cement mortar 1:3 (1 cement : 3 fine sand) as per No. 17.59 (I) The thickness shall be as specified in the item.

2.0. Mode of Measurement & Payment

2.1. The relevant of item No. 5.8.1. shall be followed except that the item shall include the cost and from work and centering.

2.2. The rate shall be for a unit of one cubic metre.

5.00.3. Providing and laying ordinary cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregates 20 mm. nominal size) exposed work with curing etc. complete. including the cost of work but excluding the cost of reinforcement for R.C.C. work in : (I) Slabs upto 8 cms. thickness (II) Slabs having more than 8 cms. and upto 10 cms. thickness (III) Slabs having more than 10 cms. and upto 13 cms. thickness. (IV) Slabs having more than 13 cms. and upto 15 cms. thickness.

1.0. Materials & Workmanship

1.1. There relevant specifications of item No. 5.4.1. shall be followed for concrete work and that of form work and centering work shall be followed as per item No. 9.1. and 9.7. The thickness of the slab shall be as specified in the item.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 5.4.1. shall be followed except that form work and centering work shall be included in the item.

2.2. The rate shall be for a unit of one cubic metre.

5.00.4. Providing any laying controlled cement concrete M-150 exposed work with curing etc., complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work in :(I) Slabs upto 8 cms. thickness (II) Slabs having more than 8 cms. and upto 10 cms. thickness (III) Slabs having more than 10 cms. and upto 13 cms. thickness. (IV) Slabs having more than 13cms. and upto 15 cms. thickness.

1.0. Materials & Workmanship

1.1. The relevant specification of item No. 5.4.1. shall be followed for controlled concrete and the relevant specifications of item No. 9.7. and 9.1. shall be followed for exposed concrete form work and centering work. The thickness of the slab shall he as specified in the item.

2.0. Mode of Measurement & Payment

2.1. The relevant specifications of item No. 5.8.1. shaft be followed except that the form work and centering work shall be included in the item.

2.2. The rate shall be for a unit of one cubic metre.

5.00.5. Providing and laying ordinary cement concrete 1:2:4 (1 cement : 2 cr.,irse sand : 4 grades stone aggregate 20 mm. nominal size) for R.C.C. lintel including finishing smooth with curing etc. complete including the cost of form work but excluding the cost of reinforcement.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.8.1. snai. be followed for concrete work, relevant specifications of item No. 17.59 (I) for finishing work and relevant specifications of item No. 9.1. shall be followed foim work and centering work. The concrete work shall be followed for the form work and centering work for exposed concrete work.

2.0. Mode of measurement & payment

2.1. The relevant specification of item No. 5.8.1. shall be followed except that the item includes the cost of form work for,exposed concrete work.

2.2. The rate shall be for a unit of one cubic meter.

5.00.6. Providing and laying cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) and finishing smooth with curing etc., complete, including the cost of form work but excluding reinforcement for R.C.C. work in : (A) Beams : (I) Having cross sectional area 0.05 to 0.08 Sq. meter. (II) Having cross sectional area more than 0.08 Sq. upto 0.12 Sq. mt. (III) Having cross sectional area more than 0.12 Sq. Mt. and upto 0.18 Sq. Iwt (B) Column; (I) Having cross sectional area 0.05. to 0.08 Sq. mt. (III) Having cross sectional area more than 0.12.Sq.Mt. and upto 0.18 Sq.mt.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.4.1. shall be followed for concrete work and item No. 9.1. shall be followed for form work and centering work. The finishing shall be done in cement mortar 1:3 (1 cement: 3 fine sand) as per item No. 17.59(1). The cross sectional area of beam shall be specified in item.

2.0. Mode of measurement & payment

2.1. The relevant specification of item No. 5.4.1. shall be followed but the form work and centering work shall be included in the item.

2.2. The rate shall be for a unit of one cubic metre.

5.00.7. Providing and laying controlled cement concrete M-150 exposed work with curing etc. complete, including the cost of form work but excluding the cost of reinforcement for R.C.C. work in :(A) Beams : (I) Having cross sectional area 0.05 to 0.08 Sq. mt. (II) Having cross sectional area more than 0.08 Sq. mt. upto 0.12 Sq.mt (111) Having cross sectional area more than 0.12 Sq. mt. and upto 0.18 Sq.mt. : (B) Columns; (I) Having cross sectional area of 0.05 to 0.08 Sq.mt. (II) Having cross sectional area more than 0.08 sq.mt. and upto 0.12 sq.mt. (III) Having cross sectional area more than 0.12 Sq.Mt and upto 0.18 Sq.mt.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.8.1. shall be followed for controlled concrete work as specified in item for M-150 and relevant specifications of item 9.1 shall be followed for the form work centering work for exposed cement work.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 5.8.1 shall be followed except that the form work and centering work shall be included in the item.

2.2. The rate shall be for a unit of one cubic metre.

5.00.8. Providing and laying controlled cement concrete M-200 exposed work with curing etc. complete, including the cost of form work but excluding the cost of reinforcement for R.C.C. work in (A) Beams : (I) Having cross section area 0.05 to 0.08 Sq. mt (II) Having cross sectional aea 0.08 Sq.mt and upto 0.12 Sq. mt. (III) Havring cross sectional area 0.12 Sq, and upto 0.18 Sq. Mt. (B) Columns : (I) Having cross sectional area 0.05 to 0.08 Sq.Mt. (II) Having cross sectional area more than 0.08 Sq.Mt and upto 0.12 Sq.Mt. (III) Having cross sectional area more than 0.12 Sq. mt. and upto 0.18 Sq.Mt.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.8.1. shall be followed for controlled concrete work for work as specified in item for M-200 and relevant specifications of item 9.7 and 9.1 shall be followed for the form work and centering centering work for exposed cement work.

2.0. Mode of measurements & payment

2.1. The relevant specification of item No. 5.8.1. shall be followed except that the item includes the cost of form work and centering work for exposed work.

2.2. The rate shall be for a unit one cubic metre.

5.00.9. Providing and laying controlled cement concrete M-250 exposed work with curing etc. complete including the cost of from work but excluding the cost of reinforcement for R.C.C. work in :(A) Beams : (I) Having cross sectional area 0.05 to 0.08 Sq.mt.(tl) Having cross sectional areas more than 0.08 Sq.mt. and upto 0.12 Sq. mt (III) Having cross sectional area more than 0.12 Sq.mt. and upto 0.18 Sq. Mt. (B) Columns :(I) Having cross sectional area 0.05 to 0.08 Sq.Mt (II) Having cross sectional area more than 0.08 Sq. mt. and upto 0.12 Sq. mt. (III) Having cross sectional area more than 0.12 Sq.mt. and upto 0.18 Sq.mt.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 5.8.1. shall be followed for controlled concrete work for the work as specified in the item for M-250 and the relevant R.C.C. lintels shall be carried out.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 5.4.1 shall be followed except that the cost of form work finishing and centering shall be included in the item.

2.2. The rate shall be for a unit of one cubic metre.

SECTION - 6

Masonry Work

6.12 (A) Brick work using common burnt clay building bricks having crushing strength not less than 35 Kg/Sq. Cm. in foundations and plinth in cement mortar 1:5 (1 cement :5 fine sand) modular bricks.

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Brick shall conform to M-15. Cement mortar shall conform to **M-11**.

2.0. Workmanship

2.1. Proportion :

2.1.1. The proportion of the cement mortar shall be 1:5 (1 cement: 5 fine sand) by volume.

2.2. Wetting of bricks :

2.1.1. The bricks required for masonry shall be thoroughly wetted with clean water for about two hours before use or as directed. The cessation of bubbles, when the bricks are wetted with water is as indication of through wetting of bricks.

2.3. Laying :

2.3.1. Bricks shall be laid in English bond unless directed otherwise. Half or cut bricks shall not be used except when necessary to complete to bond; closures in such case shall be cut to required size and used near the ends of walls.

2.3.2. A layer of mortar shall be spread on full width for suitable length of the lower course. Each brick shall first be properly bedded and set home by gently tapping with handle of trowel or wooden mallet. Its inside face shall be flushed with mortar before the next brick is laid and pressed against it. On completion of course, the vertical joints shall be fully filled from the top with mortar.

2.3.3. The walls shall be taken up truly in plumb. All courses shall be laid truly horizontal and all vertical joint shall be truly vertical. Vertical joints in alternate course shall generally be directly one over the other. The thickness of brick course shall be kept uniform.

2.3.4. The brick shall be laid with frog upwards. A set of tools comprising of wooden straight edges, man son's spirit level, square half metre rub, and pins, string and plumb shall be kept on the site of work for frequent checking during the progress of work.

2.3.5. Both the faces of walls of thickness greater than 23 cms. shall be kept in proper place. All the connected brick work shall be kept not more than one metre over the rest of the work. Where this is not possible, the work shall be raked back according to bond (and not left toothed) at an angle not steeper than 45 degrees.

2.3.6. All futures, pipes, outlets of water, hold fasts of doors and windows etc. which are required to be built in wall shall be embedded in cement mortar.

2.4. Joints:

2.4.1. Bricks shall be so laid that all joints are quite flush with mortar. Thickness of joints shall not exposed 12 mm. The face joints shall be raked out as directed by raking tools daily during the progress of work, when the mortar is still green so as to provide key for plaster or pointing to done.

2.4.2. The face of brick shall be cleaned the very day on which the work is laid and all mortar dropping removed,

2.5. Curing :

2.5.1. Green work shall be protected from rain suitably. Masonry work shall be kept moist on all the faces for a period of seven days. The top of masonry work shall be kept well wetted at the close of the day.

2.6. Preparation of foundation bed :

2.6.1. If the foundation is to be laid directly on the excavated bed, the shall be levelled, cleared of all loose materials, cleaned and wetted before stating masonry, If masonry is to be laid on concrete footing, the top of concrete shall be cleaned and moistened. The contractor shall obtain the engineers approval for the foundation bed before foundation masonry is started. When pucca flooring is to be provided flush with the top to plinth, the inside plinth offset shall be kept lower than the outside plinth top by the thickness of the flooring.

3.0. Mode measurements & payment

The measurements of this item shall be taken for the brick masonry rully completed in foundation upto plinth. The limiting dimensions not exceeding those shown on the plinths ;r as directed shaii be final. Battered tapered and curved portions shall be measured net.

3.2. No deduction shall be made from the quantity of brick work, for any extra payment made for embedding in masonry or making holes in respect of following items :

- (1) Ends of joists, beams, posts, girders, purlins, trusses[^] corbel, steps etc. where cross sectional area does not exceed 500 Sq Cm.
 - (2) Openings not exceeding 1000 Sq Cm.
 - (3) Wall plates and bed plates, bearing of slabs, chajjas and the like whose thickness does not exceed 10 Cms. and the bearing does not extend to the full thickness of wall.
 - (4) Drainage holes, and recesses for cement concrete blocks to embed hold fasts for doors, windows etc.
 - (5) Iron fixtures, pipes upto 300 mm. dia, hold fasts, and doors and window/s built into masonry and pipes etc. for concealed wiring.
 - (6) Forming chases of section not exceeding 350 Sq. Cm. in masonry.
- 3.3. Apertures for fire places shall not be deducted nor shall be paid for separately.
- 3.4. The rate shall be for a unit of one cubic metre.

6.12. (B) Brick work using common burnt clay building bricks having crushing strength not less than 35 Kg/Sq. Cm. in foundations and plinth in cement mortar 1:5 {1 cement : 5 fine sand) conventional bricks.

1.0. Materials

Cement mortar of proportion 1:5 shall conform to M-11. Conventional bricks shall conform to M-15.

2.0. Workmanship

The relevant specification of item No. 6.12 (A) shall be followed except that the bricks to be used shall be modular bricks and the proportion of cement mortar is 1:6.

3.0. Mode of measurements & payment

- 3.1. The relevant specifications of item No. 6.12(A) shall be followed.
- 3.2. The rate shall be a unit of one cubic metre.

6.13.(A) Bricks work using common burnt clay building bricks having crushing strength not less than 35 Kg/Sq. Cm in foundation and plinth in cement mortar 1:6 (1 cement : 6 find sand) with conventional bricks.

1.0. Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. Bricks shall conform to M-15.

2.0. Workmanship

2.1. The relevant specification of item No. 6.12 (A) shall be followed except that the bricks to be used shall be conventional bricks and proportion of cement mortar shall in CM. 1:6.

3.0. Mode of measurements & payment

- 3.1. The relevant specification of item No. 6.12(A) shall be followed.
- 3.2. The rate shall be for a unit of one cubic metre.

6.0.0.1(A) Brick work using common burnt clay building bricks having crushing strength not less than 35 Kg/Sq. Cm. in foundation and plinth in cement mortar 1:8 (1 cement : 8 find sand), with Modular bricks.

1.0. Materials

Water shall conform to M-1. Brick shall conform to M-15. Cement mortar shall be conform to M-11.

2.0. Workmanship

2.1. The relevant specification of item No 6.12(A) shall be followed except that the proportion of cement mortar shall be cement mortar 1:8 and bricks used shall be conventional bricks.

3.0. Mode of measurements & payment

- 3.1. The relevant specification of item No. 6.12(A) shall be followed.
- 3.2. The rate shall be for a unit of one cubic metre.

6.00.1.(B) Brick work using common burnt clay building bricks having crushing strength not less than 35 Kg/Sq. Cm. in foundation and plinth in cement mortar 1:8 (1 cement : 8 fine sand), with conventional bricks.

1.0. Materials

Water shall conform to M-1. Brick shall conform to M-15, cement mortar shall be conform to M-11.

2.0. Workmanship

2.1. Thre relevant specifications of item No. 6.12(A) shall be followed except that the proportion of cement mortar shall be cement mortar 1:8.

3.0. Mode of measurement & payment

- 3.1. The relevant specifications of item No. 6.12(A) shall be followed.
- 3.2. The rate shall be for a unit of one cubic metre.

6.0.0.1.(A) Brick work using common burnt clay building bricks having crushing strength not less than 35 Kg./Sq. Cm. in foundation and plinth in time mortar 1:1.5 (1 Lime putty : 1.5 find sand) modular bricks.

1.0. Materials

Lime mortar of proportion (1:1.5) shall conform to M-10. Bricks shall conform to M-15.

2.0. Workmanship

2.1 The relevant specification of item No. 6.12(A) shall be followed except that the proportion of cement mortar shall be cement mortar 1:8 and bricks used shall t* conventional bricks.

3.0. Mode of measurements & payment

3.1. The relevant specification of item No. 6.12(A) shall be followed.

3.2. The rate shall be for a unit of one cubic metre.

6.001.(8) Brick work using common burnt clay building having crushing strength not less than 35 Kg/Sq. Cm. in foundation and plinth in cement mortar 1:8 (1 cement : 8 fine sand), with conventional bricks.

1.0 Materials

Water shall conform to M-1. Brick shall conform to M-15_T Cement mortar shall be conform to M-11.

2.0. Workmanship

2.1. The relevant specifications of item No. 6.12. (A) shall be followed except that the proportion of cement mortar shall be cement mortar 1:8,

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 6.12. (A) shall be followed.

3.2. The rate shall be for a unit of one cubic metre

6.0.0.2.(A) Brick work using common burnt clay building bricks having crushing strength not less than 35 Kg./Sq. Cm. in foundation and plinth in lime mortar 1:1.5 (1 Lime putty: 1.5 find sand) modular bricks.

1.0. Materials

Lime mortar of proportion (1:1.5) shall conform to M-10. Bricks shall conform to M-15.

2.0. Workmanship

The relevant specification of item No. 6.12. (A) shall be followed except the masonry work shall be carried out in lime mortar 1:1.5 (1 lime putty 1.5 fine sand) in foundation and plinth.

3.0. Mode of measurements & payment

3.1. The relevant specification of item No. 6.12. (A) shall be followed.

3.2. The rate shall be for a unit of one cubic metre.

6.0.0.2.(B) Brick work using common burnt clay building bricks having crushing strength not less than 35 Kg./Sq. Cm. in foundation and plinth in lime mortar 1:1.5 (1 Lime putty : 1.5 find sand) conventional bricks.

1.0. Materials & Workmanship

The relevant specification of item No. 6.12(A) and 6.0.02(A) shall be followed except that the masonry work shall be carried out by using conventional bricks in lime mortar 1:1.5 (1 Lime putty : 1.5 fine sand) in foundation and plinth.

2.0. Mode of measurements & payment

2.1. The relevant specification of item No. 6.12(A) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

6.0.0.3.(A) Brick work using common burtn clay building brick having crushing strength not less than 35 Kg. Sq. Cm. in foundation and plinth in lime mortar 1:2 (1 lime putty :2 find sand) modular bricks.

1.0. Materials & workmanship

The relevant specification of item No. 6.12(A) and 6.0.0,(A) shall be followed except that the masonry work shall be carried out in lime mortar 1:2 (1 Lime putty : fine sand) in foundation and plinth.

2.0. Mode of measurements & payment

2.1. The relevant specification of item No. 6,12 (A) shall be followed.

2.2. The rate shall be for a one cubic metre

6.0.0.3(B) Brick work using burnt clay building bricks having crushing strength not less than 35 Kg/Sq. Cm. in foundation and plinth in lime mortar 1:2 (1 Lime Putty : 2 find sand) modular bricks.

1.0. Materials & Workmanship

The relevant specifications of item No. 6.12 A and 6.0.03 shall be followed except that the masonry work shall be carried out in lime mortar 1:2 (1 lime ; 2 find sand) using conventional bricks in foundation and plinth.

6.19.(A) Brick work using common burnt clay building brick having crushing strength not less than 35 kg/sq.cm. for super structure above plinth level upto floor two level in cement mortar 1:5 (1 cement : 5 find sand) modular bricks.

1.0. Materials

Bricks shall conform to M-15. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The relevant specification of item No. 6.12 (A) shall be followed except that the masonry work shall be carried out above plinth level to floor two level i.e. for ground floor.

2.2. The frames of doors, windows, cupboards etc. shall be housed into the brick work at the correct location and level as directed. The heavy steel doors, window frames etc. shall be built in with work, but for ordinary steel doors and windows required opening for frames, hold-fasts, etc., shall be in the wall and frame embedded later on in order to avoid damage to the frames.

2.3. Necessary scaffolding shall be provided. The supports of the scaffolding shall be sound and strong tied, together with horizontal pieces over which the scaffolding plunks shall be fixed. Simple scaffolding shall be allowed normally. In this case scaffolding hole shall rest in hole header horizontal coarse only. Minimum number of holes be left in brick work for supporting horizontal scaffolding poles. The contractor is responsible for providing and maintaining sufficiently strong scaffolding so as to withstand all loads likely to come upon it.

2.4. For the face of brick work, where plastering is to be done, joints shall be raked out to a depth not less than thickness of joints. The face of brick work shall be cleaned and mortar dropping removed on very same day that brick work is laid.

3.0. Mode of measurements & payment

3.1. The masonry work of G.F. i.e. above plinth level to floor two level shall be measured and paid under this item.

3.2. Brick work in parapet shall be included in the corresponding masonry item of store immediately below the floor above which the parapet is built.

3.3. No deduction shall be made from quantity of brick work nor any extra payment made for embedding in masonry of marking holes in respect of following item.

(1) Ends of joints, beams, posts, girders, rafters, purlins trusses corbel, steps, etc. where cross sectional area does not exceed 500 sq.cm.

(2) Opening not exceed in 1000 sq.cm.

(3) Wall plate sand bed plates bearing of slab, chhajjas, and like whose thickness does not exceed 10 cms. and the bearing does not extend the full thickness of wall.

(4) Drainage holes and recesses for cement concrete blocks to embed hold fasts for doors, window etc.

(5) Iron fixtures, pipes upto 300 mm. dia. hold fasts of door* and window built into masonry and pipes etc. for concealed wiring.

(6) Forming charges of section net exceeding 350 sq.cm. in masonry.

(7) Apparatuses for fire places, shall not be deducted nor shall extra labour required to make splaying of jumps, throating and making trenches over the aperture be paid for separately.

3.4. The rate shall be for a unit of one cubic meter.

6.19.(B) Brick work using common burnt clay building bricks having crushing strength not less than 35 kg/sq. cm. for super structure above plinth upto floor two level in cement mortar 1:5 (1 cement: 5 fine sand) conventional bricks.

1.0. Materials & Workmanship

The relevant specification of item No. 6.19(A) shall be followed except that brick masonry work shall be carried out with conventional bricks.

2.0. Mode measurement and payment

2.1. The relevant specification of item No. 6.19 (A) Shall be followed.

2.2. The rate shall be for a unit of one cubic metre per metre.

6.20 Extra for brick in super structure above floor two level. 1.0.**Materials and workmanship**

The relevant specifications of item masonry work to be carried out shall be followed except that this work is for additional lift of one floor above two level.

2.0. Mode of measurements and payment

2.1. The relevant specification of item No. 6.19 (A) masonry work shall be followed.

2.2. The extra payment shall be made for additional lift above floor two level to each additional floor over and above the rate of masonry work.

2.3. The rate shall be for a unit of cubic metre per floor.

6.30.1(A) Half brick masonry in common burnt clay building having crushing strength not less than 35 kg/sq.cm. in cement mortar 1:4 (1 cement: 4 coarse sand) for super-structure above plinth level upto floor two level with conventional bricks.**1.0 Materials**

Bricks shall conform to M-15. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. Relevant specifications of bricks, wetting and laying of bricks, joints, curing etc. shall conform to item no.

6.19.(A) except that the brick work of half shall be carried out.

2.2. Cement mortar used in masonry work shall be in proportion of 1 part of cement and 4 parts of sand by volume.

2.3. All bricks shall be laid stretcher wise, breaking joints with those in the upper and lower courses. The wall shall be taken truly plumb. All courses shall be laid truly horizontal and all vertical joints shall be truly vertical. The bricks shall be laid with frogs upwards. A set of masons tools shall be maintained on work as required for frequent checking.

3.0. Mode of measurement and payment

3.1. The half brick masonry work in foundation and plinth shall be measured under this item, the limiting dimensions shall not exceed those shown in the plan or as directed. Any work done extra over the specified dimensions shall be ignored.

3.2. The relevant specifications of item no. 6.12. shall be followed. The length shall be measured nearest to one cm.

3.3. The rate shall be for a unit of one sq. metre.

6.30.I.(B) Half brick masonry in common burnt clay building bricks crushing strength not less than 35 kg/sq. cm. in cement mortar 1:4 (1 cement :4 coarse sand) for super-structure above plinth level upto floor two level with conventional bricks.**1.0. Materials and Workmanship**

1.1. The relevant specifications of item No. 6.30.1(A) shall be followed for bricks, wetting, laying of bricks, joints, curing, except that the bricks to be used shall be conventional bricks instead of modular bricks.

2.0. Mode of measurement and payment

2.1. The limiting dimensions shall not exceed those shown in the plan or as directed. Any work done extra over specified dimensions shall be ignored.

6.30.11(A) Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 kg/sq.cm. in cement mortar 1:5 (1 cement : 5 coarse sand) with modular bricks in foundations and plinth.**1.0. Materials & workmanship**

The relevant specifications of item No. 6.30.1 (A) shall be followed except the half brick masonry work shall be carried out in cement mortar 1:5 (1 cement: 5 coarse sand) with modular bricks in foundation and plinth.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item no. 6.30. I (A) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

6.30.II.(B) Half brick masonry on common clay building bricks having crushing strength not less than 35 kg/sq. cm. in cement mortar 1:5 (1 cement : 5 coarse sand) in foundation and plinth using conventional bricks.**1.0. Materials & workmanship**

1.1. The relevant specifications of item No. 6.30I (A) shall be followed for bricks, wetting, laying of bricks, joints, curing, except that the bricks to be used shall be conventional bricks instead of modular bricks.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 6.30(i)-A shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

6.30 III.(A) Half brick masonry in common burnt clay building having crushing strength not less than 35 kg/sq. cm. in lime mortar 1:15 (1 lime putty : 1.5 coarse sand) in foundation and plinth with modular bricks.

1.0. Materials & workmanship

The relevant specifications of item No.6.30 (I)-A shall be followed except that the half bricks work shall be carried out in cement 1:5 (1 cement: 5 coarse sand) in foundation and plinth using conventional bricks.

2.0. Mode of measurements & payment

- 2.1. The relevant specifications of item no. 6.30 (i)-A shall be followed.'
- 2.2. The rate shall for a unit of one sq. metre.

6.30.111(A) Half brick masonry in common burnt clay building having crushing strength not less than 35 kg/sq. cm. in lime mortar 1 :1.5 (1 lime putty : 1.5 coarse sand) in foundation and plinth with modular bricks.

1.0. Materials

Modular bricks shall conform to M-15 water shall conform to M-1. Lime mortar or proportion L.M. 1:1.5 (1 Lime putty : 1.5 coarse sand) shall conform to **M-10**.

2.0. Workmanship

The relevant specifications of item No. 6.30 (I) (A) shall be followed except that the half brick masonry work shall be carried out in lime mortar 1:1.5 (1 Lime putty : 1:1.5 coarse sand) in foundation and plinth using modular bricks.

3.0. Mode of measurements & payment

- 3.1. The relevant specification of item No. 6.30 (I) A shall be followed.
- 3.2. The rate shall be for a unit of one sq. meter.

6.30.111(B) Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 kg/sq. cm. in motar 1: 1.5 (1 Lime putty : 1.5 coarse sand) in foundation and plinth with conventional bricks.

1.0. Materials

Conventional bricks shall conform to M-15, water shall conform to M.1. Lime mortar or proportion L.M. : 1.5 (1 Lime putty : 1.5 coarse sand) shall conform to M-10.

2.0. Workmanship

The relevant specifications of item No. 6.30 (I)-A shall be followed except that half brick masonry work shall be carried out in Lime Mortar 1:1.5 (1 Lime putty : 1,5 coarse sand) in foundation and plinth using conventional bricks

3.0. Mode of measurements and payment

- 3.1. The relevant specifications of item No. 6.30 (I)-A shall be followed.
- 3.2. The rate shall be for a unit of one sq. metre.

6.30 II(A) Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 kg/sq. cm. in cement 1 : 5 (1 cement : coarse sand) with hoop iron 25 mm. x 1.6 mm. or equivalent reinforcement at every third coarse embedded in cement mortar in foundation and plinth with modu'ar bricks.

1.0. Materials

Bricks shall conform to M-15. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Cement mortar shall conform to M-11. M.S. reinforcement shall conform to M-18.

2.0. Workmanship

- 2.1. Relevant specifications of bricks, wetting and laying of bricks, joints, curing, scaffolding etc. shall conform to item No. 6.30 (I)-A except the following :
- 2.2. Cement mortar used in masonry work shall be in proportion to 1 part of cement and 5 parts of sand by volume and shall conform to M-11, and this work is for half brick thickness for partitions walls.
- 2.3. The hoop iron 25 mm x 1.6 or equivalent reinforcement shall be provided at every third course. The ends of reinforcement shall be fully embedded in main walls on both sides as directed Reinforcement shall be placed on the top of the bottom most course. Laps shall berof 15 cms. of mild steel bars or hoop iron.
- 2.4. The joints in the course where reinforcement is placed shall admit of mortar cover to the reinforcement

3.0. Mode of measurements and payment

3.1. The rate shall be for half brick masonry work providing specified reinforcement, the limiting dimensions not exceeding those in the plan or as directed. The length shall be measured nearest to one cm.

3.2. Any work done extra over specified dimensions shall be ignored.

3.3. The rate shall be for a unit one sq.metre.

6.30.11(B) Half brick masonry in common burnt clay building having crushing strength not less than 35 kg/sq.cm. in cement mortar 1:5 (1 cement : 5 coarse sand) with hoop iron 25. mm. x 1.6 mm. or equivalent reinforcement at every third course embedded in cement mortar in foundation and pith, with conventional bricks.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 6.30 I (A) shall be followed except that the work is to be carried out with conventional bricks instead of Modular bricks.

2.0. Mode of measurements and payment

2.1. The rate shall be for half brick work, including providing specified reinforcement, the limiting dimensions out with conventional bricks instead of Modular bricks.

2.2. The work done extra over specified dimensions shall be ignored.

2.3. The rate shall be for a unit of one sq. metre.

6.33.(A) Extra for half brick masonry in superstructure above floor two level. Modular bricks.

1.0. Materials & Workmanship

1.1. The relevant specifications for item No. 6.30 A & 6.30. B shall be followed except that this work is for additional lift over and above the payment of work upto floor two level.

2.0. The rate shall be for a unit of one sq. metre per floor.

6.33(B) Extra for half brick masonry work in superstructure above floor two level. Conventional bricks.

1.0. Materials & Workmanship

1.1. The relevant specifications for item No. 6.30 A & 6.30. B shall be followed except that this work is for additional lift of each floor two level using conventional bricks.

2.0. Mode of measurements and payment

2.1. The relevant specification of item No. 6.33 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre per floor.

6.55 (1) Half brick thick Honey-comb brick work with burnt clay building bricks having crushing strengths not less than 35 kg/sq.cm. in CM. 1:4 (1 cement : 4 coarse sand)

1.0. Materials

Bricks shall conform to M-15 Cement mortar of proportion shall conform to M-11.

2.0. Workmanship

The relevant specifications of item No. 6.32(A) shall be followed except that the masonry work shall be carried out Honey-comb in thickness of half bricks in cement mortar 1:4 (1 cement: 4 coarse sand) and as and where directed with all lifts.

3.0. Mode of measurements and payment

3.1. The honey-comb work shall be measured in sq. metres. The full area of honey comb work shall be measured without with all lifts.

3.2. The rate shall be for a unit of one square metre of wall surface.

SECTION-7 Rubble Masonry Work

7.6(1) **Uncoursed rubble masonry with hard stone approved quality in foundations and plinth in cement mortar 1:6 (1 cement : 6 coarse sand) including leveling etc. complete.**

1.0. **Materials :**

The cement mortar shall conform to M-11. Stone shall conform to M-16.

2.0. **Workmanship**

2.1. **Dressing of stones :**

Stone used for uncoursed rubble masonry work shall be hammer dressed on the sides, and beds in which such a way as to close with the adjacent stone in the masonry work as strongly as possible. The face stones shall be dressed in such a manner as to give a specified pattern such as polygonal facing etc. The face of the stones shall be so dressed that bushing on the exposed face shall not project by more than 40 mm. from the general wall surface and on the face to be plastered, it shall not project by more than 19 mm., not shall have depressions more than 10 mm. from the average waii surface.

2.2. **Laying :**

All the stone shall be sufficiently wetted before laying to prevent absorption of water from mortar. The wall shall be built true to plumb (of true to required batter when so specified). All connected walls in a structure shall be raised up informally and regularly. However if for any specific reason, one part of masonry is required to be left behind, the wall shall be racked back at an angle not steeper than 45. Vertical toothed joints in masonry shall not be allowed. The work shall be carried out regularly and masonry of any day wall not be raised by more than 1 metre in height.

2.3. The stone shall be laid in an uncoursed fashion, or random facing etc. However the masonry is required to be brought to level at various stages viz. plinth level window sill level, roof level and any other level specifically shown in the drawings. This may be done first by adjusting the laying of stone to one level and then by providing leveling course of cement concrete 1:6:12 (1 cement: sand : 12 graded stone aggregate 20 mm. nominal size) or as otherwise specified.-

2.4. Proper bonding shall be achieved by closely filling in adjacent stones as well as by using bond stones or through stones as described herein below. Face stones shall extend back sufficiently, and bond well with the masonry. The stone shall be carefully set so as to break joints and avoid formation of vertical joints. The depth of stone from the face of wall inwards shall not be less than weight or breadth at the face. The hearing or interior filling of the wall shall consist of rubble stones which may be of any shape. Neither the face stone nor the hearing stone shall be so small to pass through circular ring of 150 mm. internal diameter in any direction nor shall any of them shall have minimum thickness 100 mm.

2.5. All stone shall be carefully laid, hammered down by a wooden mallet into position and solidly embedded in mortar, chips and spawns of stone may be used wherever necessary to avoid thick mortar bends or joints at the same time ensuring that no hollow space is left any where in the masonry. The chips used shall not be more than 20% by volume of masonry. The hearing shall be laid nearly level with face stones except that at about one metre intervals vertical bond stone or plumes projecting about 150 to 200 mm. shall be firmly embedded to from vertical bounding in masonry.

2.6. **Bond stone:**

Bond stones or through stones running right across the thickness of the wall shall be provided in wall upto 600 mm. thick. In thicker walls two stones overlapping each other by atleast 150 mm. shall be provided across the thickness of the wall to form bond stones. There shall be atleast one bond stone for every 0.5 sq. mt. of wall surface. The bond stone shall be marked by a distinguishing letter during construction for subsequent verification and shall be laid staggered in sub sequent layers.

2.7. **Quoins:**

The quoins or corners stones shall be selected stone neatly dressed with hammer and/or chisel to form the required corner angle and laid header and stretcher alternatively. The bed top surface of quoins shall be chiselled dressed to give horizontal joints. The quoins shall have a uniform chisel draft of atleast 25 mm. width at four edges of each exposed face, all the edges of the same face being in one plane. No quoins stone shall be smaller than 0.025 cum. in volume.

2.8. **Jamb Stones :**

The jamb stone shall be made with stone specified for quoins, that the stone provided on the jambs shall have their length equal to thickness of wall upto 600 mm. and a line of headers shall be provided for walls thicker than 600 mm. as specified for bond.

2.9. Joints :

All the joints shall be completely filled with mortar and width shall not exceed 25 mm. when plastering of pointing is not required to be done, the joints shall be struck flush and finished simultaneously while laying the stone. Otherwise the joints shall be racked to a minimum depth of 20 mm. by a racking tools, during progress of laying while the mortar is still green.

2.10. Scaffolding :

Single or double scaffolding shall be used. The scaffolding shall be strong and sound. The holes left in masonry for supporting scaffolding shall be filled and made good before plastering.

2.11. Curing :

Green work shall be protected from rains by covering the same. Masonry shall be kept constantly moist on all the faces for a period of atleast 7 days. The top of masonry shall be flooded at close of the day.

3.0. Mode of measurements and payment

3.1. All work shall be measured on the basis of finished dimensions and measured net except where otherwise specified. Only specified dimensions shall be allowed. Anything extra shall be ignored. The masonry work in foundation and plinth shall be measured under this item. No deduction shall be made, nor extra payment made for the following :

- (a) Ends of joints, beams, spots, girders, rafters, purloins, trusses, corbies, etc. each upto 500 sq. cm. in section,
- (b) Opening each upto 0.1 sq.m.
- (c) Wall plates and bed plates, bearing of chhaja and like upto 10 cm. depth (bearing of floor and roof slabs shall be deducted from masonry).
- (d) Drain holes and recesses for cement concrete blocks to embed hold fasts for doors windows.
- (e) Building in the masonry iron fixtures pipes upto 300 mm. dia. hole fasts of doors and windows.
- (f) Forming cheses in masonry upto section of 350 sq.cm.

3.2. The rate shall be for a unit of one cubic metre.

7.6.(II) Uncoursed rubble masonry with hard stone of approved quality in foundation and plinth in cement mortar 1:5 {1 cement : 5 coarse sand} including levelling up etc. complete.**1.0. Materials and workmanship**

The relevant specification of item No. 7.6(1) shall be followed except that the proportion of cement mortar shall be in CM. 1.5 (1 cement : 5 coarse sand)

2.0. Mode of measurements and payments

2.1. The relevant specifications of item No. 7.6(1) shall followed.

2.2. The rate shall be a unit of one cubic metre.

7.6.(111) Uncoursed rubble masonry with hard stone of approved quality in foundation and plinth in lime mortar . 1:1.5 (1 lime putty : 1.5 coarse sand) including levelling etc. complete.**1.0. Materials :**

Lime mortar shall conform to M-10. The rubble shall conform to **M-16.**

2.0. Workmanship

The relevant specifications of item No. 7.6 (I) shall be followed.

3.0. Mode of measurement and payment

3.1. The relevant specifications of itme No. 7.6 (I) shall be followed.

3.2. The rate shall be for a unit of one cubic metre.

7.17(A) Coursed rubble measonry with hard stone of approved quality in foundation and plinth in cement mortar 1:6 (1 cement : 6 coarse sand) etc. complete. 1.0.

Materials Cement mortar shall conform to M-11. The stone shall conform to M-16.

2.0. Workmanship**2.1. Dressing of stones :**

The face stone shall be hammer dressed so as to give approximately rectangular blocks. They shall be squared on bed and side joints. The bed joints shall be rough chisel dressed for a depth of atleast 50 mm. back from the faces and the side joints shall be so dressed to a depth of atleast 40 mm. back from the face, such that no portion of the dressed surface is more than 10 mm. from a straight edge held against the surface. The remaining portions of surface shall not project above the chisel dressed bed and side joints. The bushing on the face shall not project by more than 40 mm. on an exposed face and 10 mm. on a face to be plastered. The hammer dressed stone shall also have a rough tooling for a minimum with of 25 mm. along the four edges of the face of the stone.

2.2. Laying :

2.2.1. All stones shall be wetted before laying. The wall shall be built up truly plumb (or to required better where so specified.)

All connected masonry in a structure shall normally be raised up uniformly and regularly. However, if for any specific reasons one part of wall is required to be left behind, such wall shall be raked back at an angle not steeper than 45°: vertical toothed joints in masonry shall not be allowed. The work shall be carried up regularly and masonry on any day shall not be raised by more than 1 metre in height.

2.2.2. All the courses shall be laid truly horizontal. The height of course shall not be less than 150 mm. nor more than 300 mm. Face stone shall be laid in alternate header and stretcher fashion. They shall be so arranged as to break joints by atleast 75 mm. Stones shall be laid with grains horizontal so that the load is transmitted along the direction of their maximum crushing strength. The depth of stone shall not be less than the height or breadth. The breadth of a face stone shall also be not less than the breadth. The breadth of a face stone shall also be not less than 150 mm. Each face stone shall be of the same height in any give course. The courses shall be not less than 150 mm. Each face stone shall be of the same height in any give course. The courses shall be built in perpendicular to the pressure which the masonry will bear. In case of battered walls (such as retaining walls) the beds of the stone and the plate of courses shall be laid with their bed perpendicular to the battered face.

2.2.3. The hearting or the interior filling of the wall shall consist of flat bedded stones carefully laid on their proper beds in mortar, chips and spawns of stone being used where necessary to avoid excessive use of mortar, care being taken to see that no hollow space is left anywhere in the masonry. Chips shall not be used below the hearting stone to bring these upto the level of stones. The use of chips shall be restricted to be filling of interstices between the hearting stone but the volume of chips shall be limited to 15% of the total volume of the masonry.

2.3. Bond Stones :

The relevant specification of item No. 7.6 (I) para 2.6 shall be followed except that the bond stone shall be provided for at least 1.8. m. length of every courses.

2.2.4. Quoins :

The quons, which shall be of the same height as the course to which it belongs shall be formed from selected stone of at least 400 mm. length. They shall be laid square or beds on stretchers and headers alternatively. The beds shall be rough, chisel dressed to a depth of at least 100 mm. These stones shall have a minimum uniform chisel draft of 25 mm. width at four edges being in the same plane, quoin stone shall not be smaller than 0.025 cum. in volume and it shall also be not less than 300 mm. in length, 25 % of them being not less 500 mm. in length.

2.5. Joints:

All the bed joints shall be horizontal and all shall be vertical. Face joints shall not be more than 10 mm. thick. All joints shall be properly and completely filled with mortar. On faces where no plastering or pointing is required to be done the joint shall be flush and finished simultaneously while laying stones. In other cases the joints shall be raked to a minimum depth of 20 mm. by raking tools during the progress of work while the mortar is still green.

2.6. Curing :

The relevant specification of item No. 7.6 (I) para 2.9 shall be followed.

3.0. Mode of measurements & payment

3.1. The relevant specification of item No. 7.6 (I) shall be followed.

3.2. The rate shall be for a unit of one cubic metre.

7.17.(B) Coursed rubble masonry with stone of approved quality in foundation and plinth in cement mortar 1:5 (1 cement : 5 coarse sand) etc. complete. 1.0.**Materials & Workmanship**

The relevant specifications of item No. 1.17 (A) shall be followed except that the proportion of cement mortar shall be CM. 1:4 (1 cement: 5 coarse sand)

2.0. Mode of measurement & payment

2.1. The relevant specification of item No, 7.17 (A) shall be followed.

2.2. the rate shall be for a unit of one cubic metre.

7.17(C) Coursed rubble masonry with stone of approved quality in foundation and plinth in CM. 1:4 (1 cement : 4 coarse sand) etc., complete) 1.0.**Materials & workmanship**

The relevant specifications of item No. 7-17 (A) shall be followed except that the proportion of mortar shall be CM. 1:4 (1 cement : 4 coarse sand)

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 7.17 (A) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

7.17(D) Coarsed rubble masonry with stone of approved quality in foundation and plinth in cm. 1:3 (1 cement : 3 coarse sand) etc. complete.

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 7.17 (A) shall be followed except that the proportion of mortar shall be CM. : 3 (1 cement : 3 coarse sand)

2.0. Mode of measurement & payment

2.1. The relevant specification of item No. 7.17 (A) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

7.19(A) Coarsed rubble masonry with stone of approved quality for structure above plinth level up to floor two level in CM. 1 : 6 (1 cement : 6 coarse sand) etc. complete.

1.0. Materials & Workmanship

1.1. The relevant specification of item No 7.17 (A) shall be followed except that the coarsed rubble masonry work shall be carried out for superstructure above plinth level upto floor two level.

1.2. Single or double scaffolding may be used. The scaffolding shall be strong and sound. In case single scaffolding is used, the holes shall be carefully made good as directed.

2.0 Mode of measurement & payment

2.1. The relevant specifications of item No. 7.17 (A) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

7.75. Precast concrete block masonry (including quoin block, jamb blocks, closer etc.) with solid concrete blocks of approved size made of cement concrete 1:3:6 Mix. (1 cement : 3 coarse sand -6 graded stone aggregate of 20 mm. and down gauge) in foundation and plinth in cement mortar 1:6.

1.0. Materials

(a) Aggregate shall conform to M-12. (b) Sand shall conform to M-6. (c) Cement shall conform to M-3.

1.1. The solid cement concrete blocks shall be precast with concrete of 1:3:6 mix (1 cement: 3 coarse sand : 6 graded stone aggregate)

1.2. A block shall be deemed to be solid if the solid materials is not less than 75% of the total volume of the blocks calculated from overall dimensions,

1.3. The concrete mix used for block shall be one of the following :

1.4. The actual size of the block shall be one of the following :

Size : A. 39 x 30 x 19 cms. Size-B 39 x 20 x 19 cms. Size-C 39 x 10 x 19 cms.

The size other than those specified above may be used with the approval of Engineer-in-charge.

1.5. The blocks may be either machine made or hand made. The concrete mix, the mixing of concrete the manufacture of blocks, curing and drying shall be in accordance with para-6 to 10 under I.S. : 2185-1967.

1.6. Faces of blocks shall be flat and rectangular. Surface finish shall be rendered smooth or plastered with cement mortar 1:3 coarse sand)

1.7. The average compressive strength of eight blocks when determined in the manner described in I.S. : 2185-1967 shall not be less than 50 Kg/Sq. Cm. of gross area. The strength of lowest individual block shall not be less than 75 percent of average compressive strength of eight blocks.

1.8. Concrete blocks shall be stored and stacked properly in such a way as to avoid any contact with moisture at site. They shall be stock piled on planks or other supports free from contact with ground and covered to protect against wetting. Cement mortar of proportion 1:6 shall conform to M-11.

2.0. Workmanship

2.1. The blocks need not wetted before of during laying in the walls. In case climatic conditions so required, the top and the sides of block may only be slightly moistures so as to prevent absorption of water from the mortar and ensure the development of required bond with mortar.

2.2. Operations of laying precast cement concrete block masonry shall be carried out in accordance with instructions detailed in I.S. : 6042-1952. The mortar shall not be spread so much ahead of the actual laying of the units that it tends to stiffen and loose its plasticity, thereby resulting in poor bond. For most of the work, the joints, both horizontal and vertical shall be 10 mm. thick except in the case of extended joint, construction, the mortar joints shall be struck off flush with wall surface and when the mortar has started stiffening, it shall be compressed with rounded or U-shaped tool. The mortar shall be pressed against the units with a jointing tool after the mortar has stiffened in effect intimate contact between the mortar and the masonry unit and obtained a weather tight joint.

2.3. Quoins and closures :

Special quoins blocks (with a return face equal to half the length of normal face) shall be cast for all building blocks and slabs for external work. Proper half closures shall be cast and not cut from full size blocks. The returned ends of blocks for door windows reveals and quoins shall be finished with a fair face in the mould.

2.4. Only double scaffolding shall be used. The scaffolding be strong and sound. No holes in the masonry for supporting shall be allowed.

2.5. **Curing** : The curing of concrete block masonry shall be carried out for 7 days.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 7.6 (I) shall be followed

3.2. The work of concrete block masonry in foundation and plinth shall be measured under this item.

3.3. The rate shall be for a unit of one cubic metre.

7.82(A) Precast concrete block masonry in partition walls 10 cms. thick with solid block of approved size (including quoins, blocks, jamb blocks closer etc) made of C.C.1 :3 :6 (1 cement: 3 coarse sand : 6 graded stone aggregates 20 mm. and down gauge) in CM. 1:4.

1.0. Materials :

1.1. The relevant specification of item No. 7.75 shall be followed except that the precast concrete blocks shall be of size suitable for 10 cms. size partition wall i.e. size, c, and the proportions of cement mortar shall be in cement mortar 1:4 (1 cement : 4 coarse sand).

2.0. Workmanship

The relevant specifications of item No. 7.75 shall be followed except that the work shall be for precast concrete block partition walls of 10 cms. thickness.

3.0. Mode of measurement & payment

3.1. The relevant specifications of item No. 7.75 shall be followed.

3.2. The rate shall be for a unit of one cubic metre.

7.0.0.1. White stone masonry block in coarse in superstructure with stone of approved quality in lime mortar 1:1.5 {1 Lime putty 1:5 fine sand) including raking out joints etc. complete.

1.0. Materials :

1.1. The stone or bela shall be white hard sand stone or block. The stone shall be sound hard rough and durable. It shall be free from skin. The thickness of bela or block shall not be less than 15 cms. or as directed. The mortar used shall consist. One part of lime putty and 1.50 parts of fine sand. Lime mortar shall conform to M-10.

2.0. Workmanship**2.1. Dressing of stone :**

Stone shall be chiselled on all the sides so that all six sides shall be in a rectangular shape and all the stones shall be so dressed that the bushing of the exposed face shall not project nor be depressed for the general wall surfaces. The size of bela or block shall be as per thickness of the wall to be constructed or as directed.

2.3. Laying :

All the stone shall be sufficiently wetted before laying to prevent absorption of water from mortar. All connected walls in a structure shall normally be raised up uniformly and regularly. The vertical joint shall not be allowed and also it shall not be more than 12 mm. in thickness

2.3. Proper bonding shall be made by laying bela or block side by side each other with lime mortar on bed as well as in between two bela or block vertically.

2.4. Bond stones :

Bond stones or through stones running right across the thickness of the wall shall be provided in walls upto 450 mm. thick. In thicker walls two bela or blocks or laying each other by at least 150 mm. each other shall be provided across the thickness of the wall to bond stone. Such bond stone shall be at least one for every 1.0 sq. mt. area of the wall surface.

2.5. Joints:

All the joints shall be completely filled up with mortar and their thickness shall not exceed by 12 mm. When plastering or pointing is not required to be done, the joints shall be struck flush and finished, simultaneously while laying the stone. Otherwise the joints shall be raked to a minimum depth of 20 mm. during process of laying while mortar is still green.

2.6. Scaffolding :

Single or double scaffolding shall be used. It shall be strong and sound. The holes left in masonry for supporting shall be made good before plastering.

2.7. Curing :

Green work shall be cured for a period of 7 days continuously.

3.0. Mode of measurements & payment

3.1. The work shall be measured on the basis of finished dimensions. No deduction shall be made nor extra payment shall be made for the following :

(a) Ends of joint, beams, posts, girders, rafters, purlins, corbels etc.. each upto 500 sq.cms. in section (B) Opening each upto 0.10 Sq.m.(c) Small plates and bed plates, bearing of chhajas and like upto 10 cms. depth (bearing on floor and roof shall be deducted from masonry), (d) Drain holes and recesses for cement concrete blocks to embedded hold fasts of one cubic metre.

7.0.0.2. White stone bela masonry work in partition walls upto 15 cms. thickness in C.M.1 :4 (1 cement: 4 coarse sand.)

1.0. Materials and workmanship

The relevant specifications of item No. 7.0.0.1 as above shall be followed except that the proportion of mortar shall be in CM. 1:4 (1 cement: 4 coarse sand.)

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 7.6 (I) shall be followed

2.2. The rate shall be for a unit of one cubic metre.

7.0.0.3. White stone bela masonry block in course in superstructure with stone of approved quality in CM. 1:5 (1 cement : 5 coarse sand) including raking the joints etc. complete.

1.0. Materials and Workmanship

The relevant specifications of item No. 7.0.0 1. as above, except that the proportion of cement mortar shall be in CM. 1:5 (1 cement : 5 coarse sand)

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 7.6 (I) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

7.0.0.4. White stone bela masonry block in course in superstructure with stone of approved quality in CM. 1:6 (1 cement: 6 coarse sand) including raking the joints etc. complete. 1.0. Materials and Workmanship

The relevant specifications of item No. 7.0.0.1 shall be followed except that the proportion of cement mortar shall be 1:6 (1 cement : 6 coarse sand)

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 7.6. (I) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

SECTION -9 Centering & Form Work

9.1.(A) Providing form work of ordinary timber planking so as to give a rough finish including centering strutting and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced concrete and plain concrete work in foundation, footings, bases of columns, and mass concrete.

1.0. Materials

1.1. The shuttering to be provided shall be of ordinary timber plank and shall conform to M-26.

1.2. The dimensions of scantlings and battens shall conform to the design. The strength of the wood shall not be less than that assumed in the design.

2.0. Workmanship

2.1. The form work shall conform to the shape lines and dimensions as shown on the plans and be so constructed as to remain sufficiently rigid during the placing and compacting of the concrete. Adequate arrangements shall be made by the contractor to safe-guard against any settlement of the form-work during the course of concreting and after concreting. The form work of shuttering, centering, scaffolding, bracing etc, shall be as per design.

2.2. Clearing and Treatment of forms :

2.2.1. All rubbish, particularly chipping shaving and saw dust shall be removed from the interior of the form before the concrete work is placed and the form in contact with concrete shall be cleaned and thoroughly wetted or treated. The surface shall be then coated with soap solution applied before concreting is done. Soap solution for the purpose shall be prepared by dissolving yellow soap in water to get consistency of paint. Alternatively a coat of raw linseed oil shall be applied after thoroughly cleaning the surface. Care shall be taken that the coating does not get on construction joint surface and reinforced bars.

2.3. Stripping time :

2.3.1. In normal circumstances and where ordinary cement is used forms may be struck after expiry of following periods.

- | | |
|--------------------------------------------------------------|-----------------|
| (a) Sides of walls columns and vertical faces of beams | 24 to 48 hours. |
| (b) Beam soffits, (props, left under)..... | 7 days |
| (c) Removal of props slabs : | |
| (i) Slabs spanning upto 4.5. m..... | 7 days |
| (ii) Spanning over 4.5 mm | 14 days |
| (d) Removal of props t beams and Arches : | |
| (i) Spanning upto 6 mm..... | 14 days |
| (ii) Spanning over 6 m | 21 days. |

2.4. Procedure when removing the form work :

2.4.1. All form work shall be removed without such shock or vibrations as would damage the reinforced concrete surface. Before the soffits form work and struts are removed, the soffits and the concrete surface shall be exposed where necessary in order to ascertain that the concrete has sufficiently hardened.

2.5. Centering :

2.5.1. The centering to be provided shall be got approved. It shall be sufficiently strong to ensure absolute safety of the form work and concrete work before, during and after pouring concrete. Watch should be kept to see that behavior or centering and form work is satisfactory during concreting. Erection should also be such that it would allow removal of forms in proper sequence without damaging either the concrete or the forms to be removed.

2.5.2. The props of centering shall be provided on firm foundation or base of sufficient strength to carry the loads without any settlement.

2.5.3. The centering and form work shall be inspected and approved by the Engineer-in-charge before concreting. But this will not relieve the contractor of his responsibility for strength, adequacy and safety of form work and centering. If there is a failure of form work or centering, contractor shall be responsible for the damages to property.

2.6. Scaffolding:

2.6.1. All scaffolding, hoisting arrangements and ladders etc., required for the facilitating of concreting shall be provided and removed on completion of work by contractor at his own expense. The scaffolding, hoisting

arrangements and ladders etc. shall be strong enough to withstand all live, dead and impact loads expected to act and shall be subject to the approval of the Engineer-in-charge. However contractor shall be solely responsible for the safety of the scaffolding, hoisting arrangement, ladders, work and workman etc.

2.6.2. The scaffolding, hoisting arrangements and ladder shall allow easy approach to the work spot and afford easy inspection.

2.6.3. The rate is applicable to all condition of working and height upto 4 mts. The rate shall include the cost of materials and labour for various operations involved such as :

- (a) Splayed edges, notching, allowance for overlaps and passing at angles, battens centering, shuttering propping, bolting, wedging easing, striking and removal.
- (b) Filleting to form stop chamfered edges or splayed external angles not exceeding 20 mm. width to beams, columns and the like.
- (c) Temporary openings in the forms for pouring concrete, if required removing rubbish etc
- (d) Dressing with oil to prevent adhesion of concrete with shuttering and.
- (e) Raking or circular cutting.

2.7. Re-Use :

2.7.1. Before re-use, all form shall be inspected by Engineer-in-charge and their suitability ascertained. The forms shall be scarred, cleaned and joints are gone over, repaired where required. Inside surface shall be retreated to prevent adhesion of concrete.

3.0.0. Mode of Measurements & Payment

3.1. Form work shall be measured as the area in square metres to shuttering in contact with concrete except in the case of inclined member and portion of curved profile-and upper side in which case on area of underside shall be measured for payment.

3.4. Form work to secondary beams shall be measured up to the sides of main beams but no deduction shall be made from the form work of the main beam at the inter section point. No deduction shall be made from the form work of a column at inter section of beams.

3.5. The rate is for the completed item

3.6. The rate shall be for a unit of one sq. metre.

9.1.(A) (i) Extra for providing form work of ordinary timber planking so as to give a rough finish including centering, shuttering and propping etc., height of propping and centering below supporting floor to ceiling is between 4 to 5 m. and removal of the same for in situ reinforced or plain concrete work in foundations, footings, bases of columns etc. and mass concrete.

10. Materials workmanship

1.1. The relevant specification of item No. 9.1. (A) shall be followed except they the height of propping and centering below supporting floor to ceiling exceeding 4 m. but not exceeding 5 m.

2.0. Mode of measurements and payment

2.1. The payment shall be made extra over and above the payment made up to 4 m. height. The relevant specifications of item No. 9.1. (A) shall be followed. The rate shall be for a unit of one sq. metre. **9.1.(B)(i)**

Providing form work of ordinary timber planking so as to give a rough finish including centering, below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced and plain concrete work in flat surface such as soffits of slabs, landing and the like floors etc. upto 200 mm. in thickness.

*

1.0. Materials & Workmanship

1.1. Relevant specifications of item 9.1. (A) shall be followed except that work is to be carried out for flat surfaces such as soffits of slabs, landings, and the like for floors etc. upto 200 mm. in thickness.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 9.1 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

9.1.(B)(ii) Providing form work of ordinary timber planking so as give a rough finish including centering shuttering, strutting and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced and plain concrete work in flat surface such as soffits of slabs, landings, and the like floors etc. above 200 mm. in thickness.

1.0. Materials and Workmanship

1.1. Relevant specifications of item No. 9.1 (A) shall be followed except that the work is to be carried out for flat surfaces such as soffits of slabs, landings, and the like for floors etc. upto 200 mm. in thickness.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 9.1 (A) shall be followed.

2.2. The rate shall be for a unit of sq. metre

9.1.(C) Providing form work of ordinary timber plankings so as to give a rough finish including centering shuttering, strutting and propping etc. height of propping and centering below supporting floor to ceiling not excluding 4 m. and removal of the same for in situ reinforced concrete and plain concrete work in vertical surface such as walls (any thickness) partitions.

1.0. Materials and Workmanship

The relevant specifications of item 9.1 (A) shall be followed except that the form work shall be earned out for vertical surfaces such as walls of any thickness, partitions etc.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No.9.1 (A) shall be followed.

2.2. The rate shall be for a unit of sq. metre.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No.9.1.(A) shall be followed.

1.2. The rate shall be for a unit on one sq. metre.

9.1.(G)(i) Providing form work of ordinary timber planking so as to give a rough finish including centering, shuttering and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m, and removal of the same for in situ reinforced and plain concrete work columns, pillars, posts, and struts, square rectangular, polygonal in plan.

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 9.1. (A) shall be followed except that the work is for columns, pillars, posts and struts, square, rectangular, polygonal in plan.

2.0. Mode of measurement and payment

2.1. The relevant specification of item No. 9.1. (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

9.1.(H)(i) Providing form work of ordinary planking so as to give a rough finish including centering, shuttering, strutting and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced and plain concrete work in side and soffits of beam haunchings, cantilevers, girders, bressurners, and lintels not exceeding 1 m. depth.

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 9.1 (A) shall be followed except that the work is for sides and soffits of beams, haunching cantilevers, girders, bressurners and lintels not exceeding 1 M. in depth.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 9.1 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

9.1.(H)(2) Providing form work of ordinary timber Planking so as to give a rough finish including centering, shuttering, strutting and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced and plain concrete work in sides and soffits of beams, haunchings, cantilevers, girders, bressurners and lintels exceeding 1 m. in depth.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 9.1.(A) shall be followed except that the work is for side and soffits of beam huhchings, girders, bressurners and lintels, exceeding 1 m. in depth.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 9.1.(A) shall be followed except that the work is for side and soffits of beams haunching cantilevers, girder, bressurners and linteis, exceeding 1 m. in depth,

2.2. The rate shall be for a unit of one sq. metre.

9.1.(i) Providing form work of ordinary timber planking so as to give a rough finish including centering, shuttering and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for situ reinforced and plain concrete work in edges of slabs and breaks in floor and walls.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 9.1. (A) shall be followed except that the work is for edges of breaks in floors and walls.

2.0. Mode of measurements and payment

2.1. The length and breadth shall be measured nearest to one Cm.

2.2. The rate shall be for a unit of one Sq. metre.

9.1.(K) Providing form work of ordinary timber planking so as to give a rough finish including centering shuttering, strutting and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same in situ reinforced and plain concrete in small surface such as cantilevers ends, brackets and ends of the steps., caps and bases to pilasters and columns and the like.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 9.1.(A) shall be followed except that work is for small as cantilever ends, brackets and ends of steps, caps and bases to pilasters and columns and the like.

2.0. Mode of measurement and payment

2.1. The relevant specification of item No. 9.1.(A) shall be followed.

2.2. The rate shall be unit of one sq. metre.

9.1.(1) Providing form work of ordinary timber planking so as to give a rough finish including centering, shuttering, strutting and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced and plain concrete in chullah hoods, weather sheds, chhajas, corbels etc. including edges.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 9.1 (A) shall be followed except that the work is for chullah hoods, weather-sheds, chhajas, corbels, etc. including edges of the same.

2.0. Mode of measurements and payment

2.1. The relevant specification of item No. 9.1. (A) shall be followed.

2.2. The rate shall be for a unit of one square metre.

9.1.(M) Providing form work of ordinary timber planking so as to give a rough finish including centering, shuttering and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced and plain concrete work in staircase with slopping or stepped soffits including risers and stringers excluding landing.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 9.1.(A) shall be followed except that the work is for staircases, with slopping or stepped including risers and stringers excluding landing.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 9.1. (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

9.1.(Q) Providing form work of ordinary timber planking so as to give a rough finish including centering shuttering, strutting and propping etc. height of propping and centering below supporting floor to ceiling not exceeding 4 m. and removal of the same for in situ reinforced and plain concrete work in vertical fins and vertical sun-breakers.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 9.1. (A) shall be followed except that the work is for vertical fins and vertical sun breakers.

2.0. The rate shall be for a unit of one sq. metre.

9.7. Extra for providing form work with sweating of steel sheets so as to give a fair finish in :

- (A) Foundation, footings, base of columns etc. mass concrete.
- (B) Flat surfaces such as soffits, of slab landing and the like.
- (i) Floors etc. upto 200 mm. in thickness.
- (ii) Floors etc. above 200 mm. in thickness.
- (C) Vertical surfaces such as walls (Any thickness) partitions.
- (D) Columns, pillars posts and struts.

- 1 Square, rectangular, bressumers, and lintels not exceeding 1 mm. depth.
- 2 Sides and soffits and beams, beam haunchings, cantilevers, girders, bressumers and lintels exceeding 1 mm. in depth.
 - (I) Edges of slabs, and breaks in floors and walls.
 - (K) Small surfaces such as cantilever ends, brackets, and ends-of steps, caps and bases to pillars and columns including edges.
 - (L) Chollar woods, weather sheds, chhajjas, coroeds etc. and the like.
 - (M) Staircases sloping or stepped soffits, including risers, skinners excluding landing.
 - (Q) Vertical fine a/id vertical sun breakers.

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 9.1.(A) to (Q) shall be followed except that the extra rate shall be paid for using sheathing of steel sheets, and plates of steel or plywood instead of ordinary timber plank, to obtain a desired smooth exposed finish of surface. The surface shall be presentable without further treatment.

2.0. Mode of measurements and payment

2.1. The measurement of form work shall be taken for the work done with steel sheathing, extra over and above the rate of form work of respective item of form work done. The relevant specification of respective item No. 9.1. (A) to (Q) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

SECTION 10 Wood Work, Doors & Windows

10.1.(A) Providing wood work in frames of doors, windows, clerestory windows and other similar work, wright, framed and fixed in position, Indian Teak wood.

1.0. Materials

Wooded in frames shall conform to M-29.

2.0. Workmanship

2.1. The item covers the requirement of frames for doors, windows, clerestory windows, their supply and fixing.

2.2. Frames:

2.2.1. All members of frames shall be exactly at right angles. The right angle shall be checked from inside surfaces of the frames of the respective members.

2.2.2. All members of frames shall be straight without any warp of bow and shall have smooth surfaces well planed on the three sides exposed at right angles to each other. The surfaces touching the wall may not be planed unless it is required in order to straighten up the member or to obtain the overall sizes within the tolerances as specified

2.2.3. Frame shall have dovetail joints. When clerestory windows are included, it shall be provided by having full length one piece post for door or windows and clerestory window extending the frame on top at the head to the required extent. Horns shall not be provided in the head of the frame. When no sills are provided, the vertical posts of the frame in the ground floor shall be embedded in the sill masonry for 10 cm. on upper floors, the vertical posts shall be fixed in the floor or masonry by forming notches 10 mm. deep. Slight adjustment of spacing as necessary shall be done to have the hold fasts in the joints of masonry course. The frame shall be erected in position and held-plumb with strong support from north sides and built in masonry as it is being built. The transom shall be through tenoned into the mortises of the jamb post to the full width of the jamb post and the thickness of the tenon shall be not less than 15 mm.

2.3. Tolerance :

Unless specially mentioned otherwise tolerance of + 1.5. mm. shall be allowed for each wrought face.

2.4. The tenons shall be closely fitting into the mortises and suitably pinned with wood dowels not less than 10 mm. dia. metre. The depth of rebates for housing the shutter shall be as shown in the detailed drawing or as directed.

2.5. The concrete surface of tenon and mortise shall be treated before putting together with an adhesive of approved make.

2.6. Minimum number of three hold-fasts shall be fixed on each side of door and windows frames, one at the center point and the other two at 30 mm. from the top and bottom of the frames. In case of windows and ventilators frames. The size of each hold-fast shall be 300 x 25 x 6 mm. and of mild-steel with split end. The hold fasts shall be fixed with screws to frames.

2.7. Mild steel hold fasts shall be protected with a coating of coal asphalt tar. The surface of frame abutting the masonry or concrete faces shall be properly treated by applying a coat of approved coating.

3.0. Mode of Measurements and payment

3.1. The linear dimensions shall be measured correct upto 1 cm. The quantity shall be worked out correct to places of decimals of cu. m.

3.2. The rate shall be for a unit of 10 cu. diameter.

10.4.(A) Providing work in trusses, purloins, falters, posts, post plates, wall plates, and like wrought, framed, hoisted and fixed in position, Indian teak wood. 1.0,

Materials The teak wood shall conform M-29.

2.0. Workmanship

2.1. The relevant specifications of item No. 10.1.(A) shall be followed except that wood work shall be carried out in trusses, purloins, falters, posts, plates, wall plates and like wrought framed.

2.2. The work shall be carried out as per detailed drawings supplied by the Department as directed.

2.3. The length of the each member shall be in one piece or as directed.

3.0. Mode of measurement and payment

The length, breadth and depth shall be measured nearest to 1 cm. of unfinished member The rate shall be for a unit of 10 cubic Decimeter.

10.5. (A) Providing wood work in frames of false ceiling partition etc. swan and put up in position, Indian teak wood.

1.0. Materials

The teak wood shall conform to M-29.

2.0. Workmanship

The relevant specification of item No. 10.1. (A) shall be followed except that the wood work shall be for false, ceiling, partitions, etc. swan and put in position.

3.0. Mode of measurement and payment

3.1. The relevant specifications of item No. 10.1. (A) shall be followed.

3.2. The rate shall be for a unit of Ten cubic Decimeter.

10.12.(A)(i) Providing and fixing 35 mm. thick fully panelled shutters for doors, windows and clerestory windows including anodised aluminum butt hinges with necessary screws. Indian Teak Wood.

1.0. Materials.

1.1. Wood for shutter shall conform to M-29. 2. Glass shall conform to M-38. 3. Anodised aluminum butt hinges shall conform to M-43.

2.0. Workmanship

2.1. The item covers the requirement of preparation of shutters for doors, windows, clerestory windows, their supply and fixing.

2.2. Shutters:

2.2.1. Panelled shutters shall be constructed in the form of timber frame work of styles and rails with panel inserted of type as specified in the detailed drawings. Panel shall be fixed by providing grooves in the style and rails. The styles and rails shall be joined to each other by mortise and tenon joints at right angles.

2.2.2. All members of the shutters shall be straight without any warp or bow and shall have smooth, well planed faces at right angles to each other.

2.2.3. The size of styles and rails shall be as per drawings or as directed. Styles and rails of shutters shall be made of one piece only.

2.3. Timber paneling :

2.3.1. Thickness of the panel shall be as specified in the item as shown in the drawing or as directed. If the panel is made from more than one piece the pieces shall be finished as shown in the detailed drawings and shall be joined with continuous groove with specified size. The end pieces of the panel and the top and bottom of the panel shall be provided with continuous tongue to frame into groove of the frame shutter. An air space of 1.5. mm. shall be left in the groove of frame of shutter while framing the panels in it.

2.3.2. The faces of the panel as well as various pieces of the panel shall be closely fitted to the sizes of the grooves.

2.3.3. Finishings of the corners of raised panel edges shall be done as shown in drawings or as directed.

2.3.4. The thickness specified shall be finished thickness and no tolerance will be permitted. 2.5.

Fixtures and Fastenings :

2.5.1. The rate shall include anodised butt hinges including fixing with iron screws. The size and number of hinges shall be as per table given in annexure-1.

3.0. Mode of measurement and payment

3.1. The rate for shutter includes cost of providing block and cleat for keeping the shutter in open position if directed.

3.2. The dimension of the shutter shall be measured clear size of the shutter in close position between the grooves of the frame.

3.3. The rate shall be for a unit of one sq. metre.

19.12.(A)(H) Providing and fixing 35 mm. thick fully shutters for doors, windows and clear story windows including anodised aluminum but hinges with necessary screws, Indian teak wood.

1.0. Materials

Teak wood shall conform to M-29 Glass shall conform to M-38. Anodised aluminum butt hinges shall conform to M-43.

2.0, Workmanship

2.1. The relevant specifications of item No. 10.-12 (A) I shall be followed except that the 35 mm. thick shutters full glazed for doors, windows and clear story windows including anodised aluminum butt hinges with necessary screws.

2.2. Glazing :

2.2.1. The glass panels shall be embedded in putty and secured to the rebate by wooden beads, or moulding shape and size as approved with counter sunk screws of suitable size.

2.2.2. The glass panels shall be properly cut to fit the rebates of the frames and sashes fully with a slight minus margin of about 1.5 mm. on all sides. Before glazing, the frame shall be primed and prepared for painting so that wood may not draw oil out of putty. The rebate shall be putted to an extent to provide bedding all round the glass.

2.2.3. The glass shall then be bedded in putty and fitted to frames with wooden heads or moulding as directed and secured with counter sunk screws. The screws shall be spaced not more than 100 mm. from each corner and not more than 200 mm. apart.

2.2.4. The size of the rebate in the frame and size and shape of beads of moulding shall be as per detailed drawings or as directed. The beads or mouldings shall have mitred corners.

3.0. Mode of measurement and payment

3.1. The relevant specifications of item No. 10.12 (A) (I) shall be followed.

3.2. The rate shall be for a unit of one sq. metre.

10.12(A)(III) Providing and fixing 35 mm. thick partly panelled and partly glazed shutters, or doors, windows, including anodized aluminum butt hinges with necessary screws, Indian teak wood.

1.0. Materials

Teak wood shall conform to M-29. Glass shall conform to M-38. Anodised aluminum butt hinges shall conform to M-43.

2.0. Workmanship

The relevant specifications of item No. 10.12.(A) (II) shall be followed except that the 35 mm. thick shutter shall be partly panelled and partly glazed for doors, windows, clear story windows etc. as per drawings.

3.0. Mode of measurement and payment

3.1. The relevant specifications of item No. 10.12 (A) (I) shall be followed.

3.2. The rate shall be for a unit of one sq. metre.

10.13.(A)(1) Providing and fixing 35 mm. thick full panelled, shutters for doors, windows and clear story windows including black enamelled M.S. Butt, hinges with necessary screws, Indian Teak Wood.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 10.12 (A) (II) shall be followed except that the hinges shall be of black enamelled M.S. Butt hinges. The hinges, bolts and other items of iron mongery with moving parts shall be properly oiled by the contractor before handing over the building.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 10.12 (A) (I) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

10.13.(A)(If) Providing and fixing 35 mm. thick full glazed shutters for doors, windows and clear story windows including black enamelled M.S. Butt, hinges with necessary screws, Indian Teak Wood.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 10.12 (A) (II) shall be followed except that the hinges shall be of black enamelled M.S. Butt hinges. The hinges, bolts and other items of iron mongery with moving parts shall be properly oiled by the contractor before handing over the building.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 10.12 (A) (I) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

10.13(A)(III) Providing and fixing 35 mm. thick partly panelled and partly glazed shutters for doors, windows, and clearstory windows including black enamelled M.S. Butt hinges^ with necessary screws, Indian Teak Wood.

1.0. Materials & Workmanship

The relevant specification of item No. 10.12 (A) (III) shall be followed except that the hinges shall be of black enamelled M.S. butt hinges, bolts and other items of ironmongery with moving parts shall be properly oiled by the contractor before handing over the building.

2.0. Mode of measurements & payment

2.1. The relevant specificatio|s of item No. 10.12. (A) (I) shall be followed.

2.2. The rate shall be for a **uwt** of one sq. metre.

10.15.(A)(i) Providing and fixing 25 mm. thick panelled, shutters for cup-boards etc. including anodised aluminum butt hinges with necessary screws,-Indian Teak Wood.

1.0. Materials

First class Indian teak wood for shutters shall conform to M-29. Glass shall conform to IvK38. Anodised aluminum butt hinges shall conform to M.43.

2.0. Workmanship

2.1. The relevant specification of item No, 10.12. (A) (I) shall apply except that the thickness of shutter shall be 25 mm. for cup-boards.

3.0. Mode of measurement & payment

3.1. The relevant specifications of item No. 10.12 (A) (I) shall be followed.

3.2. • The rate shall be for a unit of one sq. metre.

10.15.(A)(II) Providing and fixing 25 mm. thick fully glazed shutters for cup-boards etc. including anodised aluminum butt hinges with necessary screws, Indian teak wood. 1.0.

Materials & Workmanship

The relevant specifications of item No. 10.12. (A) (I) and 10.12 (A) (II) shall be followed except that the thickness of shutters shall be 25 mm. thick and partly panelled and partly glazed shutters as per drawings for cup-boards.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 10.12 (A)(1) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

10.15.(A)(III) Providing and fixing 25 mm. thick partly panelled and partly shutters for cup-boards etc. including anodised aluminum butt hinges with necessary screws, Indian teak wood.

1.0. Materials & Workmanship

The relevant specifications of item No. 10.12. (A) (I) and 10.12 (A) (II) shall be followed except that the thickness of shutters shall be 25 mm. thick and partly panelled and partly glazed shutters as per drawings for cup-boards.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 10.12 (A)(I) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

10.16.(A) (I) Providing and fixing 25 mm. thick fully panelled, shutters for cup-boards etc., including black enamelled M.S. butt hinges with necessary screws, Indian Teak Wood.

1.0. Materials & workmanship

1.1. The relevant specifications of item No. 10.12 (A) (I) shall apply except that the wood for shutters shall be Indian teak wood and black enamelled M.S. Butt hinges are to be used instead of anodised aluminum butt hinges and thickness of shutter shall be 25 mm.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 10.12. (A) (I) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

10.16.(A)(II) Providing and fixing 25 mm. thick fully glazed shutters for a cup-boards etc., including black enamelled M.S. butt hinges with necessary screws, Indian Teak Wood.

1.0. Materials & Workmanship

The relevant specifications of item No. 10.15. (A) (I) shall be followed except that the fully glazed shutters of 25 mm. thickness shall be of India Teak Wood fixed in position with black enamelled butt hinges for cup-boards.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 10.12 (A) (1) shall followed.

2.2. The rate shall be for a unit of one sq. metre.

10.16. (A) (III) Providing and fixing 25 mm. thick partly panelled and partly glazed shutters for cupboards etc., including black enamelled M.S. butt hangs with necessary screws. Indian Teak Wood.

1.0. Materials

The relevant specifications of item No. 10.15 (A) (I) & 10.15 (A) (II) shall be followed except that the shutters shall partly panelled and partly glazed of 25 mm. thickness of Indian Teak Wood f-xed with black enamelled butt hinges for cup-boards.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 10.12 (A)-shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

- 10.23. Providing and fixing 35 mm. thick panelled glazed or panelled and glazed shutters for doors, windows, and clearstory windows including anodised aluminum butt hinges with necessary screws. Indian Teak Wood shutters with (A) Plywood,(B) Particle, (C) Hard Board, (D) Asbestos Shett panels.**

1.0. Materials

Indian teak wood for shutters shall conform to M-29. Glass shall conform to M-38.

- (A) Plywood shall conform to M-37.
 (B) Particle board shall conform to M-40. Anodised aluminum butt hinges shall conform to M-43.
 (C) Hard board shall of best quality and shall be as approved by Engineer-in charge.
 (D) A.C. sheet shall conform to M-24.

2.0. Workmanship

2.1. The relevant specifications of item No. 10.12 (A) (I) shall apply to this item except that the work is shuttered with (A) plywood (B) particle board (C) hard board panels (D) A.C. sheets panels as specified in item. 2.2; The shutter shall be prepared by fittings styles and rails (top, bottom, lock and frieze) as for panelled leaves with simple chamfer on edge only. The styles and rails shall be grooved with just sufficient width for receiving panels and plain panels of specified type panels shall be fitted into the grooves.

3.0. Mode of measurements & payment

- 3.1.** The relevant specifications of item No. 10.12 (A) (!) shall be followed.
3.2. The rate shall be for a unit of one sq. metre.

- 10.24. Providing and fixing 35 mm. thick panelled, glazed or panelled and glazed shutters for doors, windows and clearstory windows including black enamelled M.S., butt hinges with necessary screws. Indian Teak Wood shutters with (A) Plywood (B) Particle board (C) Hard Board (D) Asbestos panels.**

1.0. Materials & Workmanship

1.1. The relevant specifications of item No.10.23 shall be followed except that the hinges shall be of back enamelled M.S. Butt hinges instead of anodised aluminum butt hinges and shutter with (A) Plywood (B) * Particle board (D) Hard Board (D) Asbestos sheet panels as specified in item.

2.0. Mode of measurement & payment

- 2.1.** The relevant specifications of item No. 10.12 (A) (I) shall-be followed.
2.2. The rate shall be for a unit of one sq. metre.

- 10.30. Providing & fixing flush door shutters, solid core construction with frame of 1st class hard wood with cross band and face veneer or plywood face panels including anodised aluminum butt hinges with necessary screws (B) Non-decorative type and *~~ block board core. (2) 35 mm. thick.**

1.0. Materials

Flush door shall conform to M-30. Plywood shall conform to M-37. Anodised aluminum butt hinges shall conform to M-43.

2.0. Workmanship

2.1. The relevant specifications of item No, 10.23. shall be followed except that the shutters be non decorative type and block board core with face veneer or plywood with 35 mm. thickness.
2.2. Ready made shutters shall be of correct size and shall fit into the door or other openings without excessive scraping of eds. Adding of battens etc., to make up to the size shall not be allowed.

3.0. Mode of measurement & payment

- 3.1.** The relevant specification of item No. 10.12 A (I) shall be followed.
3.2. The rate shall be for a unit of one sq. metre.

- 10.37. Extra for using bright finished M.S. Piano hinges instead of anodised aluminum butt hinges in flush door shutter (A) Nickel Plated Piano hinges.**

1.0. Materials and workmanship

1.1. The relevant specification of item No. 10.30 shall be followed except that the nickel plated piano hinges shall be provided and fixed. It shall conform to the latest Indian Standards and shall be got approved by the Engineer-in-charge.

2.0. Mode of measurement & payment

2.1. The extra payment shall be made on sq. M. basis of door over and above item No. 10.30 for providing finish M.S. planed hinges instead of anodised aluminum butt hangs.
2.2 The rate shall be for a unit of one sq. metre.

**10.39. Extra for providing vision panel not exceeding 0.1 sq. m. in all types of flush doors. (A)
Rectangular square.**

1.0. Materials and workmanship

1.1. The relevant specification of item No. 10.30 shall be followed except that the vision panel not exceeding 0.1 sq. m. shall be provided.

1.2. The glass panels shall conform to M-38 and this item is extra work of providing vision panel rectangular or square not exceeding 0.1 sq. in all types of flush doors.

2.0. Mode of measurements & payment

2.1. The payment shall be made over of item No. 10.30 for this extra work on shutter in which vision panels are provided.

2.2. The rate shall be for a unit of one sq. metre of door area.

10.51. Providing and fixing 30 mm. thick wire gauze shutters using galvanised M.S.Wire of I.S. gauge designation 85-G with wire of 0.56 mm. dia butt hinges with necessary screws : Indian Teak Wood.

1.0. Materials

Wire gauze shall conform to M-36. The teak shall conform to M-29. Anodised aluminum butt hinges shall conform to M-43.

2.0. Workmanship

2.1. Specification for item No. 10.12 A(l) shall be adopted for shutter and fixtures and fastenings except that 30 mm. thick wire gauze shutter shall be provided.

2.2. Wire gauze shuttering :

2.2.1. The finished sizes of the wooden components like styles, rails, mountings, shall be as per the panelled doors. Each leaf shall have 2 panels of wire gauze as per drawings or as directed.

2.2.2. The styles, rails etc. shall be rebated 12 mm. along the side where they receive the gauze. The galvanised iron webbing of 0.56 mm. dia mesh shall be used unless otherwise specified. The webbing shall be at 90 to 12 mm. along both sides of the rebate and fixed securely to the styles and rails and fillets of the size 10 mm x 10 mm, shall be securely and neatly fixed with small screws, spaced about 7.5 cm. centers around the rebate for each panel of webbing. After the fillets are pressed well into the angle to hold the gauze in two faces, the exposed edge of fillets shall be neatly rounded. The gauze shall be tightly stretched during fixing. The space between the fillet and the rebate where the webbing is bent shall be neatly finished with putty, so that cut end of webbing may not be visible. Each shutter shall be fitted with a pair of anodised aluminum butt hinges with necessary iron screws.

3.0. Mode of measurement & payment

3.1. The relevant specifications of item No. 10.12 shall be followed.

3.2. The rate shall be for a unit of one sq. metre.

10.53. Providing and fixing 30 mm. thick wire gauze shutters using galvanised M.S. wire of wire gauze designation 85 G with wire of 0.56 mm. dia. for doors, windows, and clerestory windows including bright finished or/and black enamelled M.S. butt hinges with necessary screws. Mango wood or equivalent quality.

1.0. Materials & workmanship

The relevant specification of item No. 10.51 shall be followed except that the hinges to be used shall be bright finish or/and black enamelled M.S. butt hinges with screws and the wood shall be used of Mango wood or equivalent quality of non teak wood.

2.0. Mode of measurement and payment

2.1. The relevant specification of item No. 10.12 shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

10.54. Extra for providing and fixing galvanised M.S. gauze of I.S. gauge designation 140 G. to doors windows and clerestory windows with wire of dia 0.71 mm. instead of I.S. gauge designation 85 G. with wire of dia. 0.56 mm.

1.0. Materials & workmanship

1.1. The relevant specification for item no. 10.51 & 10.53 shall be followed for this item except that the diameter of wire shall be 0.71 mm. of I.S. gauge designation 140 G. instead of 0.56 mm. diameter I.S. gauge designation 85 G.

2.0. Mode of measurements and payment

2.1. The payment shall be made extra over and above the payment for galvanised M.S. wire gauge.

2.2. The rate I.S. gauge designation 85 G. shall be for one sq. mt of size of doors and windows shutters.

- 10.74. Providing and fixing 12 mm. thick and 100 mm. wide pellet of flat pressed 3 layer veneered particle board solid core with 25 mm. diameter aluminum curtain rod brackets including fixing with 25 mm. x 3 m. M.S. flat 10 long and plug etc. comp.**

1.0. Materials

(1) 3 layers veneered particle board solid core shall conform to M-40 25. mm. diameter aluminum curtain rod and 25 mm. x 3 mm. x 10 cms. long M.S. flat and plugs shall of best approved quality as directed.

2.0. Workmanship

The work shall be done as per drawing and description given in the item of work. The wooden planks shall be planed smooth and even on the exposed surface.

The pellet shall be fixed to level by means of 10 cms. long x 25 mm. x 3 mm. M.S. flat brackets lent in the form of angle and wooden plug fixed in the walls using wood screws. For pelmet upto 1.5. metre long two such brackets shall be used and additional bracket provided for longer pelmet at the rate of one per metre length extra. The curtain rods be fixed by suitable brackets at the ends to the pelmet as directed.

3.0. Mode of measurement and payment

3.1. Pelmet shall be measured in running metres along the sides and face.

3.2. The Rate shall be for a unit of one running metre.

- 10.84. Providing and fixing 40 mm. panelled, glazed or panelled and glazed partitions fixed to frames with iron screws etc., complete with India teak wood (Frames to be paid separately)**

1.0. Materials

Indian Teak wood shall conform to M-29. Glass shall conform to M-38. Iron screws shall of best approved quality. Plywood, asbestos shall conform to relevant specification of materials.

2.0. Workmanship

The work shall be done as per detailed drawing or as directed. The wooden frames shall be of sizes as indicated in the drawing and description of item. They shall be planed and finished smooth and even. The vertical styles and rails shall be framed by tenon and mortise joints.

The panels which may be of planks, asbestos, plywood, glass or any other materials specified shall be fixed in the grooves made in styles and rails or by means of rebate and beading fixed by suitable screws. When glazing is used as panels the glass shall be fixed by using putty in addition to beading, the putty shall be used before applying material.

3.0. Mode of measurement and payment

Partitions shall be measured in square metres of the net area of the filler materials provided. The rate shall be for a unit of one sq. metre.

- 10.85. Providing and fixing decorative plywood 4 mm. thick in portions including fixing to frames with screws etc., complete with 50 mm. x 12 mm. teak wood beading (Frames to be paid separately)**

1.0. Materials

4 mm. thick decorative plywood shall be of best approved quality. Teakwood beading and screws shall of best approved quality as directed.

2.0. Workmanship

The relevant specifications shall be same as per that of item No. 10.84 except that partitions shall be with 4 mm. thick decorative plywood and with teakwood beading.

3.0. Mode of measurements and payment

The specifications shall be same as that of item No. 10.84.

The rate shall be for a unit of one square metre. ■

- 10.86. Providing and fixing plain Asbestos cement sheet 6 mm. thick in partition including fixing to frames with screws etc., complete with 50 mm. x 12 mm. deodar wood beading (Frames to be paid separately)**

1.0. Materials

Plain A.C. Sheets shall conform to M-24. Deodar wood beading shall conform to M-29. A.

2.0. Workmanship

The relevant specification of item No. 10.84 shall be followed same except that plain asbestos cement sheet 6 mm. thick shall be used in partition and Deodar wood beading of size 50 x 12 mm. size shall be used.

3.0. Mode of measurement and payment

3.1. The relevant specifications of item No. 10.84 shall be followed except that the rate excludes cost of frame work.

3.2. The rate shall be for a unit of one square metre.

- 10.88. Providing and fixing in partition 4 mm. thick medium hard board approved quality including fixing to frames with screws etc., complete with 50 x 12 mm. Teak wood beading (Frame to paid separated)**

1.0. Materials

The hard board shall be 4 mm. thick and of best quality and made as approved. Teak wood beading shall conform to M-29.

2.0. Workmanship

The relevant specifications of item No. 18.84 shall be followed except that the hard board of 4 mm. thickness shall be used in partition and Jeak wood beading 50 x 12 mm. size shall be used

3.0. Mode of measurements and payment

3*.1. The relevant specifications of item No. 10.84 shall be followed except that the rate excludes cost of frame work.

3.2. The rate shall be for a unit of one square metre,

- 10.96. 26 mm. thick wooden shelves supported on 40 x 40 x 6 mm. T or Iron brackets fixed at suitable distances not exceeding 75 cms. apart with Mango wood or equivalent quality.**

1.0. Materials

The mango wood shall conform to M-29-A. Structural steel shall conform to M-22.

2.0. Workmanship

The mango wood or equivalent quality non teak wood shelves shall be prepared form 25 mm. thick planks. The planks shall be planed smooth. The planks shall be used in single piece upto 30 cms. width. The shelves shall be fitted in position by fixing 40 x 40 x 6 mm. T or L Iron brackets. The spacing of brackets shall not be more than 75 cms. The 40 x 40 x 6 mm. T or L from brackets shall be fixed firmly in position buy imbibing the same in concrete. The shelves shall be fixed as directed. The season teak wood buttons of size 35 x 12 mm. shall be fixed on open side as directed.

3.0. Mode of measurements and payment

3.1. The shelves shall be measured in Sq. meter. The length and breadth of shelves shall be measured net.

3.2. The rate is inclusive of button provided.

3.3. The rate shall be for a unit of one sq. metre.

- 10.97. 40 mm. thick wood shelves supported on 40 x 40 x 6 mm. T or L Iron brackets fixed at suitable distance but not exceeding 75 cms. apart with mango wood or equivalent quality.**

1.0. Materials & Workmanship

The relevant specifications of item No. 10.96 shall be followed except that the thickness of shelves shall be 40 mm. Thick teak wood buttons shall be provided of 50 x 12 mm. on all open sides.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item NO. 10.96 shall be followed.

2.2. The rate shall be for a unit of one square metre.

- 10.99. Providing and fixing M.S. round or square bars with M.S. flats at required spacings in wooden frames of windows and clerestory windows. 1.0,**

Materials M.S. bars and flats shall conform m. 18 and M-22. respectively.

2.0. Workmanship

2.1. The M.S. bars shall be fabricated as shown in the drawing or as directed. It shall conform to i.S. 226-1975 and I.S. 96 and I.S. 1977-1975. The M.S. bars shall be fixed at the required spacing in mild steel flats, after drilling holes in the latter. The diameter and spacing of these bars shall be as mentioned in the drawing or as directed. The bars shall be passed through drill holes drilled into the mild steels flats, fixed in the recess in frames. The flats shall be fixed with iron screws.

3.0. Mode of measurements & payment

3.1. The rate shall be for the .M.S. round or square bars with M.S. flats provided and fixed in position as per the specifications for the completed item.

3.2. The rate shall be for a unit of one Kg.

- 10.100.(A) Providing and fixing M.S. Grills of required pattern tc noden frames of windows etc., with Ms. flats at required spacing and frame around, square, or round bars with round headed bolts and nuts or by screws : plain Grill.**

1.0. Materials

The structural steel shall conform to M-22.

2.0. Workmanship

- 2.1. The M.S. Grill shall be prepared as per the drawing or as directed for fixing to wooden frames[^] of windows etc.
- 2.2. The grill shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be reverted or welded as shown in the plan or as directed. The grill so formed shall be fixed into the frames of the windows etc. before they are erected in position. The outside strip frame of the grill shall be housed to its full thickness into the recess cut into the frame of the windows etc. The grill shall be fixed to the frame with number of bolts and nuts or screws viz. bolt nut/screw per 30 cm. of the length of outer strip subject to minimum of 2 Nos. on each side of the frame or as indicated in the drawing or as directed.
- 2.3. The bolts and nuts or screws shall be counter sunk and shall be fixed with the top of their heads flush with the face of the frame strips.

3.0. Mode of measurements & payment

- 3.1. No payment shall be made for weight of screws, bolts nuts etc. only weight of grill shall be paid.
- 3.2. The rate shall be for a unit of one kg.

10.100.(B) Providing and fixing M.S.Grill of required pattern to wooden frames of windows etc. with M.S. plates, at required spacing and frame around, square or round bars with round headed bolts and nuts or by screws and with ornamental grill.**1.0. Materials & Workmanship**

- 1.1. The relevant specification of item no. 10.100 (A) shall be followed except that the work is for of ornamental grill.

2.0. Mode of measurements & payment

- 2.1. The relevant specifications of item No. 10.100 (A) shall be followed.
- 2.2. The rate shall be for a unit of one Kg.

10.102. Providing and fixing hard drawn steel wire fabric 75 x 25 mm. mesh of weight not less than 7.75 kg. per sq.M to window frames etc, including 80 x 20 mm. beading of teak wood.**1.0. Materials**

Hard drawn steel wire of 75 x 25 mm. mesh shall conform to M-34. Teak wood beading shall conform to M-29.

- 2.0. The steel wire fabric 75 x 25 mm. mesh of weight of not less than 7.75 kg per Sq.M. to windows frames etc. shall be fabricated as per detail drawings. The wire fabric shall be fixed to windows frame by teak wood beading of 60 x 20 mm. size be by means of screws,

3.0. Mode of measurements & payment

- 3.1. The wire mesh (Hard drawn) shall be measured net clear opening of frame of windows in which mesh is fitted. Nothing shall be paid extra for fixing mesh in groove below teak woods beading.
- 3.2. The rate shall be for a unit of one sq. metre.

10.103. Providing and fixing fly proof galvanised M.S. Wire gauge of I.S. Gauge designation 85 G. with wire of dia. 0.56 mm. to windows and clerestory windows including 60 x 20 mm. beading of Indian Teak Wood.**1.0. Materials**

The fly proof galvanised M.S. wire gauge shall conform to M-36. Teak wood beading shall conform to M-29.

2.0. Workmanship

The relevant specifications of item No. 10.102 shall be followed except that fly proof galvanised M.S. wire gauge of IS. gauge designation 85-G with wire of 0.56 mm. shall be provided.

3.0. Mode of measurement & payment

- 3.1. The relevant specifications of item No. 10.102 shall be followed.
- 3.2. The rate shall be for a unit of one square metre.

10.120. Providing and fixing first class Indian teak wood, 75 x 60 mm. moulded hand rails in straight lengths completed.**1.0. Materials**

First class Indian teak wood shall conform to M-29.

2.0. Workmanship

The teak wood hand rail shall be of size 75x60 mm. The hand rail shall be prepared from first class Indian teak wood. The hand rail shall be moulded as per detail drawings. The hand rail shall be fixed in straight length as per detail drawings with screws. The relevant specifications of item No. 10.4 shall be followed except that the teak wood work shall be for a rating of specified size.

3.0. Mode of measurements & payment

3.1. The hand rail shall be measured in running metre.

3.2. The rate shall be for a unit of one running metre.

10.0.0.(1) Providing and fixing glazed louvered Glass windows and ventilators with teak wood frame 10 x 75 mm. size including 3 coats of oil painting to wood work etc. complete.**1.0. Materials**

Indian teak wood shall conform to M-29. Glass shall conform to M-38.

2.0. Workmanship

The relevant specifications of item No. 10.1 (A) shall be followed for frame work except that the frame work of 10 x 7 cms. size of required size ventilators shall be provided with glazed glass louvers. The glass louvers shall be provided as directed. In the groove of 1.25 cms. depth made in frames, the thickness of glass shall be 5 mm. and glass shall be glass of best quality. The ventilation blades shall slope done towards the outside at an angle of 45°.

3.0. Mode of measurements and payment

3.1. The area of opening within the frame in which louvers are fixed shall be measured in sq. metres.

3.2. The rate included painting 3 coats to wood work with ready mix paint.

3.3. The rate shall be for a unit of one square metre.

10.0.0.(11) Providing & fixing with wooden louvers plank 12 mm. thick windows and ventilators with teak wood frame 10 x 7 cms. size including 3 coats of oil painting to wood etc. complete.**1.0. Materials & Workmanship**

The relevant specifications of item No. 10.00 (I) shall be followed except that the teak wood planks 12 mm. thick louvers shall be provided.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 10.00 (I) shall be followed.

2.2. The rate shall be for a unit of one square metre.

SECTION-11 Steel Shutters, Windows, Ventilators

11.2. (A) Steel work riveted, in built up sections, framed work including cutting, hosting fixing in position and applying a priming coat of red lead paint. In beam and joints, channels, angles tees, flats, with connecting plates or Angle cleats as in main & cross beams, Hop and jack falters, pralines connected to common rafters and the like.

1.0. Materials

The structured steel work shall conform to M-22. Red lead paint shall conform to I.S : 102-1962. , **2.0.**

Workmanship

2.1. The steel sections as specified or required shall be cut, square and to correct lengths, as per drawings and design. The cut ends exposed to view shall be finished smooth. No two pieces shall be welded or otherwise jointed to make up the required length of member, except as indicated in the drawing or as directed. All straightening and shaping to form shall be done by application of pressure and not by hammering. Any bending or cutting shall be carried out in such a manner as not to impair the strength of the metal. All operations shall be done in cold state unless otherwise directed/permitted.

2.2. Steel riveted or bolted in built up sections, frame work.

2.2.1. The steel structure as shown in the drawings or as per direction of the Engineer-in-charge shall be laid out on a level platform to full scale and to full size in parts. A steel tape shall be used for measurements to ensure maximum accuracy.

2.2.2. Wooden templates 12 mm. to 19 mm. thick or metal sheet template shall be made to correspond to each connecting gussets plate and rivet holes shall be accurately marked on them and drilled. The templates shall be laid on the steel members and holes of the steel members shall also be marked for curing. The base of steel column and the position of Anchor bolts shall be carefully set out.

2.2.3. All stiffeners shall be formed by pressure and where practicable, the metal shall not to be cut and welded in making these. In major works or where so specified, shop drawings giving complete details and information for the fabrication of the component parts of the structure, including location, type, size, length and details or rivets, bolts or weld shall be prepared in advance of the actual fabrication and as distinctly marked or stencilled with paint with the identification mark as given in the shop drawings. The bars shall be thickened at the ends, so as to provide for screwed threads and gradually tapered off to meet their normal section.

Great accuracy shall be observed in fabrication of various member, so that these can be assembled without being unduly packed, stained, or forced into position and when build up, shall be true and free from twists, brinks, buckles, or open joints.

Before making holes in individual members for fabrication the steel work intended to be riveted or bolted together shall be as embled or clamped properly and tightly so as to ensure close abutting or lapping or the surfaces of the different members. All stiffeners shall bear tightly both at top and bottom without being drawn or caulked. The abutting joints shall be cut or crossed true and straight and fitted close together. Web splice plates and fillers under stiffeners shall be cut to fit within 3 mm. or flange Angles Web plates of Girders shall have no cover. Plates, shall have their ends flush with the top of angles forming the flanges unless otherwise required. The web plates when spiced shall have clearance of not more than 6 mm. The erection, clearance for cleated ends of members connecting steel shall preferably be not greater than 1.5 mm. The erection clearance at the ends of beams without web cleats shall not be more than 3 mm. at each end but where for a practical reason greater clearance is necessary, suitably designed seating shall be provided.

Pains and rollers shall be accurately tuned to gauge. These straight and smooth and free from flows. The roller bearing shall be provided with adequate arraignments for holding the girders or truss resting on it. In columns caps and bases, the ends of shifts together with the attached gussets Angles, channels etc. after riveting together shall be accurately machanised so that the parts connected butt against each other over the entire surfaces of contact connecting angles or channels shall be fabricated and placed in position with greater accuracy so that they are not unduly reduced in thickness by machining. The ends of bearing stiffeners shall be machanised or ground to fit tightly both at the top and bottom. All holes shall generally be drilled to the required size and at required, position. Sub punching shall be permitted, provided it is done 3 mm. or less in diameter and reamed thereafter to the require size. The holes for rivets and bolts shall be larger by 0.4. to 6 mm. than the nominal diameter of rivets or black bolts depending upon the diameter of rivets. Holes shall have their axis perpendicular to the surface bored through. The drilling or remarrying shall be free from burrs, and the holes should be clean and accurate holes for counter shunk bolts shall be made in such a manner that their heads fit flush with the surf&ce after fixing.

The fabrication work shall be completed in workshop as far as it is practicable to do so. Site joints shall be done with rivets and fitted bolts or black bolts, as shown in the drawings or as directed. Generally the following principles shall govern the use of rivets turned and fitted bolts, and black bolts : (i) Rivets and turned and fitted bolts shall be used where the connections is such that slip under load has to be avoided.

(ii) Black bolts may be used very sparingly where a force is carried through a connection without impact, vibration or reversal or stresses.

2.2.4. Riveting :

The parts assembled for riveting shall be in close contact with each other and the bearing stiffeners shall bear tightly both at top and bottom without being drawn or caulked. Members to be riveted shall be properly pinned or bolted and rigidly held to gather while riveting. Drifting of holes shall not be permitted except to draw the parts together and the drifting tools so used shall have maximum diameter not exceeding the nominal diameter of rivets or bolts. Drifting done during assembling shall not distort the metal or enlarge the holes.

The shanks of rivets shall project beyond the plate-surface sufficiently so as to fill hole thoroughly and form the required head after riveting.

The riveting shall be done by hydraulic or pneumatic process, However, where such facilities are not available, hand riveting may be permitted. The rivet shall be heated red hot, care being taken to control the temperature of heating so as not to burn the steel. Rivets of diameter less than 10 mm. may be fitted cold. Rivets shall be of heat finish with heads full and of equal size. All loose, burnt or badly formed rivets with concentric or deficient heads shall be cut out and replaced. The heads of rivets shall be central to shanks and shall grip the assembled member firmly. In cutting out rivets, care shall be taken so as not to injure assembled members, caulking or reequipping shall not be permitted.

For testing rivets, a hammer weighing approximately 0.25 kg. shall be used. Both heads of the rivets shall be tapped, slack rivets will give a hollow sound and a jar.

All rivet heads shall be painted with red lead paint within a week of their fixing.

2.2.5. All bolt heads and nuts shall be hexagonal and of equal size unless specified otherwise. The screwed heads shall conform to I.S. 1363-1960 and the threaded surface shall not be tapered. The bolts shall be of such length so as to project two clear threads beyond the nuts when fixed in position and these shall fit in the holes without any shakes. The nut shall be fit in the threaded ends of bolts properly.

Where turned and fitted bolts are required to be used in place of rivets shall be provided with washers not less than 6 mm. thick so that the nut when tightened shall not bear on the unthreaded body of the bolt.

Tapered washers shall be provided for all heads and nuts bearing on levelled surfaces. The threaded portion of the bolt shall not be within the thickness of the parts bolted together, the faces of the bolt heads and nuts abutting against steel members shall be machine finished. Where there is a risk of the nut being removed or becoming loose due to vibrations or reversal of stresses, these shall be secured from slackening by the use of locknuts, spring washers, cross-cutting or hammering down of threads as directed.

Bolts, nuts, and washers shall be thoroughly cleaned and dipped in double boiled linseed oil before use.

The whole steel work shall be painted with a coat of priming coat of red lead, as per relevant, specification of painting.

3.0 Mode of measurements & payment

3.1. The steel work shall be measured in general as under:

(a) All work shall be measured on the basis of finished dimensions as fixed at site and measured net unless specified otherwise.

(b) The weight of steel sections, steel rods, and steel strips in finished work shall be calculated from standard weight on the same basis on which steel is supplied to Contractor by department or those given in relevant I.S. : if steel is arranged by the contractor.

(c) The weight of steel plates and strips shall be taken from relevant I.S. based on 7.85 kg./ sq. metre for every millimeter sheet thickness if steel is supplied to the contractor by department. '

(d) Unless otherwise specified, weight of cleats, brackets, packing pieces, bolts, nuts, washers, distance pieces, separators, diaphragm gusset (taking overall square dimensions) fish plates etc. shall be added to the weight of respective items.

(e) In riveted work allowance is to be made for weight of rivet heads. No deductions shall be made for rivet or bolt holes excluding holes for anchor or holding down bolts.

(f) For forged steel and steel castings, weight shall be calculated on the basis of 7850 kg./cum.

(g) Unless otherwise specified, no allowance shall be made for the weld metal in case of welded steel structure.

(i) Dimensions other than cross sections and thickness of plates shall be measured to nearest 0.001 m. (j) Mill tolerance shall be ignored when weight is determined by calculation.

3.2. The rate includes cost of all material, labour, erection, hoisting scaffolding, protective measure, required for proper completion of the item of work. This shall also include conveyance and delivery handling, loading, unloading and storing etc., required for completing the item described above including necessary wastage involved.

3.3. The rate shall be for a unit of one quintal.

11.2.(D) Steel work riveted in built up section, framed work including cutting, hoisting, fixing in position and applying a priming coat of red lead paint in trusses, and trussed, purlins, upto 25 m. span and 15 m. overall height.

1.0. Materials & Workmanship

The relevant specifications of item No. 11.2 (A) shall be followed except that the work shall be for trusses and trussed purlins upto 25 m. span and 15 m. overall height.

2.0. Mode, of measurement & payment

2.1. The relevant specifications of item No. 11.2. "(A) shall be followed.

2.2. The rate shall be for a unit of one quintal.

11.4.(A) Steel work welded, in built up sections frame work including, cutting, hoisting, fixing in position and applying a priming coat of red lead paint. In beams and joints, channels, angles tees, flats, with connecting plates or angle cleats as in main and cross beams. Hip and jack rafters, purlins, connected to common rafters and the like.

1.0. Materials & Workmanship

1.1. The relevant specification of item No. 11.2 (A) shall be followed except that the steel work shall be done by welding.

1.2. Welding shall generally be done by electric process. Gas welding shall be resorted to, using oxyacetylene flame with specific prior approval. Gas welding shall not be permitted for structural steel work.

1.3. The work shall be done as shown in the shop drawings which should clearly indicate various details of the joints to be welded, shop and site welded as well as type of electrodes to be used, symbol for welding on plans and shop drawings shall be according to I.S. 813-1961. As far as possible every effort shall be made to limit the welding that must be done after improper welding that is likely to be done due to heights and difficult positions on scaffoldings etc. The welding work shall conform to I.S. 816-1969.

1.4. Preparation of surfaces : Surfaces which are to be welded together shall be free from loose mill scale, rust, paint, grease or other foreign matter. A coating of boiled linseed oil shall be permitted.

1.5. Assembly for welding : Before welding is commenced, the plates shall first be brought together and firmly clamped or spot welded at specified distance. This temporary connection has to be strong enough to hold the plates accurately in place without displacement.

1.6. Precautions : All operations connected with welding and cutting equipment shall conform to safety requirement given in I.S. 818-1968,

The following points shall be borne in mind during the process of welding :

(b) Arc length voltage and amperage shall be suited to the thickness of material type of groove and other circumstances of the work.

(c) The segments of welding shall be such that where possible the members which offer the greatest resistance to compression are welded first.

1.7. The defective welds which shall be considered harmful to the structural strength shall cut out and rewelded.

1.8. Finished welds and adjacent parts shall be protected with clean boiled linseed oil and after all slag has been removed. Welds and adjacent parts shall be painted after the same are approved.

1.9. All the members shall be thoroughly cleaned of rust-scales, dust etc. and given a priming coat of red lead paint before fixing them in position.

Testing of welding to be added in the specification I.N. 12.2.2.12-(i) to (viii)

2.0. Mode of measurements & payment

2.1. The relevant specification of item No. 11.2 (I) shall be followed.

2.2. The rate shall be for unit of one quintal.

11.4.(D) Steel work welded in built up section framed work, cutting, hoisting, fixing in position and applying a priming coat of red lead paint in trusses and trussed purlins upto 25 m. span and 15 m. overall height.

1.0. Materials & Workmanship

The relevant specification of item No. 11.4. (A) shall be followed except that the work shall be for trusses and trussed purlins upto 25 m. span and 15 m. overall height.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 11.4 (A) shall be followed.

2.2. The rate shall be for unit for one quintal.

11.6. Providing and fixing in position collapsible steel shutters with vertical channels 20 x 10x2 mm. bracked with flat iron diagonals 20 x 5 mm. size with top and bottom rails of T Iron 40 x 40 x 6 mm. with 38 mm. dia steel pulleys complete with bolts, nuts, locking arrangements, stoppers, handles, including applying a priming coat red lead paint.

1.0. Materials

The collapsible steel gate shall conform to M-33.

2.0. Workmanship

T-rails shall be fixed to the floor and to the lintel at top by means of Anchor bolts, embedded in cement concrete of floor and lintel. The anchor bolts shall be placed approximately at 45 mm. centers alternatively in groove shall be formed along the runner for the purpose. The collapsible gate shall fixed at the sites by fixing the double channels in the T-iron rail and also by hold fasts bolted to the end double channel and fixed in the masonry of the side walls or the otherwise.

In case where the collapsible gate is not required to the lintel beams or slop above, a tee iron suitably designed may be fixed at the top embedded in masonry and provided with necessary clamps and roller arrangement at the top.

All the adjoining work damaged while fixing of gate shall be made good to match the existing work without any extra payment.

All the members of the collapsible gate including T-iron shall be thoroughly cleaned of rust, scales dust etc., and given a priming coat of red lead, before fixing them in position.

3.0. Mode of measurement and payment

3.1. The collapsible gate shall be measured in sq. metre. The height of the gate shall be measured as the length of double channels and breadth from outside to outside of the end fixed double channels in open position of the gate. The rate includes providing handles, arrangements stoppers etc.

3.2. The rate shall be for a unit of one sq. metre.

11.7. Providing and fixing 1 mm. thick M.S. sheet sliding shutters both frame and diagonal braces of 40 x 40 x 6 mm. Angle iron 3.15. M.ss. gusset plates at junctions and corners, 25 mm. dia. pulley 40 x 40 x 6 mm. angle and T-iron guide rail at top and bottom respectively with handles, stoppers and locking arraignments etc. including applying priming coat of red lead paint.

1.0. Materials

M.S. sliding shutters shall be fabricated of M.S. component as given in the description of item. M.s. sheets 1 mm. thick shall be fixed to the frame with rivets of weld as approved. The shutters shall be provided with top and bottom guide rails of Angles or T-iron as specified and 25 mm. dia. steel pulleys at the bottom guide black with steel pulleys at the top. The frame shall be riveted and /or welded and wherever riveting shall be done 3.15 mm. gussets plates shall be provided at the junctions.

2.0. Workmanship

2.1. The shutters shall be single or double leaf shutters as specified. The guide rails shall be sufficiently long and continued along the wall on the both ends so that the sliding shutters can rest against walls, living full opening when so required.

2.2. The guide rails shall be fixed to the floor by means of anchor bolts embeded in the cement concrete floor. The steel section at the top shall be suitably supported from the walls. Two channel section shall suitably fixed vertically below the extreme clamps in the wall and floor to avoid the shutters from going out of the supports at the top and bottom. A suitable clamping arrangement will be provided at either end of the opening to avoid the shutters from rolling back into opening.

2.3. All the adjoining work damaged while" fixing shall be made good to match the existing work.

2.4. All members of the sliding shutter including T-iron shall be thoroughly cleaned of rust, scales dust etc. and given a priming coat of red lead before fixing them in position.

3.0. Mode of measurements & payment

3.1. The sliding doors shall be measured on sq. metre. The height of the shuters shall be measured from outside to outside of the guide, rail and width outside to outside of shutters including vertical channels in sides. The rate includes providing handles, stopped and locking arrangements etc., complete.

3.2. The rate shall be for a unit of one sq. metre.

SECTION-12 Labour for fixing fixtures & fastening

12.4. Fixing metallic tower bolts of sizes with necessary screws etc. complete (tower bolts and screws to be paid under separate items:)

1.0. Workmanship

- 1.1. This item provides for labour for fixing metallic tower bolts of any size with screws, nuts etc.
- 1.2. The tower bolts shall be fixed in proper position as shown in the drawings or as directed. There shall be fixed truly vertical or horizontal as the case may be.
- 1.3. The screws shall be driven home with screw driver. In no case the screws shall be hammered in.
- 1.4. All recesses and seats shall be cut to the exact size for counter sinking etc. where so required.
- 1.5. Care shall be taken to see that no gaps are left between the fitting and the surface meant to receive the fittings.
- 1.6. The fittings shall be properly cleaned and left in original finish after fixing.

2.1. Mode of measurements & payment

- (1) Cutting of holes, recesses, and seats involved in process of fixing.
 - (2) Cost of filling and cushioning materials where so required for proper seating of new fittings.
 - (3) Cost of nails etc. for temporary positioning of fitting.
 - (4) Cost of cleaning materials like old washed dhoti stain remover etc.
 - (5) Cost of making good the over cut recesses or holes if any.
 - (6) Cost of making hole of required size on the wooden frame for housing the bolt for locking.
- 2.2. The rate includes cost of labour involved in all operations required for proper completion of the items including carriage, handling, fixing etc. complete.
 - 2.3. The rate shall be of unit of one number.

12.5. Fixing metallic flush bolts of size with necessary screws etc., complete (flush bolts and screws shall be paid under separate items):

1.0. Workmanship

- 1.1. The relevant specifications shall be followed as per item No. 12.4. except for fixing metallic flush bolts instead of tower bolts.

2.0: Mode of measurements and payment

- 2.1. The relevant specifications of item No. 12.4. shall be followed.
- 2.2. The rate shall be for a unit of one number.

12.8. Fixing metallic or plastic door handles of sizes with necessary screws etc. complete (door handles and screws to be paid under separate items)

1.0. Workmanship

- 1.1. The relevant specifications of item No. 12.4. shall be followed except fixing door handles instead of tower bolts.

2.0. Mode of measurements and payment

- 2.1. The relevant specifications of item No. 12.4. shall be followed.
- 2.2. The rate shall be for a unit of one number.

12.10. Fixing metallic gate and shutter hooks and eyes of sizes (hooks and eyes to be paid under separate items)

1.0. Workmanship

- 1.1. The relevant specifications shall be followed as per item No. 12.4 except that fixing of eye and hooks instead of tower bolts.

2.0. Mode of measurements and payment

- 2.1. The relevant specifications of item No. 12.4 shall be followed.
- 2.2. The rate shall be for a unit of one number. (Hook & Eye)

12.11. Fixing metallic door latches of size with necessary screws (door latches and screws to be paid under separate items) :

1.0. Workmanship

1.1. The relevant specifications of item No. 12.4 shall be followed except that fixing metallic door latches instead of tower bolts.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The rate shall be for a unit of one Number.

12.12. Fixing metallic mortise night latches with necessary screws including making necessary crews holes in wooden door shutters etc., complete (mortise night latches and screws to be paid under separate items):

1.0. Workmanship

1.1. The relevant specifications of item No. 12.4 above shall be followed except that the fixing of mortise night latches instead of tower bolts.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The rate shall be for a unit of one number.

12.18. Fixing metallic ball catchers 100 mm. dia. (Ball catches to be paid under separate item):

1.0. Workmanship

1.1. The relevant specifications of item No. 12.4 shall be followed same except fixing of ball catchers 100 mm dia.

2.0. Mode of measurements and payment

2.1. The relevant specification of item No. 12.4 shall be followed.

2.2. The rate shall be for a unit of one number.

12.20. Fixing metallic casement window fasteners with necessary etc. complete. (Casement window fasteners and screws to be paid under separate items):

1.0. Workmanship

1.1. The relevant specifications of item No. 12.4. shall be followed except fixing metallic casement windows fasteners.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The rate shall be for a unit of one number.

12.21. Fixing metallic casement stays of sizes with necessary screws etc., complete. (Casement stays and screws to be paid under separate items)

1.0. Workmanship

1.1. The relevant specifications of item No. 12.4 shall be followed except fixing of metallic casement stays.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The shall be for unit of one number.

12.24. Fixing metallic cupboard of ward robe locks of sizes with necessary screws etc. complete (Locks and screws to be paid separately) :

1.0. Workmanship

1.1. The relevant specifications of item No. 12.4 shall be followed except that fixing metallic cupboard or ward robe locks of size with necessary screws etc. complete.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The shall be for a unit of one number.

12.25. Fixing metallic or plastic cupboard or ward robe knobs of size with necessary screws/ bolts etc., (knobs and screws/bolts to be paid separately) :

1.0.^a Workmanship

1.1. The relevant specifications of item NO. 12.4 shall be followed except that fixing metallic or plastic cupboard or ward robe knobs of sizes with necessary screws/bolts etc. complete.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The shall be for a unit of one number.

12.26. Fixing metallic floor stoppers of sizes with rubber cushion, screws etc., to suit shutter thickness complete, (floor door stopper with rubber cushion and screws to be paid under separate items) :

1.0. Workmanship

1.1. The relevant specifications of item No. 12.4 shall be followed except that fixing metallic floor stoppers.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The shall be for a unit of one number.

12.28. Fixing metallic door handles or knobs for mortise jocks with necessary screws etc. complete (doors, handles/knobs and screws to be paid separately) : 1.0.

Workmanship

The relevant specifications of item No. 12.4 shall be followed except that fixing metallic door handles or knobs for mortise with necessary screws etc. complete.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 12.4 shall be followed.

2.2. The rate shall be for a unit of one number.

SECTION-13

Glazing

13.1.(1) Providing and fixing sheet glass, selected quality (type-C) bedded in putty and fixed with wooden beading including cost of wooden beading of first class teak wood and necessary cutting of glass 5 mm. thick.

1.0. Materials

The glass shall conform to M-38. The wood beading shall conform to M-29. Putty shall conform to I.S. 419-1967.

2.0. Workmanship

The glass shall be sheet glass of selected quality of 5 mm. thick.

2.1. The size of glass for glazing shall allow a clearance of 2.5 mm. between the edges of glass and the wood or metal surrounds. The clearance may be increased, provided the depth of the rebate of groove is sufficient to provide not less than 1.5 m. cover to the glass. The detailed process of glazing shall be as specified in I.S. 3548-1966.

2.2. All stains from the surface of glass shall be removed and cleaned with thinner or spirit without any extra payment.

2.3. Wooden beading :

2.3.1. The size of the wood beads for glass panes shall be 1.5 cms. x 3 cms unless otherwise specified. Beads shall be secured to wooden frames with either panels pins or screws and to metal frames in the way provided for in the frame.

2.3.2. Sufficient putty compound shall be applied to the rebate so that when the glass has been pressed into the rebate, a bed of compound not less than 1.5 mm. thick will remain between the glass and the rebate. There should also be surplus of compound squeezed out above the rebate which should be stripped at an angle not under cut to prevent water accumulating. Beads should be bedded with compound against the glass and wood beads should also be bedded against the rebate. Care should be taken to see that no voids are left between the glass and the bead.

3.0. Mode of measurement & payment

3.1. All measurements of cutting shall, unless otherwise stated, be held to include the consequent waste.

3.2. Each pane of glass shall be measured to the nearest 0.5 cms. both in width and height/length.

3.3. Irregular shaped or circular panes shall be measured as the smallest rectangular area from which the , irregular or circular pane can be cut.

3.4. The rate includes cost of materials, labour required for completion of the item Including horsting, carriage, temporary erections like scaffolding etc.

3.5. The rate also includes :

(i) The wastages and breakage involved in the process. *

(ii) Straight cutting on glass and glazing sheets.

(iii) Cost of subsidiary materials required for proper fixing and functioning of glass i.e. nails, spirit, putty, teak wood beading glass, pins, etc. complete.

3.6. The rate shall be for a unit of sq. metre.

13.1.(11) Providing and fixing sheet glass selected quality (Type-C) bedded in putty and fixed with wooden beading including cost of wooden beddings of first class teak wood, and necessary cutting of glass 6 mm. thick.

1.0. Materials and workmanship

1.1. The relevant specifications of item No. 13.1 (I) shall be followed except that the sheet glass of selected quality shall be 6 mm. thick.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 13.1.(1) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

13.3.(C) Providing and fixing rough cast wired glass 6 mm. thick bedded in putty and fixed with wooden beading including the cost of wooden headings of Indian teak wood and necessary cutting of glass wired figures glass.**1.0. Materials :**

Wire figure glass shall conform to M-38. Wooden beading shall conform to M-29. Putty shall conform to IS. 419-1967.

2.0. Workmanship

The relevant specification of item No. 13.1(1) shall be followed except that the wired figured glass of 6 mm. thick shall be used.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 13.1(1) shall be followed.

3.2. The rate shall be for a unit of one sq. mt.

3.5.(3) Providing and fixing sheet glass ordinary quality bedded in putty and fixed with wooden beading including the cost of wooden headings of first class teak wood and necessary cutting of glass 3 mm. thick.**1.0. Materials**

Glass shall conform to M-38. Wooden beading shall conform to M-29. Putty shall conform to IS. 419-1967.

2.0 Workmanship

The relevant specification of item No. 13.1 (I) shall be followed except that the wired figured glass of 6 mm. thick shall be used.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 13.1 (I) shall be followed.

3.2. The rate shall be for a unit of one sq. mt.

13.5.(3) Providing and fixing sheet glass ordinary quality bedded in putty and fixed with wooden beading including the cost of wooden headings of first class teak wood and necessary cutting of glass 3 mm. thick.**1.0. Materials**

Glass shall conform to M-38. Wooden beading shall conform to M-29.*Putty shall conform to I.S. 419-1967.

2.0. Workmanship

2.1. The specification of this item shall be followed as per item No. 13.1 (I) except that the sheet glass of ordinary quality shall be used and thickness of sheet glass shall be 3 mm. thick.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 13.1(1) shall be followed.

3.2. The rate shall be for a unit of one sq. metre.

13.5.(4) Providing and fixing sheet glass ordinary quality, bedded in putty and fixed with wooden headings including the cost of wooden headings of first class teak wood and necessary cutting of glass 4 mm. thick.**1.0. Materials and Workmanship**

The relevant specifications of item No. 13.5 (3) shall be followed, except that the thickness of ordinary sheet glass shall be 4 mm.

2.0. Mode of measurements and payment

2.1. The relevant specification of item No. 1.3.1(1) shall be followed.

2.2. The rate shall be for a unit of one sq. metre,

13.7. Extra for using ground glass (Frosted or obscured on one side) instead of plain glass.**1.0. Materials**

Glass shall conform to M-38. Wooden beading shall conform to M-29. Putty shall conform to IS. 419-1967.

2.0. Workmanship

The specifications of this item shall be followed as per item No. 13.1 except that ground glass (Frosted or obscured on one side) shall be used.

3.0. Mode of measurements and payment

3.1. The payment shall be made on sq. mt. basis extra over and above the payment for plain glass for using ground glass (Frosted or obscured).

3.2. The relevant specifications of item No. 13.5 (III) shall be followed.

3.3. The rate shall be for a unit of one sq. metre.

13.11.(A) Difference in cost of material and labour involved in method of glazings if changed in item No. 13.1 to front and back puttied and sprigged or fixed with glazing pins :

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 13.1 shall be followed except that the glazing is to be done by front and back puttied and sprigged or fixed with glazing pins.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 13.1 (I) and 13.1 (II) shall be followed.

2.2. The extra rate for extra cost involved shall be paid over and above item No. 13.1(1) & 13.1 (II).

2.3. The rate shall be for a unit of one sq. metre.

13.12. Grinding, polishing and round of edges or glazing sheets.

1 0. Materials

The glass shall conform to M-38:

2.0. Workmanship

The edges of glass or glazing sheets shall be grined, polished and rounded of such that it renders uniform look throughout the length and shall be neatly finished. The work shall be carried out in best workmans like manner.

3.0. Mode of measurements & payment

3.1. The edges of glass round, polished and rounded off shall be measured in metre.

3.2. The rate shall be for a unit of one running metre.

SECTION-14 Paving Floor Finishing

14.2.(A) 40 mm. thick marble chips flooring rubbed and polished (i.e. Terrazzo) to granolithic finish with under layer 30 mm. thick cement concrete (1:2:4:) (1 cement :2 coarse sand : 4 graded stone aggregate 10 mm. and down gauge) and top layer, 10 mm. thick with white, black or white and black marble chips of required sizes from 1 mm. to 4 mm. nominal size laid in cement marble powder mix 3 : 1 (3 cement : 1 marble powder by weight, in proportion of 4: 7 (4 cement marble powder mix : 7 marble chips by volume): Dark shade pigment with ordinary cement (in top layer only).

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Stone grit shall conform to M-8.

The pigment incorporated in terrazzo shall be of permanent colour and shall conform to requirement mentioned in Appendix-A in IS: 2114-1962. Marble chips shall conform to M-46. The marble powder shall pass through IS. Sieve Terrazzo-30.

2.0. Workmanship

2.1. Terrazzo finish shall be laid over a layer of base concrete in case of ground floor. When the terrazzo floor is laid over R.C.C. slabs a cushioning layer consisting of 75 mm. thick lime concrete shall be provided below the terrazzo floor. The terrazzo flooring shall consist of an under layer of cement concrete and layer of terrazzo which shall be laid monolithically.

2.2. Under Layer :

2.2.1. The under layer shall be of cement concrete mix 1:2:4. The maximum size of aggregate used shall not exceed 10 mm. Specification for cement concrete shall be followed as per item No. **5.4.1.**

2.3. Terrazzo Topping :

2.3.1. The topping shall have mix of ordinary cement, and marble powder in proportion 3:1 (3 cement : 1 marble powder by weight) and marble aggregate shall be mixed in proportion 4:7 (4 cement marble powder :7 marble chips by volume). The thickness of concrete and cushioning layer shall not be less than 10 cms and 7.5 cms. respectively. The minimum thickness of under layer and topping shall be 40 mm.

2.4. Panels :

2.4.1. The floor both while laying the under layer and topping shall be divided into panels not exceeding 2 sq. m. in area so as to reduce the risk of cracking due to differential shrinkage or expansion of terrazzo and sub-floor. The joints be so located that the layer dimensions of any panel do not exceed 2 M. The panels shall preferably be laid separately. However where the butt joint are provided, the bays shall be laid alternatively allowing for an interval of at least 24 hours between the laying of adjacent bays.

2.5. Mixing of materials :

2.5.1. With a view to avoid variation in colour, mixing shall be done in trough or tub, and the complete ** quantities of cement and pigment required for one unit shall be mixed at the beginning of the work. Colour cement or cement and pigment mix shall be dry mixed with marble powder. The mix thus obtained shall be mixed with aggregate. Care shall be taken not to get the materials into a heap as this would result in coarser aggregates moving on the sides and cement to the centre. To the dry mix thus prepared, water shall be added in small quantities while materials are being worked to get a mix of proper consistency. The mixture shall be plastic but not so wet as to flow. The wet mix shall be used within half an hour mix of addition of water during preparation laying.

2.6. Laying :

2.6.1. The base shall be divided into panels with the help of dividing strips including the strips required for decorative design up to the finished surface level of the floor. Screeds strips shall be used where the dividing strips are not used. The base shall be cleaned of all dust, dirt laintance and any loose materials. It shall be then wetted with water mopped and smeared with cement slurry at 2.75 kg./sq.mt. Under layer shall be then be spread and levelled with a screening board. The top surface shall be left rough to provide a good bond to the terrazzo.

2.6.2. The terrazzo topping shall be laid while the under layer is still plastic but has hardened enough to prevent cement from rising to the surface. This is normally achieved between 18 to 24 hours after laying of under layer. A cement slurry preferably of the same colour as the topping shall be brushed on the surface immediately before laying the topping. The terrazzo mix shall be laid to a uniform thickness on the screed bed and be completed thoroughly by taping or roiling and troweled smooth. Excessive troweling or roiling in early stages shall be avoided as it results in working up cement to the surface which will produce a surface liable to cracking and will require more grinding to expose marble chips. The terrazzo surface shall be tamped, trowelled, and brought true to required level by straight edge and steel floats in such a manner that the maximum amount of marble chips come up and are spread uniform over the surface and no part of the surface is left without chips.

2.7. Curing :

2.7.1. The surface shall be left dry for air curing for a period of 12 to 18 hours. Thereafter water shall be allowed to stand overnight in pools for period of minimum of four days. The floor shall be prevented from being subjected to extreme temperature.

2.8. Grinding and finishing :

2.8.1. Grinding and finishing shall be done either by hand or by machine. In case of manual grinding, the process of grinding shall begin after two days, while in case of machine grinding, the process shall be striated after seven days, after completion of laying.

2.8.2. First grinding shall be done by carborundum stones of 60 grit size. The surface shall then be washed clean and grouted with a grout of cement or /and coloring matter in the same mix and proportion as the topping in order to fill any pin holes that appear. It shall be allowed to dry for 24 hours and wet cured for four days in the same manner as mentioned in para 2.7 above.

2.8.3. The second grinding shall be done with carborundum stone of 80 grit size. The surface shall then be prepared as after first grinding. The third grinding shall be done with carborundum stone of 120 to 150 grit size. The surface shall then be washed again and allowed to dry for 12 hours, and wet cured for four days as before. The fourth grinding shall be done with carborundum stone of 320 to 400 grit size. The surface shall again be washed clean and rubbed hard with felt and slightly moistened Oxalic acid powder @ 5 gms. per sq. metre of floor surface. After the finishing work is over, the surface shall be washed with dilute oxalic acid solution and dried for floor polishing, machine fitted with felt or hession bobs shall then be run over it until floor shines. In case wax-polished surface is required, wax-polished shall be applied on the surface with the help of soft linen over a clean and dry surface. The polishing machine fitted with bobs shall be run over it, clean saw dust shall be spread over the floor surface and polishing machine again operated which will remove excess wax and leave glossy surface. Floor shall not be left slippery.

3.0. Mode of measurements and payment

3.1. Terrazzo flooring shall be measured as laid in sq. metres. Length and breadth shall be measured for visible area of work done. No deduction shall be made for nor extra for any opening in floor or area upto 0.10 sq. metre. The rate shall cover laying the floor at different levels in the same room or court-yard and nothing extra shall be paid on that account.

3.2. The rate includes the cost of all materials and labour involved in all operations described above. The rate shall also not include diving strip.

3.3. The rate shall be for a unit of one sq. metre.

14.2.(B) 40 mm. thick marble chips, flooring rubbed and polished (i.e. Terrazzo) to granolithic finish with under layer 30 mm. thick cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 10 mm. and down gauge) and top layer 10 mm. thick with white, black or white and black marble chips of required sizes from 1 mm. 4 mm. nominal size laid in cement marble powder mix 3 :1 (3 cement : 1 marble powder by weight) in proportion of 4: 7 {4 cement : marble powder mix : 7 marble chips by volume) light shade pigment with white cement (in top layer only).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.2 (A) shall be followed except that light shade pigment with white cement shall be used in top layer.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No, 14.2 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.2.(C) 40 mm. thick marble chips, flooring rubbed and polished (i.e. Terrazzo) to granolithic finish with under layer 30 mm. thick cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 10 mm. and down gauge) and top layer 10 mm. thick with white, black or white and black marble chips of required sizes from 1 mm. to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement :1 marble power by weight) in proportion of 4:7 {4 cement : marble powder mix : 7 marble chips by volume). Medium shade pigment with approx. 50% white cement and 50% ordinary cement (In top layer onjy).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.2. (A) shall be followed except that medium shade pigment with approximately 50% white cement and 50% ordinary cement in top layer only shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.2. (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.2.(D) 40 mm. thick marble chips, flooring rubbed and polished (i.e. Terrazzo) to granolithic finish with under layer 30 mm. thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 10 mm. and down gauge) and top layer 10 mm. thick with white, black or white and black marble chips of required sizes from 1 mm. to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement :1 marble power by weight) in proportion of 4:7 (4 cement : marble powder mix : 7 marble chips by volume). White cement without any pigment (in top layer only).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.2.(A) shall be followed except that white cement without any pigment in top layer only shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.2.(A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.2.(E) 40 mm. thick marble chips, flooring rubbed and polished (i.e. Terrazzo) to granolithic finish with under layer 30 mm. thick cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 10 mm. and down gauge) and top layer 10 mm. thick with white, black or white and black marble chips of required sizes from 1 mm. to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement :1 marble power by weight) in proportion of 4:7 (4 cement : marble powder mix : 7 marble chips by volume), light shade pigment with ordinary cement (in top layer only).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.2(A) shall be followed except that the light shade pigment with ordinary cement (in top layer only) shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.2 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.4.(A) Marble chips skirting (Terrazzo) or dedo rubbed and polished to granolithic finish top layer 6 mm. thick with white black or white and black marble chips of sizes from smallest to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble by weight) in proportion of 4:7 (4 cement : 7 marble chips by volume) 20 mm. thick with under layer 14 mm. thick in cement plaster 1:3 (1 cement : 3 coarse sand) : Dark shade pigment with ordinary cement (in tpp layer only).

1.0. Materials

1.1. The relevant specifications of item No. 14.2 (A) shall be followed.

2.0. Workmanship

2.1. Under layer: The under layer for terrazzo on vertical surfaces like skirting and dedos shall be of stiff cement **rnwittar** 1:3 (1 cement.: 3 coarse sand) finished rough so as to give a good bond to the topping. **2.2,r TerX^io** topping shall not be less than 6 mm. thick and the combined thickness of under layer and topping shall be not less than 20 mm. The other details shall be followed same as per specifications of item No. **C.24** except that the light shade pigment with white cement in top layers shall be used.

3.0. Mode of measurements & payment

3.1. The skirting and dedo shall be measured in square metres correct to two places of decimals. The height shall be measured from the finished level of floor.

3.2. The rate shall be for a unit of one sq. metre.

14.4.(B) Marble chips skirting (Terrazzo) or dedo rubbed and polished to granolithic finish top layer 6 mm. thick with white black or white and black marble chips of sizes from smallest to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble by weight) in proportion of 4:7 (4 cement : 7 marble chips by volume) 20 mm. thick with under layer 14 mm. thick in cement plaster 1:3 (1 cement : 3 coarse sand) : light shade pigment with white cement (In top layer only).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.4 (A) shall be followed except that the light shade pigment with white cement in top layers only shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.4(A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.4.(C) Marble chips skirting (Terrazzo) or dedo rubbed and polished to granolithic finish top layer 6 mm. thick with white black or white and black marble chips of sizes from smallest to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble by weight) in proportion of 4:7 (4 cement : marble powder mix 7 marble chips by volume) 20 mm. thick with under layer 14 mm. thick in cement plaster 1:3 (1 cement : 3 coarse sand) : medium shade pigment with approximate 50% white cement and 50% ordinary cement (In top layer only).

1.0. Materials and workmanship

1.1. The relevant specifications of item No. 14.4(A) shall be followed except that the medium shade pigment with approximate 50% white cement and 50% ordinary cement in top layers only shall be used.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 14.4 (A) shall be followed.

2.2. The rate shall be for a unit fo one sq. metre.

14.4.(O) Marble chips skirting (Terrazzo) or dedo rubbed and polished to granolithic finish top layer 6 mm. thick with white black or white and black marble chips of sizes from smallest to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble by weight) in proportion of 4:7 (4 cement : marble powder mix 7 marble chips by volume) 20 mm. thick with under layer 14 mm. thick in cement plaster 1:3 (1 cement : 3 coarse sand) : White cement without any pigment (In top layer only).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.4 (A) shall be followed except that the white cement without any pigment in top layers shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of Jtem No. 14.4 (A) shall be followed. *2.2.

The rate shall be for a unit of one sq. metre.

14.4.(E>) Marble chips skirting (Terrazzo) or dedo rubbed and polished to granolithic finish top layer 6 mm. thick with white black or white and black marble chips of sizes from smallest to 4 mm. nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble by weight) in proportion of 4:7 (4 cement : marble powder mix 7 marble chips by volume) 20 mm. thick with under layer 14 mm. thick in cement plaster 1:3 (1 cement : 3 coarse sand) : light shade pigment with ordinary cement (In top layer only).

1.0. Materials & workmanship

1.1. The relevant specifications of item No. 14.4 (A) shall be followed and except that the light shade pigment with ordinary cement in top layers only shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.4 (A) shall be followed and except that the light shade pigment with ordinary cement in top layers only shall be used.

2.2. The rate shall be for a unit of one sq. metre.

14.16 Providing and laying cushioning layer on R.C.C. slab consisting of 75 mm. thick lime concrete using brick aggregate of 20 mm. nominal size 50% mortar comprising of 1 lime : 2 fine sand.

1.0. Materials

1.1. Water shall conform to M-1. Lime mortar or proportion 1:2 shall conform to M-10. Brick aggregate 20 mm. nominal size shall conform to M-14.

2.0. Workmanship

2.1. The relevant specifications of item No. 1.8 shall be followed except that the proportion of mix shall be 50% mortar comprising of 1 lime : 2 coarse sand and the size of brick aggregate shall be 20 mm. nominal size. The lime concrete work shall be carried out in 7.5 Cms. average thickness as a cushioning layer on R.C.C. slab.

3.0. Mode of measurements and payment

3.1. The lime concrete work shall be measured for visible area of work done.

3.2. The rate shall be for a unit of one sq. metre.

14.19.(A) Precast terrazzo (Mosaic) tiles 20 mm. thick with white, black or white and black marble chips of sizes up to 6 mm. laid in floors, treads of steps and landings on a bed of 25 mm. average thickness of lime mortar 1:1.5 (1 lime putty: 1.5 fine sand) or CM. 1:6 jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing complete with precast tiles of light shades, using white cement.

1.0. materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Lime Mortar shall conform to M-10 cement mortar shall conform to M-1. The precast terrazzo tiles of 20 mm. thick shall be light shade using white cement and conform to M-47.

2.0. Workmanship

2.1. The work shall be carried out as per IS. 1443-1972.

2.2. Bedding :

2.2.1. Before spreading the mortar, the sub-base of the floor shall be cleaned of all dirt, scum and loose materials and then well wetted without forming any pools of water on the surface.

2.2.2. In case of R.C.C. floors, the top shall be left a little rough, all points of level for the finished surface shall be marked out. The time mortar of proportion 1:1.5 (1 lime putty : 1.5 fine sand) or cement mortar of proportion CM. 1 : as directed shall be then evenly and smoothly spread over the base. Bedding layer of mortar shall be not less than 10 mm. and average thickness of bedding shall be 25 mm.

2.3. Laying :

2.3.1. Before laying the terrazzo (Marble/Mosaic) tiles, the tiles shall be thoroughly wetted with water. Neat cement grout of required consistency at 4.4. Kg. cement/sq. mt. shall be spread on the mortar bed. The tiles shall be laid on the neat cement float and shall be evenly and firmly bedded to the required level and slope. There shall be no hollows left, The joints shall be uniform thickness and in straight line as per the pattern.

2.3.2. The surface of flooring shall be checked frequently with a straight edge at least two metres long so as to obtain a true surface with required slope.

2.3.3. The tiles which are fixed in the floor adjoining the wall shall go about 10 mm. under plaster. Skirting or dado shall be left unfinished for about 50 mm. above finished floor level and unfinished strip then left earlier shall be finished.

2.3.4. In places where full tiles cannot be fixed, the tiles shall be cut to the size and smoothed at edges to give straight and true joints.

2.3.5. After the tiles have been laid, the surplus cement slurry and the joints shall be cleaned and washed fairly deep before cement hardens.

2.3.6. The day after tiles have been laid, the joints shall be cleaned or gray cement grout with a wire brush to a depth of about 5 mm. and then grouted with white cement with or without pigment to match the shade of the topping of tiles. The same cement slurry shall then be spread over the whole surface in a thin coat to protect the surface from abrasive damage and to fill pin holes that may exist on the surface.

2.4. Curing :

2.4.1. The flooring shall be kept wet with damp sand or water for seven days, it shall be kept undisturbed atleast for 14 days. The grinding shall not/mally be commenced after 14 days.

2.5. Polishing :

2.5.1. After the tiles are properly cured, first grinding shall be done with carborundum stone of 48 to 60 grade grit fitted in machine. Water shall be properly used during grinding. When the chips show up and the floor has been uniformly rubbed, it shall be cleaned with water, baring all pin holes. It shall then be covered with a thin coat of white cement mixed with or without pigments to match the colour of the topping of the tiles. Pin holes if any shall thus be filled This grout shall be kept moist for a week. Thereafter second grinding shall be done when other works are finished. The machine shall be fitted with carborundum of grit 220 to 350 using water in abundance. The floor shall then be washed clean with water. Oxalic acid powder shall then be dusted at 33 grams per square metre on the surface and the surface rubbed with machine fitted with hessian bobs or rubbed hard with pad of woolen rags. The floor shall then be washed clean and dried with a soft cloth or linen. The finished floor shall not sound hollow when tapped with mallet.

2.5.2. If any tile is disturbed or damaged it shall be refitted or replaced properly jointed and polished.

2.5.3. Testing of the tiles shall be carried out by the contractor at his own cost as per I.S. requirement for required test.

3.0. Mode of measurements & payment

3.1. The terrazzo tiles flooring shall be measured in sq. metres for visible area of work done.

3.2. No deductions shall be made nor extra paid for any opening in the floor area up to 0.1 sq. mt. Nothing extra shall be paid for use of cut tiles or for laying the floors at different levels in the same room or court yard. Mosaic tiles laid in floor borders and bands etc. shall be measured in the same item and nothing extra shall be payable on account of these or similar bonds formed of half or multiples of half size, standard tiles or other uncut tiles.

3.3. The treads of stairs and steps paved with tiles without nosing shall also be measured under this item.

3.4. Extra rate shall however be paid for such area where width of treads does not exceed 30 cms.

3.5. The rate shall include the cost of all materials, labour involved in all the operations as described above.

3.6. The rate shall be for a unit of one sq. metre.

14.19.(B) Precast Terrazzo (Marble/Mosaic) tiles 20 mm. thick with white, black or white and black marble chips of size up to 6 mm. laid in floors treads of steps and landing on a bed of 25 mm. average thickness of lime mortar 1:1.5 (1 lime putty :1.5 fine sand) or CM.' 1:6 jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete with precast tiles of medium shades using approximately 50% white cement and 50% ordinary cement.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.19(A) shall be followed except that the precast terrazzo (marble mosaic) tiles shall be of medium shades using approximately 50% white cement and 50% ordinary cement.

2.0. Mode of measurement and payment

2.1. The rate shall be for a unit of one sq. metre

14.19.(B) Precast Terrazzo (Marble/Mosaic) tiles 20 mm. thick with white, black or white and black marble chips of size up to 6 mm. laid in floors treads of steps and landing on a bed of 25 mm. average thickness of lime mortar 1:1.5 (1 lime putty :1.5 fine sand) or CM. 1:6 jointed with neat cement slurry mixed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and polishing complete with precast tiles of dark shade using ordinary cement.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 14.19 (A) shall be followed except that the precast tiles shall be of Dark shade using ordinary Portland cement.

2.0. Mode of measurements & payment

2.1. The mode of measurement and payment shall be same as item No. 14.19 (A)

2.2. The rate shall be for a unit of one sq. metre.

14.21.(A) Precast terrazzo (Marble Mosaic) tile;; 20 mm. thick with marble chips of sizes up to 6 mm. in skirting and risers of steps not exceeding 30 cms. in height on 10 mm. thick cement plaster 1:3 C1 cement :3 coarse sand) jointed with neat cement slurry rubbing and polishing complete with tiles of light shades using white cement.

1.0. Materials

Water shall conform to M-1. Cement Mortar shall conform to **M-11**. The precast terrazzo (Marble/Mosaic) tiles of light shades using white cement tiles 20 mm. thick shall conform to M-47. **2.0. Workmanship 2.1.Laying :** The work shall be carried out for skirting or dedo. Before fixing precast Terrazzo (Mosaic marble) tiles of shade and size as specified, the surface shall be prepared by heavy scraping, making joints etc, to the required line, level and plumb. The surface shall be thoroughly wetted before commencing the laying work. Thereafter about 10 mm. thick backing of cement mortar in specified proportion shall be applied on the surface in true line and level generally as per specifications of plaster item.

2.2. Fixing ;

The back of each tile to be fixed shall be smeared with cement paste of matching colour and the mosaic tiles shall then be gently tapped against the surface, with a wooden mallet. The skirting shall be done only after the flooring is completed. Any pipes coming out of the wall through the dedo or skirting shall only be at the intersection of the horizontal and vertical joints. The tiles shall not have staggered joints. The joints shall be true to entire line both ways and vertical joints shall be in line with joints or flooring. Tiles shall be fixed as close as possible to the adjoining tiles and any difference in the thickness of the mosaic tiles shall be evened out in the cement paste so that all the tiles faces are se/in conformity with one another. The skirting shall project uniformly and not more than 6 mm. thickness beyond the finished surface above. Top of skirting or dedo shall be truly horizontal. The risers of steps, skirting or dedo shall rest on top of treads of flooring. Wherever required the tiles shall be cut (sawn) and thin edges smoothed before use.

2.3. Curing :

Curing shall be done for 7 days continuously.

2.4. Finishing:

Skirting and dedo shall be hand polished to have an even smooth *and shining surface. In case of skirting only 10 mm. x 10 mm. groove shall be provided at the junction of cement plaster and cement tiles.

3.0. Mode of measurements & payment

3.1. The terrazzo tiles with light shade using white cement base shall be paid under this item. The length shall be measured along finished surface of the riser, skirting or dedo, correct to a centimeter height measured from finished level of treads, or floor to the top (under side of treads in case of steps).

3.2. The rate shall include all materials and labour required for **all** the operations involved and described above.

3.3. The rate shall be for a unit of one sq. metre.

14.21.(B) Precast terrazzo tiles 20 mm. thick with marble chips of sizes up to 6 mm. in skirting and risers of strips not exceeding 30 cms. in height on 10 mm. thick cement plaster CM. 1:3 (1 cement :3 coarse sand) jointing with neat cement slurry including rubbing and polishing complete with tiles of: medium shades using approximately 50% white cement and 50% ordinary cement. --

1.0. Materials and workmanship

1.1. The relevant specifications of item No 14.21 (A) shall be followed except that the work is for using tiles of medium shades using approximately 50% white cement and 50% ordinary cement.

2.0. Mode of measurements & payment

2.1. The mode of measurements and payment shall be followed same as item No. 14.21 (A).

2.2. The rate shall be for a unit of one sq. metre.

14.21.(C) Precast terrazzo tiles 20 mm. thick with marble chips of sizes up to 6 mm. in skirting and risers of steps not exceeding 30 cms. in height on 10 mm. thick cement plaster in CM. 1:3 (1 cement :3 coarse sand) jointing With neat cement slurry including and polishing complete, with tiles of Dark shade using ordinary cement.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.21 (A) shall be followed except that the tiles of dark shade using portland cement shall be used.

2.CL Mode of measurements and payment

2*j| The mode of measurements and payment shall be followed as per item No. 14.21 (A).

2)j|k The rate shall be for a unit of one sq. metre.

14.25.(A) Chequered terrazzo tiles 22 mm. thick with marble chips of size up to 6 mm. in floor on 25 mm. thick bed of lime mortar 1:1.5 (1 lime putty : 1.5 coarse sand) or CM. 1:6 jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing etc. complete, light shade using white cement.

1.0. Materials

Water shall conform to M-1. White cement shall conform to M-4. Lime mortar of proportion 1:1,5 shall conform to M-10. Cement mortar shall conform to M-11. Chequered tiles shall conform to M-47 D.

2.0. Workmanship

2.1. The relevant specifications of item No. 14.21 (A) shall be followed except that chequered tiles of light shade using white cement shall be used.

3.0. Mode of measurement & payment

3.1. The relevant specifications of item No. 14.21 (A) shall be followed.

3.2. The rate shall be for a unit of one sq. metre.

14.25.(B) Chequered terrazzo tiles 22 mm. thick with marble chips ,of size up to 6 mm. in floor on 25 mm. thick bed of lime mortar 1:1.5 (1 lime putty : 1.5 coarse sand) or CM. 1:6 jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing etc. complete, medium shade using approximate 50% white cement and 50% ordinary cement.

1.0. Materials and workmanship

1.1. The relevant specification of item No. 14.25 (A) shall be followed except that chequered tiles of medium shade using approximate 50% white cement and 50% ordinary cement shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.25 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.25.(C) Chequered terrazzo tiles 25 mm. thick with marble chips of size up to 6 mm. in floor on 25 mm. thick bed of lime mortar 1:1.5 (1 lime putty : 1.5 coarse sand) or CM. 1:6 jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing etc. complete, : Dark shade using ordinary cement.

1.0. Materials and workmanship

1.1. The relevant specification of item No. 14.25 (A) shall be followed except that chequered tiles of dark shade using ordinary cement shall be used.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.25 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre. .

14.27.(A) Chequered terrazzo tiles 28 mm. thick with marble chips of size up to 6 mm. in treads of stairs and staircases in 12 mm. thick bed of lime mortar 1:5 coarse sand) to CM. 1:6 jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing etc. complete, Dark shade using ordinary cement.

1.0. Materials and workmanship

1.1. The relevant specification of item No. 14.25 (A) shall be followed except that chequered tiles 28 mm. thick of light shade using white cement shall be used in treads, stair cases etc.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.25 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.27 (B) Chequered terrazzo tiles 22 mm. thick with marble chips of size up to 6 mm. in floor in on 25 mm. thick bed of lime mortar 1:1.5 (1 lime putty : 1.5 coarse sand) or CM. 1:6 jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing etc. complete : Medium shade of using approximately 50% white cement and 50% ordinary cement.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 14.25(A) shall be followed except that the chequered tiles 28 mm. thick of medium shade using approximately 50% white cement and 50% ordinary cement shall be used in treads of stair, staircases etc.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 14.25 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.27.(C) Chequered terrazzo tiles 28 mm. thick with marble chips of sizes up to 6 mm. in treads of stairs and staircases in 12 mm. thick bed of lime mortar 1:1.5 {1 Lime putty: 1.5 coarse sand) or cm. 1:6 jointed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and polishing complete : Dark shade using ordinary cement.

1.0. " Materials and Workmanship

1.1. The relevant specifications of item No. 14.25 (A) shall be followed except that chequered tiles 28 mm. thick of dark shade using ordinary cement shall be used in treads of stair, staircase etc.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 14.25 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.29 White glazed tiles 6 mm. thick in flooring, treads of steps and landings laid on a bed of 12 mm. thick cement mortar 1:3 (1 cement : 3 coarse sand) finished with flush pointing in white cement.

1.0. Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. White glazed tiles shall conform to M-55.

2.0. Workmanship**2.1. Bedding :**

2.1.1. The sub grade shall be cleaned, wetted and mopped. The bedding shall then be laid evenly over the surface tamped and corrected to desired level and allowed to harden enough to offer a rigid cushion to tiles and to enable the monsoon to place wooden planks across and squat on it.

2.1.2. The white glazed tiles shall be laid on cement mortar bedding of 12 mm. thick in CM. 1:3. The mortar shall have sufficient plasticity for laying and there shall be no hard lumps that would interfere with the evenness of bedding. The base shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 10 mm. at any place and average 12 mm. thickness. The proportion of the cement mortar shall be as specified in the item.

2.2. Fixing tiles :

2.2.1. The tiles before laying shall be soaked in water for at least two hours. Neat gray cement grout at 33 kg/Cement/Sq. rnt. of honey like consistency Shall be spread over the mortar bedding as directed. The edges of the tiles shall be smeared with neat cement slurry. The tiles shall be well pressed and gently tapped with a wooden mallet till they are perfectly bedded and in level with the adjoining tiles." There shall be no hollows in bed or joints. The joints between the tiles shall be as thin as possible in straight line or as per ■ pattern.

2.2.2. The tiles shall not have staggered joints. The joints shall be true to centre line both ways. The ranthi trap coming in the flooring shall be so positioned that its grating shall replace only one tile as far as possible. Where full size tiles cannot be fixed they shall be cut (Swan) to the required size and the edges rubbed smooth to ensure straight and true joints. The joints shall be filled with grey cement grout with wire brush or trowel to a depth of 5 mm. and loose material removed. White cement shall be used for pointing the joints. After fixing the tiles finally in an even plane the flooring shall be kept wet and allowed to nature undisturbed for 7 days.

2.3. Cleaning :

2.3.1. The surplus cement grout that may have come out of the joints shall be cleaned off before it sets. Once the floor has set, it shall be carefully wash 3d, cleared by dilute acid and dried. Proper precautions and measures shall be taken to ensure that the tiles are not damaged in any way till the completion of the construction.

3.0. Mode of measurements & payment

3.1. The work done shall be measured in sq. mt. for visible area of work done. The length and width of the flooring shall be measured not between the faces of skirting or dedos or plastered face of wall as the case may be. The paving under dedo or skirting shall not be measured. No deduction shall be made not extra paid for any opening in the floor of area up to 0.1 sq.mt. Nothing extra shall be paid for laying the floors at different levels in the same rooms.

3.2. The rate shall be for a unit of one sq. metre.

14.32. White glazed tiles 6 mm. thick in skirting, risers of steps and dedo on 10 mm. thick cement plaster 1:3 (1 cement :3 coarse sand) and jointed with white cement slurry.

1.0. Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. White glazed tiles shall conform to M-55.

2.0. Workmanship

2.1. Preparation of Surface:

In case of brick masonry wall, the joints shall be raked out to a depth of least 15 mm. while the masonry is being laid. In case of concrete wall the surface shall be chiselled and roughed with wire brushes. The surface shall be cleaned and wetted thoroughly before commencing the laying work.

2.2. Laying :

2.2.1. The wall surface shall be covered with 10 mm. thick plaster of cement mortar 1:3 mix and allowed to harden. The plaster shall be roughed with wire brushes both way. The back of tiles shall be floated with grey cement slurry set and edges with white cement slurry in bedding mortar. The tiles shall be gently tapped in position on after the other keeping the joints as thin as possible. Top of skirting or dedo shall be truly horizontal and the joints vertical or as per required pattern.

2.2.2. Risers of steps, skirting and dedo shall rest on top of treads or flooring. Where full size tiles cannot be fixed, They shall be cut to the required size and the edges be smoothed.

2.2.3. The joints shall be cleaned and flush pointed with white cement. The surface shall be kept wet for seven days. After curing the surface shall be washed clean.

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour required for various operations described above. Risers of steps, skirting and dedo shall be measured in square metres. Length and height shall be measured along the finished face of the skirting or dedo including curves, where special such as covers, internal and external angles, etc., used. The length and height shall be measured correct to the centimeter except in case of risers and skirting where height shall be measured correct to 3 mm.

3.2. The rate shall be for a unit of one sq. metre.

14.34. Providing and fixing 50 mm. internal or external angles of white glazed tiles.

1.0, Materials

Water shall conform to M-1. Cement mortar shall conform M-11. Glazed tiles shall conform to M-55.

2.0. Workmanship

2.1. The relevant specifications of item No 14.32 shall be followed except that the internal or external angles of glazed tiles shall be of thickness not less than the tiles with which they are used. The fixing shall. be done as per directions.

3.0. Mode of measurements and payment

3.1. Rate shall be including the cost of materials and labour involved in all the operation described above. Internal or external angles of glazed tiles shall be measured in running metres correct up to a centimeter, length being measured on the exposed face of the special at its centre line. No extra payment shall be made for corner places at angles junctions of cover beads and cornices for using cut length of special.

3.2. The rate shall be for a unit on one running meter.

14.36.(A) Providing and laying marble stone slab flooring over 20 mm. (Average) base of cement mortar 1:6 (1 cement : 6 coarse sand) or L. M. 1:1.5 laid and jointed with gray cement slurry including rubbing and polishing compete : Marbles slab 25 mm, thick.

1.0. Materials

Water shall conform to M-1. Lime mortar shall conform to M-10. Cement mortar shall conform to M-11.

Marble stone slab 25 mm. thick shall conform to M-51.

2.0. Workmanship

2.1. Dressing of slabs :

Every stone shall be cut to required size and fine chisel dressed to give a smooth and even surface on all sides to full depth. A straight edge laid along the sides of the stone shall be fully in contact with it. Chisel dressing shall also be done on top surface to remove any waviness. The sides and top surface of marble

slabs shall be machine rubbed or table rubbed with coarse sand before using. All angles and edges of slabs shall be true, square and free from chipping.

2.2. The thickness of stone shall be 25 mm. The allowable tolerance shall be 2 mm. allowable. The tolerance shall ± 5 mm. in length and breadth.

2.3. Bedding :

Bedding of marble slabs shall either be lime mortar 1:1.5 (1 lime putty : 1.5 coarse sand) or cement mortar 1:6 (1 cement : 6 coarse sand) of average thickness 20 mm. thick as given in description of item. Minimum thickness at any place shall not be less than 10 mm.

2.4. Laying ;

The surface of sub-grade shall be cleared, wetted and mopped. Mortar of specified mix and thickness shall then be spread on an area sufficient to receive one marble slab. The slab be washed clean before laying. It shall be laid on top pressed and tapped gently to bring it in level with other slabs. It shall then be lifted and laid a side. The top surface of the mortar shall then be corrected by adding fresh mortar at hollows, or depressions. The mortar shall then be allowed to harden it over this surface cement slurry or honey like consistency at 4.4 Kg. of cement per sq. metre. The edges of slabs already paved shall be buttered with gray cement. The slab shall then be gently placed in position and tapped with wooden mallet till it is properly bedded in level with and close to the adjoining slab. The joints shall be as fine as possible. Surplus cement on the surface of the slab shall be removed. The slab fixed in the floor adjoining the walls shall enter not less than 10 mm. under the plaster skirting or dedo. The junction between the walls and floors shall be finished neatly. The finished surface shall be true to level and slopes as directed.

2.5. Curing : The floor shall be cured for a minimum period of seven days.

2.6. Polishing and finishing :

Unevenness at the meeting edges of slab shall be removed by fine chiselling. Finishing etc. shall be done as per relevant specifications of item No. 14.21 (A) orterrazzo tiles flooring except that cement slurry with/or without pigments shall not be applied on the surface before each polishing.

3.0. Mode of measurements and payment

3.1. Marbles stone flooring with various kinds of marble shall be measured in sq. metre. The length and breadth shall be measured between the finished face of skirting or dedo or wall plaster. No deduction shall > be made nor extra shall be paid for nay opening in the floor or area up to 0.05 sq. mt. Nothing extra shall be paid for laying stone at different levels in the same room. Treads and steps of stairs paved with marble stone slabs shall be also be measured under flooring.

3.2. The rate shall be for a unit of one sq. metre.

14.43.(A) Kota stone slab (Polished, Green colour) flooring over 20 mm, (average) thick base of cement mortar 1:6 (1 cement : 6 coarse sand, or lime mortar 1:1.5 laid over and jointed with gray cement slurry including rubbing and polishing complete 25 mm. thick.

1.0. Materials

1.1. Water shall conform to M-1. Lime mortar shall conform to M-10. Cement mortar shall conform to M-11. Polished kota stone shall conform to M-49.

2.0. Workmanship

2.1. Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges. The sides trust dressed shall have a full contract if a straight edge is laid along. The sides shall be table rubbed with coarse sand before paving. All angles and edges of the slabs shall be true square and free from chippings and giving a plane surface. The thickness shall be 25 mm. (Average) as specified in the item but not less than 20 mm. at any place of the slab.

2.2. Bedding for the Kota stone slabs shall be of cement mortar 1:6 (1 cement : 6 coarse sand) or L.M. 1:1.5. of average thickness 20 mm. given in the description of the item. Sub grade shall be cleaned, wetted and mopped. Mortar of the specified mix and thickness shall then be spread on an area sufficient to receive one kota stone slab. The slab shall be washed clean before laying. It shall be laid on top, pressed, tapped gently to bring it in level with the other slabs. If shall then be lifted and laid aside. Top surface of the mortar shall then be corrected by adding fresh mortar at hollows or depressions. The mortar shall then be allowed to harden bit. Over this surface, cement slurry of honey-like consistency shall be applied. The slab shall then be gently placed in position and tapped with wooden mallet till it is properly padded in level with and close to the adjoining slab. The joint shall be as fine as possible. The slabs fixed in the floor adjoining, the

walls shall enter not less than 10 mm. under the plaster, skirting or dedo. The junction between the wall and floor shall be finished neatly. The finished surface shall be true to levels and slopes as directed.

2.3. The floor shall be kept wet for a minimum period of 7 days so that bedding and joints set properly.

2.4. Polishing shall be normally commenced after 14 days of laying the stone slab. First polishing shall be done with carborundum stones of 120 grade grit fitted in the heavy machine and then second polishing shall be done with carborundum stone of 220 to 350 grade grit fitted in heavy machine. Water shall be properly used during polishing. The stone shall then be washed clean with water. When directed by the Engineer-in-charge, wax polish of approved quality shall be applied on the surface with the help of soft cloth over a clean and dry surface. Then the polishing machine fitted with bobs shall be run over it.

2.5. The holes required for Nahni traps, pipes and any other fittings shall be made without any extra cost.

3.0. Measurement & payment

3.1. The rate shall include the cost of all materials and labour involved in all the operations described above. The kota stone flooring shall be measured in square metres correct to two places decimal, length and breadth shall be measured correct to a centimeter and between the finished face of skirting dedo or wall plaster and no deduction shall be made nor extra paid for any opening in floor of areas up to 0.1 sq. mt.

3.2. The rate shall be for a unit of one sq. metre.

14.43.(B) Kota stone slab flooring over 20 mm. (average) thick base of cement mortar 1:6 (1 cement :6 coarse sand) or L.M. 1:1.5 laid over and jointed with gray cement slurry including and polishing complete : 30 mm. thick.

1.0. Materials and workmanship

1.1. The relevant specifications of item No. 14.43 (A) shall be followed except that the thickness of stone shall be 30 mm.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.43 (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.44. Kota stone slab 25 mm. thick in riser of steps dedo and pillars laid on 10 mm. thick cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with gray cement slurry including rubbing and polishing etc. complete.

1.0. Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. Kota stone slab 25 mm. thick shall conform to M-49.

2.0. Workmanship

2.1. The relevant specifications of item No. 14.43(A) shall be followed except that the kota stone shall be fixed for risers of steps, dedo or skirting in CM. 1:3 and the polishing shall be done manually instead of machine polishing.

3.0. Mode of measurements and payment

3.1. The risers of steps, skirting or dedo shall be measured in sq. metre. Length shall be measured along the finished faces of risers, skirting or dedo. Height shall be measured from finished level of treads of floor to top. Lining of pillars shall be measured under this item.

3.2. The rate shall be for a unit of one sq. metre.

14.46.(A) Rough chiselled dressed (Kota stone green) stone flooring over 20 mm. thick base of cement mortar 1:5 (1 cement :5 coarse sand), or L.M. 1:1.5 including pointing with cement mortar 1:2 (1 cement : 2 stone dust) etc. complete 25 mm. thick.

1.0. Materials

Water shall conform to M-1. Lime mortar shall conform to M-10. Cement mortar shall conform to M-11.

Rough chisel dressed stone shall conform to M-48.

2.0. Workmanship

2.1. The relevant specifications of item No. 14.43 (A) shall be followed except that the rough chisel dressed stone of 25 mm. thickness of approved quality are to be fixed on cement mortar bedding in CM 1:5 or L.M. 1 :1.5 of 25 mm. average thickness.

2.2. Dressing of stone slab :

Every stone slab shall be cut to the required size and shape and rough chisel- dressed on top, if required. so that the dressed surface shall not be more than 6 mm. from straight edge placed on it. The sides shall

also be chisel-dressed to a minimum depth of 20 mm. so that the dressed edge shall at no place be more than 30 mm. from straight edge butted against it. Beyond this depth, the sides may be dressed slightly splayed so as to form an inverted V shaped joint with adjoining also. The surface shall be reasonable true and plane and all the angles and edges shall be square and free from chippings. Where the stone slabs are to be used for nosing, exposed edges shall be rough chisel-dressed to full depth and cut to the uniform thickness.

2.3. Thickness of the stone slab shall be 25 mm. with permissible tolerance of ± 2 mm.

2.4. Laying :

The surface of the sub-grade concrete shall be cleaned, wetted and mopped. The bedding of specified mortar mix shall be spread under each slab to the specified thickness. The slab shall be washed clean before laying. It shall be then laid on top, pressed and so that all hollows underneath filled surplus mortar works up through the joints. The top shall be tapped and brought level to the adjoining slab. The thickness of the joints shall not exceed 5 mm. Subsequent slabs shall be laid in the same manner.

2.5. Curing & Finishing :

Any surplus mortar on the surface of the slab shall be cleaned off and joints finished flush. The joints shall be raked out uniformly to a minimum depth of 12 mm. under the plaster, skirting or dedo. The junctions between wall plasters and floor shall be finished neatly and without waviness. The pointing shall be done with CM. 1:2. The pointing shall be cured for a minimum period of seven days. The finished floor shall not sound hollow when tapped with wooden mallet and the finished surface shall be true to level and slopes as directed.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 14.43 (A) shall be followed.

3.2. The rate shall be for a unit of one sq. metre.

14.46.(B) Rough chisel dressed (Kota stone green) stone flooring over 20 mm. thick base of cement mortar 1:5 (1 cement : 5 coarse sand) or Lime Mortar 1:1.5 including pointing with cement 1:2 (1 cement : 2 stone dust) etc., complete-40 mm. thick.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 14.46 (A) shall be followed except that the thickness of stone slabs shall be 40 mm. thick.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.46(A) shall be followed.

2.2. The rates shall be for a unit of one sq. metre.

14.71.(A) Cement concrete flooring for I.P.S. 1:2:4 (for Indian Patent Stones) (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) laid in one layer finished with a floating coat of neat cement. 40 mm. thick.

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Stone aggregate 20 mm. nominal size shall conform to M-12. Cement concrete of 1:2:4 proportion measured by volume shall conform to relevant specifications of ordinary grade 1:2:4 concrete.

2.0. Workmanship

2.1. The cement concrete flooring of 40 mm. thick (Average) is to be laid as per the site condition. The concrete shall be mixed in a mechanical mixer at the work. Hand mixing may however be allowed for smaller quantities of work and in case of failure of machineries or as permitted by the Engineer-in-charge. it shall be carried out on a watertight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. However in such cases 10% more cement than otherwise required shall have to be used without any extra cost. The mechanical mixing shall be done for period of 1. 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce a dense concrete of required workability for the purpose. Flooring of specified thickness shall be laid in accordance with approved pattern or as directed. Finishing operation shall depend upon the temperature and atmospheric conditions. The surface shall be left for some time till moisture disappears from it. Fresh quantity of cement shall be mixed with water to form a thick slurry and spread over the surface while the concrete is still green. Use of dry cement or cement and sand mixture sprinkled on this surface to stiffen the concrete or absorb excessive moisture shall not be permitted. The cement slurry shall then be properly pressed twice by means of iron floats, once when the slurry is applied and the second time when cement setting and finished floated smooth. The surface shall be marked with string or B.R.C. fabric jali to make the surface non-slippery as and when directed. The junction of floors with wall plaster, dedo or skirting shall be rounded off where so

required up to 25 mm. radius. Flooring in lavatories and bath rooms shall be laid after fixing of water closet and squatting pans and floor traps which shall be plugged while laying the floors and opened after the floors are completed. Any damage done to water supply or sanitary fittings during execution of work shall be made good.

2.2. After the final set, the concrete shall be kept continuously wet, if required by ponding for a period of not less than 7 days from the date of placement.

2.3. The form work shall be provided if necessary as directed by Engineer-in-charge. Concreting shall be done as per alternate bay method with necessary centering either by mastic or cement mortar as directed.

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials and labour involved in all the operations described above. No deduction shall be made or extra paid for any opening up to 0.1 sq. mt. In area in the floor, nothing extra shall be paid for laying the floor at different levels in the same room or the counter yard.

3.2. The rate shall be for a unit of one sq. metre.

14.71.(B) Cement concrete flooring {Indian patent stone} 1:2:4 coarse sand 4: graded stone aggregate 20 mm. nominal size) laid in one layer finished with floating coat of neat cement : 50 mm. thick.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 14.71 (A) shall be followed except that the thickness of concrete flooring shall be 50 mm.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.71. (A) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

14.74. Cement concrete pavement (25 mm. to 50 mm. thick) with 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 20 mm. nominal size) including finishing with a floating coat of neat cement complete.

1.0. Materials and workmanship

1.1. The relevant specifications of item No. 14.71 (A) shall be followed except that the thickness of concrete flooring vary from 25 mm. to 50 mm.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 14.71 (A) shall be followed except that thickness shall be measured correct up to 1 mm. flooring laid in borders, margins and treads of steps, shall be measured under item of flooring in respective of width.

2.2. The rate shall be for a unit of one cubic metre

14.81.(C) 20 mm. thick precast concrete tile with aggregate of sizes up to 6 mm. laid in floors, treads of steps and landings on 20 mm. thick bed of cement mortar 1:6 (1 cement : 6 coarse sand) or L.M. 1:1.5 jointed with neat cement slurry with pigment to match the shade of the tiles complete with precast tiles of Dark Shades ordinary cement.

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-2. Sand shall conform to M-6. Lime mortar 1:1.5 shall conform to M-10. Cement shall conform to M-11. Tiles shall conform to M-47 (A) cement concrete tiles shall conform to I.S. 1237-1959 and pigments to be admixed with mortar or for grouting shall conform to I.S. 2114-1962.

2.0. Workmanship

2.1. The tiles shall be laid on the sub-grade of concrete of the R.C.C. slab. Bedding shall be in the mortar 1:1.5 or cement mortar (1:6). The amount of water added shall be minimum required for sufficient plasticity and workability CM. or lime mortar where the ingredients shall be thoroughly mixed dry, hard lumps removed and water added to give a good workability.

2.2. The base shall be cleaned of all dust, dirt and squm and properly wetted without allowing water pools. For a bedding of cement mortar shall be then spread evenly over the base of two rows of tiles and three to five metres tn length. The top shall be kept rough so that cement slurry can be absorbed. The thickness of the bedding shall be not less than 10 mm. at any place. The laying of tiles shall be commenced with neat cement slurry of honey-like consistency and shall be spread over the mortar bed over an area sufficient to receive about 20 tiles. The tiles shall then oe fixed in this grout one after the other, each tile being gently tapped and properly bedded in line and level with the adjoining tiles. The joints shall be as narrow as possible and normally shall not exceed 1.5 mm. After the day's work the excess cement slurry on top shall be cleaned as also the joints with a broom struck and washed before the slurry sets hard. Next day the joints shall be filled with the cement grout of the same shade as the matrix of the tiles. Tiles which are fixed in the floor adjoining the wail shall go a minimum of 10 mm. under the wall plaster, skirting ordedo. For the purpose, plaster etc. may be left unfinished by about 50 mm. above the proposed finished level of the floor. The" unfinished strip shall be plastered after laying the floor tiles. Where full tile cannot be used, tile shall be cut to the size to be used.

2.3. The flooring shall be cured for 7 days.

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour involved in all the operations described above.

3.2. The rate shall be for unit of one sq. metre.

14.86. Chequered precast cement concrete tiles 22 mm. thick with aggregate of sizes up to 6 mm. in floors, treads of steps and landings on 20 mm. thick bed of CM. of 1:6 (1 cement : 6 sand) or lime mortar 1:1.5 (1 Lime putty : 1.5 coarse sand) jointed with cement slurry with pigment to match the shade of tiles.

1.0. Materials

1.1. The relevant specifications of item No. 14.25 (A) shall be followed.

2.0. Workmanship

2.1. The relevant specifications of item No. 14.21 (A) shall be followed except that chequered precast cement concrete tiles 22 mm. thick shall be used in floors, treads of steps and landings on average 20 mm. thick bed of CM. 1:6 or **L.M.** 1:1.5.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 14.21 (A) shall be followed.

3.2. The rate shall be for unit of one sq. metre.

14.87. Extra for polishing and polishing the precast cement concrete tiles in flooring, skirting or dedo.

1.0. Workmanship

1.1. Grinding and rubbing shall normally be commenced after 14 days of laying the tiles, except for skirting or small areas, machine shall be used for the purpose.

1.2. First grinding shall be done with carborundum stones of 48 to 60 grade grit fitted in machine. Water shall be properly used during grinding. When the chips show up and the floor has been uniformly rubbed, it shall be cleaned with water baring all pinholes. It shall then be covered with a thin coat of gray or white cement mixed with or without pigments to match the colour of the topping of the tiles. Pin holes if any shall thus be filled. This grout shall be kept moist for sufficient period as directed. Thereafter, second grinding shall be started with carborundum of 120 grit. Grouting and curing shall be followed again. Final grinding shall be done when other works are finished. The machine shall be fitted with carborundum of grit 220 to 350 using water in abundance. The floor shall then be washed clean with water. Oxalic acid powder shall then be dusters as needed on the surface and the surface rubbed with machine fitted w:zh hessian bobs or rubbed hard with pad of woolen rags. The floor shall then be washed, cleaned and dried with a soft cloth of linen. The finished floor shall not sound hollow when tapped with a mallet.

1.3. If any tile is disturbed or damaged it shall be refitted or replaced properly jointed and polished.

1.4. For skirting, dedo or small areas where it is not possible to do machine polishing all the above operations are to be done manually.

2.0. Mode of measurements and payment

2.1. The rate shall include the cost of all materials and labour involved in all the operations as described ■ above.

2.2. The rate shall be for a unit of one sq. metre.

14.90\Providing and laying brick on edge flooring laid dry, grouted with c.M, 1:6 (1 cement : 6 coarse sand) including finishing the joints flush, curing etc. complete. 1.0.

Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. Burnt bricks shall conform to M-15.

2.0. Workmanship

2.1. The flooring shall be laid on concrete sub grade where so provided. The slope in the floor shall be provided in the sub-grade. Where sub-grade is not provided, the earth below shall be properly sloped, watered, rammed and consolidated. Before laying the flooring it shall be moistured. Plinth masonry off-eta shall be depressed so as to allow the sub grade concrete to rest on it.

2.2. Laying :

The brick shall be laid in plain, diagonal herring bond, or other pattern as directed. The bricks shall be dry laid properly and set home by gently tapping. On completion of the portion of flooring the vertical joints shall be grouted with CM. 1:6 and all joints shall be finished flush. The joints shall be as fine as possible and not exceeding 5 mm. These points shall be filled with cement mortar 1:6.

2.3. Curing:

The brick paving shall be cured for 7 days.

3.0. Mode of measurements and payment

3.1. The length and breadth shall be measured correct to a centimeter between skirting dedo or wall plaster. No deductions shall be made nor extra paid for any opening up to 0.1 sq.mt. in area in the floor. Nothing extra shall be paid for laying the floors at different levels in the same room or courtyard.

3.2. The rate shall be for unit of one sq. metre.

SECTION-15*

Roof Covering

- 15.1, Providing corrugated G.I. sheets roofing fixed with galvanized iron 1J' or 1L' hook bolts and nuts 8 mm. dia. with bitumen and G.I. limpet washers filled with white lead complete excluding the cost of purline, rafters and trusses (1) 0.8 mm. thick sheet.**

1.0. Materials :

Corrugated G.I. sheets shall conform to M-23.

2.0. Workmanship

2.1. Spacing of purlins : One purline shall be provided at the ridge and one at the eaves. The spacing of other purlins for 0.8 mm. thick G.I. sheets shall not exceed 1.80 metres. The purline shall coincide with the centre line of the end lap. The ridge purlins shall be placed in such a way that the ridges can be fixed properly. The portion overhanging the wall support shall not be more than one fourth of the spacing of purlins.

2.2. The top surfaces of the purlins shall be painted before the sheets are fixed over them. Embedded portions of purlins shall be finished with two coats of coal-tar.

2.3. Laying of sheets :

2.3.1. The sheets shall be laid in purlins to a true plane with the line of corrugations truly parallel or normal to the sides of area to be covered. The sheets shall not generally be built into gables and parapets. They shall be bent up along their side edges close to the wall, and the junction shall be protected by suitable flashing or by projecting drip course.

2.3.2. The laps at end shall be provided 150 mm. minimum for roof slopes 1 in 2 (1 vertical : two horizontal) and steeper but 200 mm. shall be provided for flatter slopes than those above. The side lap shall be provided two ridges of corrugations at each side.

2.3.3. The sheets shall be cut to the dimensions or the shape of the roof either along their lengths or their width or in slant across the line of corrugations at hips and valleys. The sheets shall be cut carefully with a straight edge and chisel to give straight finish. The sheets shall be laid such that the laps are turned away from the usual direction of local heavy rain.

2.3.4. Fixing of sheets :

2.3.4.1. Sheets shall be fixed to the purlins or other roof members such as hips or valley rafter etc. with 1J' or 1L' galvanized hook bolts, and galvanized nuts 8 mm. dia. with bitumen limpet washers and G.I. washers. Limpet washers with white lead shall be used. Length of hook bolt shall be varied to suit the site requirement, Bolts shall be sufficiently long so that after fixing the project above the top of their nuts by not less than 12 mm the grip of 1 J' or 1L' hook bolts on the sides of purlins shall not be less than 25 mm. There shall be minimum of three hooks bolts placed at the ridge of corrugations in each sheet in every purlin, and their spacing shall not exceed 300 mm. Coach screw shall not be used for fixing the sheets to purlin, where the slopes of roof are not less than 2.1/2 degree (1 vertical and 2.1/2 horizontal). Sheets shall be jointed together at the side laps by galvanized iron bolts and nuts 25 mm. x 6 mm. size each bolt with a bitumen and G.I. limpet washer filled with white lead. Where the overlaps at the sides extend to two corrugations, these bolts shall be placed zig-zag over lapping corrugations, so that the ends of the overlapping sheets are drawn tightly towards each other. The spacing of same bolts shall not exceed 600 mm. along each of the staggered rows.

2.3.5. Holes for all bolts shall be drilled and not punched in the ridges of the corrugations from the under side, while the sheets are on the ground. The holes in the sheets shall be at least 50 mm. from the edge. Sheets drilled wrongly shall be rejected. The holes in the washers shall be of the exact diameter of the hook bolts or the beam bolts. The nuts shall be tightened from above to give a leak-proof roof.

3.0. Mode of measurements and payment

3.1. The measurements of the C.G.I. sheet roof shall be taken for finished work in superficial area in general plane (not girthed on the roof). The laps between the C.G.I. Sheets both at their ends and along the side edges shall not be measured. The overlaps of C.G.I. sheets over the valley piece and their underlap under the ridge, hip and flashing piece shall be included in the measurements.

3.2. No deductions in measurements shall be made for openings for chimney stacks, sky light etc., of area up to 0.40 sq. mt. nor extra be paid for labour in cutting and for wastage etc., in forming such openings.

3.3. The rate of roof shall include the cost of all materials and labour involved in all operations described above. The rate also includes the cost of provision, erection and removal of the scaffolding, benching, ladders, templates and tools required for the proper execution and erection of the work. The rate includes the cost of purlins, rafters and trusses.

3.4. The rate shall be for a unit of one sq. metre.

15.7. Providing ridges of hips 600 mm. overall in plain G.I. sheets fixed with G.I. 'J' or 'L' hooks bolts and nuts 8 mm. dia. G.I. limpet and bitumen washer etc. complete. 0.80 mm. thick sheet.

1.0. Material

The G.I. valley gutters and ridges shall conform M-23 A.

2.0. Workmanship

2.1. The relevant specification of item Mo, 15.1 shall be followed except that the work shall be carried out for ridges or hips. The overlaps for ridges and hips on either side over the C.G.I. sheets and end legs shall be minimum 225 width of the ridges and hips shall be as described in the item.

2.2. Ridges shall be fixed to the purlins with same 8 mm. dia. G.I. hook bolts and nuts and bitumen and G.I. limpet washers, which fix the sheets for the pureline. Hips shall be fixed to the roof members with the same 8 mm. dia G.I. hook bolts and nuts and bitumen and G.I. limpet washers which fixed the sheets. At least one of the fixing bolts shall pass through the end laps of the ridges and hips on other sides. If this is not possible, extra hook bolt shall be provided. End laps of ridges and lips shall be jointed together by galvanised iron seam bolts and G.I. Washers. There shall be at least two such bolts in each end lap

2.3. Ridges and hips shall fit in squarely on the sheets.

3.0. Mode of measurements and payment

3.1. The measurements of ridges or hips shall be taken for finished work in length along their centre lines

3.2. No laps shall be measured.

3.3. The payment for ridges and hips shall be made in a similar way as in case of C.G.I. sheet roofing.

3.4. The rate shall be for a unit of one running metre.

15.8. Providing valleys 900 mm. overall in plain 1.6 mm. thick G.I. Class-3 fixed with 'J' or 'L' hook bolts and nuts galvanised from 'J' or 'L' hook bolts and 8 mm. dia, G.I. limpet and bitumen washers complete.

1.0. Materials

1.1. The G.I. valleys 900 mm. overall in galvanised plain sheet of 1.6 mm. thickness shall be of class-3. The valleys shall be 900-mm. wide overall and flashing shall be 380 mm. wide overall. There shall be bent to the required shape without damage to the sheets in the process of bending.

2.0. Workmanship

2.1. The relevant specifications of item NO. 15.1. shall be followed except that the work shall be carried out for G.I. valleys 900 mm. overall with G.I. sheets 1.6 mm. thickness.

2.2. Wherever the edge of a roof sheeting or valley gutter is turned up against a wall, the edge shall be weather proofed with a flashing. Flashing shall be bent to shape and fixed. Lap over the sheet shall be not less than 150 mm. over the roofing sheets. The end between the flashing sheets shall not less than 225 mm.

2.3. The flashing shall be inserted into brick work or masonry joints to a depth of 50 mm. These joints shall be filled with cement mortar (1:3). The flashing shall be well secured to the masonry. Whenever flashing has to be laid at a slope, it shall be stepped at each course of masonry, the step being out back at angle or not less than 30 degrees to the vertical.

2.4. Valleys shall be bent to shape and shall have end lap projection on either side under C.G.I. sheet not less than 225 mm. Valleys shall be fixed to the roof member below, with same 8 mm. dia. G.I. hook, bolts and nuts and bitumen and G.I. limpet washer which fix the sheets to these members. Atleast one of the fixing bolts shall pass through the end laps of the valley piece. If necessary extra bolts shall be provided for this purpose.

3.0. Mode of measurements and payment

3.1. The measurements for valley shall be taken for finished work in length along their centre lines.

- 3.2. No laps shall be measured.
- 3.3. The rate excludes the cost of boarding underneath which shall be paid separately.
- 3.4. The rate of flashing includes the cost of mortar for fixing in wall and other labour and materials required for it.
- 3.5. The rate shall be for a unit of one running metre.

15.10.(1) Providing and fixing 150 mm. wide 450 mm. overall semicircular plain, G.I. sheets clas-3 Gutter with iron brakes 40 mm. x 3 mm. size bolts nuts, washers etc. including making necessary connections with rain water pipes : 0.80 mm. thick.

1.0. Materials

1. These shall be of plain galvanised sheets Class-3 of 0.80 mm. thickness. The gutter shall be designed to carry the maximum discharge from the roof without flowing over and shall be constructed wherever possible with shunk channel or gutter.

2.0. Workmanship

2.1. The longitudinal edges shall be turned back to the extent of 12 mm. and beaten to form a rounded edge. The ends of the sheets at junctions of pieces shall be hooked into each other and beaten flush to avoid leakages.

2.2. The size of gutters shall be as specified in the item.

2.3. The gutter shall be laid with a minimum fall in 120. Gutter shall be true to line and slope and shall be supported on fixed M.S. Flat iron brackets bent to shape or any other suitable bracket.

3.0. Mode of measurements and payment

3.1. The measurements of gutters shall be taken for finished work in length along their centre lines. No. laps shall be measured.

3.2. The rate gutter shall include the cost of all labour and materials specified above including all specials such as angles, junctions, drop ends or funnel shaped connecting pieces, stop ends etc. flat iron brackets and bolts and nuts required for fixing the latter to the roof members.

3.3. The rate shall be for a unit of one running metre.

15.20.(A)(I) Providing asbestos cement sheets, roofing fixed with G.I. plain and bitumen washers complete excluding cost of purlins, fakers and trusses : 7 mm. thick, corrugated sheet.

1.0. Materials :

1.1. Asbestos cement sheets shall conform to M-24.

2.0. Workmanship

2.1. The maximum spacing of purlins shall be 1.6 metres in case of 7 mm. thick A.C. sheets and 1.4 metres for 6 mm. thick A.C. sheets.

2.2. Laying & fixing of Sheets

The sheets shall be laid on the purlins and other roof members as per code practice* The top bearing surfaces of all purlins and other roof members shall be in one plane so that the sheets when being fixed shall not be required to be forced down to rest on the purlins. The finished roof shall present uniform slope and the line of corrugation shall be straight and true. The sheets shall be laid with smooth side upwards, Corrugated sheets shall be valid starting at the eaves either from left to right or right to left depending upon the direction of wind. Before actual laying of the sheets is started, the purlins spacing and the size of sheets shall be checked to ensure that the arrangements shall provide the laps required and the specified overhang at the eaves. In case the sheets are laid from right to left, the first sheet shall be laid uncut but the remaining sheets in the bottom row shall have the top left hand corners cut or mitered. The sheets in the second and other immediate rows shall have bottom right and corner of the first sheet cut. All other sheets except the last sheets shall have both bottom right hand corner of the first sheet cut. All other last sheet shall have only top left hand corner cut. The last of the top row sheets shall have the bottom right hand corner cut with exception of the last sheet which shall be left uncut. If the sheets are laid from left to right, the first sheet shall be laid and cut and the remaining procedure shall be reversed.

2.3. The free overhang of the sheets at the eaves shall not exceed 400 mm. in case of 7 mm. thick sheets and 300 mm. in case of 6 mm. thick sheets.

2.4. The metre described above is necessary to provide snug fit. Where 4 sheets meet at a lap the length of metre shall be 150 mm. and the width of mitre shall be equal the width of the side lap. The cutting may be done with ordinary wood-saw at site.

2.5. Laps :

The sheets shall be laid with an end lap of 150mm. minimum. In case of roof with a pitch flatter than 1 vertical to 2.1/2 horizontal (Approx. 22) or in the case of very exposed situations appropriate larger laps may be provided. The sheets shall be laid with side lap of half a corrugation.

2.6. Fixing Accessories : The sheets shall be secured to the purlins and other roof members by means of 8 mm. dia galvanised iron bolts (J) type hook bolts in case of angle iron purlins and V type bolts in case of R.S. joints, precast concrete, or timber purlin, and nuts bearing on galvanised iron washers and bitumen washers. The grip of 'J' or V bolts on the side of purlins shall not be less than 25 mm. Each galvanised iron 'J' or 'L' hook bolts shall have bitumen washer and galvanised iron washer placed over the sheets before the nuts is screwed down from above. On each purlin there shall be one hook bolt on the crown adjacent to the side lap on either side bitumen washer shall be of approved quality. The G.I. flat washer shall be 25 mm. in diameter and 1.60 mm. thick and bitumen water shall be 35 mm. in dia. and 1.5 mm.thick with hole to suit the required size of fixing accessory. Each nut shall be screwed lightly at first. After a dozen or more sheets are laid, the nuts shall be tightened to ensure a leak proof joint and also nuts tightened only to extent so as to prevent damage to the sheets The length of the 'J' bolts or crank bolts shall be 75 mm. more than the depth or purlins for single sheet fixing and 90 mm. more where two sheets overlap or where ridges or other accessories are to be fixed. The minimum length of coach screw for timber purlins shall be 110 mm.

2.7. Holes:

The holes for fixing the sheet shall be drilled in the centre of end lap to sheets to suit the purlins i.e. on the centre line of the purline, if these are of timber and square head coach screws are used, or as close as possible to the back of purlins if 'J' or 'J' bolts are used as with steel angles or precast concrete or timber purlins. Holes for hook bolts etc. shall be 2 mm. more than diameter of the fixing bolts. No holes shall be nearer than 40 mm. to any edge of sheet or accessory.

3.0. Mode of measurement & payment

3.1. The relevant specifications of item 15.1 shall be followed except that the over lap of the corrugated sheets over valley gutters, roof lights, caves, filler piece sand underlay of the corrugated sheets below ridges, hips, north light curves, flashing pieces, roof light sheets and jarge board shall be included in the measurement. No deduction shall be made for holes cut for extractor or cowl type ventilators. Deductions shall be made for roof light sheets.

3.2. The rate shall be for a unit of one sq. metre.

15.20.(A)(III) Providing asbestos cement sheets roofing fixed with G.I. plain and bitumen washers complete excluding the cost of purlins, rafters and trusses: 6 mm. thick corrugated sheets.**1.0. Materials and Workmanship**

The relevant specifications of item No. 15.20 (A)(1) shall be followed except that the thickness of AC. sheats shall be 6 mm.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 15.20 (A)(1) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

15.25.(D) Providing and fixing ridges and hips in asbestos cement sheets roofing with G.I. 'J' or 'U' hook, bolts and nuts 8 mm. dia. G.I. plain and bitumen washers complete. North light adjustable ridges.**1.0. Materials**

1.1. The ridges and hips of Asbestos cement sheets roofing shall conform to **M-24**.

2.0. Workmanship

2.1. The relevant specifications of item 15.20 (A) (f) shall be followed except that the work is to be carried out for ridges and hips in A.C. sheet roofing.

2.2. The ridges shall be laid as per manufacturer's instructions with rolls of the two wings in case of adjustable ridges, fitting closely and with a separation of serrated ridges registering correctly with the sheet underneath. The staggered lapping of two wings of adjustable ridge section and the lap between the adjustment pieces on the same wing of ridges shall be as per manufacturer's instructions The end portion of the wing of the adjustable ridges which project beyond the verges of the roof shall be cut and trimmed off neatly.

2.3. Hips :

In laying hip pieces, serrations to suit the corrugations in the sheets below should be cut in them so that they shall be snug fit over the sheets. The wings of ridges shall be fixed to the sheet below with seam bolts and nuts 8 mm. dia. G.I. 'J' or 'L' hook bolts and bitumen and G.I. washers which fix the sheets to the purlins. In addition, in north light adjustable ridges, the roll of the two wings shall be jointed together at their crown, with 8 mm. dia G.I. seam bolts and nuts at the rate of two numbers per pair wings. Each seam bolt shall be provided with one bitumen and a pair of G.I. washers. Where the plain wing angular or plain C.C. (1:2:4) up to a full length of the overlaps. The exposed face shall be finished perpendicular to the sheeting. Wings of hips shall be fixed to the roof members below with the same 8 mm, dia. G.I. 'J' or 'L' bolts end nuts which fix the sheets to the member. In addition, they shall be secured to the sheet below with 8 mm. dia G.I. seam bolts, nuts and washers so that taken together with hook bolts, there shall be bolt on each wing at least at every fifth corrugation of the sheets below in case of corrugated and at least every second corrugation of the sheet below in case of semi corrugated sheets. Each seam bolt shall be provided with one bitumen and pair of G.I. washers.

3.0. Mode of measurements & payment

3.1. Measurements of ridges, hips and other accessories shall be for finished work and the length shall be taken along the centre line. The lap shall not be measured. The under lap of ridges under expansion joint pieces shall be measured.

3.2. The rate of ridges and hips shall not include the cost of expansion joint pieces, closing of gap between plain ridge and the sheet corrugation with concrete.

3.3. The rate shall be for a unit of one running metre.

15.26. Filling cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm. nominal size) in gaps of A.C. sheet corrugation and wing of ridges. 1.0.**Materials**

Water shall conform to M-1. Cement shall conform to M-3. Coarse sand shall conform to M-6 Stone grit shall conform to M-8.

2.0. Workmanship

2.1. The relevant specifications of item No. 5.4.1 of C.C. shall be followed except that the work shall be for filling gaps of AC. sheet corrugation and wings of ridges.

3.0. Mode of measurements & payment

3.1. The measurements of filling gaps in ridges, hips of A.C. sheet corrugation and wings of ridges shall be for finished work. The length shall be measured along the centre line.

3.2. The rate shall be for a unit of one running metre.

15.27 (III) Providing and fixing asbestos cement roofing accessories v/ith galvanised iron 'J' or 'L' hook bolts and nuts, G.I. plain and bitumen washer etc., complete : North light and ventilator curves.**1.0. Materials and Workmanship**

1.1. The relevant specifications of item No. 15.10 (I) shall be followed except that the work is carried out for accessories for asbestos cement roofing north light and ventilator curves.

1.2. The accessories such as north light and ventilator curves shall be laid and secured with same G.I. hook bolt to secure the sheets to the roof, or with separate G.I. hook bolts to the roof members below and/ or with 8 mm. dia. G.I. bolts nuts and washers to the sheeting, generally as per manufacturer's written instructions.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 15.25 (D) shall be followed.

2.2. The rate shall be for a unit of one running metre.

15.29.(I) Providing and fixing asbestos cement socketed half eaves gutter with bolts, nuts, bitumen washer etc. and flat iron brackets 40 mm. x 3 mm. size including asbestos rope and plastic roofing compound in joints complete : 150 mm. nominal size.**1.0. Materials & Workmanship**

1.1. The relevant specifications of item No. 15.1Q(i) shall be followea except thai the asbestos cement socketed half round eaves gutter shall be provided. The size of gutter shall be 150 mm. nominal.

1.2. Gutters shall be laid with a minimum fall of 1 in 120 which should be increased where possible. Gutters shall be true to line and **slope** and shall be laid with requisite accessories such as drop ends, stop ends, nozzles, angles and union slips, as directed. The size of outlet of drop ends and nozzles shall be the same as the size of rain water pipe into which they discharge water. Gutters and their accessories shall be supported by m.s. flat/iron bracket. Where these are required to be fixed to the side of rafter they shall be fixed with 40 mm. by 3 mm. section bent to shape and fixed rigidly to the sides of the rafter with 3 Nos. of 10 mm. dia. bolts, nuts and washers. The brackets shall overlap the rafter not less than 300 mm. and connecting bolts be 115 mm. centres.

1.3. Where the brackets are to be fixed with purlins, these shall consist of 40 x 3 mm. M.S. flat iron bent to shape with one end turned at a right angle and fixed to the purlin face with a 10 mm. dia bolt, nut and washer. The perpendicular overhang portion of 40 mm. x 3 mm. bracket shall be stiffened by another 40 x 3 mm. flat bent to right angle shape with its longer leg connected to the bracket with two numbers of 6 mm. dia.-M.s. bolts nuts and washers and its shorter legs fixed to the face of purlins with one number 10 mm. dia bolt, nuts and washers. The overhang of the vertical portion of the flat iron bracket from the face of the purlin shall not exceed 225 mm.

1.4. Requisite slope in the gutter shall be given in the line of bracket. The brackets shall be placed at not more than 900 mm. centres.

1.5. The gutters shall be fixed to the brackets with 2 Nos. 8 mm. G.I. seam bolts and nuts, each bolt and nut being equipped with a pair of bitumen and G.I. washers. These connection bolts shall normally be above the water line of the gutter.

1.6. Spigot and socket end of gutters of socketed half round gutter and their accessories shall be connected together at their laps with one row of 8 mm. dia. G.I. bolts and nuts. Each of the bolts and nuts shall be provided with a pair of bitumen and a pair of G.I. washers. The gap between socket and spigot shall be packed with approved plastic roofing compound and flanked on the both sides with 6.35 mm. dia asbestos rope. The connecting G.I. Bolt shall be then tightened so that the lapped joint becomes leak-proof. The outer face of packed asbestos rope shall not be further than 6 mm. from the edges of the spigot and socketed ends. Where both ends of gutters and / or their accessories to be connected together are spigot ends, they shall be laid as butt jointed with 1.5 mm. gap in between over union clips. The union clips connected to the two butt ends of the gutter or other sections with two rows The gap between union clips and ends of gutter sections or accessories shall be packed with plastic roofing compound flanked with edges of 6.35 mm. dia asbestos ropes as before. The whole joint shall be made leak-proof by tightening the bolts.

2.0. Mode of measurements & payment

2.1. The asbestos socketed half round eaves gutter shall be measured for finished work and the length shall be measured along the centre line.

2.2. The rate of gutters shall include the cost of providing and fixing accessories such as drop ends, stop ends, nozzles, and fixing union clips together with bolts, nuts and washers.

2.3. The rate shall be for a unit of one running metre.

15.29.(11) Providing and fixing Asbestos cement socketed half round eaves gutters with bolts, nuts, bitumen washers etc. and flat iron brackets 40 mm x 3 mm. size including Asbestos rope and plastic roofing compound in joint etc. complete. 300 mm. nominal size.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 15.29 (I) shall be followed except that the size of the Asbestos socketed eaves half round gutter shall be 300 mm. nominal size.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 15.29(1) shall be followed.

2.2. The rate shall be for a unit of one running metre.

15.51. Tiled roofing with Mangalore pattern roof tiles including teak reefers of size 50 mm. x

25 mm. 1.0. Materials (1)Mangalore pattern roof tiles shall conform to M-25, (2) Teak wood

batten shall conform to M-29.

2.0. Workmanship

2.1. Laying

The maximum distance between centre to centre of rafters shall be not more than 500 mm. Teak wood reefers 50 mm. x 25 mm. be nailed to each rafter at central distances suited to the size of the tiles by

means of nails 50 mm, long. The reepers shall be of well seasoned teak wood and shall be straight pieces of uniform size and colour and not shorter than the length necessary to cover at least four rafter. The under face and sides of the reepers shall be planned before fitting up. Joints shall come over the rafter. The joints of two adjacent rows of reepers shall not come over the same rafter. At the eaves, there shall be two reepers of such thickness and shape that the uniformity of the top slope of the roof shall be preserved.

2.2. The work of valleys shall be executed as under :

Galvanised iron sheet 1200 mm. wide and 1.25 mm. thick shall be used for valleys. The sheet shall be extended by about 450 mm. under the tiles on either side in a depth of 100 mm. at centre. The sheet shall be carried 75 mm. into the wall and set with cement mortar unless flushing is specified. The laps, if any, on the slope shall be 300 mm. The sheets shall be laid over the reepers and nailed. Two reepers 50 mm x 25 mm. each shall be fixed over the galvanised iron sheet 150 mm. away from the centre line of the valley, on either side to keep the tiles and mortar from falling into the gutter of the valley.

2.3. Laying ;

The tiles shall be laid from the eaves towards the fidges after fitting of the reepers, the rebate of the tiles resting fully against the reepers. The joints of the hips and ridges tiles and also those between them and the plain tiles shall be set in and well grouted with lime mortar and the mortar surface painted and finished off with a mixture of red paint and port land cement or preserve informality of colour. The finished slope of roof shall be uniform from ridges to eaves. The eaves line shall be perfectly straight, horizontal and parallel to each other. The end over gables shall be protected by lime borders and neatly finished.

2.4. At the side of valleys and for 230 mm. on either side of the roof at valleys' cement plastering 12 mm. thick shall be done to prevent the rain water from the gutter leaking by the sides of valleys.

2.5. At the eaves, wide tie shall be placed over the ends of the last tiles and secured by means of galvanised iron washers and screws 25 mm. into the rafter to prevent tiles from being blow up. Care shall be taken to put the screws in the ridges and not in the gutter or the tiles, Where full tiles are not necessary, half tiles manufactured for the purpose shall be used.

3.0. Mode of measurements and payment

3.1. The measurement of the roof shall be taken for finished work for superficial area flat in the plane of the roof and not girthed. Laps shall not be measured.

3.2. No deduction in measurements of roofed shall be made for openings of area up to 0.40 sq. mt. nor shall any extra be paid for labour and wastage in forming such openings.

3.3. The rate includes the cost of all materials and labour including ridges, hips, eaves and bottoms.

3.4. The rate shall be for a unit of one square metre.

15.75 Providing and fixing five courses water proofing treatment with bitumen felt consisting/ of second and fourth course of blown bitumen or/and residual bitumen applied hot 1.20 kg./sq. mt. of area for each course and first course with fiber base bitumen saturated underlay type and third course with fibre base self finished felt type 2 Grade-I, fifth and final course of stone grit 6 mm. and down size or pea sized gravel spreaded at 0.008 cum/sq.mt. including preparation of surface, excluding grading complete.

1.0. Materials

The tar felt shall conform to M-76. The bitumen primer shall conform to I.S. 3388-1965. The bitumen shall conform to I.S. 702-1961. The grit or gravel shall conform to **M-8**.

2.0. Workmanship

2.1. Preparation of surface :

2.1.1. Well defined cracks other than hair cracks in the roof structure shall be cut to 'V' section cleaned and filled up flush with cement sand slurry or with bitumen conforming to I.S. 702-1961. The surface to be treated shall have minimum slope of 1 in 120. The grading shall be carried out prior to the application of water proofing treatment by cement mortar or lime surkhi mortar or as specified in description of item.

2.1.2. The surface or room, part of parapet and gutters, drain mouths etc. over which the water proofing treatment is to be applied shall be cleaned or all foreign matter such as funguses, moss and dust by wire brushing and dusting.

2.1.3. Drain outlet shall suitably placed with respect to the roof gradient to ensure rapid drainage and prevent local accumulation of water on the roof, surface, masonry drain mouth shall be widen sufficiently and rounded with cement mortar,

2.1.4. For cast iron drain outlets, a groove shall be cut all round to touch the treatment.

2.1.5. When a pipe passes through a roof on which water proofing treatment is to be laid a cement concrete angle fillet shall be built round it and the water proofing treatment taken over the fillet.

2.1.6. In case of parapet wall over 450 mm. in height for trucking in the water proofing treatment a horizontal groove 75 mm. wide and 65 mm. deep at minimum, height of 150 mm. above roof level shall be left in the vertical face at the time of construction. The horizontal face of the groove shall be shaped with cement mortar 1:4.

2.1.7. In case of low parapet where the height does not exceed 450 mm. no groove shall be provided and the water proofing treatment shall be carried right over the top.

2.1.8. In case of existing R.C.C. and stone and vertical face of the parapet wall, a fillet 75 mm. in radius shall be constructed.

2.1.10. At the drain mouths the fillet shall be suitably cut back and rounded off for easy application of water proofing treatment and easy flow of water.

2.1.11. Outlet at every low dividing wall about less than 300 mm. in height cut open to full depth and the bottom and the sides shall be rounded smooth and corners rounded off for easy application of water proofing treatment.

2.2, Priming coat :

2.2.1. Bitumen primer shall conform to IS. 3385-1965. A priming coat consisting of bituminous solution of low viscosity shall be applied with brush on the roof and wall surface at specified weight per unit area to assist adhesion of bonding materials as specified in the description of the item.

2.2.2. Where a floating treatment for water proofing with self finished bitumen felt is required i.e. where water proofing treatment is required to be isolated from the roof structure, a layer of bitumen saturated felt (under lay) shall be spread over the roof surface and tucked into the flashing grooves. To keep the underlay free from the structure nonbonding materials shall be used below underlay. Overlapping to the adjoining strip of underlay shall be minimum of 75 mm. as sides and 10 mm. at ends, and shall be sealed with the same bonding materials, as used for self finished felt treatment. The underlay shall be of type i saturated felt conforming to IS. 1322-1970.

2.3. Laying of Felt :

2.3.1. The self finished tar felt shall be cut to the required lengths, brushed clean of dusting materials, laid out flat on the roof to eliminate curls and subsequent stretching. The felt shall be laid in lengths running at right angles to the direction of run off gradient commencing at the lowest level and working up to crest, so that the lower laps of the adjacent felt layer offer minimum obstruction to the flow of water. The felt shall not be laid in a single piece of very long lengths as it is likely to shrink. 6 to 8 metres are suitable length. The roof shall be cleaned and dried before the felt treatment is begun. Each length shall be laid in position and rolled up for a distance of half its-lengths. The hot bonding materials heated to correct working temperature as specified by manufacturer shall be poured on the roof across the full width of the felt as the latter is steadily unfolded and pressed down. The excess of bonding materials which squeezes out at the ends shall be removed as the laying proceeds. The pouring shall be regulated that the correct weight of the bonding materials as per unit area is spread uniformly over the surface. When the first half of the tar felt has been bonded to the roof, the other half shall be rolled up and then unrolled on the hot bonding materials in the same way. Subsequent strips shall also be laid in the same manner. Each strip shall overlap the preceding one by at least 75 mm. at the longitudinal edges and 100 mm. at the ends. All overlaps shall be firmly bonded with hot bitumen. Streaks and trailing of bitumen near edges or laps shall be leveled by heating the overlaps with blow lamp and leveling down unevenness.

2.3.2. Third layer of bonding materials in four course treatment shall be carried out in similar manner after the flashing has been complete.

2.3.3. Water proofing treatment shall be carried out in the drain pipe or out-lets by at least 100 mm. The Water proofing treatment laid on the surface shall overlap the upper edge of water proofing treatment in the drain outlets by at least 100 mm. Flashing felts shall be laid as flashing. Wherever junction of vertical horizontal surfaces occurs longitudinal laps shall be 100 mm. The lower layer of flashing felt shall overlap the roofing felt by 100 mm on vertical and sloping faces. Last course of flashing should not be of stone grit or pea sized gravel but it shall be replaced by providing two coats of bitumen solution of approved quality.

2.3.4. The lower edge of flashing shall overlap the flat portion for the roof and the upper edge of the flashing shall be trucked into the horizontal groove 75 mm. thick wide, 65 mm. deep provided at minimum height of 150 mm. from top of the roof surface. The flashing treatment shall be firmly held in place in the grooves with wooden wedges at intervals and the grooves shall be filled with cement mortar 1:4 (1 cement : 4 coarse sand) or cement concrete (1:2:4) (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm. nominal size) and surface finished smooth with the rest of wall. The cement work shall be cured and bituminous solution shall be applied on the vertical and sloping surface of flashing.

2.3.5. After the top flashing felt layer has been laid, the penultimate layer of bonding material shall be applied over the roofing felt and horizontal overlap, and vertical and sloping surfaces of flashing shall be spread uniformly over the hot bonding materials on the horizontal roof surface and pressed into it with wooden roller.

2.3.6. The material for surface finish shall be spread as described in the item over top layer.

2.3.7. If ballooning occurs the defects may be rectified as under.

2.3.8. Remove the gravel on the ballooned surface. The cut open and squeeze out the trapped vapour by firm pressure applied by hand, seal the bitumen felt so lifted back on the surface by applying additional bitumen, finally seal the cut with piece of bitumen felt with bitumen application.

3.0. Mode of measurements & payment

3.1. The measurements for this item shall be taken as under :

(a) Water proofing of roof with bitumen shall be measured in sq. mt. length and breadth shall be measured correct to centimeter.

(b) Measurement shall be taken for the superficial area of roofing and flashing treatment including flashing over the parapet wall, low dividing walls and expansion joints and at the pipe projection etc. Overlapping and tucking into flashing grooves shall not be measured.

(c) Slopping and vertical surface of water proofing treatment shall be measured under the four or five course treatment as the case may be irrespective of the fact that the final course of grit or gravel is replaced by bitumen primer.

(d) In measurements, no deductions shall be made for either openings or recesses for chimney stacks, roof lights etc. for areas up to 0.40 sq. mt. not anything extra shall be paid for extra labour and materials in forming such openings. For similar area exceeding 0.04 sq. mt. deduction shall be made in measurements for full opening but nothing extra shall be paid for extra labour and materials in forming such openings.

(e) The grading (coba bedding) shall be paid separately but cleaning of surface and treatment shall not be measured or paid separately.

3.2. The rate includes cost of all materials and labour.

3.3. The rate shall be for a unit of one sq. metre.

15.87(A) Providing and fixing on wall face C.I. rain water pipe including filling the joints with spun yarn soaked in neat cement slurry and cement mortar 1:2 (1 cement : 2 fine sand) 75 mm. dia.

1.0. Materials

Water shall conform to M-1. The C.I. rain water pipes and fittings shall conform to M-68. Cement mortar shall conform to **M-11**.

2.0. Workmanship

2.1. C.I. rain water pipes shall be of the specified diameter and shall be in full lengths of 1.8 metres including socket ends of the pipes unless shorter lengths are required at junction with fittings,

2.2. Fixing :

The pipe and fittings shall be fixed in vertical alignment unless otherwise specified and shall be secured to the walls at joints with M.S. clamps. The clamps shall be M.S. sheet 30 mm. bent to required shape and size so as to fit tightly on the socket of pipe when tightened with screw bolts. It shall be formed out of two semi-circular pieces, hinged with 6 mm. dia M.S. pin on one side and provided flanged ends on the other side with holes to fit in the screw bolt and nut 40 mm. long. The clamps shall be provided with hook made out of 275 mm. long, 10 mm. dia M.S. bar invested to the ring at the centre of one semicircular piece. The clamps shall be fixed to the walls. The clamps shall be kept above 25 mm. clear of finished face of wall so as to facilitate cleaning and painting the pipes.

2.3. The pipe shall be fixed vertically. The spigot of the upper pipe shall be properly fitted in the socket of the lower pipe such that there is uniform annular space filling with the jointing material. The annular space between the spigot and socket shall be filled with, a few turns of spun yarn soaked in cement slurry or with stiff cement mortar 2:1 (1 cement : 2 fine sand) well pressed with caulking tools and finished smooth at top at an angle of 45°, sloping up. The joint shall be kept wet at least for 7 days by tying four fold of gunny bag to pipe and keeping it moist constantly.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 15.93(B) of A.C. rain water pipes shall be followed except that the C.I. rain water pipe shall be fixed.

3.2. The rate shall be for a unit of one running metre.

15.88.(A) Providing and fixing M.S. Holder bat clamps of approved design to C.I. or S.C.I. pipes embedded and including cement concrete blocks (100 mm. x 100 mm. size) in 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) and cost of cutting holes and making good the wall etc. complete : 75 mm. dia.

1.0. Materials of Workmanship

1.1. The relevant specifications of item no. 15.94(B) shall be followed except that the M.S. holder bat clamps of approved design shall be C.I. rain water pipe-75 dia.

1.2. The bat clamps shall be fixed as directed with C.C. blocks of 100 mm. x 100 mm. The relevant specification of item No. 5.4.1. shall be followed for concrete work.

2.0. Mode of measurements and payment

2.1. The bat clamps of M.S. holder suitable for 75 mm. dia shall be measured for finished item,

2.2. The rate includes cost of all materials and labour etc. required for satisfactory completion of this item.

2.3. The rate shall be for a unit of one number.

15.90(A) Providing and fixing and embedding sand C.I. rain water pipe in the mason surrounded with 12 mm. thick cement mortar of the same mix as that of masonry : 75 mm. dia. pipe.

1.0. Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. The C.I. pipe and fittings shall conform to M-68,

2.0. Workmanship

2.1. The relevant specifications of item No. 15.87 (A) shall be followed except that C.I. pipe 75 mm. dia shall be embedded in masonry surrounded with 12 mm. thick cement mortar.

2.2. The pipes shall be fixed in the masonry work as it proceeds. The pipe shall be kept vertical or to the line as directed. The pipe shall have minimum surroundings of 12 mm. thick cement mortar at every portion of external surface. The length shall be caulked with spun yarn and cement mortar as soon as the next length of pipe is placed in position. The socket end of the pipe shall be kept closed till the next length of pipe is fitted and jointed to prevent any brick-bats or concrete or pieces of wood falling in and cocking the pipes.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 15.87 (A) shall be followed:

3.2. The rate shall be for a unit of one running metre.

15.93(B) Providing and fixing on wall face asbestos cement rain water pipe including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 cement : 2 coarse sand) complete : 80 mm. dia.

1.0. Materials

1.1. Asbestos cement pipes of 80 mm. dia shall conform to I.S. 1626-1960 for pipes fixed on wall face. A.C. pipe shall conform to **M-74**.

2.0. Workmanship

2.1. Asbestos cement rain water pipes and fittings shall be of the diameter, size and type specified in the item. The pipe shall be full lengths of 2 metre as far as possible. All the pipes shall be fixed on wall face at locations indicated on drawings or as ordered by the Engineer-in-charge. Pipe shall be secured to face of wall below all joints by M.S. clamps with wooden gutties.

2.2. The spigot of the upper pipe shall be properly fitted into the socket of the lower pipe such that there is uniform annular space for fitting with the jointing materials. One third depth of annular space between the

item. The pipe shall be full lengths of 2 rrietre as far as possible. All the pipes shall be fixed on wall face at locations indicated on drawings or as ordered by the Engineer-in-charge. Pipe shall be secured to face of wall below all joints by M.S. clamps with wooden gutties.

2.2. The spigot of the upper pipe shall be properly fitted into the socket of the tower pipe such that there is uniform annular space for fitting with the jointing materials. One third depth of annular space between the socket and the spigot shall be filled with spun-yarn soaked in bitumatic jointing compound and shall be pressed home by means of caulking tool. The remaining 2/3 depth of the joints shall be filled in with stiff cement mortar 1:2 and shall be pressed with caulking tool and finished smooth at top at an angle of 45 sloping up.

3.0. Mode of measurements and payment

3.1. The pipe shall be measured including all fittings along its length in running metre. No allowance shall be made for the portion of pipe length entering the sockets of the adjacent pipe or fittings.

3.2. The rate includes the cost of all materials and labour involved in all the operations including jointing.

3.3. The rate shall be for a unit of one running metre. '

15.93.(C) Providing and fixing on wall face asbestos cement rain water pipe including jointing with spun yarn soaked in bitumen and cement mortar "1:2 (1 cement : 2 coarse sand) complete : 100 mm. dia.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 15.93 (B) shall be followed except that the diameter of pipes shall be 100 mm.

2.0. Mode of measurements & payment

2.1. The pipe shall be measured including all fittings along its length in running metre. No allowance shall be made for the portion of pipe length entered into the sockets of the adjacent pipe or fittings.

2.2. The rate includes the cost of all materials and labour involved in all the operations including jointing.

2.3. The rate shall be for a unit of one running metre.

15.94.(B) Providing and fixing for A.C. pipe on wall plugs and standard holder bat clamps comprising of two semi circular halves of flat iron and cast iron base screwed on wooden plugs : 80 mm. dia.

1.0. Materials and workmanship

1.1. The bat clamps shall consist of a iron base with a projecting 1 shaped lay, teeth web of which the semicircular halves of the flat iron clamps are bolted. The base on the holder bat clamp shall be screwed on a pair of wooden plugs fixed in the wall with screw sloted driven through the holes in the base. The screws shall be not less than 75 mm. long for 80 rrVm. diameter pipes and 100 mm. diameter pipes. The plugs shall be fixed in the wall to a depth of 150 mm. in cement mortar 1:2 centrally to the holes in the base of the bat clamps and with their front face projecting to such a length from the brick face that when the bat clamps is fixed, the outer base of its base shall be flush with the plaster face of the wall. The plugs shall be 110 mm. x 50 mm. wide at face increasing to 160 mm. x 70 mm. width at rear and shall be 70 mm. deep through out.

2.0. Mode of measurement & payment

2.1. The work shall be measured on number basis of clamps prescribed with accessories including cost of all materials and labour involved in all the operation including jointing etc. complete fixing in position etc. complete.

2.2. The rate shall be for a unit of one number.

15,94 (C) Providing and fixing for A.C. pipe on wall plugs and standard holder bat clamps comprising of two semi circular halves of flat iron and cast iron base screwed on wooden plugs : 100 mm. dia.

1.0. Materials and workmanship

1.1. The relevant specifications of item No. 15.94 (B) shall be followed except that the standard holder bat clamps shall be for A.C. pipe of 100 mm. dia.

2.0. Mode of measurements and payment

2.1. The work shall be measured on number basis of clamps including cost of all materials and labour involved in all the operation including jointing, fixing in position etc. complete.

2.2. The rate shall be for a unit of One Number.

15.95.(A) Providing and fixing on wall face asbestos cement fittings for rain water pipe including jointing with spun yarn socked in bitumen and.cement mortar 1:2 (1 cement : 2 coarse sand). Bend of required degree. 80 mm. dia without door. 100 mm. dia. without door.

1.0. Materials

1.1. The bend of required degree and size as specified in item shall be of best quality and made as approved by the Engineer-in-charge. The fittings shall conform to I.S. 1626-1960.

2.0. Workmanship

2.1. The fitting (bend of required degree) shall be fixed as per relevant specifications of item No. 15.93 (B), except that the A.C. bends of required degree shall be provided instead of pipe.

3.0. Mode of measurements and payment.

3.1. The rate shall be for a unit of One Number.

15.95.(B) Providing and Fixing on wall face asbestos cement fittings for rain water pipe including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 cement: 2 coarse sand) off set 50 mm. (2) 80 mm. dia. (3) 100 mm. dia.

1.0. Materials & Workmanship

1.1. The relevant specification of item No. 15.95 (A) shall be followed except the off set 50 mm. of specified size of A.C. pipe shall be used instead of bends.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One Number

15.95.(C) Providing and fixing on wall face asbestos cement fittings for rain water pipe including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 cement : 2 coarse sand) off set 75 mm. (2) 80 mm. dia (3) 100 mm. dia.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 15.95 (A) shall be followed except that off-set 75 mm. of specified size of A.C. Pipe shall be provided instead of bends.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One Number.

15.95.(J) Providing and fixing on wall face Asbestos cement fittings for rain water pipe including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 cement: 2 coarse sand) junction equal angle. (3) 80 mm. dia without door (5) 100 mm. dia. without-door.

1.0. Materials and workmanship

The relevant specifications of item 15.95 (A) shall be followed that junction of equal of angle of specified size of A.c. pipe shall be provided instead of bends.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One Number.

15.95.(K) Providing and fixing on wall face Asbestos cement fittings for rain water pipe including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 cement: 2 coarse sand) : junction of equal double angle. (3) 80 mm. dia. without door (5) 100 mm. dia. without door.

1.0. Materials and workmanship

1.1. The relevant specification of item 15.95 (A) shall be followed except that junction of equal double angles of A.C. rain water pipe of specified size shall be provided instead of A.C. Bend.

2.0. Mode of measurement & payment

2.1. The rate shall be for a unit of One Number.

15.95.(L) Providing and fixing on wall face Asbestos cement fittings for rain water pipe including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 cement: 2 coarse sand) : Standard shoe. (2) 80 mm. dia. (3) 100 mm. dia.

1.0. Materials and workmanship

1.1. The relevant specification of item No. 15.95 (A) shall be followed except that the standard shoe of A.C. pipe of specified size shall be provided instead of bend.

2.0. Mode of measurement & payment

2.1. The rate shall be for a unit of One number.

SECTION -16

Ceiling Lining

16.3.(A) Providing and fixing wooden planks ceiling with tongued and grooved jointing and Wood screws (Frame work and cover fillets to be measured and paid separately) : Indian Teak Wood (i) 12 mm. thick (ii) 20 mm. thick (iii) 25 mm. thick.

1.0. Materials

1.1. The Indian Teak wood shall conform to M-29.

2.0. Workmanship

2.1. General

The planks shall be clean sawn in the direction of the grain, cut square and straight. Each plank shall have tongued and grooved jointing. On exposed faces, it shall be planed for full face.

2.2. The frame for supporting the ceiling may be wooden or metal and the size and the other details of frame work shall be as directed. Suspenders of Ms. angles or other sections may be used for suspending the frame. Use of wooden suspenders shall be permitted. The bottom surface of the frame shall be checked and corrected to true surface and slope.

2.3. Fixing :

Planks of a specified timber and thickness shall be used. The width of the planks shall not be more than 100 mm. up to 20. mm. thick planks and 150 mm. for planks above 20 mm. thick and length shall not exceed 3 metres. The planks shall be of uniform width except in the first and last lines of planks adjacent to the two walls where remaining additional odd width shall be adjusted equally on both sides. The minimum, length of planks in finished work shall be such that it will span at least two spacings of the supporting frame work except where shorten lengths are unavoidable. The planks shall be planed true on the exposed sides.

2.4. The longitudinal edges of the planks shall be jointed with tongued and grooved type joints as described in the item.

2.5. The outer lines of planks shall be accurately fixed parallel and close to be wall Each subsequent plank shall be carefully jointed up. The plank shall be fixed to the frame above with two screws at each and joints of frame and one at every intermediate joint. (The screws shall not be thinner than designations 8 and of a length not less than twice the thickness of the boards). The screws shall be counter sunk and the screw holes filled with putty or sloping out way. The unexposed face of planks shall be treated with wood preservative before the board is fixed.

3.0. Mode of measurement & payment

3.1. The supporting frame, cover fillets, and suspenders shall not be included in rate of ceiling.

3.2. No deductions in measurements shall be made for opening not exceeding 0.40 sq. m. and no extra payment shall be made for forming such openings.

3.3. Each type of work in ceiling shall be measured separately.

3.4. The rate shall be for a unit of One sq. metre.

16.4. Providing and fixing Fibre insulation board lining with butt jointing and nails (Frame work and cover fillets to be measured and paid separately) (i) 12 mm. thick (ii) 18 mm. thick (iii) 25 mm. thick.

1.0. Materials

1.1. The fibre insulation board of specified thickness shall conform to Is. 3348-1965.

2.1. Fixing :

The work shall be carried out as per detailed drawings for panel arrangements.

2.2. All boards are subject to slight movements due to moisture and temperature changes, and this shall be allowed for in fixing. Preferably the board shall be stored up for atleast 24 hours before use in the same environment as the one in which they are to be fixed.

2.3. Frame work :

The studs and grounds for fixing the boards shall be spaced at 300 mm. to 450 mm. centres both ways the actual spacing selected depending on the width of the cut board in the panel arrangements. All edges of the boards shall be supported. Intermediate supports shall be provided at dado heights for picture rails and cornices etc

2.4. Planked battens 40 mm. x 20 mm. shall be used for grounds on solid walls. The batten shall be plugged to wall as described under. The batten shall be fixed on tapering plugs with 50 mm. long wood screws. The tapering plug shall be trapezoidal in shape having base 50 x 50 mm. at bottom 38 x 38 mm. at top with depth of 50 mm. Plugs shall be embedded in CM. 1 : 3 and shall be placed at 450 x 500 mm.

centres. The plugs shall treated with coal tar and battens shall be treated with wood preservative before use. On uneven wall faces the battens shall be plugged and fitted with packing pieces at the back where necessary. The frame shall be treated with wood preservative before boards are nailed on. Nailing shall be done by nails having a shank diameter of 2.5 mm. and head diameter of about 8 mm. Nails shall have length as per requirements. The nails shall be placed at supports at 100 mm. to 150 mm. centre to centre and at edges 75 mm. centres. Minimum clearance for nails from edges shall be 10 mm. The nails shall be rustless where the nail heads are exposed. Where the joints are to be covered with beading, felt headed (clout) nails shall be used instead of lost head nails.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 16.3. (A) shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

16.13(1) Providing and fixing plywood lining with butt jointing and nails (frame work and cover fillets to be measured and paid for separately) 6 mm. thick ply.

1.0. Materials : 6 mm. thick plywood shall conform to M-37.

2.0. Workmanship

The relevant specifications of item 16.4 shall be followed except that 6 mm. thick plywood shall be fixed in lining.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item 16.4 shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

16.13(11) Providing and fixing plywood lining with but jointing and nails (frame work and cover fillets to be measured and paid for separately) 9 mm. thick ply.**1.0. Materials & Workmanship**

1.1. The relevant specifications of item No. 16 13 (I) shall be followed except that the thickness of plywood to be fixed shall be 9 mm.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No.16.4 (I) shall 'je followed.

2.2. The rate shall be for a unit of One sq. metre.

16.21(()) Providing and fixing plain asbestos sheet lining with butt jointing and wood screws (frame work and cover fillets to be paid for separately), Class-A-6.5 mm. thick.**1.0. Materials**

1.1. Plain A.C. Sheets 6.5. mm. thick shall be conform to **M-24**.

2.0. Workmanship

2.1. The relevant specifications of item No. 16.4. shall be followed except that the plain A.C. sheets class A of 6.5 mm. thickness shall be fixed in lining.

2.2. In fixing asbestos cement sheets, care shall be taken to avoid rigid fixing as this may cause cracking if the supporting structure expands or shrinks. The sheet shall be fixed with wood screws to wooden ground

and the screw holes shall be drilled slightly longer than the screws. Asbestos sheet may also be advantageously fixed on to walls with cement plaster backing. The screws shall be fixed at 150 mm. to 200 mm. at supports. The boards shall be fitted either with wooden cover fillets or asbestos strips as described in item.

3.0. Mode of measurement and payment

3.1. The relevant specifications of item No. 16.4 shall be followed.

3.2. The rate shall be for a unit One sq. metre.

16.21 (II) Providing and fixing plain asbestos sheet lining with butt jointing to wood screws (frame work and cover fillets to be paid for separately), Class-B-5 mm. thick.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 16.21 (I) shall be followed except that the plain A.C. sheet of Class-B 5 mm. thick shall be fixing in lining.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 16.21 (I) shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

SECTION-17

Plastering and Paints

17.58 (I) 10 mm. thick cement plaster in single coat on fair side of brick concrete walls for interior plastering up to floor two level and finished even and smooth in (i) C. M. 1:3.

1.0. Materials

1.1. Water shall conform to M-1. The cement mortar of proportion 1:3 shall conform to M-13.

2.0. Workmanship

2.1. Scaffolding:

Wooden bullies, bamboos, planks, trestles and other scaffolding shall be sound. These shall be properly examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.

2.2. Preparation of back-ground :

2.2.1. The surface shall be cleaned of all dust, loose mortar droppings, traces of algae, efflorescence and other foreign matter by water or by brushing. Smooth surface shall be toughened by wire brushing if it is not hard and by hacking if it is hard. In case of concrete surface, if a chemical retarder has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left on the surface. Trimming of projections on brick/concrete surfaces where necessary shall be carried out to get an even surface.

* 2.2.2. Raking of joints in case of masonry where necessary shall be allowed to dry out for sufficient period before carrying out the plaster work.

2.2.3. The work shall not be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such area shall be moistened again.

2.2.4. For external plaster, the plastering operation shall be started from top floor and carried downwards. For internal plaster, the plastering operations may be started wherever the building frame and cladding work are ready and the temporary supports of the ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

2.3. Application of plaster:

2.3.1. The plaster about 15 x 15 cms. shall be first applied horizontally and vertically at not more than 2 metres intervals over the entire surface to serve as gauge. The surfaces of these gauges shall be truly in plane of the finished plastered surface. The mortar shall then be applied in uniform surface slightly more than the specified thickness, then brought to a true surface by working a wooden straight edge reaching across the gauges with small upward and sideways movements at a time. Finally, the surface shall be finished off true with a trowel or wooden float according as a smooth or a sandy granular texture is required. Excessive troweling or overworking the float shall be avoided. All corners, arrises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering, corners, arrises junctions etc. shall be carried out with proper templates to be size required.

2.3.2. Cement plaster shall be used within half an hour after addition of water. And mortar or plaster which is partially set shall be rejected and removed forthwith from the site.

2.3.3. In suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertically, when recommencing the plaster, the edges of the old work shall be scraped clean and wetted with cement putty before plaster is applied to the adjacent areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of the wall and nearer than 15 cm. to any corners or arrises. It shall not be closed on the body of features such as plaster bands and cornices not at the corners or arrises. Horizontal joints in plaster work shall not also occur on parapet tops and copings as these invariably lead to leakage. No portion of the surface shall be left out initially to be packed up later on.

2.3.4. Each coat shall be kept damp continuously till the next coat is applied or for a minimum period of 7 days. Moistening shall commence as soon as plaster is hardened sufficiently. Soaking of walls shall be avoided and only as much water as can be readily absorbed shall be used, excessive evaporation on the sunny or windward side of building in hot air or dry weather shall be prevented by hanging matings or gunny bags on the outside of the plaster and keeping them wet.

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials, labour and scaffolding etc. involved in the operations described under workmanship.

3.2 All plastering shall be measured in square metres unless otherwise specified. Length breadth or height shall be measured correct to a centimeter.

3.3. Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 10 mm. at any point on this surface.

3.4. This item includes plastering up to floor two level.

3.5. The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height. Depth of cover of cornices if any shall be deducted.

3.6. Soffits of stairs shall be measured as plastering on ceilings, following soffits shall be measured separately.

3.7. For jambs, soffits, sills etc. for openings not exceeding 0.5 sq. met each in area for ends of joints beams, posts, girders, steps etc. not exceeding 0.5 sq. mt each in area and for openings exceeding 0.5. sq. mt and not exceeding 3.00 sq. mt. in each area deductions and additions shall be made in the following manners.

(a) No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq. mt each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings, for finish to plaster around ends of joints, beams posts etc.

(b) Deduction for openings exceeding 0.5 sq. mt but not exceeding 3 sq.mt. each shall be made as follows and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings.

(i) When both faces of all wall are plastered with same plaster, deduction shall be made for one face only. (ii) When two faces of wall are plastered with different types of plasters or if one face is plastered and the other pointed, deductions shall be made from the plaster or pointing on the side of frame for door, window etc. on which width of reveals is less than that on the other side but no deductions shall be made on the other side. Where width of reveals on both faces of all are equal, deductions of 50% of area of opening on each face shall be made from areas of plaster and / or pointing as the case may be.

3.8. For openings having door frames equal to or projecting beyond the thickness of wall, full deduction for opening shall be made from each plastered face of the wall.

3.9. In case of openings of area above 3 sq. mt. each, deduction shall be made for openings but jambs, soffits and sills shall be measured.

3.10. The rate shall be for a unit of One sq. metre.

17.58 (II) 10 mm. cement plaster in single coat on fair side of brick/concrete walls for interior plastering up to floor two level and finished even and smooth in CM. 1:4.

1.0. Materials & workmanship

1.1. The relevant specifications of item No 17.58 (I) shall be followed except that the proportion of mortar is CM. 1 :4 instead of CM. 1:3.

2.0. Mode of measurements & payment

2.1. The mode of measurements and payment shall be the same as for item No. 17.58 (I)

2.2. The rate shall be for a unit of One sq. metre.

17.58(111) 10 mm. cement plaster in single coat on fair side of brick/concrete walls for interior plastering up to floor two level and finished even and smooth in CM. 1:6.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 17.58 (I) shall be followed except that the proportion of mortar is cement mortar 1:6.

2.0. Mode of measurements & payment

2.1. The mode of measurement and payment shall be followed same as item No. 17.58(1)

2.2. The rate shall be for a unit of one square metre.

17.61.(1) 20 mm. thick cement plaster in single coat on rough side of single or half brick wall for interior plastering up to floor two level, finished even and smooth in cement mortar 1:3 (1 cement : 3 sand).

1.0. Materials & workmanship

1.1. The relevant specifications of item No. 17.59 (I) shall be followed except that the thickness of cement plaster shall be 20 mm. The plastering work shall be in single coat on rough side of half brick wall for interior plastering up to floor two level, finished even and smooth in CM. 1:3.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 17.59(1) shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

17.61.(11) 20 mm. thick cement plaster in single coat on rough side of single or half brick wall for interior plastering up to floor two level, finished even and smooth in cement mortar 1:4 { 1 cement : 4 sand).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 17.59. (II) shall be followed except that the thickness of plastering shall be 20 mm. in CM. 1:4.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 17.59 (I) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

17.61 (III) 20 mm. thick cement plaster in single coat on rough side of single or half brick wall for interior plastering up to floor two level, finished even and smooth in CM. 1:6 (1 cement : 6 sand).

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 17.59 (III) shall be followed except that thickness of plaster shall be 20 mm. CM. 1:6.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 17.59 (I) shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

17.69 Extra over items 51 to 65 for finishing with a floating coat of neat cement slurry.

1.0. Materials & workmanship

1.1. The relevant specification of item No, 17.58 and 17.61 shall be followed for materials and workmanship except that this work is only providing smooth cement finish with floating coat of neat cement slurry.

1.2. The coat of cement and fine sand mortar of proportion 1:1 (1.5 mm. thick about) shall be applied to the plastered surface with a trowel to provide uniform texture while the base coat is still plastic.

1.3. In any continuous face of wall the finishing treatment should be carried out continuously and day to day breaks made to coincide with architectural breaks in order to avoid unsightly junctions.

1.4. Curing : All the plaster work shall be kept damp continuously for a period of 7 days.

2.0. Mode of measurements and payment

2.1. The payment shall be made for a unit of 1.0. sq. mt of work done over an above the finishing of work of base coat.

2.2. The relevant specifications of item of base coat shall be followed for measurements and payment.

2.3. The rate shall be for a unit of One sq. metre.

17.70. Extra over item 17.58 to 17.61 for providing and mixing water proofing materials in cement mortar in proportion recommended by the manufacturers. 1.0.

Materials and Workmanship

The relevant specification of item No. 17.58 to 17.61 shall be followed except that the water proofing materials of approved made shall be added to the cement at the rate specified or as directed by The Engineer-in-charge. The proportion proofing materials of water to be mixed with 50 kg. bags shall be as recommended by the manufacturers of the water proofing material.

2.0. Mode of measurements & payment

2.1. The payment shall be made extra for this work over and above the plaster work.

2.2. The rate shall be for a unit of 1 Kg. of water proofing materials used in 1 bag of weighing 50 Kg cement used extra over the rate of plastering work.

17.91. Extra over item No. 17.59 to 17.61 for plastering on ceiling and soffits of stair up to floor two level instead of plastering on walls.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 17.59 (I) shall be followed except that this work is for ceiling. soffits of stairs up to two floor level instead of plaster on walls

1.2. The smooth concrete surface shall be suitably roughened to provide necessary bond before plastering.

2.0. Mode of measurements and payment

2.1. The payment shall be made for a unit of One sq. metre of work done, extra over and above the payment of plaster work on wall surfaces.

2.2. The rate shall be for a unit of One sq metre.

17.94(1) Extra over item No. 1 to 69; 71 to 87 and 90 for interior plastering above floor two level for every additional storey height (i) Single coat plaster.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 17.59 (I) shall be followed except that the whole work is to be carried out above floor two level.

2.0. Mode of measurements and payment 1.2. The mode of measurement and payment shall be same as item No, 17.59(1).

2.2. The extra payment shall be made over and above the floor two level rate for every additional floor height.

17.94 (II) Extra over item 1 to 69, 71 to 87 and 90 for interior plastering above floor two level for every additional storey height. Tow coat plaster.

1.0. Materials & workmanship

1.1. The relevant specifications of item No. 17.94 (I) shall be followed except that extra payment for work shall be for a two coat plaster.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 17.94(1) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

17.94(1(1) Extra over item 1 to 69, 71 to 87 and 90 for interior plastering above floor two level for every additional storey height. Floating coat of neat cement.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 17.94 (I) shall be followed except that the extra payment shall be made for work of floating coat of neat cement slurry.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 17.59(1) shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

17.95. 20 mm. thick sand face cement plaster on walls up to height of 10 mm. and above ground level consisting of 12 mm. thick backing coating of CM. 1:3 (1 cement : 3 sand) and 8 mm. thick finishing coat in CM. 1:1 (1 cement : 1 sand) etc. complete.

1.0. Materials

1.1. Water shall conform to M-1. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The work shall be carried out in the coats. The backing coat (base coat) shall be 12 mm thick in CM. 1:3. The relevant specifications of item No. 17.58(f) shall be followed except that the thickness of back coat shall be 12 mm. average. Before the first coat hardens its surface shall be beaten up by edges of wooden tappers and close dents shall be made on the surface. The subsequent coat shall be applied after this coat has been allowed to set for 3 to 5 days, depending upon the weather conditions. The surface shall not be allowed to dry during this period.

2.2. The second coat shall be completed to 8 mm. thickness in CM. 1:1 as described above, including raising sand facing by bushing. The sample of sand face shall be got approved before the work is started. The whole work shall be carried out uniformly as per sample approved.

2.3. Curing :

The curing shall be started overnight after finishing of plaster The plaster shall be kept wet for a period of 7 days. During this period, it shall be protected from all damages.

3.0. Mode of measurement & payment

3.1. The relevant specifications of item No. 17.58 shall be followed except that the sand face plaster on outside up to 10 m. above ground level shall be measured under this item.

3.2. The rate shall be for a unit of One sq. metre]

17.116(A) Pointing on brick work with cement mortar 1:3 (1 cement : 3 coarse sand) flush pointing.

1.0, Materials

1.1. Water shall conform to M-1. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The flush pointing work shall be carried out with cement mortar of proportion 1:3(1 part of cement and 3 part of coarse sand) by volume.

2.2. . Preparation of surface.

2.2.1. The joints shall be raked to such a depth that the average of new mortar measured from either the sunk surface to finished pointing or from the edge of the brick shall be average 10 mm.

2.3. Application of Martar and Finishing :

2.3.1. The mortar shall, be pressed in to the raked out joints with a pointing trowel according to the types of pointing specified in item. The mortar shall not spread over the corner edges or surface of the masonry The pointing shall then be finished with the pointed tools.

2.4. Curing :

2.4.1. The pointing shall be kept wet for 7 days. During this period, it shall be suitably protected from all damages

3.0. Mode of measurements & payment

3.1. No deductions shall be made end of joints, beams and posts etc. and openings not exceeding 0.5 s. mt. each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings

3.2. Deductions for openings exceeding 0.5 sq. mt. but not exceeding 3 sq. mt. each shall be paid as follows and no addition shall be made for reveals, jambs, soffits, silfe etc. of these openings

(i) When both faces of walls are pointed with same type of pointing, deduction shall be made for one face only.

(ii) When two faces of walls are pointed with different type of pointing or if one face is plastered and the other is pointed, deduction shall be made in the plaster or pointing on the side of frame for door, windows etc. on which the width of reveals is less than thst on the other side but no deduction shall be made from plaster or pointing on the other side.

(iii) When only one face is treated and the other face is not rested, full deduction shall be made, if the width of the reveals on the treated side is less than on the untreated side, but if the width of the reveal is more then no deduction shall be made nor any addition shall be made for reveals, jambs, soffits, sills etc

3.3. In case of openings of area above 3 sq. mt each deduction shall be made for opening but jambs, sills, and soffits, shall be measured.

3.4. The rate shall be for a unit of One sq. metre.

17.116(B) Pointing on brick work with cement mortar 1:3 (1 cement : coarse sand) Ruled pointing.**1.0. Materials & Workmanship**

1.1. The relevant specifications of item No. 17.116 (A) shall be followed except that the pointing to be done ruled pointing as under:

1.2. The joints shall be initially formed as for flush pointing and then while the mortar is still green, a groove of specified shape shall be formed by running forming tool straight along the centre line of joints till a smooth and hard surface is obtained. The vertical joints shall also be finished in a similar way. The pointing lines shall be uniform in width and truly horizontal and parallel in case of floor and ceiling.

2.0. Mode of measurements & payment

2.1. The mode of measurements and payment shall be the same as per item No 17.116(A)

2.2. The rate shall be for a unit of One sq. metre.

17.117(A) Pointing on brick work with cement mortar 1:4 (1 cement : 4 sand) Flush pointing.**1.0. Materials & Workmanship**

1.1. The relevant specifications of item No. 17.116 (A) shall be followed.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 17.116 (A) shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

17.117(B) Pointing on brick work with cement mortar 1:4 (1 cement : 4 sand) Ruled pointing.**1.0. Materials & Workmanship**

1.1. The relevant specifications of item No. 17.116(B) shall be followed except that the proportion of CM 1:4 shall used for ruled pointing.

2.0. Mode of measurements and payment

1.0. The relevant specifications of item No 17.115 (A) shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

17.140.(A) Pointing on coursed stone masonry with cement mortar 1:3 (1 cement : 3 sand) flush pointing.**1.0. Materials and workmanship**

1.1. The relevant specifications of item No. 17.116 (A) shall be followed except that the pointing shall be done on coursed stone masonry with CM. 1:3 and the mortar shall be simply struck off with a trowel and the work left showing the natural irregularities in line and the surface of the stones themselves.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No.17.116 (A) shall be followed.

2.2. The rate shall be favour a unit of One sq. metre.

17.140(B) Pointing on course stone masonry with cement mortar 1:3 (1 cement : 3 sand) Ruled pointing.**1.0. Materials and Workmanship**

1.1. The relevant specifications of item No. 17.140 (A) and 17.116 (B) shall be followed.

2.0. Mode of measurements & payment

- 2.1. The relevant specifications of item No. 17.116(A) shall be followed.
- 2.2. The rate shall be for a unit of One sq. metre.

17.144.(A) Pointing on uncoursed stone masonry with cement mortar 1:3 (1 cement : 3 sand) Flushing pointing.**1.0. Materials & Workmanship**

- 1.1. The relevant specifications of item No. 17.116(A) shall be followed except that the flush pointing shall be done on uncoursed rubble masonry work in CM. 1:3 and the mortar shall be simply struck off with a trowel and the work left showing the natural irregularities in line and the surface of the stone themselves.

2.0. Mode of measurements and payment

- 2.1. The relevant specifications of item No. 17.116(A) shall be followed. 2.2
- The rate shall be for a unit of One sq metre.

17.144.fB Pointing on uncoursed stone masonry with cement mortar 1:3 (1 cement : sand) Ruled pointing.**1.0. Materials & Workmanship**

- 1.1. The relevant specification of item No. 17.116 (A) and 17.T44 (A) shall be followed except that the ruled pointing work shall be carried out on uncoursed rubble masonry work in CM. 1:3.

2.0. Mode of measurements and payment

- 2.1. The relevant specifications of item No. 17.116(A) shall be followed
- 2.2. The rate shall be for a unit of One sq. metre.

17.0.0.1 Providing cement vata (10 cms x 10 cms) size quarter round in cement mortar 1:1 including neat cement finishing, watering, etc. complete.**1.0. Materials**

- 1.1. Water shall conform to M-1. Cement mortar shall conform to **M-11**.

2.0. Workmanship

- 2.1. The work of cement vata of 10 cms. x 10 cms. size shall be carried out at junctions of parapets and terraces as directed. The vata shall be finished in quarter round shape. The work shall be earned out in the best workman like manner. The inter portion of rain water pipe shall be rounded off properly during constructing the vata The work shall be cured for 7 days.

3.0. Mode of measurements and payment

- 3.1. The work shall be measured for finished item in running metre.
- 3.2. The rate shall be for a One running metre.

SECTION-18 White Washing & Distemping

18.11. White washing with lime on undecorated wall surfaces (two coats) to give an even shade including thoroughly brooming the surface to remove all dirt, dust, mortar drops and other foreign matter.

1.1. Materials

1.1. The clearcolle shall be made from glue and boiling water by mixing. 1 Kg mixture shall be suitably tinted where required for use under coloured distemper if directed. Glue shall conform to I.S. 852-1969 (Specifications for animal glue).

1.2. Lime used shall be Freshly burnt class C Lime (fat lime) and white in colour conforming to I.S. 712-1973. Water shall conform to M-1 Best quality of gum shall be used in the preparations of white wash. Ultramarine blue or Indigo : This shall conform to I.S. 55-1970 for points, and shall be used for preparation of white wash. Pigments. Mineral colours, not affected by lime shall be used in preparing colour wash.

2.0. Workmanship

2.1. Preparation of white wash solution : Surface already white or colour; The fat lime shall be slaked as site and shall be mixed and stirred with about five liters of water for 1 kg. of unslaked lime to make a thin cream. This shall be allowed to stand for a period of 24 hours and then shall be screened through a clean coarse cloth, 4 Kg. of gum dissolved in hot water shall be added to each cubic metre of lime cream. Small quantity of ultramarine blue (Up to 3 gms. per kg. of lime) shall also be added to the last two coats of white wash solution and the whole solution shall be stirred thoroughly before use

2.2. Preparation of surface:

2.2.1. The surface shall be thoroughly cleaned of all dust, dirt, mortar droppings and other foreign matter before white wash is to be applied.

2.2.2. The surface spoiled by smoke soot shall be scrapped with steel wire brushes or steel scrapers or shall be rubbed with over-burnt surkhi or brick bats. The surface shall be then broomed to remove all dust, dirt and shall be washed with clean water.

2.2.3. Oil or grease spots shall be removed by suitable chemical and smooth surface shall be rubbed with wire brushes. >

2.2.4. All unsound portion of the surface plaster shall be removed to full depth of plaster in rectangular patches and plastered again after raking the masonry joints properly. Such portion shall be wetted and allowed to dry. They shall then be given one coat of white wash.

2.2.5. All unnecessary nails shall be removed, the holes, cracks, patches etc. shall be made good with material similar in composition to the surface to be prepared

2.3. Scaffolding :

Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white washed. A properly secured strong and well tied suspended platform (Zooia) may be used for white washing. Where ladders are used, pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the floors and walls. For white washing of ceilings, proper stage scaffolding shall be erected where necessary.

2.4. Application of white wash :

2.4.1. On the surface so prepared the white wash shall be applied with 'Moon' brush. The first stroke of the brush shall be from top downwards, another from bottom upwards over the first stroke and similarly one stroke from the right another from the left, over the first stroke brush before it dries. This will form one coat. Each coat shall be allowed to dry before and uniform finish free from brush marks and it should not come off easily when rubbed with finger.

2.4.2. Splashing and dropping if any on the doors and windows, ventilators etc. shall be removed and the surface cleaned.

2.4.3. Priming and Alkali resistant treatments, scraping of surface washing etc. surface spoiled by smoke soot removed of oil and grease spots, treatment for infection with efflorescence moulds, moss, fungi, algae and lichen also* patch repairs to plaster wherever done shall not be paid extra.

3.0. Mode of measurements & payment

3.1. All the work shall be measured in the decimal system as under : ^

- (a) Dimensions shall be measured to the nearest 0.01 m
- (b) Area in individual item shall be worked out to the nearest 0.01 sq.m.

All the work shall be measured in sq. mt. Deductions for jambs, soffits, sills etc. for openings not exceeding 0.5 sq. mt. each in area, for ends of joists, posts, beams, girders, steps etc. not exceeding 0,5 sq mt. each in area and for openings exceeding 0.5 sq. mt. and not exceeding 3.0. sq. mt. each in area, deductions and additions shall be made as under ;

3.2. No deductions shall be made for ends of joists, beams, posis, etc. and openings not exceeding 0.5 sq. mt. each. No addition shall be made for reveals, jambs, soffits, sills etc. of these openings not for finish around ends of joints, beams, posts etc.

3.3. No deductions for openings exceeding 0.5 sq.mt. but not exceeding 3 sq. mt. each shall be made as follows and no addition will be made for reveals, jambs, soffits etc, of these openings :

- (a) When both the faces of walls are provided with finish, deduction shall be made for one face only.
- (b) When each face of wall is provided with different finish, deduction shall be made for that side of frame for door, windows, etc, on which width of reveals is less than that of the other side. Where width of reveals on both faces of wall are equal, deduction of 50% of area of opening on each face shall be made from total area of finish
- (c) When only one face of wall is treated and the other face is not treated, full deduction shall be made if the width of reveal on thr treated side is less than that on hte untreated side, but if the width of the reveal is equal or more than on the untreated side neither deductions nor additions to be made for reveals, jambs, soffits, sills etc.

3.4 In case of area of openings exceeding 3 sq. mt. each, deductions shall be made for openings but jambs, soffits, sills shall be measured.

3.5. No deductions shall be made for attachment such as casing, conducts, pipe, electric wiring and the like.

3.6. Corrugated surfaces shall be measured flat as fixed and not girth. The quantities so measured shall be increased by the following percentage and the resultant shall be included with the general areas:

- (a) Corrugated steel sheets 14%
- {b} Corrugated AC. sheets 20%
- (c) Semi corrugated A.C. Sheets 10%
- (d) Nainital pattern roof (Plain sheeting sheets)..... 10% *
- (e) Naintial pattern roof (with corrugated sheets).....25%

3.7. Cornices and other wall features, when they are not picked out in a different finish/colour shall be girthed and included in the general area.

3.8. The rate shall include the cost of all materials, labour, scaffolding, protective measures etc. involved in all the operations described above.

3.9. The rate shall be for a unit of One sq. metre.

18.12. White washing with lime on decorated wall surface (One coat) to give an even shade including thoroughly brooming in the surface to remove dust, mortar, drops and loose scales of lime wash and other foreign matter.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No, 18.11 shall be followed except that the white washing work shall be carried out on decorated wall surface single coat.

2.0. Mode of measurements & payment

2.1.' The relevant specifications"of item No. 18.11 shall be followed,

2.2. The rate shall be for a unit of One sq. metre

18.13 Extra over items 18.11 and 18.12 for every subsequent coat of white washing with lime on wall surfaces.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No.18.11 shall be followed except that this work is for extra coat over and above two coats on wall surface.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.11 shall be followed except that the payment of subsequent coat shall be made extra over and above the item No. 18.11 for every subsequent coat applied

2.2. The rate shall be for a unit of One sq. metre.

18.14.Extra over item 18.11 for white washing with the lime on ceiling and / or sloping roof.**1.0. Materials and Workmanship**

1.1. The relevant specifications of item No. 18.11 above shall be followed except that this work is for ceiling and / or sloping roof.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.11 shall be followed except that extra payment for white washing on ceiling and/or sloping' roof shall be made over and above the payment of item No. 18.11

2.2. The rate shall be for a unit of One sq. metre.

18.15 Extra over 18.12 for white washing with lime on decorated dealings and sloping roofs.**1.0. Materials and Workmanship**

1.1 The relevant specifications of item No. 18.12 shall be followed except that the white washing work shall be carried out on decorated ceilings and/or sloping roofs. **2.0 Mode of measurements and payment**

2.1. The relevant specifications of item No. 18.52 shall be followed except that extra payment for white washing on ceiling and/or sloping roof shall be made over and above the payment of item No. 18.12.

2.2. The rate shall be for a unit of one sq. metre.

18.16.Extra over the item No. 18.13 for every subsequent coat of white washing with lime on ceiling and /or sloping roofs.**1.0. Materials and Workmanship**

1.1. The relevant specifications of item No. 18.11 and 18.13 shall be followed except that this work is for extra coat over and above two coats of ceiling and / or sloping roofs.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.11 and 18.13 shall be followed except that the extra payment for white washing shall be made for sloping roof or/and ceiling for every subsequent coat applied over and above item 18.11 and 18.13.

2.2. The rate shall be for a unit of one sq. metre.

18.17. Colour washing with lime on undecorated wall surfaces (Two coats) over and including priming coat of white washing to give even shade including thoroughly brooming the surface to remove all dirt, dust, mortar drops and other foreign matter. The relevant specifications for the materials and workmanship 18.11 shall be followed except that it shall be for colour wash.**1.0. Materials**

1.1. Clear-colle : This shall be made from glue ana boiling water by mixing 1 kg. of glue to every 15 liters of water. The mixing shall be suitably tinted to match with colour of colour washing as directed. Glue shall conform to I.s. 852-1969.

1.0. Lime : Lime used shall be freshly burnt class 'C' lime (Fat lime) and white in colour conforming to IS. 712-1973.

1.3. Water : Water shall conform to M-1.

1.4. Gum : Best quality of gum shall be used in the preparation of white or colour wash. The colour pigment of required tint and shade shall be mixed in lime cream. The mineral colour not affected by lime shall be used in preparing the colour wash.

2.0. Workmanship

2.1. Sufficient quantity of colour wash enough for the complete job shall be prepared in one operation to avoid any difference in shade. The basic white wash solution shall be prepared in accordance with item 18.11 Mineral colours not affected by lime shall be added to the white wash solution. No colourwash shall be done until a sample of the colour has been approved. It shall be noted that small samples of colour appears lighter in shade than when the same shades are applied precisely to large surface The colour shall

be of event, tint, over the colour shall be of event tint, over the whole surface. If it is patchy or otherwise badly applied, it shall be rejected. Preparation of the colourwash with pigment shall be as under:

(a) With Yellow and Red Ocher:

Solid lumps if any in the powder shall be crushed to powder and solution in water prepared and then added to white wash sieving it through a coarse cloth, mixed evenly and thoroughly to white wash in small quantities till required shade is obtained.

(b) With Blue Vitriol :

Fresh crystals of hydrous copper sulfate (i.e. vitriol) shall be ground to fine power and dissolved in small quantity of water. Sufficient quantity of solution enough to produce the colour wash of required shade shall be strained through a clean cloth, the filtrate being mixed evenly and thoroughly to the white wash.

(c) Colourwash from other colouring pigment shall be prepared in accordance with the instructions of the manufacturer.

2.2. Preparation of Surface :

The surface shall be prepared by removing mortar dropping and foreign matter and thoroughly cleaned with wire of fiber brush or any other suitable means as directed by the Engineer-in-charge. All loose pieces and scales shall be scrapped off and holes filled with mortar.

2.2.1. For scaffoldings and application of colour wash, relevant specification of item No. 18.11. above shall be followed. The colourwash shall be applied as under:

The colourwash shall be applied in accordance with the procedure given in item No. 18.11. "Application of white wash for colour washing on undercoated surface".after the surface has been prepared. The first primary coat shall be of white wash and subsequent coats (minimum two) shall be colour wash and the entire surface shall represent a smooth and uniform finish. To start with, patch of 0.1 sq. mt. on prepared surface shall be colour washed with first coat of white wash and subsequent coats of colour wash solution entire work of colour washing is taken up in hand. It shall be noted that small areas of colour wash will appear lighter than when the same shade is applied to the large surface.

2.2.2. For colourwashing on decorated surfaces, after the surface has been prepared, a coat of white wash shall be applied for the patches and repairs. Then one coat or more of colour wash shall be applied over the entire surface, such that the colour washed surface shall present a uniform colour shade. No primary coat is needed for a decorated surface bearing colour of same shade on surface required change of colour after the surface has been prepared as described above. Two coats of white wash shall be applied before application of specified number (minimum two) of coats of colour wash of the new shade.

2.3. Protective measure :

The surface of doors, windows, floors, articles, of furniture etc. and such other parts of the building not to be white washed shall be protected from being splashed upon. Such surfaces shall be cleaned of white wash splashed if any.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 18.11 shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

18.18. Colour washing with lime on decorated wall surfaces (one coat) to give even shade including thoroughly brooming the surface to remove all dirt, dust, mortar drops and loose scales of lime wash and other foreign matter.

1.0. materials and Workmanship

The relevant specifications of item No. 18.17 shall be followed except that the colourwashing shall be earned out on decorated wall surface in one coat.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.7 shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

18.19. Extra over item No. 18.17 and 18.18 for every subsequent coat of colour wash with lime on wall surfaces.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 18.17 shall be followed except that this work is for extra coat of colour wash over and above two coats on wall surface.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 18.17 shall be followed except that the extra payment for every subsequent coat of white wash shall be made over and above the rate of item 18.17 and 18.18.

2.2. The rate shall be for a unit of one sq. metre.

18.20. Extra over item 18.17 for colour washing on ceilings and /or sloping roofs.**1.0. Materials and workmanship**

1.1. The relevant specifications of item No. 18.17 shall be followed except that this work is for colour washing on ceiling and/or sloping roofs.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.17 shall be followed except that the rate shall be paid extra over and above the rate of item No. 18.17 for providing colourwashing on ceiling and /or sloping roof.

2.2. The rate shall be for a unit of One sq. metre.

18.29. Cement washing with port land cement slurry on undecorated wall surfaces, (one coat) to give a smooth finish including thoroughly brooming the surface to remove all dirt, dust, mortar drops and other foreign matter.**1.0. Materials**

1.1. Water shall conform to M-1. Part land cement shall conform to M-3. . **2.0.**

Workmanship

2.1. The relevant specification of item No. 18.11 for preparation of surface, scaffolding, application of wash etc. shall be followed except that the cement wash shall be applied, instead of white wash. Cement applied with brushes to form a smooth bodied opaque surface.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 18.11 shall be followed.

3.2. The rate shall be for a unit of one sq. metre.

18.30. Extra over item No. 18.29 for every subsequent coat of cement washing with port land cement slurry.**1.0. Materials Workmanship**

1.1. The relevant specifications of item No. 18.29 shall be followed except that the work of cement slurry wash shall be provided for every subsequent coat above item No. 18.29 to be applied.

2.0. Mode of measurements and payment

2.1. The relevant specification of item No. 16.29 shall be followed except that the extra rate shall be paid for every subsequent coat and above the rate of item No. 18.29.

2.2. The rate shall for a unit of One sq. metre.

18.33. Removing dry or oil bound distemper by washing scraping and sand papering the wall surface smooth including necessary repairs to scratches complete.**1.0. Materials and Workmanship**

1.1. All loose places and scaled shall be removed by sand papering and surface shall be cleared of all greascay,, dust, dirt, etc. on decorated wall surfaces. Where heavy scaling has taken place, the entire surface shall be scrapped by means of steel scrappers so as to remove all accumulated distemper, leaving clean surfaces. Necessary repairs to the scratches shall be made as directed.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.11. shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

18.34. Extra over item No. 18.33. for removing dry oil bound distemper on ceiling and sloping and roofs.**1.0. Workmanship**

1.1. The relevant specifications of item No. 18.33 shall be followed except that removing dry/oil bound distemper from sloping roof/ceiling is to be carried out.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No, 18.33 shall be followed except that the payment shall be made for removing dry/oil bound distemper from ceiling/sloping roof over and above the rate of item No. 18.33.

2.2. The rate shall be for unit of one Sq. metre.

18.38. Distemping with dry (water bound) Distemper of approved brand and manufacture (two coats) and of required shade on undecorated wall surfaces to give an even shade, over and including a priming coat of white washing after thoroughly brooming the surface free from mortar droppings and other foreign matters.

1.0. Materials

1.1. The dry distemper and primer shall be of approved brand and manufacture. The dry distemper shall be of required colour and shade and the same shall conform to I.S. 427-1965. Writing shall conform to I.S. 63-1964.

2.0. Workmanship

2.1. Scaffolding : Where scaffolding is required it shall be erected in such a way that as far as possible no part of scaffolding shall rest against the surface to be distemped. A properly secured strong and well tied suspended platform (Joolas) may be used for distemping. Where ladders are used, pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the walls and floors. For distemping to ceiling, proper stage scaffolding shall be erected where necessary.

2.2. Preparation of Surface.

2.2.1. The undecorated surface to be distemped shall be thoroughly brushed free from dust, dirt, grease, mortar, droppings and other foreign matter and sand papered smooth. New plaster surface shall be allowed to dry at least 2 months before application of distemper.

2.2.2. All unnecessary nails shall be removed. Pitting in plaster shall be made good with plaster of paris mixed with dry distemper of the colour to be used. The surface shall then be rubbed down again with a fine grades and paper and made smooth. The surface affected by moulds, moss, fung, algee lichens, efflorescence etc. shall be treated in accordance with I.S. : 2395 (Part-I) 1966 before applying distemper. Any unevenness shall be made good by applying putty made of plaster of pans mixed with water on entire surface including filling up the undulations and then sand papering the same after it is dry.

2.3. Priming coat:

2.3.1. A priming coat of whitening shall be applied as per item No. 18.11 over the prepared surface in case of new work on undecorated surface. No coat of white washing with lime shall be used as a priming coat for distemper.

2.3.2. Application of plaster shall be done as under:

The primer shall be applied with a brush on the clean dry and smooth surface. Horizontal strokes shall be given first and vertical stokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks, a shall be allowed to one coat. The surface shall be finished as uniformly as possible leaving no brush marks, it shall be allowed to dry for at least 48 hours before oil bound distemper or paint is applied.

2.3.3. Distemper is not recommended to be applied within six months of the completion of wall plaster.

2.4. **Proportion of Distemper:** The distemper shall be diluted with water or any other prescribed thinner in a manner recommended by the manufacturers only Sufficient quantity of distemper required for one day's work shall be prepared.

2.5. Application of Distemper coat:

2.5.1. For undecorated surfaces after the primer coat is dried for at least 48 hours, the surfaces shall be lightly sand papered to make them smooth for receiving the distemper, taking care not to rub out the priming coat. All loose particles shall be dusted off after rubbing. Minimum two coats of distemper shall be applied with brushes in horizontal strokes followed immediately by vertical strokes which together shall constitute one coat. The subsequent coats shall be applied after a time interval strokes which together shall constitute one coat. The subsequent coats shall be applied after 3 time interval of at least 24 hours between consecutive coats to permit proper drying of the proceeding coat. The finished surface shall be even and uniform without patches, brush marks, distemper drops etc.

5.5. The quantity of distemper shall be mixed to finish on room at a time The- sp;>.i'-aion o* a coai in each :• — shall be finished in ~ne operation <h.nd ro worfc shall be sj?;.od i"; any ""^n which carriot be completed, on the same day.

2.5.3. 15 cm. double bristle distemper brush shall be used. After the day's work, brushes shall be thoroughly washed in hot water with soap solution and hang down to dry. Old brushes which are dirty and caked with distemper shall not be used on the work.

2.6. Protective Measures : The surfaces of doors, windows, floors, articles of furniture etc. and such other parts of the building as are not to be distempered shall be aplashd form being splashd upon. Such surfaces shall be cleaned of distemper aplashes if any.

3.0. Mode of measurements and payment

3.1. Priming coat of distemper primer, scraping of surface spoiled by smoke soot, removal of oil and grease spots, treatment for infraction of effloresces, mould moss, fungi, algee and lichens and patch repairs to plaster shall be included in this item for which nothing extra shall be paid.

3.2. All the work shall be measured net in the decimal system as in places subject to the following limits unless otherwise stated hereinafter:

(a) Dimensions shall be measured to the nearest 0.01 m.

(b) Area in individual items shall be worked out to the nearest 0.01 sq. m. All work shall be measured in sq. metre. No deductions shall be made for ends of joints, beams, posts, etc. of these openings nor for finish around the ends of joints, beams, posts etc.

3.3. Deductions of openings exceeding 0.5 sq.m. but not exceeding 3 sq. m. each shall be made as follows and no addition shall be made for reveal, jambs, soffits etc. of these openings:

(a) When both the faces of walls are provided with the same finish decutions shall be made for one face only.

(b) When each face of wall is provided with different finish, deduction shall be made for that of frame for door, windows etc., on which width of reveal is less than that of the other side but no deductions shall be made on the other side. Where the width of reveals on the both the faces of wall are equal, deduction of 50% of area of opening on eac;i face shall be made from area of finish.

(c) When only one face of wall is treated and the other face is not treated, full deductions shall be made if the width of the reveal on treated side is less than that on untreated side but if the width of the reveals is equal or more than that of untreated side neither deductions nor additions to be made for reveals, jambs, sills and soffits shall be measured.

3.4. In case of openings of area exceeding 3 sq. m.each, deduction shall be made for openings, but jambs, sills and soffits shal be measured.

3.5. No deductions shall be made for attachments such as casing, conduits, pipes, electric wiring and the like.

3.6. Item includes removing nails, making good holes, cracks, patches with materials similar in composition to the distemper.

3.7. The rate includes cost of all materials, labour, scaffolding, protective measues etc. involved in all the operations described above. This shall also include cqnvenyance, delivery, handling,unloading storing etc.

3.8. The rate shall be for a unit of One sq. metre.

18.39. Distemping with dry (water bound) distemper of approved brand and manufacture (one coat) and of required shade, on decorative wall surface to give an even shade after thoroughly brushing the surface clean of all grease dirt, loose pieces of scales including preparing the surfaces and even sand papered smooth.

1.0. Materials and workmanship

The relevant specifications of item No. 18.38 shall be followed except that the dry distemper shall applied on decorative wall surface in on coat.

2.0. Mode of measurements and payment

2.2. The rate shall be for a unit of One sq. metre.

18.40. Extra over **item 38 and 39 for every su bsequent coat of distemper with dry distemper of approved brand and manufacture.**

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 18.38 shall be followed except.that the extra work for applying subsequent coat of dry distemper is to be carried out over and above the work of item No. 18.38 and 18.39.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.38 shall be followed except that extra rate shall be paid for every subsequent coat applied over and above the rate of item No. 18.38 and 18.39.

2.2. The rate shall be for a unit of One sq.metre.

18.41.Extra over item 38 for distempering with dry distemper on ceiling and sloping roofs.**1.0. Materials and workmanship**

1.1. The relevant specifications of item No. 18.38 shall be followed except that the dry distempering shall carried out on ceiling and sloping roofs of undecorates surface.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 18.38 shall be followed except that extra rate shall be paid for carrying out work on ceiling/sloping roof on undecorated surface over and above the rate of item 18.38.

2.2. The rate shall be for a unit of One sq. metre.

18.42.Extra over item 39 and 40 for distempering with dry distemper on ceiling/sloping roofs.**1.0. Materials and Workmanship**

1.1. The relevant specifications of item No. 18.39 shall be followed except that the work shall be carried out on ceiling\sloping roofs on decorated surfaces.

2.0. Mode of measurements and payment

1.0. The relevant specifications of item No. 18.39 shall be followed except that the extra rate shall be paid for the distempering work carried out by dry distempered on ceiling/sloping roofs with decorated surfaces over and above the raw of item N, 18.39.

2.0. The rate shall be for a unit of One sq. metre.

18.44. Distempering (two coats) with oil bound distemper of approved brand and manufacture and of required shade on undecorated wall surfaces to give an even shade, over and including a priming coat with distemper primer of approved brand and manufacture after thoroughly brushing the surface free from mortar droppings and other foreign matter and also including preparing the surface even and sand papered smooth.

1.0. Materials

1.1. Oil bound washable distemper and primer shall be of approved brand and manufacture. The distemper shall be of required colour and shade and the same shall conform to I.S. : 423-1969.

2.0. Workmanship**2.1. Scaffolding**

Where scaffolding is required, it shall be erected in such a way that as far as possible no part of scaffolding shall rest against the surface to be distempered, A properly secured and well tied suspended pairorm (Joola) may be used for distempering. Where ladders are used, pieces of old gunny baQs shall be tied at top and bottom to prevent scratches to the walls and floors. For distempering to ceiling, proper stays scaffolding shall be erected where necessary.

2.2. Preparation of surface :

2.2.1. The undecorated surface to be distempered shall be thoroughly brushed from dust, dirt, grease, mortar dropping and other foreign matter and sand papered smooth. New plaster surface shall be allowed to dry for at least 2 months before applications of distemper.

2.2.2. All unnecessary nails shall be removed. Pitting in plaster shall be made good with plaster again with a fine grade sand paper and made smooth. A coat of distemper shall be applied over the paitnes. The surface shall be allowed to dry thoroughly before the regular coat of distemper is allowed. The surface; affected by moulds, moss, fungi, algae lichens, efflorescence etc. shall be treated in accordance with I.S; 2395 (PartOI) 1966. Before applying distempering, any unevenness shall be made good by applying putty made of plaster of paris mixed with water on entire surface including filling up the unduabon and then sand papering the same after it is dry.

2.3. Priming coat :

2.3.1. A priming coat of distemper primer of approved manufacture and shade shall be applied over the papered surf 3C-; in case of new work on undecorated surface If io-> d'stempO" priming : " -i--ie ai^er tho wali surface dnes completely, the distemper primer shall b3 appl'jd.

2.3.2. Application of primer shall be done as under: The primer shall be applied with a brush on the clean dry and smooth surface. Horizontal strokes shall be given first and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks. It shall be allowed to dry for at least 48 hours before oil bound distemper or paint is applied.

2.3.3. Oil bound distemper is not recommended to be applied within six months of the completion of wall plaster.

2.4. Preparation of oil bound distemper :

2.4.1. The distemper shall be diluted with water or any other prescribed thinner in a manner recommended by the manufacturer only. Sufficient quantity of distemper required for a day's work shall be prepared.

2.5. Application of Distemper coat :

2.5.1. For undecorated surfaces, after the primer coat is dried for at least 48 hours, the surface shall be lightly sand papered to make it smooth for receiving the distemper, taking care not to rub out priming coat. All loose particles shall be dusted off after rubbing. Minimum two coats of distemper shall be applied with brushes in horizontal strokes followed immediately by vertical strokes which together shall constitute one coat. The subsequent coats shall be applied after a time interval of at least 24 hours between consecutive coats to permit proper drying of the preceding coat. The finished surface shall be even and uniform without patches, brush marks, distemper drops etc.

2.5.2. Sufficient quantity of distemper shall be mixed to finish one room at a time. The application of a coat in each room shall be finished in one operation and no work shall be started in any room which cannot be completed on the same day.

2.5.3. 15 cm. double bristled distemper brush shall be used. After day's work brushes shall be thoroughly washed in hot water with soap solution and hung down to dry. Old brushes which are dirty and caked with distemper shall not be used on the work.

2.6. Protective measurements : The surfaces of doors, windows, floors, articles of furniture etc. and such other parts of the buildings as are not to be distempered shall be protected from being splashed upon. Such surfaces shall be cleaned of distemper splashes if any.

3.0. Mode of measurements and payment

3.1. Priming coat of distemper primer, scraping of surface spoiled by stunk soots, removal of oil and grease spots, treatment for infraction of effloresces., mould moss, fungi, algae and lichen and patch repairs to plaster shall be included in this item for which nothing extra shall be paid.

3.2. All the work shall be measured net in the decimal system as in place subject to the following limits unless otherwise stated hereinafter:

(a) Dimensions shall be measured to the nearest 0.01 m

(b) Area in individual items shall be worked out to the nearest 0.01 sq. m. All work shall be made for ends of joints, beams, posts etc., and openings, not exceeding 0.5 sq.m. each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings. Not for finish around ends of joints, beams, posts etc.

3.3. Deductions of opening exceeding 0.5 sq.m. but not exceeding 3 sq. m. each shall be made as follows and net addition shall be made for reveals, jambs, sills etc. of these openings :

(a) When both the faces of wall are provided with same finish, deductions shall be made for one face only.

(b) When each face of wall is provided with different finish, deduction shall be made for that side of frame for doors, windows etc. on which width of reveals is less than that of the other side but no deduction shall be made on the other side. Where the width of reveals on the both the faces of wall are equal, deduction of 50% of area of opening on each face shall be made from area of finish.

(c) When only one face of wall is treated and the other face is not treated, full deductions shall be made if the width of the reveal on treated side is less than that on untreated side but if the width of the reveal is equal or more than that on untreated side neither deductions nor additions to be made for reveals, jambs, soffits, sills etc.

3.4. For casework of openings exceeding 3 sq. m. each deduction shall be made for openings but jambs, sills and soffits shall be measured.

- 3.5. No deductions shall be made for attachments such as casings, conduits, pipes, electric wiring and the like.
- 3.6. Item includes removing nails, making good holes, patches with materials similar in composition of distemper.
- 3.7. The rate includes cost of all materials, labours, scaffolding, protective measures etc. involved in all the operations described above. This shall also include conveyance, delivery, handing , unloading, storing work etc.
- 3.8. The rate shall be for a unit of one sq. metre.

18.45. Distemping (two coats) with oid bound washable distemper of approved brand and manufacture and of shade required on undecorated wall surfaces to give an even shade, over and including a priming coat with alkali resistance primer of approved brand and manufacture after thoroughly brushing the surface free from mortar droppings and other foreign matter and also including preparing the surface even and sand papered smooth.

1.0. Materials and Workmanship

1.1. The *relevant* specifications of item No. 18.44 shall be followed except that the primer of alkali resistance primer of approved brand and manufacture shall be used instead of distemper primer.

2.0. Mode of measurements and payment

- 2.1. The mode of measurements and payment shall be the same as for item No. 18.44 above.
- 2.2. The rate shall be for a unit of One sq. metre*

18.46. Distemping (one coat) with oil bound washable distemper of approved brand of required shade on decorated wall surfaces to give an even shade after thoroughly brushing the surfaces clean of all grease, dirt, loose pieces of scales and also including distemping with oil bound washable distemper of preparing the surface even and smooth.

1.0. Materials and Workmanship

The relevant specifications of item No. 18.44 shall be followed except that the distemping with oil bound washable distemper shall be carried out on decorated wall surfaces in on coat.

2.0. Mode of measurement and payment

- 2.1. The relevant specification of item No. 18.44 shall be followed.
- 2.2. The rate shall be for a unit of one sq. metre.

18.47. Extra over item 18.44 to 18.46 for every subsequent coat of distemping with oil bound washable distemper of approved brand and manufacture,

1.0. Materials and Workmanship

1.1. The relevant specifications of item No..18.44 shall be followed except that this work is for providing extra coat of oil bound distemping over and above two coats of distemping.

2.0. Mode of measurements and payment

- 2.1. The relevant specification of item No. 18.44 shall be followed except that the extra rate shall be paid over and above the rate for every subsequent coats over two coats of item 18.44 and 18.46.
- 2.2. The rate shall be for a unit of one sq. metre.

18.48. Extra over item 18.44. and 18.45 for distemping with oil bound washable distemper on ceiling and sloping roofs.

1.0. Materials and Workmanship

The relevant specifications of item No. 18.44 shall be followed except that the distemping shall be carried out on ceiling/sloping roofs.

2.0. Mode of measurements and payment

2.1.1. The relevant specifications of item No. 18.44 shall be followed except that the extra rate shall be paid for carrying our distemping work on ceiling/s'opina roofs over and above the rate of item No. 18.44 and 18.45.

2.2. The rate shall be for a unit of one sq. metre.

18.49. Extra over item 18.46 and 18.47 for every subsequent coat of distemping on ceiling and sloping roofs.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 18.44 shall be followed except that the distemping work shall be carried out for subsequent coats over item No. 18.46 and 18.47.

2.0. Mode of measurements and payments

2.1. The relevant specifications of item No. 18.46 shall be followed except that the extra rate shall be paid for every subsequent coat of distemper applied over and above the rate of item No. 18.46 and 18.47. **18.51.**

Finishing wall with water proofing cement paint of an undecorated wall surfaces (two coats) to give an approved brand and manufacture and of required shape, even shade after thorough brushing the surface to remove. **1.0. Materials .1.1.** The water

shall conform to M-1. Cement water proofing paint shall conform to I.S. 5410-1969.

2.0. Workmanship

2.1. **Scaffolding** : The relevant specifications of item No. 18.11 shall be followed.

2.2. Preparation of surface :

The relevant specifications of item No. 18.11 shall be followed except that the word whitewash colourwash shall be substituted with water proofing cement paint. The surface shall be thoroughly wetted with clean water before cement water proofing paint is applied.

2.3. **Preparation of paint** : Portland cement paint shall be prepared by adding paint powder to water and stirring to obtain a thick paste, which shall then be diluted to a brush able consistency. Generally, equal volumes of paint powder and water make a satisfactory paint. In all cases, The manufacture's instructions shall be followed. The paint shall be mixed in such quantities as can be used up within an hour of mixing as otherwise the mixture will set and thickness, affecting flowing and finish. The lids of cement paint drums shall be kept tightly when not in use.

2.4. Application of Paint:

2.4.1. No painting shall be done when the paint is likely to be exposed to a temperature of below $V^{\circ}C$ within 48 hours after application.

2.4.2. When weather conditions are such as to cause to be carried out in the shadow as far as possible This helps the proper hardening of the paint film by keeping the surface moist for a longer period.

2.4.3. To maintain the uniform mixture and to prevent segregation, the paint shall be stirred frequently in the bucket.

2.4.4. For undecorated surfaces, the surface shall be treated with minimum two coats of water proof cement paint. Not less than 24 hours shall be allowed between two coats. Next coat shall not be started until the preceding coat has become sufficiently hard to resist marking by the brush being used. In hot dry weather, the preceding coat shall be slightly moistened before applying the subsequent coat.

2.4.5. The finished surface shall be even and uniform in shade, without patches, brush marks, paint drops etc.

2.4.6. The cement paint shall be applied with a brush with evenly short stiff hog or fiber bristles. The paint shall be brushed in uniform thickness and shall be free from excessively heavy brush marks. The lumps shall be brushed out.

2.4.7. Water proof cement paint shall not be applied on surface already treated with white wash, colour wash, distemper dry or oil bound varnishes, paint etc. It shall not be applied on gypsum, wood and metal surfaces.

2.5. **Curing** : Painted surfaces shall be sprinkled with water two or three times a day. This shall be done between coats and for at least two days following the final coat. The curing shall be started as soon as the paint has hardened so as not to be damaged by the sprinkling of water say about 12 hours after the application.

2.6. **Provisional measurement** shall be taken as per item No. 18.11 para 2.6. 3.0.

Mode of measurements and payment

3.1. The relevant specifications of item No. 18.11 shall be followed.

3.2. The rate shall be for 1 m^2 unit of Gne sq. metre.

18.53. Extra over item 18.51 for every subsequent coat of water proofing cement paint of approved brand and manufacture.

1.0. Materials and Workmanship

1.1. The relevant specifications of item NO. 18.51 shall be followed except that the work is for applying subsequent coat of cement water proofing paint.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.51 shall be followed except that the extra rate shall be paid for applying every subsequent coat of cement water proofing paint over and above the rate of item No. 18.51.

2.2. The rate shall be for a unit of One Sq. metre.

18.54. Extra over item 18.51 for finishing with cement paint on ceiling/sloping roofs.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 18.51. shall be followed except that the cement waterproofing paint shall applied on ceiling and sloping roofs.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.51 shall be followed except the extra shall be paid for applying cement water proofing paint on ceiling and sloping roofs, over and above the rate of item No. 18.51.

2.2. The rate shall be for a unit of One sq. Metre.

18.56. Extra over 18.53 for every subsequent coat of finishing with cement paint on ceiling and sloping roofs.

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 18.51 shall be followed except that the work shall be carried out for subsequent coat on ceiling and sloping roofs.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.53. shall be followed except that extra rate shall be paid for every subsequent coat applied with cement water proofing paint over and above the rate of item No. 18.53.

18.57. Wall painting (two coats) with plastic emulsion paint of approved brand of manufacture on undecorated wall surfaces to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand paper smooth.

1.0. Materials

Water shall be conform to M-1. The plastic emulsion shall conform to I.S.: 5411-1969 (part-I).

2.0. Workmanship

2.1. **Scaffolding** : The relevant specifications of item No. 18.11 para 2.1 shall be followed.

2.2. **Preparation of surface** : The relevant specification of item No. 18.44 para 2.2. shall be followed

2.3. Preparation of Mix :

This shall be done as per manufacture's instructions. The thinning of emulsion is to be done with water and not with turpentine The quantity of thinner to be added shall be as per manufacturer instructions.

2.4. Application :

2.4.1. Before pouring into small containers for use, the paint shall be stirred thoroughly in item container. When applying also, the paint shall be continuously stirred in the smaller container, so that its consistency is kept uniform.

2.4.2. The paint shall be laid on evenly and smoothly by means of crossing and laying off the crossing and consist of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite direction two or three times and then finally brushing lightly in direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of mouldings, etc. shall be left on the work. The full process of crossing and laying off will constitute one coat.

2.4.3. The paint shall be applied with brush or rollers. For undecorated surfaces, the surface shall be treated with minimum two coats of cement water proofing paint. The second or subsequent coat shall not

be started until the proceeding coat as become sufficiently hard to resist marking by brushing being used.

2.4.4. The surface on finishing shall present a flat velvety smooth finish. It shall be even and uniform in. shade without patches, brush marks, paint drops etc.

2.5. Precautions :

(a) Old brushes if they are to be used with emulsion paints, shall be completely dried of turpentine or oil paint by washing in warm soap water. Brushes shall be quickly washed in water immediately after use and kept immersed in water fusing break periods to prevent the paint from hardening on the brush.

(b) In the preparation of wall for plastic emulsion painting, no oil base petals shall be sued in filling cracks, holes etc.

(c) Splashes on floors etc. shall be cleaned out without delay as they will be difficult to remove after hardening.

<d) Washing or surfaces treated with emulsion pinct shall not be done within 3 to 4 weeks of application.

2.6. Protective payment: The relevant specifications of item No. 18.11 shall be followed.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 18.11 shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

18.59. Extra over item No. 18.57 for every subsequent coat of wall painting with plastic emulsion paint of approved brand.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 18.57 shall be followed except that the painting work shall be for subsequent coat of plastic emulsion paint.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.57 shall be followed except that the extra payment shall be done on ceiling and sloping roofs.

2.2. The rate shall be for a unit of One sq. metre.

18.60. Extra over item 18.57 for painting with plastic emulsion paint of approved brand on ceiling and sloping roofs.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 18.57 stull be followed except that the painting shall be done on ceiling and sloping roofs.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.57 shall be followed except that the extra payment shall be made for applying plastic emulsion paint on ceiling and sloping roofs over and the rate of item No. 18.57.

2.2. The rate shall be for a unit of One sq. metre.

18.62.Extra over item 18.59 for paint ceiling and sloping roofs.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 18.57 shall be followed except that the work for subsequent coat of plastic emulsion paint shall be carried out on ceiling and sloping roofs.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 18.57 shall be followed except that the extra rate shall be paid for carrying out painting on sloping roofs and ceiling with plastic emulsion paint over and above the rate of item No. 18.59.

2.2. The rate shall be for a unit of One sq. metre.

SECTION-19 Paintings & Polishing

19.7. Painting two coats (excluding priming coat) on new steel and other metal surfaces with enamel paint, brushing, interior to give an even shade including cleaning the surface of alt dirt, dust and other foreign matter.

1.0. Materials

The enamel pain shall conform to **M-44 B**.

2.0. Workmanship

2.1. General : The materials required for work of painting work shall be obtained directly from approved manufactures or approved dealer and brought to the site in maker's drums, kegs. etc. with seal unbroken.

2.1.2. All materials not in actual use shall be kept properly protected, lids of containers shall be kept closed and surface of paint in open or partially open containers covered with a thin layer of turpentine to prevent formation of skin. The materials which have become state or flat due to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into small containers. While applying also, the paint shall be continuously stirred in smaller container. No left over paint shall be-put back into stock tins. When not in use the containers shall be kept properly closed.

2.1.3. If for any reasons, things is necessary, the brand of thinner recommended by the manufacturer shall be used.

2.1.4. The surface to be painted shall be thoroughly cleaned and dusted. All rust, dirt and grease shall be thoroughly removed before painting is started. No painting on exterior or other exposed part o the work shall be carried out in wet, damp or otherwise unfavorable weather and all the surfaces shall be thoroughly dry before painting work is started.

2.2. Application of paint :

2.2.1. Brushing operations are to be adjusted to the spreading capacity advised by the manufacture of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite directions two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the iaying off is finished. The full process of crossing and laying off will constitute one coat.

2.2.2. Each coat shall be allowed to dry completely and lightly rubbed with very fine grade of sand paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in shade and shall be got approved from Engineer-in-charge before next coat is started.

2.2.3. Each coat the last shall be lightly rubbed down with sand paper of fine pumice stone and cleaned of dust before the next coat is applied. No hairmakrs from the brush of clogging of paint puddles in the corners of panels, angles of mouldings etc. shall be left on the work.

2.2.4. Special care shall be taken while painting over boits, nuts, rivets, overlaps etc. Approved best quality brushes shall be used.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 19.12 shall be followed for mode of measurements and payment. The rate is excluding priming coat.

3.4. The rate shall be for a unit of One sq. metre.

19.15.Extra over item No. 19.7 and 19.11 for every subsequent coat of paint.

1.0, Materials and Workmanship

1.1. The relevant specifications of item No. 19.7 shall be followed except that the work of painting shall be carried out for subsequent coat.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.7 shali be followed except that the extra rate shall be paid for every subsequent coat of paints applied over and above the rate of item No. 19.7 and 19.11.

2.2. The rate shall be for a unit of One sq. metre.

19.11. Painting one coats (excluding priming coat) on previously painted steel and other metal surface with enamel paint, brushing to give an even shade including cleaning the surface of all dirt, dust and other foreign matter.

1.0. Materials and Workmanship

1.1. The relevant specification of item No 197 shall be followed except that painting shall be carried out in one coat with enamel paint on previously painted steel and metal surface.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.7 shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

19.12. Applying priming coat over new steel and other metal surfaces after and including preparing the surface by thoroughly cleaning oil, grease, dirt and other foreign matter and secured with brushes, fine steel, wool scrapers and sand paper, with ready mixed priming paint, brushing red lead.

1.0. Materials

1.1. The ready mixed primer, brushing red shall conform to I.S. 102-1962.

1.2. The thinner (linsed oil) shall conform to I.S. 75-1973. If for any reason, thinning is necessary in case of ready mix paint the brand of thinner recommended by manufacture shall be used.

2.0. Workmanship

2.1. Preparation of surfaces : The surfaces painting shall be cleaned of all rust, scale, dirt and other foreign matter sticking to it with wire brushes, steel wool; scrapers, sand paper etc. This surface shall then be wiped finally with mineral turpentine which shall also remove grease and perspiration of hand marks. The surface shall then be allowed to dry.

2.2. Application of primer:

2.2.1. After the preparation of the surface, the priming coat shall be applied immediately. The brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of the particular primer. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing alternately in opposite directions, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.

2.2.2. During painting, every time, after the priming coat has been worked out of the brush bristles or after the brush has been unloaded, the bristles of the brush shall be opened up by striking the brush against portion of the unpainted surface with the end of the bristles, held at right angles to the surface, so that bristles thereafter will collect the correct amount of paint when dipped again in to a paint container. The primary coat shall be allowed to dry completely before painting is started.

2.2.3. No hair marks from the brush or clogging at paint puddles in the corner of panels angles of moulding etc. shall be left on the work.

2.2.4. Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.

2.2.5. The container when not in use shall be kept close and free from air so that paint does not thicken and also shall be kept guarded from dust.

3.0. Mode of measurements & payment

3.1. The new steel and other metal surface shall be measured under this item.

3.2. All the work shall be measured net in the decimal system, as executed subject to the following limits unless otherwise stated hereinafter.

(a) Dimensions shall be measured to the nearest 0.01 metre.

(b) Areas shall be worked out to the nearest 0.01 sq. metre.

3.3. No deductions shall be made for openings not exceeding 0.5 sq. mt. each and no addition shall be made for painting to beddings, mouldings, edges, jambs, soffits, sills etc. of such opening.

3.4. In case of fabricated structural steel and iron work, priming coat of paint shall be included with

frabation. In case of trusses if measured in sq. m. compound girders, stanchions, lattices, grader and similar work, actual area shall be measured in sq. m. and no extra shall be paid for painting on bolts heads, nuts, washers etc. No addition shall be made to the weight calculated for the purpose of measurements of steel and iron works for paint applied on shop or *at site*.

3.5. The different surfaces shall be grouped into one general item, areas of uneven surfaces being converted into equivalent plain areas in accordance with the table given as per Annexure-II for payment.

3.6. The rate shall be for a unit of One sq. metre.

19.19. Painting two coats (excluding priming coat) on new steel and other metal surfaces with synthetic enamel paints, brushing to give an even shade including cleaning the surface of all dirt, dust and other foreign matter.

1.0. Materials

Synthetic enamel paint shall conform to LS. 1932-1964.

2.0. Workmanship

2.1. The relevant specifications of item No. 19.7 shall be followed except that the painting shall be carried out with synthetic enamel paint.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 19.7 shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

19.21. Painting one coat (excluding priming coat) on previously painted steel and other metal surfaces with synthetic enamel paint brushing to give an even shade including cleaning the surface of all dirt, dust and other foreign matter.

1.0. Materials and Workmanship

2.0. The relevant specifications of item No. 19.19 shall be followed except that the painting shall be carried out on previously painted steel and other metal surfaces using synthetic enamel paint in one coat.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.19 shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

19.13.Extra over item No. 19.19 and 19.21 for every subsequent coat of paint.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 19.19 shall be followed except that the extra rate shall be paid for out for subsequent coat of paint.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 19.19 shall be followed except that the work shall be paid for applying subsequent coat of oil paint over and above the item No. 19.19 and 19.21.

19.50.(B) Painting two coat (excluding priming coat) on external of new rain water, soil, waste and vent pipe and fittings with ready mixed bituminous paint, brushing, black anticorrosive to give an even shade including cleaning of all dirt, dust and other foreign matter (75 mm. dia.)

1.0. Materials

1.1. Ready mixed bituminous paint shall conform to I.S. 158 : 1968.

2.0. Workmanship

2.1. The relevant specifications of item No. 19.7 shall be followed except that the painting work of external surfaces of 75 mm. dia rain water pipe, soil, waste, and vent pipe and fittings with ready mixed bituminous paint shall be carried out.

3.0. Mode of measurements and payment

3.1. The rate is excluding the cost of priming coat but including painting of all fittings coming in line.

3.2. The rate shall be for a unit of one running metre.

19.50.(C) Painting two coats (excluding priming coat) on external of rain water, soil, waste and vent pipe and fittings with ready mixed bituminous paint brushing black anticorrosive to give an even shade including cleaning off all dirt, dust and other foreign matter : 100 mm. dia.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 19.50 (B) shall be followed except that the pipes to be painted, on is 100 mm. dia. metre.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 19.50(B) shall be followed. The rate is excluding the cost of priming coat but including cost of painting all fittings coming in line.

2.2. The rate shall be for a unit of one running metre.

19.59.(B) Applying priming coat over wood and wood based surfaces after and including preparing the surface by thoroughly oil, grease, dirt and other foreign matter, sand papering and knotting : Ready mixed paint, brushing wood primer pink.

1.0. Materials

1.1. The ready mixed paint, brushing, wood primer pink shall conform to I.S. 3536-1966.

2.0. Workmanship**2.1. Preparation of Surfaces :**

2.2.1. All wood work shall be dry and free from any foreign matter incidental to building operations. Nails shall be punched well below the surface to provide a film key for stopping. Moldings shall be carefully smoothed with abrasive paper and projecting fibers shall be removed. Flat portions shall be smoothed off with abrasive paper used across the grain prior to painting and with the grain prior to staining or if the wood is to be left in its natural colour, wood work which is to be stained may be smoothed by scraping instead of by glass papering if so required.

2.2.2. Any knots, resinous, streaks or bluefish sap wood that are not large enough to justify cutting out shall be treated with two coats of pure shellac knotting applied thinly and extended about 25 mm. beyond the actual area requiring treatment.

2.2. Application of primer :

2.2.1. The relevant specifications of item No. 19.12(A) shall be followed for application of primer.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 19.12 shall be followed except that work done on wood and wood based surfaces shall be paid under this item.

3.2. The rate shall be for a unit of One sq. metre.

19.59.(D) Applying priming coat over new wood and wood based surface after and including preparing the surface by thoroughly cleaning oil, grease, dirt and other forging matter sand papering and knotting : Ready mixed paint brushing priming, for enamel.

1.0. Materials

1.1. The ready mixed paint for brushing priming for enamels wood shall conform to I.S. 106-1962.

2.0. Workmanship

2.1. The relevant specifications of item No. 19.59 (B) shall be followed except that ready mixed paint brushing priming for enamel shall be used instead of ready mixed paint brushing wood primer pink.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 19.12 shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

19.62.(B) Extra over item 59.59 (B) for every subsequent coat of priming coat. Ready mix paint, brushing wood primer work.

1.0. Materials and workmanship

1.1. The relevant specifications of item No. 19.59 (B) shall be followed except that the painting work shall be carried out with ready mix paint, brushing wood primer pink for subsequent coat.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.59(B) shall be followed except that the extra rate shall be paid for every subsequent coat applied with Ready mix paint, brushing wood primer pink over and above the rate of item No. 19.59 (B).

19.62,(D) Extra over item No. 19.59 for every subsequent coat of priming coat ready mix paint brushing priming for enamel.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 19.59(D) shall be followed except that the painting work shall be carried out with ready mix paint brushing priming for enamel.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.59(D) shall be followed except that the extra rate shall be paid for every subsequent coats of priming coat with ready mixed paint, brushing priming for enamel.

2.2. The rate shall be for a unit of One sq. metre.

19.71. Painting two coats (excluding priming coat) on new wood and wood based surfaces with enamel paint interior to give an even shade including the surface off all dist, dust and other foreign matter and papering and stopping.

1.0. Materials

1.1. The enamel paint shall conform to J.S. 133-1975.

2.0. Workmanship

2.1. The relevant specifications of 19.7 shall be followed for general and application of paint, except that the enamel paint shall be used for painting on new wood/wood based surfaces.

2.2. In painting doors and windows, the putty, round the glass panes also be painted but care shall be taken to see that no paint, stain etc. are left on the glass. Top of shutters and surfaces in similar hidden locations shall not be left out in painting.

2.0. Mode of measurements and payment

3.0. The relevant specifications of item No. 19.12 shall be followed, for mode of measurements and payments. The rate excludes cost of priming coat.

3.1. The rate shall be for a unit One sq. metre.

19.73. Painting one coat (excluding priming coat) on previously painted wood and wood based surfaces with enamel paint to give even shade including cleaning of all dirt, dust and other foreign matter.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 19.71 shall be followed except that the painting work shall be carried out on previously painted wood and wood based surfaces with enamel paint to give even shade in one coat.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.71 shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

19.75.Extra over item 19.71 and 19.73 for every subsequent coat of paint.

1.0. Materials and Workmanship

1.1. The relevant specifications of item 19.71 shall be followed except that painting work shall be for subsequent coat with paint.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.71 shall be followed except that the extra rate shall be paid.

2.2. The rate shall be for a unit of One sq. metre.

19.77. Painting two coats (excluding priming coat) on new wood and wood based surfaces with ready mixed paint brushing, oil gloss, semi-gloss, to give an even shade including cleaning of all dust, dirt and other foreign matter sand papering and stopping.

1.0. Materials

The ready mixed paint shall conform to M-44. The ready mixed paint brushing gloss, semi-gloss shall conform to I.S. 129-1962 and I.S. 117-1964.

2.0. Workmanship

2.1. The relevant specification of item 19.71 shall be followed for general and application of paint, except that ready mixed paint brushing, oil gloss and semi-gloss shall be used of approved colour and shade instead of enamel paint.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item 19.12 shall be followed for measurements and payment. The rate excludes cost of priming coat.

3.2. The rate shall be for a unit of One sq. metre.

19.84. Varnishing two coats (excluding priming coat) on new wood and wood based surfaces undercoating with flatting varnish and finishing coat with varnish to give an even surface cleared of all dirt, dust and sand papering so as to produce a smooth dry surface.

1.0. Materials

The varnish shall conform to I.S. 338-1962.

2.0. Mode of measurements & payment

2.1.1. The surface to be varnished shall be prepared to produce a smooth, dry neat surface. The previous coat of paint, if any shall be allowed to dry and rubbed down slightly whipped off and allowed to dry.

2.1.2. The operation of varnishing calls for careful attention to cleanliness. All dust and dirt shall be removed from the surface to be varnished and also from the neighborhood. If surfaces are dampened to avoid razing of dust, they shall be allowed to dry thoroughly before varnishing is commenced. Damp Exposure to extreme of heat or cold, or to a damp atmosphere will spoil the work.

2.1.3. In handling and applying varnish care should be taken to avoid forming forth or air bubbles. Brushes and containers shall be kept scrupulously clean.

2.2. Application

2.2.1. The varnish shall be applied liberally with a brush an spread evenly over a portion of the surface with a short light strokes to avoid froth in. It shall be allowed to flow out while the next section is being laid in. Excess varnish then be scrapped out of the brush and the first section be crossed, recrossed and the laid of lightly. Too much or too little varnish left on the surface will mar the appearance of the finish. The varnish, once it has begun to set, shall not be retouched. If a mistake is made, the varnish shall be removed and the work started afresh.

2.2.2. In case of two coats of varnish work, the first shall be hard drying, under coating or flatting varnish, this shall be allowed to dry hard and then be flatted down before applying the finishing coat. If two coats are applied, sufficient time shall be allowed between two coats.

2.2.3. When flat varnish is used for finishing a preparatory coat of hard drying under coating of flatting varnish shall be first applied and shall be allowed to harden thoroughly. It shall then be lightly rubbed down before the flat varnish is applied. Section of the work such as panels, shall be cut in clearly, so as to avoid any overlapping during applications, as this is likely to impart some measure, of gloss to partially dried area, worked up in lapping. On larger area the flat varnish shall be applied rapidly and the «dges of each patch applied shall not be allowed to set but shall be followed up whilst in free working conditions.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item 19.71 shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

19.86. Extra over item No. 19.84 for every subsequent coat of varnish.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No.19.84 shall be followed except that the work shall be for subsequenet coat of varnishing.

2.0. Mode Gf measurements & payment

2.1. The relevant specifications of item 19.84 shall be followed except that the extra rate shall be paid for every subsequent coat of varnishing done over and above the rate of item No. 19.84.

2.2. The rate shall be for a unit of One sq. metre.

19.87. Polishing with polish on new wood and wood based surface to give an even surface including cleaning the surface of all dirt, dust and sand papered smooth and including a coat of wood filler..

1.0. Materials

1.1. The French polish required tint and shade shall be prepared with the below mentioned ingredients and other necessary materials : (i) Chandra (ii) Shellac (ic) Pigment. The french polish so prepared shall conform to I.S. 348-1968.

2.0. Workmanship**2.1. Preparation of surface :**

2.1.1. All unevenness shall be rubbed down to smoothness with sand paper and the surface shall be well dusted. The pores in the wood shall be filled up with a filler made of a paste of whiting in water or methylated spirit (with a suitable pigment like burnt sienna or umber if required) : otherwise the French polish will get absorbed and a good gloss will be difficult to obtain.

2.2. Application

2.2.1. A pad of wooden cloth covered by a fine cloth shall be used to apply the polish. The pad shall be moistened with polish and rubbed hard on the surface in a series of overlapping circles applying the polish sparingly but uniformly over the entire area to give an even surface. A trace of linseed oil on the face of the pad may be added which shall facilitate this operation. The surface shall be allowed to dry and the remaining coats applied in the same way. To finish off, the pad shall be covered with a fresh pieces of clean fine cloth, slightly damped with methylated spirit and rubbed lightly and quickly with circular motions. The finished surface shall present a uniform texture and high loos.

3.0. Mode of measurements and payment

3.1. The relevant specification of item 19.12 shall be followed for mode of measurements and payment.

3.2. The rate includes cost of wood filler etc. complete.

3.3. The rate shall be for a unit of One sq. metre.

19.88. Polishing with french polish on previously polished wood and wood based surface to give an even surface including cleaning the surface of all dirt, dust and sand papered smooth including a coat of wood filler.

1.0. Materials & Workmanship

1.1. The relevant specifications of item No. 19.87 shall be followed that the french polish shall be applied on previously polished wood and wood based surface.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.87 shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

19.91. Applying wax polish on new wood work and wood based surfaces with bees wax polish in proportion 2 : 1.5 : 1 : 0.5 (2 Bees Wax : 1.5 linseed oil: 1 Turpentine oil : 0.5 Varnish by weight) by give an surface including cleaning the surface of all dist, dust and sand papered smooth.

1.0. Materials

Bee's Wax shall conform to I.S. : 1504-1968. Linseed oil shall conform to I.S. : 75-1967. Turpentine shall conform to I.S. 83-1950. Varnish shall conform in I.S. 337-1952.'

2.0. Workmanship**2.1. Preparation of bees wax :**

2.1.1. In case of bees wax it shall be prepared locally with following specification.

2.1.2. Purr bees wax free from paraffin on strain adulterants shall be used. The polish shall be prepared from mhture of bees wax, linseed oil, turpentine, and varnish in proportion 2:1:5:1:0.5 by weight. The bees wax and boiled linseed oil shall be heated over a slow fire, when the wax is completely dissolved the mixture shall be cooled till it is just warm and turpentine and varnish added to it in the required proportions and entire mixture shall be well stirred.

2.2. Preparation of surfaces :

2.2.1. The surface to be waxed shall be prepared to produce a smooth, dry, matt surface. Previous coat of paint of stain if any shall be allowed to dry and be rubbed down lightly wiped off and allowed to dry. all dust and dirt shall be removed from the surface to be waxed, and also from the neighborhood. Damp atmosphere and draughts shall be avoided, for waxing, normal dry day shall be chosen.

2.3. Application :

2.3.1. The polish shall be applied evenly with clean soft pad of cotton cloth in such a way that the surface is completely and fully covered. The surface shall then be rubbed continuously for half an hour. After well rubbing in one coat of wax polish, the work shall be covered with dust proof sheet. (Cloth for preventing dust falling on the work). Subsequent coat shall be applied after the surface is quite dry and shall be rubbed off. with soft flannel until the surface has assumed a uniform gloss and in dry showing no sign of stickiness.

2.3.2. The final polish depends on the amount of rubbing which shall be continuous and with uniform pressure with frequent changes in the direction.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 19.12 shall be followed.

3.2. The rate shall be for a unit of sq. metre.

19.92. Applying wax polish on previous wax polished wood and wood based surfaces with bees wax polish in proportion of 2:1.5:1:0.5 (2 Bees wax 1.5 linseed oil : 1 Turpentine : 0.5 Varnish by weight) to give an even surface including cleaning the surface of all dirt, dust and sand papered smooth.

1.0. Materials and workmanship

1.1. The relevant specifications of item No. 19.91 shall be followed except that the wax polishing shall be carried out on previously wax polished wood and wood based surfaces with bees wax polish.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.91 shall be followed.

2.2. The rate shall be for a unit of One sq. metre.

19.98, Coat tarring two coats on new wood and wood based surfaces using 0.15 and 0.12 liters of coal tar per sq. m. in the first and second coat respectively to give an even shade including cleaning of all dirt, dust and other foreign matter :

1.0. Material : The coal tar shall conform to I.S. 290-1961.

2.0. Workmanship

2.1. 200 cms. of unslaked lime shall be added to every liter of coal tar and heated till it begins to boil, it shall then be taken off the fire and kerosene oil added to it slowly the rate of 1 part kerosene oil and 6 parts or more parts of coal tar by volume and stirred thoroughly. The addition of lime is for preventing the tar from running.

2.2. Preparation of Surface :

2.2.1. The surface to be painted shall be allowed to dry sufficiently. Any existing fungus or mould growth shall be completely removed. All major cracks or defects in the plaster shall be cut out and made good. Before primer is applied holes and undulations shall be filled up with plaster of paris and rubbed smooth.

2.3. Application of paint:

2.3.1. The coal tar shall be applied as per relevant specifications of applying mixed paint item No. 19.7 except coat tarring is used instead of enamel paint.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 19.12 shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

19.119.(1) Writing letter of figures on any surface with black Japan paint (stops, commas, hyphens and the like not to be measured and paid for separately) : block (Letters/figures).

1.0. Materials

1.1. Ready mixed the black Japan paint shall conform to I.S. 341-1952.

2.0. Workmanship

2.1. The letters and figures shall be to the heights and widths as per approved drawings or as directed. These shall be stenciled or drawn in pencil and got approved before painting. They shall be of uniform size and finished neatly. The edges shall be straight or in pleasant smooth curves.

3.0. Mode of measurements and payment

3.1. Letters, figures and similar items etc. stops, commas, hyphens, and the like shall be deemed to be included in the item.

3.2. The rate per cm. height of letter shall hold good irrespective of width of the letters or figures or the thickness of the lettering.

3.3. The rate shall be for a unit of per letter cm. height.

19.119(11) Writing letter of figures on any surface with black Japan pain (stops, commas, hypes and the like not to be measured an" paid for separately ; Indian (Letters/figures).

1.0. Materials and Workmanship

The relevant specifications of item No. 19.119 (I) shall be followed except the writing of letter shall be Indian letters/figures.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.119 (I) shall be followed.

2.2. The rate shall be for a unit of per letter per cm. height.

19.126 (I) Painting lines, dashes, arrows, letters etc. on roads, air fields and like in two coats with road marking paint, brushing including cleaning the surface of all dirt, dust and other foreign matter: Over 10 cms. in width.

1.0. Materials

1.1. The road marking paint shall conform to I.S. 164-1951.

2.0. Workmanship

2.1. The relevant specifications item No. 19.119(1) shall be followed except that the painting lines, dashes, arrows and fetters on roads, air fields and like shall be carried out with road marking paint in two coats : over 10 cms. in width.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 19.119 (I) shall be followed.

3.2. The rate shall be for a unit of One sq. metre.

19.126.(11) Painting lines, dashes, arrows, letters etc. on roads, fields and like in two coats with road marking paint brushing including cleaning the surface of all dirt, dust and other foreign matter: Upto 10 cms. in width.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 19.126 (I) shall be followed except that painting work shall be upto 10 cms. width.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.119 (I) shall be followed.

2.2. The rate shall be for a unit of one running metre.

19.127.(A) Painting lines, dashes, arrows letters etc. on roads, airfields, and like in one coat with road marking paint, brushing including cleaning the surface of aU dirt, dust and cthsr foreign matter : over 10 cms. in width.

1.0. Materials and workmanship

The relevant specifications of item No. 19.126(1) shall be followed except that the painting shali be done in one coat over 10 cms. in v/width.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item No. 19.126 (I) shall be followed.

2.2. The rate shall be for a unit of One Sq. metre.

19.127. (B) Painting lines, dashes, arrows, letters etc, on roads, airfields and like in one coat with road marking paint, brushing including cleaning the surface of all dirt: dust and other foreign matter : Upto 10 cms. in width.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 19.126 (I) shall be followed except that the painting shall be done in one coat upon 10 cms. in width.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 19.126 (I) shall be followed.

2.2. The rate shall be for a unit of one running metre.

SECTION-20 Demolition & Dismantling

20.1.(i) Demolition and disposal of unserviceable materials with all leads and lifts : Lime Concrete.

1.0. Workmanship

1.1. The demolition shall consist of demolition of one or more parts of the building as specified or shown in the drawings. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.

1.2. The demolition shall always be planned before hand shall be done in reverse order to the one in which the structure was constructed. This scheme shall be got approved from the Engineer-in-charge before starting the work. This however will not absolve the contractor from (the responsibility of proper and safe demolition.

1.3. Necessary propping, shoring and under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining property.

1.4. Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep the dust nuisance down as and where necessary.

1.5 Dismantling shall be commenced in a systematic manner. All materials which are likely to be damaged by dropping from a height or demolishing roof, masonry etc. shall be carefully dismantled first. The dismantled articles shall be properly stacked as directed.

1.6. All materials obtained from demolition shall be the property of Government unless otherwise specified and shall be kept in safe custody until handed over to the Engineer-in-charge.

1.7. Any serviceable materials, obtained during dismantling or demolition shall be separated out and stacked properly as directed with all lead and lift. All unserviceable materials, rubbish etc., shall be stacked as directed by the Engineer-in-charge.

1.8. On completion of work, the site shall be cleared of all debris rubbish and cleaned as directed.

2.0. Mode of measurements and payment

2.1. Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as that employed for construction of work.

2.2. All work shall be measured in decimal system as fixed in its place subject to the following limits; unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked out to the nearest 0.01 sq. mt. (c) Cubical contents shall be worked out to the nearest 0.01 Cu.m.

2.3. The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property and providing temporary enclosures or portions where considered necessary.

2.4. The rate shall be for a unit of one cubic metre.

20.1.(ii) Demolition and disposal of unserviceable materials with all leads and lifts : Unreinforced cement concrete. 1.0.

Workmanship

The relevant specifications of item 20.1 (i) shall be followed except that the unreinforced cement concrete work is to be demolished instead of lime concrete.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 20.1 (i) shall be followed.

2.2. The rate shall be for a unit of one cubic metre.

2.3. Demolition including of serviceable materials and disposal of unserviceable materials with all leads and lifts : R.C.C. work.

1.0. Workmanship

1.1. The relevant specifications of item 20.1 (i) shall be followed except that demolition of R.C.C. work is to be done.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 20.1(i) shall be followed except that the demolition of reinforced concrete structure is to be done. The unserviceable materials shall be disposed of at all leads and lifts. The rate excludes scraping straightening of reinforcement but includes cutting of reinforcement.

2.2. The rate shall be for a unit of one cubic metre.

20.11(ii) Demolition of brick work and stone masonry including stacking of serviceable materials and disposal of unserviceable materials with all leads and lift : in lime mortar.**1.0. Workmanship**

1.1. The relevant specifications of item No. 20.1.(i) shall be followed except that demolition of brick or stone masonry in lime mortar is to be done.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 20.1(i) shall be followed except that the wall and independent piers or columns of brick or stone masonry shall be measured in cubic metres. All copings, corbels, combs and other projections shall be included with the wall measurements.

2.2. In measuring thickness of plastered walls, the thickness of plaster shall be included. The unserviceable materials shall be disposed off with all lead and lift. Ashlar face stones dressed stone etc., if required to be taken down intact shall be dismantled and measured separately in cubic metres.

2.3. The rate is exclusive of cleaning of bricks or stones. Honey comb works or hollow block walling shall be measured as solid.

2.4. The rate shall be for a unit of one cubic metre.

20.11. (hi) Demolition of brick work and stone masonry including stacking of serviceable materials and disposal of unserviceable materials with all leads and lift : in cement mortar.**1.0. Workmanship**

1.1. The relevant specifications of item 20.1.(i) shall be followed except demolition of brick or stone masonry in cement mortar is to be done.

2.0. Mode measurements and payment

2.1. The relevant specifications of item 20,11 (ii) shall be followed. The unserviceable materials shall be stacked as directed by Engineer-in-charge with all leads and lifts.

20.22. Demolition in terrace including stacking or serviceable materials and disposal of unserviceable materials with all lead and lift : Brick tiles covering**1.0. Materials**

1.1. The relevant specifications of item No. 20.1 (i) shall be followed except that the demolition or terrace brick tiles is to be done.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 20.1(i) shall be followed except that the brick tiles covering of terrace shall be measured in sq. mt. The unserviceable materials shall be stacked as directed at all leads and lifts

2.2. The rate shall be for a unit of one sq. metre.

20.23. Dismantling tiled or stone floors laid in mortar including stacking of serviceable materials and disposal of unserviceable materials with a if lead and lifts.**1.0." Workmanship**

1.1. The relevant specification of item 20.1 (i) shall be followed except the dismantling of tiled or stone floors laid on mortar shall be done. Dismantling implies carefully taking up or down or removing without damage. The articles shall be passed by hand where necessary and lowered and where these are fixed by nail, screws, bolts etc., these shall be taken out with proper tools.

2.0. Mode of measurements and payment

2.1. The supporting materials such as pints, beams etc. shall be separated. The relevant specifications of item No. 20.1 (i) shall be followed. The unserviceable materials shall be stacked with all leads and lifts.

2.2. The rate shall be for a unit of one sq. metre.

20,25. The disposal of unserviceable materials shall be as follows: -
 Dispose of unserviceable materials with all leads and lifts.

1.0. Materials

1.1. The specifications of item 20.1(i) shall be followed except that wooden floors shall be dismantled.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 20.1 (i) same shall be followed. The supporting members such as joints, beams etc. shall be measured separately. The rate shall include disposal of unserviceable materials as directed for and with all lead and lift

2.2. The rate shall be for a unit of one sq. metre.

20.27.(i) Dismantling of sheet including ridges, hips, valleys gutters etc. stacking of serviceable materials and disposal of unserviceable materials with leads with lifts : G.I. sheet roofing.**1.0. Materials**

1.1. The relevant specifications of item 20.1.(i) shall be followed except that G.I. sheet roofing shall be dismantled instead of concrete work.

2.0. Mode of measurements and payment

2.1. The area of G.I. sheets roofing shall be measured in sq. metre. Ridges, hips and valleys shall be girded and included with roof area. Corrugated and semi-corrugated surfaces shall be measured flat and not girthed.

2.2. Supporting members such as rafters, purlins, beams, joints, trusses etc. shall be measured separately.

2.3. The rate shall include disposal of unserviceable materials with all leads and lifts and stacking the serviceable materials as directed.

2.4. The rate shall be for a unit of one sq. metre.

20.27 (ii) Dismantling of sheet roofing including ridges, hips, valleys gutters etc. stacking of serviceable materials and disposal of unserviceable materials with all leads and lifts : A.C. Sheet roofing.**1.0. Workmanship**

1.1. The relevant specifications of item 20.27 (i) shall be followed except that dismantling work of AC sheet roofing is to be done.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 20.27 (i) shall be followed except that the A.C. sheets roofing shall be measured in this item.

2.2. The rate shall be for a unit of one sq. metre.

20.28. Dismantling Mangalore or country tile roofing with battens, boarding etc. including stacking of serviceable materials and disposal of unserviceable materials with all lead and lifts.**1.0. Workmanship**

1.1. The relevant specifications of item 20.1 (i) shall be followed except that the country tile roof or Mangalore roof shall be dismantled.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 20.1 (1) shall be followed.

2.2. The supporting members shall be measured separately.

2.3. The rate includes labour required for disposal of unserviceable item with all leads and lifts.

2.4. The rate shall be for a unit of one sq. metre.

20.30. Dismantling cement asbestos/hard board in ceiling or partition walls, wooden trellis work including frames, stacking of serviceable material and disposal of unserviceable materials with all leads and lifts.**1.0. Workmanship**

1.1. The relevant specifications of item 20.1 (i) shall be followed except that the cement asbestos hard board in ceiling or partition walls, wooden trellis, work etc. shall be dismantled.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 20.1 (i) shall be followed. The serviceable materials shall be stacked separately and the unserviceable materials shall be disposed off with leads and lifts.

2.2. The rate shall be for a unit of one sq. metre.

20.35 Dismantling of wood work including framed and fixed in frames, trusses including stacking the materials with all lead and lift.

1.0. Workmanship

1.1. The relevant specifications of item No. 20.1 (i) shall be followed except that the wood work, wrought framed and fixed in frames, trusses etc. shall be dismantled.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 20.1 (i) shall be followed.

2.2. The materials shall be stacked as and where directed with all leads and lifts.

2.3. The rate shall be for a unit of one cubic metre.

20.39. Dismantling expanded metal or I.R.C. fabric with necessary battens and beading including frame work and stacking the serviceable materials with all lead and lift. 1.0.

Workmanship

The relevant specifications of item No. 20.1 (i) shall be followed except that the dismantling of expanded metal or I.R.C. fabric shall be done

2.0. Mode of measurements & payment

2.1. The relevant specifications of in item No. 20.1 (i) shall be followed.

2.2. The rate shall be for a unit of one sq. metre.

20.43. Dismantling steel work including dismembering and stacking the materials with all leads and lifts.

1.0. Materials

1.1. The relevant specifications of item No. 20.1 (i) shall be followed except that the dismantling of steel work shall be carried out.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 20.1 (i) shall be followed.

2.2. The weight of the member shall be computed from standard table unless the actual weight can be readily determined.

2.3. Riveted works where rivets are required to be cut, the same shall be carried out under this item and nothing extra shall be paid.

2.4. In framed still gate, the weight of any covering material or filling such as iron sheets and expanded metal shall be added to the weight of the main articles if such covering is not ordered to be taken out separately.

2.5. The rate includes stacking the materials as and where directed with all leads and lifts.

2.6. The rate shall be for a unit of one Kg.

20.49(i) Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats, Architraves, hold fasts and other attachments etc. complete and stacking them within all leads & lift. No exceeding 3 sq. metres in area.

1.0. Workmanship

The relevant specifications of item No. 20.1 (i) shall be followed except that the door, windows, ventilators etc. (wood or steel) shutters including chowkhats, architraves, hold fasts and other attachments etc. are to be dismantled.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 20.1 (i) shall be followed.

2.2. The doors, windows, ventilator etc. not exceeding 3 sq. mt. in area (each) including shutters and chowkhats. Architraves, hold fasts and other attachments to frames etc. will be dismantled and measured under this item.

2.3. The rate includes stacking the serviceable materials as and where directed with all leads and lifts.

2.4. The rate shall be for a unit of One number.

20.49(11) Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats. Architraves, hold fasts and other attachments etc. complete and stacking them within all leads and lift : Exceeding 3 sq. metres in area.

1.0. Workmanship

The relevant specifications of item No. 20.49 (i) shall be followed except that the area of doors, windows, ventilators, exceeding 3 sq. metres are to be (sman'lud under this item.

2.0. Mode of measurements of payment

- 2.1. The relevant specifications of item No. 20.49 (l) above shall be followed.
 2.2. The rate shall be for a unit of One number.

20.51. Dismantling barber" wire fencing including making rolls and also including dismantling facing posts including all earth work, concrete in the base and making good the disturbed ground stacking useful materials as directed and disposing all the unserviceable materials with all leads and lifts.

1.0. Workmanship

The relevant specifications of item No. 20.1 (i) shall be followed, except that the dismantling of barbed wire fencing shall be carried out.

2.0. Mode of measurements & payment

- 2.1. The relevant specifications of item No. 20.1. (i) shall be followed.
 2.2. The rate includes making rolls of dismantled wires and including dismantling fencing posts, concrete work, in base and making good the disturbed ground etc. complete.
 2.3. The serviceable materials shall be stacked as and where directed and end unserviceable materials shall be disposed with all leads and lifts.
 2.4. The rate shall be for a unit of One running metre.

20.56. Dismantling {C.I. Pipes, G.S.W. Pipes and A.C. rain water pipes with fittings and clamps, including stacking the materials with all lead and lift, {for any dia. of pipe). 1.0.

Workmanship

The relevant specifications of item No. 20.23 shall be followed except that the dismantling work of pipes lines of C.I., G.S.W. & A.C. Pipes with fitting shall be carried out.

2.0. Mode of measurements and payment

- 2.1. The relevant specifications of No. 20 1 (i) shall be followed.
 2.2. Water pipe lines, including rain water pipes, with clamps and specials, swear pipe line's, (Salt glazed v/are or concrete) etc. shall be measured in running metre inclusive of joints. (The measurements shall be taken along the centre line of pipe and fittings).
 2.3. The rate shall be for a unit of One running metre.

20.00.I. Dismantling sanitary fittings like wash bain, W.C. Pan, Indian & European Type flushing tank, etc. including stacking the materials with all lead lift. 1.0.

Workmanship

The relevant specifications of item No. 23.23 shall be follow -?d except that the dismantling work of sanitary fittings such as wash basin: W.C. Pan (aU type of pans), f ushing tanks etc. shall be carried out.

2.0. Mode of measurements & payment

- 2.1. The relevant specifications of item No. 20.1 (i) shall followed.
 2.2. The rate shall be for a unit of one number.

20.00.2. Scraping oil paint steel and other metal surfaces and making the surface even {with hand scraping).

1.0. Workmanship

The old paint from steei and other surface shall be scraped thoroughly with hand scraper followed by wire Drushing (first with coarse *and* then with fine brushes) and finally sand papering with coarse and paper (No.3) steel wood (No.2) or emery paper (No.3) or with emery clothes. This shall lhen be wiped finaiiy with mineral turpentine to remove grease and perspiration of hand marks etc. and allowed to dry. The surface shall be mado even and smooth.

2.0. Mode of measurements and payment

- 2.1. The work shaii be measured in actual area of work done.
 2.3. The rate shaii he for -'< unit of one sq. metre.

SECTION-21 Repairs to Buildings

21.8. Providing and fixing M.S. fan clamps of shape and size as specified in existing R.C.-C. slab including cutting chase and making good.

1.0. Materials

1.1. M.S. Bar shall conform to M-18.

2.0. Workmanship

2.1. The shape and size of fan clamp shall be directed.

2.2. The fixing M.S. fan clamp in existing R.C.C. slab a chase of size 150 mm. x 75 mm. shall be cut from the ceiling so as to expose the reinforcement and upto 25 mm. clear round the reinforcement bar. This shall be done without any damage to adjoining portion of ceiling. The two arms of the ends of the clamp shall be passed through the space over reinforcement bar from the bottom of the slab. Then the two arms shall be bent down about 15 mm. by means of crow bar. The clamp shall be held in position and the chase in ceiling filled with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size). The ceiling shall be then finished to match the existing surface and properly cured.

3.0. Mode of measurements and payment

3.1. The rate includes cost of all materials and labour required for satisfactory completion of this item as described above,

3.2. The rate shall be for a unit of One number.

21.23. Cutting our cracks, of roof terrace to V. section, Cleaning out, wetting, grouting with cement and sand slurry 1 : 3 (1 cement : 3 sand)

1.0. Materials

(1) Water shall conform to M-1. (2) Cement shall conform to M-3. (3) Sand shall conform to M-6.

2.0. Workmanship

2.1, The cracks shall be cleaned out and trimmed to V shaped cuts at least 6 mm wide on top. The cracks shall be cleaned off and then cracks shall be thoroughly flooded with water, water allowed to a soak in cracks, and then grouted with cement and sand slurry in proportion 1:3. The required cracks shall be cured atleast 7 days.

3.0. Mode of measurements and payment

3.1. The rate shall includes cost of all materials and labour required for satisfactory completion of item as described above,

3.2. The rate shall be for a unit of One running metre.

21.24. Cutting out cracks of roof terrace to V-Section out, and filling solidly with a hot mixtures of bitumen and clean dry sand (1:1 weight).

1.0. Materials

(1) Bitumen shall be 85/25 penetration (2) Sand shall conform to M-6.

2.0. Workmanship

2.1. The relevant specifications of item No. 21.23 shall be followed for opening cracks and cleaning.

2.2. The cracks shall be absolutely dried and cleaned and filled solidly with a hot mixtures of 85/25 penetration and sand in ratio of 1:1 by weight. The filler shall be well filled into cracks with the edges of a trowel and left flush with surface of roof. Repaired cracks shall cause no ridges the direction of the slope of roof.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 21.23 shall be followed.

3.2. The rate shall be for a unit of One running metre.

SECTION-22 Misc.

Building Items

22.20. Providing and fixing 1.20 metre fencing with 2 metre long M.S. angle posts 40 mm. x 40 mm. x 6 mm. and oil painting 3 coats fixed at 2.5 M C/C with five horizontal lines, and two diagonals of galvanised steel barbed wire weighing 9.38 Kg. per 100 metre. (Min.) stained and fixed to posts with G.I. staples including fixing the posts in ground with 0.5 x 0.5 x 0.5 M block in C.C. 1:5:10 (cement : 5 sand : 10 grade-d brick aggregate 40 mm. nominal size) etc. complete.

1.0. Materials

(1) Water shall conform to M-1. (2) Cement shall conform to M-3. (3) Sand shall conform to M-6. (4) Brick bats aggregate shall conform to M-14. (5) Oil paint shall conform to M-44. (6) Barbed wire shall conform to M-78.

2.0. Workmanship

2.1. The pits of the size 0.5x0.5 m. x 0.5 shall first be excavated, true to line and level to receive the post at 2.5 C/C. The relevant specifications of item 4 00.1 shall be followed for excavation work.

2.2. The pits shall be filled with a layer 0.15 m. thick with lean concrete 1:5:10 (1 cement: 5 sand : 10 graded brick bat aggregate 40 mm. nominal size). The M.S. angles 40 mm. x 40 mm. x 6 mm shall be filled in with lean concrete 1:5:10 and rammed properly so as to form total 0.5 m. x 0.5 m. x 0.5 m. concrete block. The concrete shall be cured for 7 days to allow it to set.

2.3. The barbed wire shall be stretched and fixed in 5 horizontal rows and two diagonals. The bottom row shall be 140 mm. above ground and the rest at 125 mm. centre to centre. The diagonal shall be stretched between adjacent post from top wire of one post to the bottom wire of 2nd post. The wires shall be fixed to posts by means of staples. The M.S. Angle posts shall be painted with 3 coats of oil paint of approved tint and shade.

3.0. Mode of measurements and payment

3.1. The work shall be measured for the finished work from centre to centre of the posts.

3.2. The rate shall include the cost of labour and materials involved in the operations described above.

3.3. The rate shall be for a unit of One running metre.

22.00.1. Constn. of B.B. masonry paniara 23 cm x 75 mm wall including fixing precast R.C.C. marble Mosaic (Terrazzo) slab of 75 mm. thickness on top and smooth finishing to walls in cement plaster in CM. 1:3 curing etc. complete including drainage out, waste water arrangements.

1.0. Materials

(1) Water shall conform to M-1. (2) Cement shall conform to M-3. (3) Sand shall conform to M-6, (4) Burnt bricks shall conform to M-15. (5) Precast marble mosaic terrazzo paniara of 75 mm thickness shall be of best quality. The width of paniara shall be directed.

2.0. Workmanship

2.1. The brick masonry shall be constructed for paniara for the size as directed in CM. 1 :6. The thickness of wall shall be 23 cms, thick and height shall be 75 cms. The relevant specifications of B.B. masonry at item 6.13 (b) shall be followed for B.B. masonry work.

2.2. The B.B. masonry shall be covered with precast marble terrazzo paniara at top, of width and length as specified or as directed. The terrazzo mosaic paniara shall be 75 mm. thickness.

2.3. The whole masonry work shall be finished smooth with CM. 1:3 on both sides. The relevant specifications of item No. 17.59 (l) shall be followed.

2.4. The drainage outlet and water arrangement shall be made as directed.

3.0. Mode of measurements and payment

3.1. The work shall be measured for the finished work.

3.2. The rate shall include the cost of labour and materials involved in the operations described above.

3.3. The rate shall be for a unit of One Running metre.

22.00.2. Constructing a chowkadi with C.C. over 12 cm. thick B.B. masonry in front and dwarf wall 1 M high and 23 cms. thick cement plaster to masonry in CM. (1:3) and cement concrete flooring in 1:2:4 with 5 cm. dia. A.C. Drain pipe etc. complete.

1.0. Materials

1.1. Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Burnt bricks shall conform to M-15. Stone aggregate 20 mm. nominal size shall conform to M-2. (a) A.C. Drain pipe of 5 cms. dia shall conform to M-74.

2.0. Workmanship

2.1. The chowkadi shall be constructed of specified size and as directed. The slab shall be cast on B.B. masonry wall 12 cms. thick and dwarf wall 1 M hkjh and 23 cms, thick shall be constructed in proportion of CM. 1:6. The relevant specifications of item 6.3. (I) shall be followed for masonry partition work and 5 4.1. (c) shall be followed for reinforced concrete work.

2.2. The whole masonry work shall be finished with cement mortar 1:3 and finished smooth. The relevant specifications of item No. 17.59 (I) shall be followed for plastering work,.

2.3. The A.C. pipe of 5 cms. dia shall be fixed as drainage pipe. The bottom shall be finished with C.C. 1:2:4 finished with cement slurry.

3.0. Mode of measurements and payment

3.1. The work shall be measured for finished work.

3.2. The rate includes cost of all materials, labour etc. required for carrying out satisfactory completion of work.

3.3. The rate shall be for a unit of one square metre.

22 00.3.(1) Constructing cooking platform 60 cm. width and 70 cm. height resting on B.B. Masonry wall 23 cms. thick in CM. 1:6 with fixing of precast 1:2:4. R.C.c. 0.0 M. thick slab with marble mosaic chips set in GM. (Terrazzo) with plastering on exposed faces to wall in CM. 1:4 etc. complete.

1.0. Materials

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Burnt brick shall conform to M-15. Marble Mosaic chips shall conform to M-46. Stone aggregate 20 mm. nominal size shall conform to M-12. (a) M.S. Bars shall conform to M-18.

2.0. Workmanship

2.1. The cooking platform of size as directed shall be constructed in 60 cms. width and 70 cms. height. The brick masonry wall in CM. 1 :6 shall be constructed in 23 cms. thickness upto full depth. The relevant specifications of item 6.13 (B) shall be followed for masonry work.

2.2. The R.C.C slab of 8 cms. thickness and of adequate design and size shall be precast and the same shall be put up on the B.B. masonry work.

2.3. The top and exposed sides of the R.C.C slab shall be finished with marble mosaic terrazzo 8 mm. thick with required colour pigment. The work of terrazzo shall be carried out as per relevant specifications of item 14.4(E).

2.4. The whole masonry work shall be finished with cement mortar in CM. 1 :4. The relevant specification of item 17.59 (II) shall be followed.

3.0. Mode of measurements and payments

3.1. The work of cooking platform shall be measured for finished work.

3.2. The rate includes cost of all labour and materials, etc. required for satisfactory completion of this item as described above.

3.3. The rate shall be for a unit of One running metre.

22.00.3.(II) Constructing cooking platform of 60 cm. width and 70 cms. height resting on B.B. masonry walls 23 cm thick in CM. 1:1 with fixing black kapada stone surface laid on precast R.C.C. slab 1:2:4 with plastering on exposed faces to wall in CM. 1:4 etc. complete.

1.0. Materials and Workmanship

1.1. The relevant specification of item No. 22.00.3 (I) shall be followed except that the cooking platform shall be constructed by providing black kapada stone of 25 mm. to 30 mm. thickness on precast R.C.C. 1:2:4 slab 8 cms. thick. The black stone shall be provided in single piece upto 1.8 M in length and specified width. All the exposed edges of stone shall be machine cut.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item 22.00.3.(1) shall be followed.

2.2. The rate includes providing machine cut edges on exposed face of kapada stone.

2.3. The rate shall be for a unit of One running metre.

22.00.4. Providing and fixing Rajula stone 75 mm. thick 60 cm x 45 cms. size including fixing in cement mortar as directed. 1.0.

Materials

Water shall conform to M-1. Cement mortar shall conform to M-11. Rajula stone of specified, size shall be of best quality and free from any defects. The stone shall not be less than 75 mm in thickness.

2.0. Workmanship

2.1. The Rajula stone of size 60 x 45 cms. size shall be fixed as and where directed in cement mortar in 1:3. All the edges of the stone shall be fixed with cement mortar in CM. 1:3 and sloped at 45° and finished smooth. The work shall be cured for 7 days after fixing.

3.0. Mode of measurements and payment

- 3.1.** The work shall be measured for finished work.
3.2. The rate includes cost of all labour and materials required for satisfactory completion of this item.
3.3. The rate shall be for a unit of one number.

22.00.5. Providing and laying Bilimora type brick facing in CM. 1:1 laid over bedding of cement mortar 1:3 (13 mm. thickness) including cleaning, watering, scaffolding etc. complete.**1.0. Materials**

1.1". Water shall conform to M-1. Cement mortar of specified proportion shall conform to M-11. Bilimora type bricks shall be approved before collection the same on site.

2.0. Workmanship

2.1. The surface on which the Bilimora type bricks is to be provided shall be cleaned of all dust, dirt, etc. and finished with CM 1:3 in 13 mm. thickness. The relevant specifications of item 17.59 (I) shall be followed except that the thickness of finishing shall be 13 mm. The top surface shall be roughened by wire brushes to give proper grip to the tiles to be fixed.

2.2. The Bilimora type bricks shall be fixed with CM 1:1. The tiles shall be properly wetted before fixing. The horizontal and vertical joints shall be maintained in true line and level by providing 12 mm or 20 mm. sq. bars as directed. The tiles shall be tamped by trowel so that there shall not be any hollows left behind the tiles.

2.3. The tiles shall be cut to the required size on ends of at top bottom of beams in best workman like manner.

2.4. The whole work shall be cured for 7 days.

3.0. Mode of measurements and payment

- 3.1.** The work shall be measured as per relevant specification of item No. 17.58(1)
3.2. The rate includes cost of all materials, wastage etc. occurring due to cutting of tiles and ends as top and bottom of beams etc. including base coat.
3.3. The rate shall be for unit of One sq. metre.

22.00.6. Providing and fixing teakwood rail of 60 mm. x 20 mm. size and 50 cms. length incl. 3 coats of oil paint to wood work with set of 3 pegs. 1.0. Materials :

Teak wood battens of specified size shall conform to M-29. Oil paint shall conform to M-44. Wall pegs of aluminium 3 Nos. of approved quality and make shall be provided.

2.0. Workmanship

2.1. The teakwood battens of size 60 mm. x 20 mm. and 50 cms. long be planed on all sides. The anodised aluminium wall pegs of approved make shall be fixed on wooden batten prepared with screws as directed. The wall pegs unit shall be fixed on wall with wooden gutties and screws as directed. The wooden battens shall be painted with 3 coats of ready mix paint of approved colour and shade.

3.0. Mode of measurements and payment

- 3.1.** The work shall be measured for finished work.
3.2. The rate shall be for a unit of one number.

22.00.7. Treating the bottom and sides (upto a height of 300 mm.) of the excavations made for the masonry foundations and basement with chemical emulsion at the rate of 5 liters per Sq. metre of the surface area. 1.0. Materials :

The chemicals used for the soil treatment shall be only one of the following with concentration shown against each in aqueous emulsion.

	Chemicals	Concentration
1-	Aidrin	0.50% (by weight)
2.	Heptachlor	0.50% (by weight)
3.	Chlordane	1.00% (by weight)

2.0. Workmanship

- 2.1. The chemicals barrier shall be complete and continuous under whole of the structure to be protected.
- 2.2. The bottom and the sides of foundations upto a height of 30 cms. from the bottom of excavation made for masonry foundation and for basement column pits shall be treated with the chemical emulsion at the rate 5 liters/ sq. metre of the surface area.
- 2.3. The chemical treatment shall be carried out when the surfaces is quite dry. Chemical treatment shall not be carried out when it is raining or when the soil wet with rain or sub soil water.
- 2.4. Once formed, treated soil berries shall be not disturbed, if by chance, treated soil barriers are disturbed, immediate steps shall be taken to restore the continuing and compactness of the barrier system
- 2.5. The treatment against termite infection shall remain fully effective for a period not less than 10 years from date of issue of the final certificate fo completion of work. If at any time during this period, any defects in treatment are revealed or any evidence of infection in any part of the building or structure is noticed, the contractor shall be rectify the concerned defects within 14 dayss on receipt of notice from Engineer-in-charge. On contractor's failure to do so, the Engineer-in-charge amy get the same rectified through any other agency at controactor's rissk and cost, and decision of Engineer-in-charge as to the cost payable by contractor for the same shall be final and binding to the contractor.
- 2.6. Aguarantee bond on appropriately stamped paper shall be given by the contractor to the department in the manner and form prescribed below :

FORM OF GUARANTEE BOND

I/We..... (Contractor) hereby guarantte that work will remain uneffected an will not be innay way damaged by termite or any other germs of similar types, for a period fof 10 years after completion of the work of anti-termite as per the terms and conditions of the contract and or damage that might be caused on account of termite and or other similar type of germs and hereby Guaranteees to make good any loss of damages suffered by the Government of Gujarat and further guarantee to redo effective work without claiming any extra cost."

- 2.7. This guarantee shall remain in force for the period of 10 years from the completion of the work under the contract and it shall remain binding to the contractor for period of 10 years.
- 2.8. The deposit at the rate of 50% of the cost of this item from the running arid final bills shall be recovered and retained for the first one year after completion of the work and 10% shall be retained for the balance of guarantee period and shall be refunded oniy after the completion of the guarantee period.

3.0. Mode of measurements & payment

- 3.1. The length and breadth shall be measured correct to a cm. as per the dimensions of sanctioned plans. No deduction shall be made nor extra paid for any opening for pipes etc. upto 0.1.sq. mt. The rate shall include the cost of aii labour and materials required for the operation involved for satisfactory completion of this item. The sides of the trenches 30 cms, each side and bottom shall be measured under this item.
- 3.2. The rate shall be for a unit of One sq. metre.

22.00.8. Treating the backfill immediately in contact with foundation structure with chemical emulsion at the rate 7.5 liters per sq. mt. of vertical surface of the sub structure of each side {In case of R.C.C. columns, breams and R.C.C. basement walls, treating the sides of 50 cms. from ground level with chemical emulsion at the rate of 7.5 Liters/sq. metre).

1.0. Materials

- 1.1. The specifications of the item 22.00.7. shall be followed.

2.0. Workmanship

2.1. After masonry foundations and retaining walls of basement come up , the backfill immediate in contact with foundation shall be treated with the chemical emulsion at the rate of 7.5 liters per sq. m. of the vertical surface of the sub structure for each side. The filling of earth is usually carried out in layers and the treatment shall be directed towards the concrete or masonry surfaces of the columns and walls so that the , earth contact with these surfaces is well treated with chemical.

2.2. In case of R.C.C framed structure with columns and plinth beams and R.C.C. basements the treatments shall start at the depth of 50 cms. below ground level from this depth backfill around the columns, beams, and R.C.C. basement walls shall be treated at 7.5 lit/sq. m. of vertical surface. The relevant specifications shall be followed same as item 22.00.7.

3.0. Woe!-; of measurements and payment

- 3.1. The i,ea of substructure in contact with backfill to be measured. The length and breadth shall be measured correct to a cm. dimension of sanctioned plans for the surfaces in contact with backfill.

- 3.2. No deduction shall be made nor extra paid for any opening for pipes, etc. upto 0.1 sq. m.
- 3.3. The rate includes cost of all labour, materials required for satisfactory completion of this item.
- 3.4. The rate shall be for a unit of One sq. metre.

22.00.9. Treating the top surface of the plinth filling with chemical emulsion at rate of 5 liters sq. metre, before the sand bed or sub grade rs laid. 1.0. Materials

The relevant specifications of item 22.00.7. shall be followed.

2.0. Workmanship

2.1. The relevant specifications of item 22.00.7 shall be followed that the top surface of the consolidated earth within the walls, shall be treated with the chemical emulsion at the rate of 5 liters/sq. metre of the surface before the sand bed or sub-grade is laid. If the filled earth has been well rammed and the surface does not allow the emulsion to seep through, holes upto 50 to 75 mm. deep at 150 mm. centers both ways may be made with 12 mm. dia. M.S. road on the surface to facilitate absorption of the emulsion.

3.0. Mode of measurements & payment

3.1. The length and breadth shall be measured clean for the area actually treated.

3.2. No deduction shall be made nor extra paid for any opening for pipes, etc. upto 0.1 sq. m. 3.2.

The rate shall be for a unit of One sq. metre.

22.00.10. Treating the junctions of wall and floor area with chemical emulsion at the rate of 7.5 liter/sq. mt. by making holes at junction of walls, and columns, with the floor before laying sub grade to a depth to 15 cms. by making holes.

1.0. materials : The relevant specifications of item 22.00.7 shall be followed.

2.0. Workmanship

2.1. The relevant specifications of item 22.00.7 shall be followed except that the junction of walls columns with floor shall be treated with the chemical emulsion at the rate 7.5 liters/sq. metre. Special care shall be taken to establish continuity of the vertical chemical barrier on inner wall surface form the ground level be taken to establish continuity of the vertical chemical berries on inner wall surfaces form the ground level upto the level of filled earth surface. To achieve this, a small channel 3 x ? cm. shall be made at the junctions of the wall and columns with floor (before laying the sub 2 grade) and road holes made in the channels upto the ground level 15 cms. apart and the rod moved backs ward and forward to breakup the earth an chemical emulsion poured along the channel a the rate of 7.5 liters per sq. m. of the vertical wall or column surfaces of sub-structures so as to soak the soil right to the bottom. The soil should be tamped back into place after this operation.

3.0. Mode of measurements and payment

3.1. The relevant specifications of the item 22.00.7. shall be followed.

3.2. The vertical area of sub-structure in contact with filled up earth above ground level to top filled up earth shall be measured for payment.

3.3. The rate shall be for a unit of One sq. metre.

22.00.11. Treating the earth along the external perimeter of the building by making holes 15 cms., apart upto a depth of 30 cms. with "hemical emulsion at the Tate of 7.5 liters per sq. metre along the wall.

1.0. Materials : The relevant specification of item 22.0 7 shall be followed.

2.0. Workmanship

2.1. The relevant specifications of the item 22.00.7. shall be followed except that the external perimeter of the building shall be treated with chemical emulsions. After building is complete, the earth along the external perimeter of the building should be rodded at intervals of 15 cms. and to a depth of 30 cms. The rods shall be moved backward and forward parallel to the wall to breakup the earth and chemical emulsion poured along the wall at the rate of 7.5 liters per sq. metre of vertical surfaces. After the treatment the earth shall be tamped back into place the earth out side of the building should be graded on compaction of building, this treatment shall be carried out on the completion of such grading. In event of filling being more than 30 cms. the externa! perimeter and treatment shall be extended to the fuil depth of filling upto ground level so as to ensure continuity of the chemical barrier.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 22.00.7 shall be followed.

3.2. The vertical surfaces area so sub-structure 30 cms. in depth from finished ground level in external periphery only shall be measured and paid under this item. The depth of wail treated under back filled shall not be included in this item.

3.3. The rate shall be for a unit of One sq. metre.

22.0.12. Providing treatment along outside of foundation using chemical emulsion at 7.5 liters per sq. m. of vertical surface (for each side) of sub-structure. 1.0. Materials : The chemical used for the soil treatment shall be any one of the following with concentration shown against each in aqueous emulsion :

	<u>Chemicals</u>	<u>Concentration</u>
1.	Aldrin	0.50% (by weight)
2-	Heptachlor	0.50% (by weight)
3.	Chlordane	1.0% (by weight)

2.0. Workmanship

2.1. The surface of consolidated earth around the existing building shall be treated with chemical emulsion at the rate 7 5 liters/sq. m. of vertical surface of sub-structure. The minimum height to substructure shall be considered 60 cms. for treatment. If the earth along the perimeter does not allow emulsion to seep through, holes upto 300 mm. deep at 150 mm. centers both ways be made by 12 mm. dia. mild steel rod on the surface to facilitate saturation of the soil with chemical emulsion.

2.2. The chemical barrier shall be complete and continuous under whole on the structure to be protected.

2.3. The chemical treatment shall be carried out when the surface quite dry. Chemical treatment shall not be carried out when it is raining or when the soil is wet with rain or sub soil water.

3.0. Mode of measurements and payment

3.1. The length shall be measured along the periphery of the sub-structure. The depth shall be taken 0.60 m.

3.2. No deduction shall be made not extra paid for any opening for pipes etc. upto 0.1 sq. m.

3.3. The rate includes cost of all labour and material required for the operations involved for satisfactory completion of this item.

3.4. The rate shall be for a unit of One sq. metre.

22.0.13. Providing treatment along external wall perimeter below concrete or masonry apron using chemical at 5. lit/linear including drilling and plugging etc. 1.0.

Materials : The relevant specifications of item No. 22.0.12 shall be followed.

2.0. Workmanship

2.1. The relevant specification of item No. 22.0.12 shall be followed except that the treatment shall be carried out along external wall perimeter below concrete or masonry apron, using chemical at rate of 5 lit/ running metre.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 22.0.12 shall be followed.

3.2. The rate including drilling and plugging holes in apron etc. complete.

3.3. The rate shall be for a unit of One running metre.

22.0.14 Treatment of soil below existing floor using chemical at 1 liter per hole at 300 mm. a part including drilling plugging holes etc. 1.0. Materials : The relevant

specifications of item No. 22.0.12. shall be followed.

2.0. Workmanship

2.1. The relevant specifications of item No. 22.00.9. shall be followed except that the termite control treatment shall be carried out in soil below existing floors.

2.2. The holes of 12 mm. dia rod shall be drilled in floor upto 150 mm- depth at 300 mm. part both ways. The chemical shall be then injected with pressure at the rate of 1 liters/hole of the surface area.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item 22.0.9 shall be followed.

3.2. The rate shall includes cost of drilling holes and plugging.

3.3. The rate shall be for a unit of One sq. metre.

22.0.15. Treatment of voids in masonry using chemical at 1 Lit/hole at 300 mm. apart including drilling holes and plugging.

1.0. Materials : The relevant specifications of item 22.0.12 shall be followed.

2.0. Workmanship

2.1. The walls affected by termite shall be cleaned off all live forms binding inside and the holes of voids in masonry wall surface shall be treated by chemical emulsion at rat 1 Lit. hole. The holes in cracks in surface of wall shall be drilled at 300 mm. apart.

3.0. Mode of measurement & payment

3.1. The rate shall be for a unit of One number of voids treated.

22.0.16. Treatment to wood work by chemical emulsion in oil or kerosine based including 6 mm. dia downward slanted holes 150 mm. C/C. and plugging the same with cement mortar.

1.0. **Materials** : The relevant specifications of item No. 22. 00.7 shall be followed.

2.0. Workmanship

2.1. The wood work effected by Ants shall be cleaned of lives form hinding inside. The whole wood surface shall be then treated with oil or kerosene based chemical emulsion. The holes in 6 mm. dia. shall be drilled slanted downwards at 150 mm. centres to centres and chemical emulsion shall be poured into holes by means of funnels specifically prepared for the same and allowed to seep. After finales become empty, another dose of chemicals shall be poured in them. This process shall be done repetately till the whole wood work is fully saturated with chemical.

2.2. The holes drilled in wood work shall be filled in with putty and other similar materials as directed and the whole wooden surface shall be made good as before.

3.0. Mode of measurements & payment

3.1. The work shall be measured for the finished work in sq. metre, including frame.

3.2. The out of frame shall be measured as width ad form top of flooring to top of frame shall be as height. This area includes for treating frame and shutters both.

3.3. The rate includes cost of all labours and materials, required for satisfactory completion of this item.

3.4. The rate includes drilling holes pfugging the same after treatment completed and making good as before.

3.5. The rate shall be' for a unit One sq. metre.

SECTION-23 Water Supply, Plumbing and Sanitary Fittings

23.2. Providing and fixing to wall, ceiling and floor galvanised mild steel tube (Medium grade) of the following nominal bore, tube fittings and clamps including making good the wall ceiling and floor (A) 15 mm. dia (B) 20 mm. dia (C) 25 mm. (D) 32 mm. (E) 40 mm. (F) 50 mm.

1.0. Materials

- 1.1. Galvanised mild steel tubes of specified dia nominal bore shall conform to I.S. 1239-1968.
- 1.2. The galvanised fittings, clamps, etc. required for specified dia. bore pipes shall be of best quality and makes as approved by the Engineer-in-charge.

2.0. Workmanship

2.1. Curring, Laying & Jointing

2.1.1. When the tubes are to be cut or rethreaded, the ends shall be carefully filed out so that no obstruction to bore is offered. The ends of the tubes shall then be threaded conforming to the requirements of I.S. 554-1955 with pipe dies and taps carefully in such a manner so will not result in slackness of joints when the two pieces are screwed together.

2.1.2. The taps and dies shall be used only for straightening screw threads which have become bent or damaged and shall not be used for turning of the threads so as to make them slack as the latter procedure may not result in the water tight joint. The screw threads for tube and fitting shall be protected from edge until they are fitted.

2.1.3. In jointing the tubes, the inside of the socket and the screwed end of the tubes shall be oiled and smeared with white or red lead and wrapped around with a few turns of fine spun yarn round the screwed end of the tube. The end shall then be tightly screwed in the socket, tees, etc. with a pipe wrench. Care shall be taken that all times free from dust, and dirt during fixing. Burr from the joints shall be removed after screwing. After laying the open ends of the pipes shall be temperately plugged to prevent access of water, soil, or any other foreign matter.

2.1.4. Any threads exposed after jointing shall be painted or in the case of underground piping thickly coated with approved anti-corrosive paint to prevent corrosion.

2.2. Fixing of tube fittings to wall ceiling & floors.

2.2.1. In case of fixing of tubes and fittings to the walls or ceilings, these shall run on the surface of the wall, or ceiling (not in chase) unless otherwise specified. The fixing shall be done by means of standard pattern, holder clamps keeping the pipes about 15 mm. clear of the wall. When it is found necessary to pattern, holder clamps keeping the pipes about 15 mm. clear of the wall. When it is found necessary to conceal the pipes and when specified so, chasing may be adopted or pipe fixed in ducts or recesses etc. provided that there is sufficient space to work on the pipe with usual tools. The pipe shall not ordinarily be buried in walls or solid floors, where unavoidable, pipe may be buried for short distances provided that adequate protection is given against damage and where so required joints are not buried. Where required M.S. tube sleeve shall be fixed at a place a pipe is passed through a wall or floor for expansion and contraction and other movements. In case the pipe is embedded in walls or floors, it should be painted with anti-corrosive bitumastic paint of approved quality. The pipe should not come in contact with lime mortar or lime concrete as the pipe is affected by lime. Under the floors, the pipe shall be laid in layer of sand filling.

2.2.2. All pipes and fittings shall be fixed truly vertical and horizontal unless unavoidable. The pipes shall be fixed to walls with standard pattern clamps of required size and shape, one end of which shall be properly plugged or cemented into walls with cement mortar 1:3 (1 cement: 3 coarse sand) and the other tightened round the pipes to hold it securely. These clamps shall be spaced at regular intervals in straight lengths at 2 MC/C interval in horizontal run and 2.5 m. interval in vertical run. For pipe of 15 mm. dia. upto 25 mm. dia the holes in the walls and floors shall be made by drilling with chisel or jumper and not by dismantling the brick work or concrete. However for bigger diameter pipes the holes shall be carefully made cement : 3 coarse sand) and properly finished to match the adjacent surface.

2.3. Testing of joints :

2.3.1. After laying and jointing, the pipes and fittings shall be inspected under working conditions of pressure and flow. Any joints found leaking shall be redone, and all leaking pipes removed and replaced without extra cost.

2.3.2. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/sq. cm. The pipe shall be slowly and carefully charged with water allowing all air to escape and avoiding all shock and water hammer. The draw off takes and stop cock shall then be closed and specified hydraulic pressure shall be applied gradually. The pressure gauge must be accurate. The pipes and fittings shall be tested in sections as the work laying proceeds, veeping the joints exposed for inspection during the testing.

3.0. Mode of measurements and payment

3.1. The description of each item shall, unless otherwise stated, be held to include where necessary, conveyance, and delivery, handling, unloading, storing, fabrication, hoisting, all labour for finishing to required shape and size, setting, fitting in position straight, cutting and waste, return of packing etc.

3.2. The length shall be measured on running metre basis of finished work. The length shall be taken along the centre line of the pipe and fittings. The pipes fixed to wall, ceiling, floors etc. shall be measured and paid under this item.

3.3. All the work shall be measured in decimal system as fixed in its place, subject to tolerance given below unless otherwise stated.

(i) Dimension shall be measured to the nearest 0.01 metre. *

(ii) Area shall be worked out to the nearest 0.01 sq. metre.

3.4: All measurements of cutting shall unless otherwise stated by held to include the consequent waste.

3.5. In case of fitting of unequal bore, the targets bore shall be measured for the test.

3.6. Testing of pipe lines, fittings, and joints include for providing all plant appliances necessary for obtaining access to the work to be tested an carrying out the tests.

3.7. The rate includes galvanised steel tubing with screwed socket joints, together with all fittings (such as bends, sockets springs, elbows, test, crosses, short pieces, clamps and plugs unions etc.) and fixing complete with clamping wall hooks, wooden plug etc. and also curring, screwing and waste and for making forged (or hand made) bends on piping as required. Connector shall be inserted, where required or directed. The rate also includes cutting though walls, floors etc. and their making good and painting exposed threads with anti-corrosive paint .as above and testing. Where tubes are to be fixed to wall, ceiling and flooring, the rate shall not include painting of pipes, providing sleeves and sand filling under floor for which separate payment shall be made.

3.8. The rate shall be for a unit of one running metre.

23.4. Providing and laying in trenches galvanised mild steel tubes (Medium grade) of the following nominal bore and tube fittings-earth work in trenches to be measured and paid for separately : (A) 15 mm. dia. (B) 20 mm. <C) 25 mm. (D) 40 mm. (E) 60 mm. (F) 80 mm.

1.0. Materials

1.1. Galvanised mild steel tube of specified dia. nominal bore and fittings shall conform to I.S. 1239-1968.

2.0. Workmanship

2.1. The relevant specifications of item 23.2 (A) shall be followed for cutting, laying and jointing testing of joints except that the fixing of tube shall be done in trenches,

2.2. The width and depth of the trenches for different diameters of the tubes shall be as under: For 15 to 80 mm. dia tube width of trenches shall be 30 cms. and depth of trenches 60 cms.

2.3. At joints, the trench width shall be widened where necessary. The work of excavation and refilling shall be done true to line, and gradient in accordance with general specifications of earth work in trenches.

2.4. The pipes shall be painted with two coats of anti-corrosive bitumastic paint of approved quality. The pipe shall be laid on a layer of 75 mm. sand filled upto 150 mm. above the pipe of so specified. The remaining portion of trench shall be then filled with excavated earth. The surplus shall be disposed of as directed.

2.5. When the excavation is done in rock the bottom shall be cut deep enough to permit the pipe to be laid and cushion of sand 75 mm. In case of bigger diameter of tube where the pressure is very high, thrust block of cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 grade stone aggregate of 20 mm. nominal size) shall be constructed on ail bends to transmit the hydraulic thrust without impairing the ground and spreading it over a sufficient area if so specified.

3.0. Mode of measurement

3.1. The relevant specifications of item No. 23.2 (A) shall be followed. The authorised quantities shall be measured.

3.2. For purpose of calculating cubic content cross section shall normally be taken at suitable intervals i.e. at manhole or wall chamber intervals except in abnormal cases like sudden change in strata or undulating ground etc., when they may be taken at closer intervals as approved by the Engineer-in charge whose decision shall be final, conclusive and binding.

3.3. Authorised width :

(a) Upto the metre depth, the width of the trenches for the purpose of measurements of excavation shall be arrived at by adding 40 cms. to the external diameter of the tube (not the socket) where a pipe is laid on concrete bed/cushioning layer, the authorised width shall be the external diameter of tube plus 40 cms. or the width of the concrete bed cushioning layer whichever is more.

(b) For depths exceeding one metre an allowance of 5 cms. per metre of depth for each side of the trench shall be added to the authorised width (i.e. external diameter of pipe of plus 40 cms) This allowance shall apply to the entire depth of the trench. The authorised width in such cases shall therefore be, equal to the depth of trench, plus external diameter or tube plus 40 cms.

(c) Where more than one tube is laid, the diameter shall be reckoned as the horizontal distance of outside to outside of the outermost pipes.

(d) Where sheeting etc. has been provided the authorised width of the trenches at bottom shall be increased to accommodate for sheeting etc. so that the clear width available between faces of sheeting is as per previousness of (a), (b) & (c) above.

(e) If the sides of the trench are not vertical, the tops of side slopes shall end at the top of the pipe and vertical sided trench of authorised width as per (3), (b), (c) and (d) above shall be excavated from these down to the bed of trenches.

3.4. Where the tubes are laid in trenches, the work of excavation and refilling and round tubes for which separate payment shall be made, the length shall be measured on running metre, basis.

3.5. The rate shall be for a unit of One running metre.

23.6. Marking connection of galvanised M/S. distribution branch with galvanised mild steel main 80 mm, nominal bore by providing and fixing l-y including, cutting and threading the pipes etc. complete.

1.0. Materials

The fittings required of specified dia. of pipe shall conform to I.S. 1237-1988.

2.0. Workmanship

2.1. A pit of suitable dimensions shall be dug at the point where the connection is to be made with the main and earth removed upto 150 mm. below the main. The flow of water in water main shall also be disconnected by closing the sluice or wheel valves on the main. The main shall first be cut. Water if any, collected in the pit shall be bailed out and ends of the pipe threaded.

2.2. The connections of distribution pipe shall be made by fixing malleable galvanised mild steel tee of the required size and fitting such as jam nut, socket, connecting piece etc.

2.3. The testing of the joints shall be done as per relevant specifications of item No. 23.2 (A).

3.0. Mode of measurements and payment

3.1. The rate includes cost of all labour, materials, tool and plant required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

23.8. Providing and fixing to wall ceiling and floor 6 Kgs/Sq. Cm. working pressure polythene pipes of the following outside diameter, low density complete with special flag compression type fittings wall clips etc. including making good the wall/ceiling and floor. (A) 20 mm dia. (B) 25 mm. dia (C) 32 mm. dia. (D) 40 mm. dia. (E) 50 mm. dia.

1.0. Materials

1.1. The low density polythene pipe of specified diameter with 6 Kg/Sq. Cm. working pressure shall conform to IS. 3078-1953. The specials and fittings required shall be of best quality.

2.0. Workmanship

2.1. The P.V.C. pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid P.V.D. pipes, due allowance shall be made particularly in over ground pipe lines for any change in length of pipe line which may occur during installation or when pipe line is in service.

2.2. Adequate provision shall be made for expansion and contraction of rigid P.V.C. pipes and special preparations are observed for their protection against direct sun rays and mechanical damage.

2.3. The P.V.C. pipe lines should not be kept exposed above ground when it passes through public places, railway lines, road side and overhead power lines.

- 2.4. P.V.C. pipes shall be supported at the following intervals :
- 20 mm. dia 500 mm. -25 mm. dia 750 mm. -32 mm. dia.900 mm.
- 2.5. Closer support spacing shall be provided if recommended by the manufacture.
- 2.6. The guide lines indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes shall be kept in view during execution.
- 2.7. P.V.C. pipes shall be fixed on wall with wooden plugs and suitable plastic clamps.
- 2.8. Jointing the pipes :
- 2.8.1. The pipes and sockets shall be accurately cut. The ends of the pipes and fittings should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fittings shall then be roughened with emery paper, and then solvent cement joint. Since solvent cement is aggressive to P.V.C. care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement cannot be wiped off after jointing. Empty solvent cement tins, brushes, rags, or paper impregnated with cement should not be buried in the trenches. They should be gathered not left scattered about, as they can prove to be a hazard to animals, which may chew them.
- 2.8.2. If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from the Engineer-in-charge.
- 2.9. Laying pipes in Trenches :
- 2.9.1. The pipes shall be laid over uniform relatively soft fine trained soil found to be free of presence of hard object such as large flints, rocky projections, large tree roots etc. The width of the trenches shall be minimum width required for working.
- 2.9.2. The pipes laid underground shall not be less than one metre from the ground level. The pipe shall be positioned in the trenches so as to avoid any induced stressed due to deflection. Any deviation required shall be obtained by using proper type of rubber ring joints.
- 3.0. Mode of measurements & payment
- 3.1. The relevant specifications of item 23.2. (A) shall be followed except that the P.V.C. pipes of specified dia. shall be paid under this item.
- 3.2. The unit rate shall be for a unit of One running metre.
- 23.111.(A) (I) Providing and fixing water closet squatting pan (Indian type W.C. Pan) size 580 mm. (Earth work, bed concrete, foot-rests and trap to be measured and paid for separately). Vitreous china. Long pattern white colour.
- 1.0. Materials
- 1.1. Water closet squatting pan (Indian type. W.C. Pan) shall conform to M-62. Cement mortar shall conform to M-11.
- 2.0. Workmanship
- 2.1. The pan shall be sunk into the floor and embedded in a cushion of average 15 cm. cement concrete 1:5:10 (1 cement : 10 graded stone aggregate or brick aggregate 40 mm. nominal size) or and its bed concrete, the floor should be left 115 mm. below the top level of the pan so as to allow for flooring and its bed concrete. The floor should be suitably stopped so that the waste water is drained into the pan. The shall be provided with 100 mm. 'P' or 'S' trap as specified in the item No. 23.113 with approximately 50 mm. seal. The joints between the pan and the trap shall be made leak - proof with cement mortar 1:1 (1 cement : 1 fine sand).
- 3.0. Mode of measurements and payment
- 3.1. The rate shall include the cost of all materials and labours involved in the operations described under workmanship.
- 3.2. The rate shall be for a unit of One number.
- 3.3. The 'P' or 'S' trap unit of One number.
- 23.79. Providing and fixing cast spigot and sockets soil, waste, and ventilating pipes of the following normal size (B) 75 mm. dia. (C) 100 mm. dia.
- 1.0. Materials
- 1.1. The specified dia. C.I. Spigot and socket soil or waste pipe shall conform M-68.

2.0. Workmanship

2.1. The fixing of C.I. spigot and sockets soil, waste and ventilating pipe shall be carried out as per relevant specifications of item 15.93 (B) except the C.I. spigot and socket shall be fixed. The joints shall be filled with cement mortar 1:2 (1 cement : 2 sand) span spun yarn. The joints shall be filled with cement mortar 1:2 (1 cement : 2 sand) and spurn yarn. The pipes without care shall be fixed to wall with M.S. clamps. The pipes will earn shall be secured with 40 mm. before steel or iron barrel distance pieces or boils and stout galvanised iron najls 10 cms. long into hand wool plug fixed in walls. Access doors to fittings shall be provided with 3 mm. rubber insertion packings and secured without screws to made air and watertight.

2.2. All soil pipes shall be carried up above the roof and shall have a wire ballon guarded or a cowl.

2.3. The ventilating pipe or shaft shall be carried out to a height of at least one metre above the outer covering of the roof of the building or in the case of windows in a gable wall or a dormer windows, it shall be carried upto a ridge of the roof or atleast low metres above the top of the windows. In case of flat roof to which access for use is provided, it shall be carried out upto a height of atleast on metre above the parapet or two metres measured vertically from the top of any windows or opening which any exist upto a horizontal distance of five metres from the vent pipe into such building and in no case shall be carried out to a height less then three metres.

2.4. Where ventilating pipes are carried in pipe shafts, the shaft shall be of a minimum size of one metre. If the shafts are also used to give light and air to rooms, the ventilating pipes must be carried out to a horizontal distance at roof level not less than five metre from the site of the shaft.

2.5. The sand cast iron pipes above parapet shall be fixed with M.S. clamps and stays. The clamps shall be made from 1.5 mm. thick M.S. flat or 3 mm. width band to the required shape and size to fit tightly one the sockets when tightened with screw bolts. It shall be formed of two semi circular pieces with flanged ends en both sides, with holes to fit in the screw bolts and nuts 40 mm. dn M.S. Bars. One end of the stay shall be bent to form a hook to be fixed with damp by means of colts and *the* other end shall be bent for embedding in wall in cement concrete block of size 200 mm. x 100 mm ;< 100 mm. in 1:2:4 mix. The concrete shall be finished to match the surrounding surfaces.

2.6. The connection between the main pipe and branch pipes shall be made by using branches and bends with access doors for cleaning.

2.7. The waste from lavatories, kitchens basins, sinks, baths and other floor traps shall be separately connected to respective stacks of upper floor. The waste stack of lavatories shall be connected directly to main hole while the waste stack of other shall be separately discharged over gulley trap.

3.0. Mode of measurements and payment

3.1. The length of pipe shall be measured including alt fittings along its length in running metres correct to a centimeter. No allowance shall be made for the portion of pipe length entered in the sockets of the adjacent pipe of fittings.

3.2. The rate includes ail labour, and materials, tools and plant etc. required for satisfactory completion of this item.

3.3. The rate shall be for a unit of One running metre.

23.87. Providing and fixing cast iron (spun) Nahni trap of the following nominal diameter of self cleaning design with C.I. Screwed down or hinged grating including cost of cutting and making good the walls and floors : 100 mm. Inlet and 50 mm. outlet.

1.0. Materials

1.1. The cast iron (spun) Nahni trap shall conform to M-69. The C.I. hinged or screwed down cover shall be of best quality.

2.0. Workmanship

2.1. The Nahni trap with 100 mm. dia inlet and 50 mm. dia. outlet shall be fixed as per drawing or as directed.

2.2. The Mqhfij trap shall be jointed with C.I. Pipe, 75 mm. dia. with lead joints The lead joints shall be done in conformation with I.S. 732 -1976.

3.0, MMs or measurements and payment

3.1. T: •■ ---* ■ indues cost uf -ill labour, materials, lo?ls and pl|a:us etc, req--'i'od f':<f satisfactory completion oMiis it*m including lead, jointing and testing.

_ 3.2. The rate shall be for a unit of o-ie lumber.

23.112.<A>(1) Providing and fixing wash down water closet (European type W.C. Pan) with integral 'P' or 'S' trap including jointing the trap with soil pipe in CM. 1:1 (1 cement : 1 fine sand) (seat and cover to be measured and paid for separately): Vitreous china pattern : In white colour.

1.0. Materials

Wash down water closet (European type W.C. Pan) shall conform to M-60. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The closet shall be fixed to the floor by means of 75 mm. long 6.5 mm. diameter counter sunk bolts and nuts embedded in the floor concrete using rubber or before washers so as not to allow any lateral displacement. The joint between the trap of W.C. and soil pipe shall be made with CM. 1:1(1 cement: 1 fine sand).

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour involved in all the operations described under workmanship.

3.2. The rate includes cost of all labour for fixing pans and seat and cover, inlet, connections etc. complete including testing the same. The payment of seat and cover shall be made separately.

3.3. The rate shall be for a unit of One number.

23.113.(A) Providing and fixing 100 mm. size 'P' or 'S' trap for water closet squatting pan including jointing the trap with the pan and soil pipe in cement mortar 1:1(1 cement : 1 fine sand) Vitreous China.

1.0. Materials : The 100 mm. size 'P' or 'S' trap for water closet shall conform to M-62. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The 'P' or 'S' trap shall be fixed with pan cast iron pipe with CM. 1:1. The pan shall be provided with a 100 mm. 'P' or 'S' trap as specified in the item with an approximately 50 mm. seal. The joint between the pan and the trap shall be made leak-proof with cement mortar 1:1 (1 cement ; 1 fine sand).

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials and labour involved in the operations described under workmanship including testing.

3.2. The rate shall be for a unit of one number.

23.114. Providing and fixing in CM. 1:3 (1 cement : coarse sand) a pair of white vitreous china 250 mm. x 130 mm. 30 mm. foot rest for long pattern squatting pan water closet. 1.0.

Materials : 1.-1. The pair of white vitreous china foot-rests shall conform to M-62. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. After laying the floor, the floor shall be suitably slope*.¹ so that the waste water is drained into the pan. A pair of foot-rests of size 250 mm. x 130 mm. x 30 mm. white vitreous china shall be set in cement mortar 1:3 (1 cement: 3 coarse sand). The foot-rests shall be fixed at a distance of 175 mm. from the inner edge of the back side of the pan and shall be fixed at convenient angle.

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials and labours involved in all the operations described under workmanship.

3.2. The rate shall be for a unit of One pair.

23.115.(A) (I) Providing and fixing 12.5 liters low level flushing cistern with a pair of C.I. or mild steel brackets complete with fittings such as lead valveless syphoe, 15 mm. nominal size brass ball valve with polythene float, C.P. brass ball handle, unions and couplings for connections with inlet, outlet and overflow pipes, 40 mm. dia. porcelain enameled flush bend including cutting holes in walls and making good the same and connecting the flush bend with cistern and closet (overflow pipe to be measured and paid for separately) ; Vitreous China. In white colour.

1.0. Materials-

1.1. The vitreous china (Enameled) flushing tank shall conform to M-65 except that the flushing cistern shall be 12.5 liter low level type as mentioned in the item.

2.0. Workmanship

2.1. The low level cistern shall be firmly fixed on two C.I. or mild steel, brackets which shall be firmly embedded in the wall in CM. 1:4 (1 cement : 4 fine sand).

2.2. The height of the bottom of the cistern from the top of the pan shall be 30 cms of low level flushing cistern shall be connected to the closet by means of 40 mm. dia. white porcelain enameled flush bend using Indian rubber adapts joints. The flush pipe shall be securely connected to the cistern outlet by means of coupling nut made of any non-corrosive materials, non-ferrous metal or galvanised steel. The flush pipe from the cistern shall be connected to the closet by means of cement of red-lead.*

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials fitting and labour involved in all the operations described under workmanship including testing.

3.2. The rate shall be for a unit of One number.

23.116. Providing and fixing 12.5 liters level C.I. flushing with a pair C.I. or mild steel brackets, complete with fittings such as syphonic arrangement, 15 mm. nominal size brass ball valve with polythene flat, lever. G.I. China (60 cms.) and pull unions and couplings for connections with inlet, outlet and overflow pipes etc. including cutting holes in waits and making good the same (overflow pipe to be measured and paid for separately).

1.0. Materials

1.1. The high level C.I. flushing cistern shall conform to M-66, except that the flushing cistern shall be of 12.5 liters high level C.I. cistern as mentioned in the item.

2.0. Workmanship

2.1. The cistern shall be fixed on two C.I. or mild steel brackets which shall be firmly embedded in the wall in cement mortar 1:4 (1 cement : 4 fine sand).

2.2. The height of the bottom of the cistern from the top of the pan shall be two metres.

2.3. The W.C. Pan shall be connected to the cistern by galvanised steel flush pipes of 32 mm. nominal internal diameter. The flush pipe shall be fixed to wall by using clamps. The flush pipe from the cistern shall be connected to the closet by means of cement of red-lead. The flush pipe shall be securely connected to the cistern outlet by means of coupling nut made of any non-corrosive materials non-ferrous metal or galvanised steel.

2.4. The chain and the pull union shall be fixed to the protruding level arm of the flushing cistern.

2.5. The whole installation shall be tested for leak-proof joints and satisfactory functioning.

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials, fittings, and labour involved in all the operations described under workmanship including testing.

3.2. The rate shall be for a unit of One number.

23.117. Providing and fixing in position with clamps etc. 32 mm. nominal internal dia. galvanised steel tube flush pipe for high level flushing cistern including connecting the flush pipe with cistern and closet and making good the walls and floors.

1.0. Materials

1.1. The 32 mm. nominal internal dia, galvanised steel tube flush pipe shall conform to M-56.

2.0. Workmanship

2.1. The W.C. pan shall be connected to the cistern by galvanised steel flush pipe of 32 mm. nominal internal diameter. The flush pipe shall be fixed to wall by using clamps.

2.2. The flush pipe from the cistern shall be connected to the closet by means of cement or red-lead.

2.3. The flush pipe shall be securely connected to the cistern outlet by means of coupling nut made of any non-corrosive materials, non-ferrous metal or galvanised steel.

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all materials, fittings and labour involved in all the operations described under workmanship including testing.

3.2. The rate shall be for a unit of One running metre.

23.120. Providing and fixing G.I. inlet connection for flush pipe with W.C. Pan.

1.0. Materials

1.1. The G.I. inlet connection for flush pipe shall conform to M-56.

2.0. Workmanship

2.1. The flush pipe from the cistern shall be connected to the closet by means of cement or red-lead.

3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials, fittings and labour involved in all the operations described under workmanship including testing.

3.2. The rate shall be for a unit of One number.

23.127. Providing and fixing wash basin with single hole for pillar top white C.I. or M.S. brackets painted white including cutting holes, and making good the same but excluding fittings, vitreous china flat back wash basin 550 mm. x 400 mm. in white colour.

1.0. Materials

1.1. The white glazed earthenware wash basin shall be 550 mm. x 400 mm. of 1st quality and make as approved by the Engineer-in-charge. The wash basin shall conform to M-59.

2.0. Workmanship

2.1. The washbasin shall be fixed on the wall as and where directed. The wash basin shall be supported on a pair of M.S. or C.I. brackets fixed in CM. 1:3 (1 cement: 3 sand). The bracket shall conform to I.S. ; 775-1962. The wall plaster on the rear shall be cut to rest the top edge of the washbasin. After fixing the basing, piaster shall be made good and surface finished to match the existing one.

2.2. The brackets shall be painted white with ready-mixed paint.

2.3. The C.I. brass trap and union shall be connected to 32 mm. dia. waste pipe which shall be suitably bent towards the wall and which shall discharge into an open drain leading to a gully trap or direct in to gully-trap on the ground floor and shall be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where the surface drain or a floor trap is placed directly under the basin and the waste is discharged in to vertically.

2.4. The height of the front edge to the wash basin from the floor level shall be 80 cms.

2.5. The necessary inlet, outlet connections and fittings such as pillar cocks, CP dress waste trap waste pipe, stop cock, chain wish rubber plug etc. shall be fixed.

2.6. The payment of fittings shall be made separately under separate items.

3.0. Mode of measurements & payment

3.1. The rate includes cost of all labour, materials, tools 3rd plant etc. required for satisfactory completion of this item as specified in workmanship.

3.2. The rate shall be for a unit of One number.

23.130(C) Providing and fixing kitchsn sink with r.] or M.S. brackets painted white including cutting hotes in walls and making good he same of but excluding fittings. Vitreous china sink 600 mm. x 450 mm. x 150 mrr size.

1.0. Materials

1.1. White glazed vitreous china sink 600 mm. x 450 mm. x 150 mm. size shali conform to M-63.

2.0. Workmanship

2.1. The kitchen sink shall be supported on a pair of M.S. or C.I. brackets fixed in cement mortar 1:3 (1 cement : 3 coarse sand). The M.S. or C.I. brackets shall conform to I.S. 775-1962. The wall plaster on the rear shall be cut to rest over the top edge of the sink. After fixing the sink, plaster shall be made good and he surface finished to match with the existing one.

2.2. The C.P. brass trap and union shall be connected to 40 mm. nominal bore galvanised mild steel waste pipe which shali be suitably bent towards the wail and which shali discharge into an open drain leading to gully-trap or direct into the gully-trap on the ground on floor and shali be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where surface drain or a floor trap is placed directly under the sink and the waste is discharged to it vertically.

2.3. The height o; front edge of the wash basin from the floor, level shall be 80 errs.

3.0. T^oue el measurements & payment

3.1. The rate includes cost of all labour, materials, tools and plant and other equipment required for sr.israotory corpiet'on of this item as described in workmanship.

3.2. The rate shall be for a unit of *One* number.

23.135 (A) Providing and fixing 32 mm. dia. C.P. brass waste for wash basin or sink.

1.0. Materials

1.1. The C.P. brass trap and unions shall be of 32 mm. dia. and of best quality and make as approved by the Engineer-in-charge.

2.0. Workmanship

2.1. C.P. brass waste trap and union shall be connected to 32 mm. dia. waste pipe which shall be suitably bent towards the wall which shall discharge into drain through a floor trap. The C.P. brass waste trap shall be provided for wash basin or sink as the case **may** be.

3.0. Mode of measurement & payment

3.1. The rate includes all labours and providing C.P. brass waste trap and union including waste couplings qY 32 mm. dia. The rate excludes the cost of waste pipe of 32 mm. dia.

3.2. The rate shall be for a unit of *One* number.

23.135 (B) Providing and fixing 40 mm. dia. C.P. Brass waste for wash basin or sink.

1.0. Materials & Workmanship

1.1. The relevant specifications of item 23.135 (A) shall be followed except that the diameter of C.P. brass waste is **40** mm. dia.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of *One* number.

23.136(A) Providing and fixing 32 mm. dia. M.I. union for wash basin or sink.

1.0. Materials

1.1. The 32 mm. dia. **M.1.** Fisher union shall be of best quality and made as approved by the Engineer-in-charge.

2.0. Workmanship

2.1. The 32 mm. dia. **M.I.** Fisher union shall be fixed to wash basin or sink in best workman like manner.

3.0. Mode of measurements and payment

3.1. The rate includes all labours and materials, tools and plants etc. required for satisfactory completion of the item.

23.136.(B) Providing and fixing 40 mm. dia. M.I. fisher union for wash basin or sink.

1.0. Materials and Workmanship

1.1. The relevant specifications of item No. 23. 136 (A) shall be followed except that the diameter of M.I. fisher union shall be **40** mm. dia.

2.0. Mode of measurements of payment

2.1. The rate shall be for a unit of *One* number.

23.139. Providing and fixing 100 mm. dia, sand cast iron grating for gulley, floor or Nahni trpa.

1.0. Materials

1.1. The 100 mm. dia. sand cast iron gratings for gulley, floor or Nahni trap shall be of best quality and make as approved.

2.0. Workmanship

2.1. The cast iron grating shall be provided to gulley tfap floor or Nahni trap as the case may be in best workman like manner.

3.0. Mode of measurements and payment

3.1. The rate shall includes cost of all labour, materials, tools and plants, etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of *One* number.

23.141.(A) Providing and fixing 100 mm. dia, C.P. brass shower rose with 15 mm or 20 mm. inlet.

1.0. Materials

1.1. 100 mm. dia. C.P. brass shower rose shall conform to I.S. 2556-1972 part-Xi and of best quality and makes as approved by the Engineer-in-charge. The inlet of shower rose shall be 15 mm. dia. or 20 mm. dia as directed.

2.0. Workmanship

2.1. The C.P. brass shower rose shall be fixed as directed with 15 mm. dia. or 20 mm. dia. G.I. inlet pipe as the case may be.

3.0. Mode of measurements and payment

3.1. The rate includes all labours and materials, tools and plant etc. required for satisfactory completion^{of} this item.

3.2. The rate shall be for a unit one number.

23.143. Providing and fixing 600 mm. x 450 mm. bevelled edge mirror of superior glass mounted on 6 mm. thick A.C. Sheet or plywood sheet and fixed to wooden plugs with C.P brass screws and washers.

1.0. Materials

1.1. The 600 mm. x 450 mm. size mirror shall be of superior glass with edge rounded offer bevelled as specified. It shall be free from flaws specks, or bubbles and its thickness shall not be less than 6 mm. The glass for the mirror shall be uniformly silver plated at the back and shall be free from silvering defects. Silvering shall have a protective uniform covering of red lead paint. The 6 mm. thick plywood shall conform * to M-37. The 6 mm. thick A.C sheets shall conform to **M-24**.

2.0. Workmanship

2.1. The mirror of 600 mm. x 450 mm. size mounted on A.C. Sheet or plywood 6 mm. thick with C.P. brass clips shall be fixed as directed, by fixing wooden plugs in wall and C.P. brass screws and washers. The work shall be carried out in best workman like manner.

3.0. Mode of measurements & payment

3.1- The rate includes cost of all labour and materials, tools and plant etc. required for satisfactory completion of this item. The rate shall be for a unit of One number.

23.144(B) Providing and fixing 600 x 20 mm. C.P. brass towel rail complete with C.P. brass brackets fixed to wooden plugs with and C.P. brass screws.

1.0. Materials

1.1. The C.P. brass towel rail shall be 600 x 20 mm. of best quality as approved by the Engineer-in-charge. The brackets shall be of C.P. brass. The rail shall conform to I.S. 1068-1958.

2.0. Workmanship

2.1. The brackets of the towel rail shall be fixed by means of C.P. brass screws to wooden firmly embedded in the wall with CM. 1:3 (1 cement: 3 coarse sand). The towel rail shall be fixed as and where directed.

3.0. Mode of measurements and payment

3.1. The rate includes cost of all labour and materials, tools and plant etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

23.145 Providing and fixing 600 mm. x 120 mm. glass shelf.with C,P. brass brackets and guard rail complete, fixed to wooden plugs with C.P. brass screws. 1.0. Materials : The glass shelf of 600 mm. x 120 mm. size shall be of 5 mm. thick plate glass. The edge of the glass shall be grounded. The C.P. over brass guard rail shall be best quality and make.

2.0. Workmanship

2.1. The C.P. brass brackets of the glass shelf shall be fixed with C.P. screws to wooden plug firmly embedded in the wall CM. 1:3 (1 cement: 3 coarse sand). The C.P. guard rail shall be fixed to glass shelf as directed.

3.0. Mode of measurement and payment

3.1. The rate includes all labour and materials tools and plant etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

23.146.(A) Providing and fixing C.P. brass toilet paper holder.

1.0. Materials : The toilet paper holder shall be of best quality and make, chromium plating shall be of grade 'B' type conforming to I.S. 1068-2958.

2.0. Workmanship

2.1. The toilet paper holder shall be fixed in position by means of screws and wooden plugs embedded in wall with cement 1:3 (1 cement: 3 coarse sand).

3.0. Mode of measurements and payment

3.1. The rate includes cost of all labour and material, tools and plant etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

23.92.(A)(1) Providing and fixing brass screw down bib taps of following size. Polished bright: 14 mm. dia.

1.0. Materials : 15 mm. dia. brass screw down with bright polished finished shall conform to I.S. 781-1977. The bib cock shall be best Indian make and quality.

2.0. Workmanship

2.1. The screw down bib cock 15 mm. as specified above shall be fixed as directed. The threaded portion shall be smeared with white or red lead and around with a few turns of fine spun yarn round the screwed end of the pipe. The bib cock shall be then screwed and fixed to water tight position.

3.0. Mode of measurements and payment

3.1. The rate includes cost of all labour, materials, tools and plant etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One Number.

23.92.(A)(II) Providing and fixing brass screw down bib taps of following size : Polished bright: 20 mm. dia. 1.0. Materials

and Workmanship

The relevant specifications of item 23.92 (A) (i) shall be followed except that the bib taps of 20 mm. dia shall be fixed.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 23.92 A(i) shall be followed.

2.2. The rate shall be for a unit of One number.

23.92 (B) (I) Providing and fixing chromium plated brass screw down bib taps of the following size : 15 mm. dia. 1.0.

Materials and workmanship

The relevant specification of item No. 23.92 (A) (I) shall be followed except that the brass chromium plated screw down tap of 20 mm. dia. shall be fixed.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One number.

23.92 (B) (II) Providing and laying chromium plated brass screw down bib taps of following size : 20 mm. dia. 1.0. Materials

and workmanship

The relevant specifications of item No. 23.92 (A) shall be followed except that the brass chromium plated screw down tap of 20 mm. dia. shall be fixed.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One number

23.92(C)(1) Providing and fixing gun metal screw down bib taps of the following size : 15 mm. dia.

1.0. Materials and workmanship

1.1. The relevant specification of item No. 23.93 (A) (I) shall be followed except that the 15 mm. dia. gun metal screw down bib tap shall be fixed.

2.0. Mode of measurements & payment

2.1. The rate shall be for a unit of One number.

23.92(C)(II) Providing and fixing gun metal screw down bib tap of following size : 20 mm- dia.

1.0. Materials & Workmanship

1.1. The relevant specifications of item 23.92 (A) (i) shall be followed except that the 15 mm. dia. gun metal screw down bib tap shall be fixed.

2.0. Mode of measurement & payment

2.1. The rate shall be for a unit of One number

23.92(D) Providing and fixing gun metal screw down bib tap of following size : 20 mm- dia.

1.0. Materials & Workmanship

1.1. The relevant specifications of item 23.92 (A) (i) shall be followed except that the 15 mm. dia. gun metal screw down bib tap shall be fixed.

2.0. Mode of measurement & payment

2.1. The rate shall be for a unit of One number

23.92(E) Providing and fixing gun metal screw down bib tap of following size : 20 mm- dia.

1.0. Materials & Workmanship

1.1. The relevant specifications of item 23.92 (A) (i) shall be followed except that the 15 mm. dia. gun metal screw down bib tap shall be fixed.

2.0. Mode of measurement & payment

2.1. The rate shall be for a unit of One number

23.92(F) Providing and fixing gun metal screw down bib tap of following size : 20 mm- dia.

1.0. Materials & Workmanship

2.0. Workmanship

2.1. The capsten head pillar tap of specified dia. shall be fixed as directed with required washers of sected leather or rubber asbestos composition or of plastic as directed. The cock shall fixed with pipe line white zink end spun yarn, to make joint water tight. The work shall be carried out in best workman like manner.

3.0. Mode of measurements and payment

3.1. The rate shall be for a unit of one number.

23.96(A) Providing and fixing brass screw down stop cock (A) 15 mm. dia. (B) 20 mm. dia. (C) 25 mm. dia. 1.0. Materials :

The brass screw down stop cock of specified dia shall conform to IS. : 781 -1977. The stop cock shall be of tested quality.

2.0. Workmanship

2.1. The stop cock shall be fixed in position by means of Jam nut and socket. The stop cock shall be fixed near the inlet of the water meter or as directed. The joints shall be done with white zinc and spun yarn. The joint shall be tested for leak proofing.

3.0. Mode of measurements and payment

3.1. The rate includes cost of all labours, materials, tools and plant etc. required for satisfactory completion of this item.

23.99. Providing and fixing gunmetal check or non-return valve. (A) 15 mm. dia. (B) 20 mm. dia. (C) 25 mm. dia. (D) 32 mm. dia. (E) 40 mm. dia. 1.0. Materials :

The gun metal check or not return full way wheel valve or specified dial, shall conform to I.S. : 778-1964. The non-return valve shall be tested quality.

2.0. Workmanship

2.1. The gun metal check or non return valve shall be fully cleared of all foreign matter before fixing. The fixing of shall be done by means of bolts nuts and 3 mm. rubber insertions with flags of spigot and socketed tail pieces, drilled to the same specifications as in case of socket and spigot flanges in case of flanged pipes. The joining shall be done leak proof.

3.0. Mode of measurements and payment

3.1. The rate includes all labours, materials, tools and plant etc. required for satisfactory completion of this item.

32. The rate shall be for a unit of One number.

23.00. Providing and fixing chromium plated brass half turn flush cock of approved quality including fixing in pipe line etc. complete (I) 20 mm. dia. (II) 25 mm. dia. (III) 32 mm. dia.

1.0. **Materials :** Chromium plated brass half turn flush cock shall conform to M-67.

2.0. Workmanship

The half turn flush cock of specified diameter shall be fixed as directed. The flush cock shall be fixed in G.I. pipe line with necessary fittings. The joints shall be made leak proof by using spun yarn and white zink. The fixing work shall be carried out as per relevant specifications of item No. 23.2(4).

3.0. Mode of measurements and payment

3.1. The rate includes cost of all materials and labour required for satisfactory completion of this item including fittings.

3.2. The rate shall be for a unit of One number.

23.00.4. Providing and fixing chromium plated bottle trap with necessary coupling of approved quality for wash basin.

1.0. **Materials :** The chromium plated bottle trap shall be approved make and of best quality. The bottle trap shall be provided with coupling.

2.0. Workmanship

The bottle trap shall be fixed on wash hand basin with wooden gullies and screws as directed. The work shall be carried out in best workman like manner.

3.0. Mode of measurements and payment

- 3.1. The rate includes cost of all materials and labour involved for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.122.(A) Providing and fixing urinal of approved quality including connecting the urinal with waste pipe trap etc. complete : whit earthenware flat back or corner type size 430 mm. x 260 mm. x 350 mm.

- 1.0. **Materials:** The white earthenware flat back or corner type urinal of size 430 mm. x 260 mm. x 350 mm. shall conform to M-64.

2. Workmanship

- 2.1. The urinals shall be fixed in position by using wooden plugs and screws and shall be at a height 65 cms. from the floor level to the top of the lip of urinal, unless otherwise directed. The wooden plugs shall be of 50 mm. x 50 mm. at base lapping to 38 mm. x 38 mm. at top 50 mm. in length shall be fixed in wall in steel waste pipe which shall discharge in the channel or floor a trap. The connection between the urinal and flush or waste pipe shall be made by means of putty or white lead mixed with chopped hemp.

3.0. Mode of measurements and payment

- 3.1. The rate shall include cost all labours, materials, tools and plants etc. required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.124(A) Providing and fixing urinal of approved quality including connection with trap and with integral longitudinal flush pipe squatting plate pattern white earthenware 550 mm. x 300 mm.

- 1.0. **Materials :** The squatting plate pattern, white glazed earthenware urinal of 550 mm x 300 mm shall conform to I.S. 771-1063. It shall be best India make.

2.0. Workmanship

- 2.1. The squatting plate urinal shall be fixed as directed.
- 2.2. The top edge of the squatting plate shall be flush with the finished floor level adjacent to it. It shall be embedded on a layer of 25 mm. thick cement mortar 1:8 (1 cement: 8 fine sand) laid over a bed or burnt brickbat cement 1:5 :10 (1 cement: 5 fine sand, 10 graded brick aggregate 20 mm. nominal size). There shall be 100mm. dia. glazed earthenware or vitreous china channel as specified with stop and outlet pieces suitably fixed in floor in cement mortar 1:3 (1 cement: 3 coarse sand) and joint finished with white cement. The earthenware vitreous china shall discharge into 65 mm. C.P. brass outlet grating. The trap and fitting shall be fixed as directed.

3.0. Mode of measurements and payment

- 3.1. The rate includes cost of all materials, tools and plants and labour required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.134 Providing and fixing rubber plug for sink or wash basin.

- 1.0. **Material:** The rubber plug for sink or wash hand basin shall be best quality and make as approved by the Engineer-in-charge.

2.0. Workmanship

- 2.1. The rubber plug with plain shall be fixed in wash basin or sink as directed.

3.0. Mode of measurements and payment

- 3.1. The rate shall be for a unit of One number.

23.00.5.(A) Providing and fixing ball cock of approved quality as directed (Copper metal) : (I) 25 mm. dia. (II) 50 mm. dia. 1.0.

Materials :

The ball cock of specified diameter shall conform to M-75.

2.0. Workmanship

The ball cock of specified diameter shall be fixed as directed. The fixing of ball cock shall be carried out as per relevant specification of item No. 23, (A) for joints etc.

3.0. Mode of measurement & payment

- 3.1. The rate includes cost of all materials and labour involved for carrying out satisfactory work.
- 3.2. The rate shall be for a unit of One number.

23.00.5.(B) Providing and fixing ball cock of approved quality as directed : Abonite. (I) 25 mm. dia. (H) 50 mm. dia.)

1.0, Materials & Workmanship : The relevant specifications of item No. 23.00.5 (A) shall be followed except that the ball cock of specified dia of Abonite shall be fixed.

2.0. Mode of measurements & payment

- 2.1. The relevant specifications of item NO. 23.00.5 (A) shall be followed.
- 2.2. The rate shall be for a unit of One number.

23.00.6. Providing and fixing C.I. Manhole cover 0.60 CM. x 0.45 CM. size having weight not less than 35 kg.**1.0. Materials**

C.I. Manhole cover of 0.60x0.45 Cms. size shall be of best quality. The weight of C.I. cover and frame shall not be less than 35 Kg. The C.I. manhole cover shall be of light duty and conform relevant I.S.

2.0. Workmanship

2.1. The C.I. Manhole cover shall be fixed as per relevant specifications of item No. 24.44 except that the C.I. cover shall be fixed as and where directed.

3.0. Mode of measurements and payment

- 3.1. The rate includes cost of all labour and materials required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.00.7. Providing and fixing G.I. water spout of 50 mm. dia. and 30 cms length. 1.0.

Materials : G.I.M.S. type of 50 mm. dia. shall conform to M-56.

2.0. Workmanship

2.1. The G.I. pipe of 30 cms. fixed as rain water pipe as directed. The pipe shall be fixed about 1/4 dia. below the floor level so as to make approach of water easy. The inlet of pipe shall be rounded off for easy entry of rain water pipe. The pipe shall be fixed in CM. 1:3.

3.0. Mode of measurements & payment

- 3.1. The rate includes of all labour and materials required for satisfactory completion of this item.
- 3.2. The rate shall be for a unit of One number.

23.8. Providing and fixing to wall ceiling and floor 6 Kg/ F/Sq. cm. working pressure outside diameter, low density completion with special flange compression type fittings wall clips etc. including making good the wall, ceiling and floor. (A) 20 mm. dia. (B) 25 mm. dia. (C) 32 mm. dia. (D) 40 mm. dia. (E) 50 mm. dia.

1.0. Materials : The low density polythene pipe of specified diameter with 56 Kg/f. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The special fittings and fittings required shall be of best quality.

2.0. Workmanship

- 2.1. The P.V.C. Pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid P.V.C. Pipes, due allowances shall be made particularly in over-ground pipe line for any change in length of pipe line which may occur during installation or when pipe line is in service.
- 2.2. Above ground installation of rigid P.V.C. pipe should be undertaken after precautions are observed for their protection against dirt, sun rays and mechanical damage.
- 2.3. The rigid P.V.C. lines should not be kept exposed above ground when it passes through public places, railway lines, roads, road side and foot paths.
- 2.4. P.V.C. pipe shall be supported at the following intervals ;
 -20 mm dia 100 mm. -25 mm. dia. 750 mm. -32 mm. dia. 900 mm.
- 2.5. Close support spacing shall be provided if recommended by the manufacturer.
- 2.6. The guidelines indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes shall be kept in view during execution.

2.7. P.V.C. pipes shall be fixed on wall with wooden plugs suitable plastic clamps.

2.8. Jointing the pipes :

2.8.1. The pipes and socket s shall be accurately cut. The ends of the pipes and fittings should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fittings shall then be roughened with emery paper, and then solvent cement shall be applied to the matching surface and pushed home and joint. Since solvent cement is aggressive to P.V.C. care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement cannot be wiped off after jointing. Empty solvent cement tins, brushes, rags of paper unregnated with cement should not be buried in the trenches. They should be gathered, not left scattered about, as they can prove to be a hazard to animals, which may chew them.

2.8.2. If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from the Engineer-in-charge.

2.9. Laying pipes in trenches :

2.9.1. The pipes shall be laid over uniform relatively soft fine grained solid found to be free of presence of hard object such as large tints, rocky projections, large tree roots etc. The width of the trenches shall be minimum width required for working.

2.9.2. The pipes laid underground shall not be less than one metre from the ground level. The pipe shall be positioned in the trenches so as to avoid any inducted stresses due to retraction. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item No. 23.2. (A) shall be followed except that the P.V.C. pipes of specified dia. shall be paid under this item.

3.2. The unit rate shall be for a unit of One running metre.

SECTION -24

24.1.(A) Providing any laying (two level or slopes) and jointing with stiff mixture of cement mortar in proportion 1:1 salt[^]glazed stone-ware pipes, following nominal internal diameters including testing of pipes and joints complete : 100 mm. dia.

1.0. Materials

(I) Water shall conform to NM(2) Cement mortar of proportion 1:1 shall conform to **M-11**. (3) 100 mm. dia. glazed stoneware pipe shall conform to **M-71**.

2.0. Workmanship

2.1. The trenches for stoneware pipe drains shall be carried out as per relevant specifications of item No. 23.4 (A) except that the work is for stoneware pipes of 100 mm. dia.

2.2. Laying:

2.2.1. The pipes shall be laid accurately and perfectly true to line, levels and gradients. Great care shall be taken to prevent sand etc. from entering the pipes. The pipes between two manholes shall be laid truly in a straight line without vertical or horizontal undulation. All junctions and changes in direction and diameter shall be made inside manholes by means of curved tapered channels formed in Cement concrete finished smooth and benched *on* both sides. The body of the pipe shall rest for its entire length, on an even level bed grips being made or left on the bed to receive the sockets of the pipes.

2.3. Jointing :

2.3.1. Tanned gaskin or yarn soaked in neat cement slurry shall first be placed around the spigot to each pipe and the spigot shall then be placed well home into the socket of the pipe previously laid. The pipe shall then be adjusted and fixed in the correct position and gaskin caulked home so as to fill not more than 1/4th of the total depth or (13 mm. In depth) of the socket.

2.3.2. The remainder of the sockets shall be filled with stiff mixture of cement mortar in proportion of one part of cement and one part of sharp sand. When the socket is fillet, a fillet shall be formed round the joints with a trowel, forming an angle of 45° with the barrel of the pipe.

2.3.3. The mortar shall be mixed as necessary for immediate use.

2.3.4. After the joint is made, any extraneous materials shall be removed from the inside of the joints with a suitable scraper or "badger". The newly made joints shall be protected, until set, from the sun, dry winds, rain or frost, sacking or other suitable materials which shall be used for the purpose.

2.3.5. The mortar shall be cured for 10 days.

Testing of Joints :

2.4.1. If any leakage is visible the defective part of the work shall be made good at no extra cost. The pipe line shall be tested as directed.

2.4.2. A slight amount of sweating which is uniform may be overlooked, but excessive sweating from a particular pipe or joints shall be watched for and taken as indicating a defect to be made good.

3.0 Mode of measurements and payment

3.1. The trenches bed to the lower part of the pipe and "Grips" dug to take socket, collars etc. are included in the rate of laying the pipes.

3.2. The measurements shall be net without any allowance for cutting, and waste. The length of bends, junctions, and other connections shall be included in the total length of the drain pipes. Nothing extra shall be paid for the same rate includes necessary excavation refilling trenches etc. complete.

3.3. The rate shall be for one running metre.

3.1-tS) *f-fc^ni:- -ja^h* vng and jointing **salt glazed stoneware** pipes with lime concrete 1:2:4 H[^].s⁻; -fj^{ie} o-snd : 4 **graded brick aggregate 40 mm.** nominal size bedding with [^]Ci.¹: T.ry form work and curing **etc. complete : 150 mm. dia.**

1.0. Materials & Workmanship : The relevant specifications of item 24.1.(A) shall be followed except that the that diameter of pipe shall be 150 mm. dia.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 24.1. (A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.2.(A) Providing and laying cement concrete 1:5:10 (1 cement: 5 fine sand : 10 graded stone : aggregate 40 mm. nominal size) bedding for stoneware pipe of following internal diameter with necessary form work and curing complete : 100 mm. dia. 300 mm. width (112 mm. average bed thickness).

1.0. Materials : (1) Water shall conform to M-1 (2) Cement shall conform to M-3. (3) Sand shall conform to M-6. (4) Stone aggregate 40 mm. nominal size shall conform to M-12.

2.0. Workmanship

2.1. The relevant specifications of item 5.3.4. shall be followed except that the concrete work shall be carried out in trenches as bedding for stoneware pipes. The width of concrete shall be 300 mm. and average thickness of bedding shall be 112 mm. The concrete shall be brought up atleast to the invert level of the pipe to form a cradle and to avoid line contact between the pipe and the bed.

3.0. Mode of measurements & payment

3.1. The rate includes cost of all labour and materials required for satisfactory completion of this item.

3.2. The rate includes cost of necessary form work required if any.

3.3. The rate shall be for a unit of One running metre.

24.2.(B) Providing and laying cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone : aggregate 40 mm. nominal size) bedding for stoneware pipe of following internal diameter with necessary form work and curing complete : 150 mm. dia. 450 mm. width (166 mm. average bed thickness).

1.1. Materials & Workmanship : The relevant specifications of item 24.2 (A) shall be followed except that the cement concrete work shall be carried out for bedding of stoneware pipe of 150 mm. dia. The average thickness of bedding shall be 166 mm. and width shall be 450 mm.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 24.2 (A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.19(1) Providing and fixing S.W. gully trap with C.I. grating brick masonry chamber and watertight C.I. cover with frame of 300 mm, x 300 mm. size (Inside) with standard weight : (A) square mount taps 100 mm. x 100 mm. size P. type

1.0. Materials : (1) Water shall conform to M-1. (2) Cement mortar of proportion 1:5 shall conform to M-11. (3) Burnt brick shall conform to M-15. (4) The S.W. Gully trap of 100 mm. x 100 mm. size shall conform to M-70.

2.C. Workmanship

2.1. Excavation for gully trap shall be done true to dimensions and levels as indicated on plans or as directed. The excavation work shall generally be done as per relevant specifications of item 4.0.0. of earth work.

2.2. Fixing :

2.2.1. The gully trap shall be fixed over cement concrete 1:5:10 (1 cement: 5 sand : 10 graded brick bats aggregate, 40 mm. nominal size) foundation. 650 square and 100 mm. thick. The depth of top of concrete below the ground level shall be 675 mm. The jointing of gully outlet to the branch drain shall be done similar to jointing of S.W. pipe as described in item No. 24.1(A).

2.3. **Brick masonry chamber:** After fixing and testing gully and branch drain, a brick masonry 300 x 300 mm. inside with bricks in CM 1:5 (1 cement : G sand) shall be built with a 100 mm. brick work round the gully trap from the top of bed concrete upto ground level. The space between the chamber walls and

the trap shall be filled with cement concrete 1:5:10. The upper portion of the chamber i.e. above the top level of the trap shall be plastered inside with cement mortar 1:3 (1 cement: 3 sand) finished with floating coat of neat cement. The corners and bottom of the chamber shall be rounded off so as to slope towards the grating.

2.4. C.I. cover with frame 300 mm. x 300 mm. (inside) size shall then be fixed on the top of the brick masonry with C.c 1:2:4 (1 cement ; 2 coarse sand : 4 graded aggregate 20 mm. nominal size) 40 mm thick and rendered smooth. The finished top of the cover shall be level about 40 mm. above the adjoining ground level so as to exclude the surface water from entering the gully trap/

3.0. Mode of measurements & payment

3.1. The rate includes cost of all labour, materials, tools and plant etc. required for satisfactory completion of this item as described above.

" 3.2. The rate shall be for a unit of one number basis.

24.22. Providing and laying (to level or slopes) and jointing reinforced concrete light duty non-pressure pipes I.S. class N.P. 2 of the following internal diameters with collars and butt ends prepared for collar joints including testing of joints etc. complete. (B) 150 mm. (C) 250 mm. (D) 300 mm. (E) 450 mm. (F) 500 mm. (G) 600 mm. (H) 900 mm. (K) 1000 mm. (M) 1200 mm.

1.0. Materials ; The reinforced concrete light duty non-pressure pipes of specified diameter shall conform to I.S. 458-1971.

2.0. Workmanship

2.1. The relevant specifications of item No. 24.1. A shall be followed for work of trenches except that the excavation in trenches shall be for reinforced concrete pipes of specified diameter.

2.2. Laying :

2.2.1. The pipes shall be lowered into the trenches carefully. Mechanical appliances may be used. Where necessary pipes shall be laid in straight lines or with easy curves and true to line and gradient as specified. The laying of pipe shall proceed up a slope. In the pipe spigot and socket joints, the socket ends shall face upstream. In case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid.

2.2.2. In case where the foundation conditions are unusual such as the proximity of trees or holes, under existing or proposed around in 150 mm. thick cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm. nominal size) or compacted sand or gravel.

2.2.3. In case where the natural foundation is inadequate the pipes shall be laid either in concrete cradle, supported on proper foundations or on any other suitably designed structure. If concrete bedding is used, the depth of concrete below bottom of the pipe shall be at least 1/4th of the internal diameter of the pipe-subject to a minimum of 100 mm. and a maximum 300 mm. The concrete shall be extended up the sides of the pipe at least to a distance of 1/4th of the outside diameter for pipes 300 mm. and over in diameter.

2.2.4. The pipes shall be laid in the concrete bedding before the concrete has set. Pipes laid in trenches in earth shall be bedded evenly and firmly and as far as up to the nature of the pipes as to safely transmit the load expected from the back fill through the pipe to the bed. This shall be done either by excavating the bottom of the trenches to fit the curve of the pipe or by compacting the earth under a round curve of the pipe to form an even bed. Necessary provision shall be made for joints wherever required.

2.3. Jointing :

2.3.1. The joints shall be done by slipping the collar over and clear of the end of the pipe. The recess of the end of the pipe shall be filled with jute braiding in hot bitumen. The new pipe shall then be brought forward until the bitumen ring in recess of first pipe is set into the recess of the second pipe. The process shall be repeated for two or three pipes which shall then be jacked up so as to thoroughly compress the bitumen. The quantity of jute and bitumen shall be just enough to fill the recess when pressed hard by jacking, care being taken that no offset of the jute braiding shall be visible either outside or inside of pipe. The collar shall then be set up over the joints covering equally both the pipe and leaving an even caulking space all round. Cement and sand mortar : 1 : 1.1/2 shall then be well punched or pressed home with a caulking tool within this caulking space. Care shall be taken that the underside of the joints is properly filled with mortar.

2.4. Curing :

2.4.1. Every joint shall be kept wet for about 10 days for maturing. The section of the pipe line laid and jointed shall be covered immediately to protect from weather effects. Minimum bore of 100 mm. is considered adequate.

2.4.2. The joints shall be left exposed for observation.

2.5. Testing of Joints :

2.5.1. The testing of joints shall be done as per relevant specifications of item No. 24.1 (A) except that the testing of reinforced concrete pipes shall be done.

3.0. Mode of measurements & payment

3.1. The relevant specifications of item 24.1 (A) shall be followed except that the rate includes for laying to level or slope in trenches etc. (measured separately), making the joints as indicated and testing to stand the water test.

3.2. The measurements shall be net without any allowance for cutting and waste. The length of bends, junctions and other connections (measured along the centre line) shall be included in the total length of the pipes, the connections being numbered afterwards and paid for extra over pipes.

3.3. The size of bend, junctions, etc. shall suit the size of pipe. The bore (internal diameter of pipe) shall be the criterion for payment.)

3.4. Nothing extra shall be paid separately for the use of mechanical appliances, where necessary, as described above.

3.5. The rate shall be for a unit of One running metre.

2.4.27. Costing Manhole with R.C.C. Top slab in 1:2:4 mix (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 bricks bats 40 to 50 mm. size) inside plaster 15 mm. thick with CM. 1:5 (1 cement : 5 coarse sand) finished with floating coat of neat cement and making channels in C.C. 1:2:4 mix (1 cement : 2 coarse sand : 4 stone aggregate 20 mm. nominal size) finished smooth complete including curing and testing (i) inside size 900 mm. x 120 mm. and 1.5 mm. deep, including C1 cover with frame size 500 mm. diameter, total weight of cover and frame to be not less than 128 Kgs. (Wt. of cover 64 Kg. and Wt. of frame 64 Kg.) (A) with 230 mm. thick walls of brick masonry using bricks having crushing strength not less than 35 kg/sq. cm. in CM 1:5 (1 cement : 5 coarse sand)

i	A type depth	0.90 metre for	150 mm. sewer
ii	B type depth	1.50 metre for	150 mm. sewer
iii	C type depth	2.25 metre for	150 mm. sewer
iv	D type depth	3.15 metre for	150 mm. sewer

1.0. Materials : Water shall conform to M-1. Cement shall conform to M-0. Burnt bricks shall conform to M-15. Brick bats of 40 to 50 mm. size shall conform to M-14. Stone coarse aggregate of 20 mm. nominal size shall conform to M-12. Grit shall conform to M-8. Cement mortar of specified proportion shall conform to M-11. The cast iron manhole cover of 550 mm. dia. with frame shall conform to I.S. 1726-1966.

2.0. Workmanship

2.1. The manholes of different types and sizes as specified shall be constructed in sewer line at such places and to such levels and dimension as shown in drawings of as directed.

2.2. The manholes shall be built on a bed of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 brick bats) (40) to 50 mm. nominal size) to the thickness of the bed concrete shall be 15 cms. for manhole upto 1. M. depth and 20 cms. for manholes over metre and upto over metre and upto 2 metres, depth and 30 cms. for manholes of greater depth.

2.2.2. Projection of bed concrete beyond the masonry wall shall be 15 cms.

2.3. Walls

2.3.1. The walls of manhole shall be carried out with burnt bricks using having bricks, crushing strength not less than 35 Kg/Cms in CM. 2 in CM. 1:5 (1 cement : 5 coarse sand). The thickness of brick masonry wall shall be 230 mm. The jointing face of such brick shall be well buttered with cement mortar before laying so as to ensure a full joints.

2.4. Plaster

2.4.1. The inside of walls shall be plastered 15 mm. thick with CM. 1:5 (1 cement : 5 coarse sand) and finished with floating coat of neat cement. All angles shall be rounded to 7.50 cms. radius and all rendered interior surfaces shall have hard impervious finish obtained by use of a trowel. The cement joints shall be a masonry shall be finished smooth.

2.5. Channels & Benching :

2.5.1. Channels shall be semicircular in the bottom half and of diameter equal to the sewer. Above the horizontal diameter, the sides shall be extended vertically to the same level as the crown of the out going pipe and the top edge shall be suitably rounded off. The branch channels shall also be similarly constructed with respect to the benching but at their junction with the main channel an appropriate fall suitably rounded off in the direction of flow in the main channel shall be given.

2.5.2. The channel and benching shall be done in C.C. 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) rising at a slop in line from edges of channel. The channels of the bottom of the chamber shall be plastered with CM. 1:2 (1 cement : 2 coarse sand) and steel troweled smooth.

2.6. Cover slab :

2.6.1. The cover slab of R.C.C. 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm. nominal size) 15 cms. thick reinforced with 10 mm. bars at 15 cms. C/C both ways, surface and edges finished fair. Full bearing equal to the width to the width of wall shall be given to the slab on all sides. The frame of manhole cover shall be embedded firmly in R.C.C. slab so that the top of the frame remains flush with the top of R.C.C. slab.

2.7. Testing:

2.7.1. Manhole shall be tested by filling with water to a depth not exceeding 1.2 M. as directed.

2.7.2. After completion of work, manhole cover shall be seated by means of thick grease.

3.0. Mode of measurements and payment

3.1. The depth of manholes shall be distance between the top of the manhole cover and the invert level of the main drain. The rate includes all labours, materials, tools, and plant etc. rec, hired for satisfactory completion of this item as directed above.

3.2. The rate shall be for a unit of the One number.

24.28.(I) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. or part thereof over item 24.47 (I) for depth from 0.90 to 1.5 M.

1.0. Materials and Workmanship

The relevant specifications of item No. 24.27 (I) shall be followed for excavation same, except that the depth of manhole shall be done 0.1 M. or part there of more then 0.90 meter upto 1.5M. The extra payment shall be made for additional depth of 0.1 M. or part thereof manhole done over and above the depth 0.90 metre.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 24.27 (I) shall be followed except that the extra rate shall be paid for every additional depth of 0.1. M. and part there of shall be paid over and above the rate of item No. 24.27 (I)

2.2. The rate shall be for a unit of One number.

24.2B.(II) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. and Part thereof over item 24.27 (M) for depth from 1.5 M. to 2.25 M.

1.0. Materials and Workmanship : The relevant specifications of item No. 24.27 (II) shall be followed except that the depth of manhole shall be done 0.1 M. or part thereof more than 1.5 M. upto 2.25 M. The extra payment shall be made for additional depth of 0.1 M. or part thereof manhole done over and above the depth 1.50 M. upto 2.25 M.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 24.27 (II) shall be followed except that the extra rate shall be paid for 0.1 M. or part thereof additional depth of manhole provided over and above item 24.27 (II).

2.2. The rate shall be for a unit of One number.

24.28.(111) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. or part thereof over item 24.27 (III) for depth from 2.25 to 3.15 M.

1.0. Materials and Workmanship : The relevant specifications of item No. 24.27 (III) shall be followed except that the depth of manhole shall be done 0.1 M. or part thereof more than 2.25 M. upto 3.15 M. Extra payment shall be made for additional depth of 0.1 M. or part thereof manhole done over and above depth 2.25 M. upto 3.15 M.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 24.27 (lit) shall be followed except that the extra rate shall be paid for every addition 0.1 M. or part thereof depth provided over and above item 24.27 (III).

2.2. - The rate shall be for a unit of One number.

24.2S(IV) Extra rate for constructing B.B. masonry for every additional depth of 0.1 M. or part thereof over item 24.27 (IV) for depth above 3.15 M. 1.0. Materials and Workmanship : The relevant specifications of item No. 24. 27 <IV) shall be followed except that the depth of manhole shall be done 0.1 M. or part thereof more than 3.15 M above. **1.2.** Extra payment shall be made for additional depth of manhole 0.1 M. or part thereof done above 3.15 M. and above depth.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 24.27 (IV) shall be followed except that extra rate shall be paid for every additional 0.1 M. or part thereof depth provided for an above item 24.27 (IV),

2.2. The rate shall be for a unit of One number.

24.33. Providing and fixing C.I. steps of sizes 500 x 150 mm, 22.5 mm. and painting with two coats of anti-corrosive paint etc. complete. 1.0. Materials : The C.I. steps of size 500 x 150 x 22.5 mm. size shall conform I.S. 5455-1969. Paint shall conform to **M-44.**

2.0. Workmanship

2.1. The C.I. steps of size 500 x 150 x 22.5 mm. size shall be fixed in manhole as and where directed. The steps shall be staggered in vertical runs 380 mm. apart horizontally The top step shall be 450 mm. below the manhole cover and lowest not more than 300 mm. above the benching. The steps shall be embedded in wall of manhole with C.C : 1:3:6 upto 200 m. depth and the surface finished with cement plaster 15 mm. thick in CM. 1:5. The steps shall be painted with two coats of anti-corrosive paint.

3.0. Mode of measurements & payment

3.1. The rate includes all labour, materials, tools and plants etc required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

24.39. Providing and erecting at the site of work steel ventilating column of 150 mm. internal dia. and 12.20 M. high from G.L. to bottom of top grill, including C.I. grill and base plate, bolts and nuts etc. and excavation in foundation of size 120 x 120 x 165 cms. and filling the pit with 1st layer of cement concrete 1:3:6 mix (1 cement : 3 coarse sand : 5 graded stone aggregate 20 mm. nominal size) of size 120 x 120 x 90 cm. and remaining pit with B.B.C.C. 1:3:8 mix (1 cement : 3 coarse sand : 6 brick bats 4G to 50 mm, size) and providing filled in cement concrete : 1:2:4 mix (1 cement : 2 coarse-sand : 4 graded stone aggregate 20 mm. nominal size) at G.L. and 3 coats of silver paint etc. complete.

1.0. Materials :

The steel ventilating column internal dia. 150 mm. 12.20 m. high shall be of standard quality and best quality as approved. Stone aggregate of 20 mm. nominal size shall conform to M-12. Brick-bars 40 to 50 mm. nominal size shall conform to M-4. Cement shall conform to M-3. Water shall conform to M-1. Silver (Aluminum) paint shall conform to I.S. 2339-1963.

2.0. Workmanship

2.1. The vent shaft shall be provided at the starting point of man sewer network at such a place where the flow of sewerage is disturbed i.e. at falls, siphones etc As far as possible the location shall be at such a place where it receives rain water for the maximum period of the day.

2.2. A pit of size 120 x 120 x 165 cms. shall be dug. The foundation shall be 1:3:5 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm. nominal size) shall be first laid in the pit 90 cms. thick

concrete foundation which shall be allowed to set for 24 hours. The vent shaft shall then be erected at the centre of the pit truly in plumb by means of such as shear legs, pullies, backless and rope etc.

2.3. The connection with sewer man-hole shall be made using 150 mm. diameter cement concrete pipe. After the connection is completed, the pit shall be filled with cement concrete : 1:3:6 (1 cement: 3 coarse sand : 6 brick bats 40 to 50 mm. nominal size) round the vent shaft upto ground level except top 150 mm. which shall be filled with C.C. 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) and rendered smooth. The junction of vent shaft with cement concrete shall be grouted with cement mortar 1:1 (1 cement : 1 sand). The concrete work shall be cured for 7 days,

2.4. The steel shaft shall be painted with silver paint (aluminum paint) 3 coats. The relevant specifications of item of painting shall be followed for painting.

3.0. Mode of measurements and payment

3.1. The rate shall include the cost of all labours and materials, tools and plant etc. required for satisfactory completion of this item as directed above.

3.2. The rate shall be for a unit of One number.

24.00.1(A) Providing and laying lime concrete 1:2:4 (1 Lime Putty : 2 fine sand : 4 graded brick aggregate 40 mm, nominal size) bedding for stoneware pipes of following internal diameters with necessary form work and curing complete : 100 mm. dia (112 mm. average bed thickness).

1.0. Materials : Water shall conform M-1. Lime mortar shall conform to M-10. Brick aggregate 40 mm. nominal size shall conform to M-14.

2.0. Workmanship

The relevant specifications of item No 5.1.8 shall be followed except that the proportion of mix shall be 1:2:4 (1 Lime Putty : 2 fine sand : 4 graded brick aggregate 40 mm. nominal size) and the concrete work shall be done in trenches for bedding of stoneware pipes of 100 mm. dia. The width of concrete shall be 300 mm. and the thickness of bedding shall be 112 mm. average.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item 24.2 (A) shall be followed. ^

3.2. The rate shall be for a unit of One running metre.

24.00.1(8) Providing and laying lime concrete 1:2:4 (1 Lime Putty : 2 fine sand : 4 graded brick aggregate 40 mm. nominal size) bedding for stoneware pipes of following internal diameters with necessary form work and curing complete :150 mm. dia. (166 mm. average bed thickness).

1.0. Materials and workmanship : The relevant specifications of 24.00.1 (A) shall be followed except that the concrete bedding shall be carried out for 150 mm. dia. stoneware pipe. The width of concrete bedding shall be 450 mm, and the average thickness shall be 186 mm.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item No. 24.2 (A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.27^1) Extra over item 24.1 for providing salt glazed stoneware fittings : Bends of required degree (Any Radius) of following internal diameters : A-100 mm. dia. B-150 mm. dia,

1.0. Materials & Workmanship

The relevant specifications of item 24.1 (A) shall be followed that the salt glazed stoneware bends of any degree of specified diameter shall be provided.

2.0. Mode of measurement & payment

2.1. The relevant specifications of item No. 24.1 (A) shall be followed except that extra payment shall be made for providing salt glazed stoneware bend of specified diameter or required degree of any radius over above the of item No. 24^1

2.2. The rate shall be for a unit of One number.

24.17(t)(A) Extra over item 24.1 for providing salt glazed stoneware fittings : Taper bend of required degree of following internal diameter. 100 mm. x 150 mm.

1.0. Materials & Workmanship : The relevant specifications of item 24.1 (A) shall be followed except that the salt glazed stoneware taper bend of required degree of 100 mm. x 150 mm. shall be fixed.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item No. 24.1 (A) shall be followed except that extra payment shall be made for providing salt stoneware taper bend of required degree of **100 mm. x 150 mm.** size over and above the rate of item No. 24.1.

2.2. The rate shall be for a unit of One number.

24.17.(111) Extra over item 24.1 for providing salt glazed stoneware fittings : Single junction of required angle of following internal diameter (A) 100 mm. dia. (B) 150 mm. dia.

1.0. Materials & Workmanship

The relevant specification of item 24.1 (A) shall be followed except that the salt glazed stoneware single of junction required angle of specified diameter shall be fixed.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item 24.1 (A) shall be followed except that the extra rate shall be paid for providing salt glazed stoneware single Junction of required angle for specified diameters over and above the rate of item 24.1.

2.2. The rate shall be for a unit of One number.

24.18. Providing and laying, jointing and jointing and pointing with stiff mixture of CM. 1 : 1 (1 cement : 1 find sand) 150 mm. internal diameter salt glazed stoneware half round channels.

1.0. Materials and Workmanship : The relevant specifications of item 24.1 shall be followed except that the half round channels of 150 mm. internal diameters shall be fixed in cement mortar 1.1.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 24.1_(A) shall be followed.

2.2. The rate shall be for a unit of One running metre.

24.35. Supplying and fixing C.I. cover 300 x 300 mm. without frame for gully trap (Standard pattern), weight of cover shall not be less than 4.53 Kg.

2.0. Workmanship

The C.I. cover 300 x 300 mm. size without frame shall be fixed on top of the brick masonry with cement concrete : **1:2:4** (1 cement : 2 sand : 4 graded stone aggregate 20 mm. nominal size) 40 mm. thick and rendered smooth. The finished top of the cover shall be left about 40 mm", above the adjoining ground level so as to exclude the surface water from entering the gully trap.

3.0. Mode of measurements and payment

3.1. The relevant specifications of item No. 24.19 shall be followed.

3.2. The rate shall be for a unit of One number.

24.40. Constructing brick masonry road gully chamber 500 mm. X 450 mm. x 600 mm. including 500 mm. x 450 mm C.I. horizontal grating with frame complete.

1.0. Materials : Water shall conform to M-1. Cement shall conform to M-3. Sand shall confirm to M-6. Brick shall conform to M-15. C.I. Grating of 500 x 450 mm. size of standard make shall be of approved quality. Stone aggregate 40 mm, nominal size shall conform to M-12. coal tar shall conform to relevant M-5.

2.0. Workmanship

2.1. The chamber shall be of size 500 mm. x 450 mm. internal clear dimensions between the masonry wall faces. The height of 500 mm. shall be measured from the top of the bed concrete to the top of the C.f.

frame. The size of grating indicate the clear internal dimensions of the C.I. frame of the grating.

- 2.2. The excavation shall be done to true dimensions and levels.
- 2.3. The foundation concrete shall consist of 150 Cmsx 100 Cms x 15 cms thick C.C. 1:5:10 (1 cement : 5 sand : 10 graded stone aggregate 40 mm. nominal size).
- 2.4. The wall of the chamber shall be constructed in brick work CM. 15 and 23 Cms. thick as per relevant specifications of item 6.12(B).
- 2.5. The walls and the bed concrete of chamber shall be plastered inside with 12 mm. thick cement plaster 1 : 3 (1 cement : 3 coarse sand) finished smooth.
- 2.6. The gully grating cover shall be hinged to frame to facilitate its opening for cleaning and repairs. The frames of the gully grating g shall be fixed on the top of masonry wall of the chamber in 15 cms. thick C.C. 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm. nominal size) laid over the full thickness of walls..
- 2.7. The chamber shall have connection pipe, the length of which in metre between the road gully chamber and the manhole of the drain shall not be less than 1/40 times the nominal diameter of the pipe in MM. i.e. for 150 mm. connection pipe the length shall not be cement p3ster on the bed concrete.
- 2.8. Painting . Aftai the completion of the work of exposed surface of the grating of the frame shall be painted with a thick coat of coal tar.
- 3.0. Mode of measurements and payment
- 3.1. The cost of connection pipes is not included in the item and shall be apid separately. However, fixing the connection pipes in the walls of gully chamer is included in the rate for gully chambers and nothing extra shall be paid for this separately.
- 3.2. The rate shall be for a unit of One number.

24.41. Constructing brick masonry road gully chamber 450 mm. x 450 mm. x 775 mm. with vertical grating complete.

1.0. Materials and Workmanship : 1 he relevant specifications of item 24.40 shall be followed except size of road gully chamber is 450 mm x 775 mm. with vertical grating complete.

2.0. Mode of measurements and payment

- 2.1. The relevant specifications of item 24.40 shall be followed.
- 2.2. The rate shall be for a unit of one number.

24.42. Constructing brick masonry road gully chamber 1100 mm. x 500 mm. x 775 mm. including 500 mm. x 450 mm. C.J. horizontal grating with frame and vertical grating complete.

1.0. Materials and Workmanship : The relevant specifics z of item 24.40 shall be followed except that the size of road gully chamber shall be 1100 mm. x 50Q mm. x 775 mr- < including 500 mm x 450 mm. C.I. horizontal grating with frame and vertical grating complete.

2.0. Mode of measurements and payment

- 2.1. The relevant specifications of item No. 24.40 shall be followed.
- 2.2. The rate shall be for a unit of one sq. metre.

24.44(1) Constructing brick masonry chamber for underground C.I. inspection chamber and bends with brick having crushing strength not less than 35 Kg/ Cm. 2 in CM/1:5 C.I. cover with frame (Sight duty) 455 x **610** mm. internal dimensions, total weight of cover with frame to be not less than 38 Kg. <Wt of cover 23 Kg. and Wt of frame 15 Kg.) R.C.C. top slab C.C. 1:2:4 mix (1 cement : 2 coarse sand : 4 graded aggregate 20 mm. size) foundation concrete i;5:10, inside plater 15 mm. thick with CM. 1:3 finished smooth with a finishing coat of neat cement on walls and bed concrete etc, complete : insets dimensions 455 mm, x 610 mm. and 450 mm. deep for single pipe-line.

1.0. Materials : Water shall conform to M-1. Cement shall conform to M-3. Coarse sand shall conform to M-5. Brick shall conform to M-15. Stone aggregate shall conform to M-12. Brick bat shall conform to M-14 M.S. bar shall conform to M-18.

2.0. Workmanship

2.1. C.I. inspection chamber with provision of C.I. bends of specified size with bolts, nuts and felt washers for underground drain shall be enclosed in masonry chamber which shall be constructed as under:

2.2. The excavation shall be done true to dimensions and level shown in one the plans or as directed.

2.3. Bed concrete shall be 15. Cms. thick C.C. 1:5:10 (1 cement: 5 coarse sand : 10 graded brick bat aggregates. The projection of bed concrete beyond the masonry walls shall be 7.5 cms.

2.4. Masonry walls and plaster work shall be carried out as per relevant specifications of item 24.40.

2.5. The cover slab shall be constructed as per relevant specifications of 24.27 (I).

3.0 Mode of measurements and payment

3.1 The earth work in excavation, providing and laying C.I. inspection chamber and bends shall be measured and paid for separately.

3.2 The rate shall be for a unit of One number.

24.44.(II) Constructing brick masonry chamber for underground C.I. inspection chamber and bends with brick having crushing strength not less than 35 Kg/ Cm. 2 in CM/ 1:5 C. cover with frame (light duty) 455 x 610 mm. internal dimensions, total weight of cover with frame to be not less than 38 Kg. (Wt of cover 23 Kg. and Wt of frame 15 Kg.) R.C.C. top slab with 1:2:4 mix (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm. size) foundation concrete 1:5:10, inside plaster 15 mm. thick with CM. 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete : Inside dimensions 500 mm. x 700 mm. and 450 mm. deep for pipe the with one or two inlets.

1.0. Materials and Workmanship : The relevant specifications of item 24 24 (I) shall be followed except that the inside dimension of brick masonry chamber shall be 500 mm. x 700 mm. and 450 mm. deep for pipe the with on two inlets.

2.0. Mode of measurement and payment

2.1. The relevant specifications of item 24.44 (I) shall be followed. 2.2. The rate shall be for a unit of one number.

24.44.(III) Constructing brick masonry chamber for underground C.I. inspection chamber and bends with brick having crushing strength not less than 35 Kg/ Cm. 2 in CM/ 1:5 C.I. cover with frame (tight duty) 455 x 610 mm. internal dimensions, total weight of cover with frame to be not less than 38 Kg. (Wt of cover 23 Kg. and Wt of frame 15 Kg.) R.C.C. top slab with 1:2:4 mix (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm. size) foundation concrete 1:5:10, inside plaster 15 mm. thick with CM. 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete : Inside dimensions 600 mm. x 850 mm. and 450 mm. deep for pipes line with three or more inlets.

1.0. Materials and workmanship : The relevant specifications of item No. 24 .44 (I) shall be followed except that the inside dimensions of chamber shall be 600 mm. x 850 mm. and depth 450 mm. for pipe lines with three or more inlets.

2.0. Mode of measurements & payments

2.1. The relevant specifications of item 24.44 (I) shall be followed.

2.2. The rate shall be for a unit One number.

- 24.46. Extra over item 24.44 for every additional depth of 1 M. or part thereof beyond 450 mm. depth for brick masonry chamber, (i) For 455 mm. x 610 mm. size (ii) For 500 mm. x 700 mm. size (iii) For 600 mm. x 850 mm. size.**

1.0 Materials & Workmanship : The relevant specifications of item **24.44** (i),(ii_ (iii) shall be followed same except that extra depth of 0.1 M. or part thereof shall be constructed over and above the depth of respective items.

2.0. Mode of measurements & payment

2.1. The relevant specifications of item **24.44** (I) shall be followed except that the extra shall be paid for providing additional depth of 0.1 M. or M, or part thereof over and above the item No **24.44. (I) 24.44 (II) 24.44** (111) as the case may be.

2.2. The rate shall be for a unit of One number.

24.00.2. (A) Providing soak pit of 2 cum. volume including excavating and filling brick bats with dry masonry work at top for 450 cms. height including covering, the top with stone including providing Vatas in CM. 1:3 with finishing curing etc. complete as directed.

1.0. Materials : Water shall conform to M-1. Cement mortar conform to M-11. Burnt Bricks shall conform to M-15. Rough stone slab 40 x 50 mm. thick shall conform to M-48. Brick bat shall conform to M-14.

2.0. Workmanship

2.1. The excavation for soak pit shall be carried out as per relevant specifications of item. 4.00.1 (A) except that the size of soak pit such that the clear volume shall remain 2 cum. The diameter and depth shall be as directed.

2.2. The periphery of the soak pit shall be provided with dry masonry wall with burnt bricks in 23 cms. thick. The masonry wall shall be done with best workman like manner in true line and plumb.

2.3. The soak pit shall be filled in with brick bats of burnt brick 40 mm. nominal size in 45 cms. height. The work of filling brick-bats shall be done in such a way that no dry masonry shall be damaged during filling of brick bats.

2.4. The top of the soak pit shall be covered with rough kotah stone slab 40 to 50 mm. thickness. The length of the stone shall be in single piece in length.

2.5. The cement mortar 1:3 shall be used to fill up the joints and preparing vata as directed.

2.6. The cement work shall be cured for 4 days.

3.0. Mode of measurements and payment

3.1. The rate includes costs of all labour and material required for satisfactory completion of this item as described above.

24.00.2.(B) Providing soak-pit of 5 cum. volume inc. excavating and filling brick bat with dry masonry work at top for 45 cms. height including covering the top with stone including providing vatas in CM. 1:3 with finishing curing etc. complete as directed.

1.0. Materials and workmanship : The relevant specifications of item 24.00.2 (A) shall be followed except that the volume of soak pit shall be 5 cum. clear.

2.0. Mode of measurements and payment

2.1. The relevant specifications of item 24.00.2 (A) shall be followed.

2.2. The rate shall be for a unit of One number.

EQUIVALENT PLAIN AREAS OF UNEVEN SURFACES (Vide specifications for items relating to : Painting & Polishing)

Sr. No.	Description of work	How measured	Multiplying Factor
1.	Panelled or framed and barced on ledged and battened or ledged and braced joinery.	Measured flat (not girthed) including chowkat or frame edges, chocks clients etc. shall be deemed to be included in item.	1.30 (For each said)
2.	Flush joinery	Measured flat (not girthed) including chowkat or frame. Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	1.20 (Foreach side)
3-	Fully glazed or gauzed joinery	Measured flat (not girthed) including chowkat or frame. Edges, Chocks, cfeats, etc. shall be deemed to be included in the item.	0.80 (For each side)
4.	Partly panelled and partly glazed or gauzed joinery	Measured flat (not girthed)incljding chowkat or frame. Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	1.00 (For each side)
5.	Fully venetioned or louvered joinery.	Measured flat (not girthed) including chowkat or frame. Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	1.80 (For each side)
6.	Weather boarding	Measured flat (not girthed) supporting frame work shall not be measured separately.	1.20.(For each side)
7.	Wood single roofing	Measured flat (not girthed)	1.10 (For each side)
8	Boarding with cover fillets at match boarding	Measured flat (not girthed)	1.05 (For each side)
	Tie and Slate battening	Measured flat, overall, no deduction «. shall be made for open space over	0.80 (For painting over)
10.	TreiiiS (or Jafri) work on.? way o.' two way	Measured flat, over all, no deduction shall be made for the open spaces supporting members shall not te measured separately).	1 .00 (For painting all ever)

11.	Guard, bars, balustrades, gates, graying, grills, expanded metal and railings.	Measured flat over all, No deduction shall be made for the open spaces, over) supporting members shall not be measured separately.	1.00 (For painting all over)
12.	Gates and open palisade fencing including standards	Measured flat over all No. deduction shall be made of open spaces : supporting members shall not be measured separately, (see note).	1.00 painting all over
13.	Curved or enriched work	Measured flat	2.0 (For each side).
14.	Steel roller shutter	Measured flat (size of opening) over all jamb, guides bottom rails and locking arrangement etc., shall be included in the item (top cover shall be measured separately).	1.10 (For each side)
15.	Plain sheet door and windows	Measured flat (not including) frame	1.10 (For each side)
16.	Full glazed or gauze steel door and windows	Measured flat (not girthed) including Frame edges etc.	0.50 (For each side)
17.	Partly panelled and partly glazed or gauzed steel doors	Measured flat (not girthed) including frame edges etc.	0.08 (For each side)
18.	Collapsible gate	Measured flat (size of opening) no separate measurements shall be taken for the top and bottom guide rails, rollers, fittings, etc.	1.50 (For painting all over)

Note : The height shall be taken from the bottom of the lowest of rail if the palisades do not go below it (or from the lower end of palisades, if they protect below the lower rail) up to the top of palisades, but not upto the top of standards if they are higher than the palisades.

NOTE : PLEASE READ CAREFULLY :

- (1) Where detailed specification of an item provides for specific size of any fixture or fastening that shall prevail over the provisions in this schedule.
- (2) Fixtures and fastenings (except hold fasts which shall be of M.S. plate only) shall be of Brass, copper, oxidised brass, chromium plated brass. Iron, copper oxidised iron, or chromium plated iron as specified in the item of the work or detailed specifications.
- (3) External door and door failing in staircase excepting the door in balcony shall have sliding door bolt of size 300 mm. x 18 mm. in place of 250 mm. x 16 mm. as shown in this schedule.
- (4) The length of tower old shown is for a door having shutter height upto 2100 mm. only. For door having shutter height more than 2100 mm. the length of tower bolts to be increased to the extent of increase of door shutter height beyond 2100 mm.
- (5) 150 mm. x 150 mm. size glass vision panel shall be provided in the doors of Officer's chamber in addition to the scheduled provision if so directed by the Engineering in charge.
- (6) Diamond shape chromium plated brass peeping plate of approved quality shall be provided in one entrance door in residential building in addition to the scheduled provisions.
- (7) Drawer up a wardrobe shall be provided with one furniture handle and one drawer lock (4 levers) in addition to its scheduled provision.
- (8) For door and window with steel frame, 75 mm. size screws, shall be provided both in top bottom frame for fixity as shown below :
 - (a) For width upto 1200 mm 2 Nos.
 - (b) For width above 1200 mm. and upto 1800 mm 3 Nos.
 - (c) For every additional width of 500 mm. over and above 1800 mm 1 No.
- (9) When the mortise lock (6 levers) and latch is specified to be provided to a door either in the item of work itself or by a separate amity, the requirement of providing sliding door bolt, door latch and handles as per his schedule shall be dispensed with.
- (10) For door/window with ventilator at top, fixtures and fastenings of door/window plus those of ventilator (excluding hold fasts) shall be used.
- (11) Where the item of the work, or its specification provides for anodised aluminum fixtures, all the fixtures except hinges and screws will be of anodised aluminum and chromium plated iron hinges and screws shall be used.
- (12) For door, window, or cupboard frame abutting concrete section, instead of hold fasts as shown in the schedule, coach screws of size mentioned below shall be used :
 - (a) Teak wood frame 125 mm.
 - (b) Steel frame 75 mm.
- (13) The locking etc. in the door latch shall be so positioned that the can be properly locked even if part of the latch, when fully slided, remains in the frame or masonry.
- (14) Showcase cupboards having single shutter shall be provided with all catcher instead of tower bolt (barrel type) as per schedule.
- (15) The size of the handle shown in the schedule indicates grip length.
- (16) Door stopper shall be shown in the schedule indicates grip length.
- (17) Piano hinges shall be for the full height of the shutter.
- (18) shutter with pivot arrangements shall be pivot arrangement shall be provided with two pivots of approved size instead of hinges as per the schedule.
- (19) For butt hinges, only lengths are indicated in the schedule. The width of each flap being 5 mm. less than the thickness of the shutter to which they are to be fixed and the thickness of the flap shall be as specified in the relevant I.S.s. for heavy, medium or light as specified in the detailed specifications of the item of work.

Schedule for Testing of Materials

For ensuring quality control and workmanship, various test prescribe below corresponding to the material concerned shall be taken as periodic intervals as stipulated below be taken.

The Material shall be got tested Govt, recognised Laboratory (R & B) or feild Laboratory of GERI (R & B) for which 1 % of the estimated amount to tender shall be recovered from the contractor from the R.A.Bill and Final Bills as the testing charges shall be paid by the Govt, to the GERI. However if the charged increase over 1% no excess recovery shall be made from the contractor as per resolution of B&C department dated 10th May 1985, vide TNC/1085 (4) S.

Item No. as per Sch.B	Brief Description of Materials to be tested	Gty. of Material	Prescription of test which shall be carried out	Frequency @ which test shall be carried out	Total No. of test to be taken
1.	Kapchi	-	- Gradation test - Impact Value - Flakiness Index of aggregate	CMT1 to 100- 1 test 100 to 500-3 tests 500 to 1500-5 tests 1500 to 5000-7 tests	
2.	Grit		- Stripping Value		
3.	Sand	-	- Special gravity - Water absorption - Fineness Modulus - Silt-Content - Soundness	-	
4.	Tiles	-	- Dimansion Test - Transverse strength - Water Absorption - Abrasion Test	-	
5.	Teak wood	-	- Anatomy Test - Density Test - Moisture content Test	-	
6.	Bricks	-	- Water Absorption - Efflorence -Sizw - Comprehensive Srength	1 lest @ 50,000 Bricks	
7.	Cement		- Consistancy - Setting Time - Compressive Strength	1 test @ 10.0 M.T. As per manual of Quality Contro	
8.	Steel		- Tensile strength - Yeild Stress - Elongation -Size		
9.	C.C Cube test 1:2:4	-	- Compressive Strength	1 To 5 Cum. 1 No. 6 to 15 Cum. 2Nos. 16 to 20 Cum. 3Nos. 21 to 50 Cum. 4Nos. 51 & Above Cum 4+ 1 for each Cum or part thereof	

The contractor shall have to pay 1% of the estimate cost put to tender towards all testing of materials & same shall be deducted from their bills for the works. The testing of various materias shall be carried out in **GERI** and result received shall be binding to all. ie. contractor and Govt.

Testing Charges of GERI shall be born by Govt. No refund be made or exrta charge over 1% shall be recoverable form the contractor.

SIGN OF CONTRACTOR

3.1.

(2) STEEL (CTD of FE 415 Grade)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Elongation In % (on gauge length of 5.65 A where A = cross sectional area)	1786-1979 (II revision)	Not less than 14.5%	
2	0.2 Percent proof stress	1786-1979 (II revision)	Not less than 415 N /mm ²	
3	Tensile strength	1786-1979 (II revision)	Minimum 15% more than the actual 0.2 percent stress.	

(3) SAND (FINE AGGREGATES)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Fineness modulus (F.M.)	386-1963	F.M. may range between 2.6% to 3.6% for concrete upto 1.6% for plastering, and up to 3% for masonry.	
2	Silt Content	386-1963	If silt content exceeds 4% by weight then it should be washed before use.	

(4) GLAZED TILES

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Water absorption	777-1970	Shall not exceed 18%	
2	Crazing	777-1970	Shall not show any sign of crazing after two cycles of test in an autoclave.	
3	Chemical Resistance	777-1970	Glazed surface (white or cream) shall show no deterioration.	

(5) COARSE AGGREGATES (METAL)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Aggregate crushing value.	2386-1963 (Part IV)	(a) Shall not exceed 45% for aggregates used for concrete other than for wearing coat. (b) Shall not exceed 30% for concrete wearing surfaces. (run ways, roads, pavement)	
2	Aggregate Impact Value	2386-1963	(a) Shall not exceed 45% by weight for concrete other than for wearing surface. (b) Shall not exceed 30% for concrete wearing surfaces.	
3	Aggregate Abrasion Value (Using Los Angeles)	2386-1963 (Part IV)	(a) Shall not exceed 50% for aggregates to be used in concrete other than for wearing surface. (b) Shall not exceed 30% for aggregates to be used in concrete wearing surfaces.	

(6) BRICKS (COMMON BURNT CLAY BUILDING BRICKS)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Compressive Strength (a) Average	1077-1976	Average compressive strength not less than 35 kg/cm ²	
	(b) Individual	1077-1976	Not less than 20% of minimum average required	
2	Water absorption	1077-1976	Shall not be more than 20%	
3	Efflorescence	1077-1976	Shall not be more than moderate.	

(7) SOLID LOAD BEARING BLOCKS

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Density	2185-1979 (Part-I)	Not less than 1800 kg/cum	
2	Compressive strength	2185-1979 (Part-I)	Not less than 4.0 N / mm ²	
	(b) Individual	2185-1979 (Part-I)	Not less than 3.2 N /mm ²	
3	Water absorption	2185-1979 (Part-I)	Not to exceed 10% by weight.	
4	Drying shrinkage	2185-1979 (Part-I)	Not to exceed 0.1%	

NOTE :- In R.C.C. framed structured building, non load bearing solid bricks are used. I.S. code does not specify any test results for these. However for HOLLOW NON LOAD BEARING UNITS, results required are
(1) Density - Less than 1500 kg/cum but not less than 1000 kg /cum
(2) Compressive strength - Average not less than 1.5 N/mm². Individual not less than 1.2 N/mm².

(8) MARBLE MOSAIC TILES

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Water absorption	1237-1980	Average value shall not exceed 10%.	
2	Wet transverse strength	1237-1980	Average value shall not be less than 3 N/mm ²	
3	Resistance to wear (a) For general purpose	1237-1980	(a) Average wear shall not exceed 3.5mm. (b) Wear on individual specimen shall not exceed 4mm.	
	(b) Heavy duty floor tile	1237-1980	(a) Average wear shall not exceed 2mm. (b) Individual shall not exceed 2.5mm.	

(8) FLUSH DOOR SHUTTERS (SOLID CORE TYPES)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	End Immersion test	2202-1980 (Part-I)	There shall be no declaration.	
2	Knife test	2202-1980 (Part-I)	Should pass through the test.	
3	Glue Adhesion test	2202-1980 (Part-I)	Should pass through the test.	
4	Type test	2202-1980 (Part-I)	Should pass through the test.	

*** NORMS FOR FIELD TESTS OF VARIOUS MATERIALS**

be recorded.

The details of physical field test at site are specified
The table also shows the results required of all the tests. Actual results at site may differ and hence a separate column is added for actual results to

The required results for various materials are based on practical acceptance and may vary from site to site or as per standard norms.

(1) CEMENT

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Grade	33/43/53	
2	Freshness test a) Manufacturing date b) Lump test	Printed week, month year No lumps should be present	
3	Fineness test a) Feeling to the fingers after rubbing in the fingers.	It should feel silky	
4	Weight of each bag.	50 kg.	
5	Floating test	Should float on water before sinking	
6	Paste test	Should gain some strength after 24 hours curing	
7	Type of bag	Jute/Polythene/Paper bag	
8	Original Stitching	Should be intact.	

(2) BINDING WIRE

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Gauge of wire	As ordered (Normal gauge 17S.W.G.)	
2	Bending test for hardness	should be soft for twisting	

(12) M.S. WINDOW

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	a) Check for Ahemdabad section marking at every metre length	Trade mark embossed on section at every metre.	
	b) Bombay section/other section.	Check as per requirement	
2	Check gauge and section of window and-accessories provided as per standard drawing (Each and every item in detail)	It should be as per drawing and design.	
3	Arrangements/position for each accessories.	As per drawing	
4	Check window for diagonal/size plumb	Both diagonals should be same and correct.	
5	Check red oxide and welding/ overall finishing quality	Red oxide should be unifrom.	
6	Check weight of one window in every 20 Nos.	As per purchase order	
7	Opening shutter	As per drawing	
8	Locking system	As per drawing	
9	Hinges	Smooth working	

(13) GLASS FIXING

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Check overall size, thickness, type of glass etc.	As per specified	
2	Check for wavyness, cracks, cavities etc.	Should be free from any defects.	
3	Check for straightness and right angles..	Should be perfect	
4	Scratches	Should not be present.	
5	Check for overall fixing work.	Should be O.K. and up to satisfaction.	
6	Check for putti/glazing clip.	As per order/requirements uniform fixing of clip at required spacing.	
7	Tolerance for thickness between 4mm to 7mm. Thick glass sheets.	0.4mm	

(14) M.S. ROLLING SHUTTER

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Type of shutter	Pull and push type	As per actual
2	Whether C.R.C.A. or H.R.C.A sheet used for laths.	Should be as per purchase order.	As per actual
3	Gauge of bottom lock plate and locking arrangement	Should be as per purchase order.	As per actual
4	Type of section used for laths with gauge.	16/18/20 gauge or should be as per purchase order.	As per actual
5	Check shutter laths in 30cm length.	4 to 4 No. or as per drawing	As per actual
6	Top cover in one piece with centrally supported plate and its gauge.	In one piece of 20/22/24 gauge or as per order.	As per actual
7	Diameter of ball bearing and spring with their No.	Check No. and size as per order.	As per actual
8	M.S. pipe shaft diameter.	Generally 40mm of 14 gauge or as per order.	As per actual
9	Bracket plates and guide rail	As per order.	As per actual
10	Stoppers on each side	As per order.	As per actual
11	Handle	2 Nos. rivetted or as per order.	As per actual
12	Hold fast at equal distance	30 cm. In length and 3 nos. on each side or as per order.	As per actual
13	Red oxide	Uniform one coat	As per actual
14	Extra locking arrangement	1 No. in centre or as per order.	As per actual
15	Overall finishing/fixing/locking operation.	Should be neat and proper	As per actual
16	All fittings and fixtures etc.	In right angle, in line and level.	As per actual
17	Greasing for spring and guide rails.	Should be sufficient for smooth operation.	As per actual

(15) ALUMINIUM WINDOW

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Size	As per drawing.	As per actual
2	Diagonal and plumb	Should be perfect.	As per actual
3	Section/accessories used for mullion, tracks, shutters interlocking etc.	As mentioned in drawings.	As per actual
4	Fixing work.	Should be proper with screws.	As per actual
5	Check for necessary position and rubber/P.V.C. packing glass	It should be located as per drawing.	As per actual
6	Check for quality of glass, aluminium section coating etc.	As per specification.	As per actual
7	Make of aluminium section used.	As specified.	As per actual
8	Sliding of glass panels.	Smooth	As per actual
9	Scratches/bends/cracks(if any)	Free from all defects.	As per actual
10	Proper fixing in wall opening.	Side gap should not be there (if any, filled with gap filler)	As per actual
11	Provision of drain holes in window bottom channel.	Should be provided as per drawings.	As per actual

(16) PLUMBING G.I. PIPES AND FITTINGS

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Class/diameter/wall thickness	It should be marked with proper colour markings and thickness as per class.	As per actual
2	Defects	Free from any cracks	As per actual
3	Weight of pipe	Should be as per Standard weights.	As per actual
4	Length and size	As per purchase order.	As per actual

(17) MOSAIC TILES

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Size	25cm x 25m x 22mm (10" x 10") 30cm x 30cm x 25mm (12" x 12")	As per actual
2	Colour	Gre/white	As per actual
3	Nos. of chips and its proportion	0 to 5 No. (size of chips) or as per order.	As per actual
4	Diagonal of tile	both diagonals should be perfect.	As per actual
5	Top layer thickness and straightness of tiles.	Not less than 6mm corners, should not be bend.	As per actual
6	Water absorption	Less than 10%	As per actual
7	Marking of lot	Reference colour band on tile.	As per actual
8	Top surface and sharpness of edges.	Should be smooth with sharp edges.	As per actual
9	Cracks, cavities in the tiles.	Should be free from all defects.	As per actual

(2) STEEL (CTD of FE 415 Grade)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Elongation In % (on gauge length of 5.65 A where A = cross sectional area)	1786-1979 (II revision)	Not less than 14.5%	
2	0.2 Percent proof stress	1786-1979 (II revision)	Not less than 415 N /mm ²	
3	Tensile strength	1786-1979 (II revision)	Minimum 15% more than the actual 0.2 percent stress.	

(3) SAND (FINE AGGREGATES)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Fineness modulus (F.M.)	386-1963	F.M. may range between 2.6% to 3.6% for concrete upto 1.6% for plastering, and up to 3% for masonry.	
2	Silt Content	386-1963	If silt content exceeds 4% by weight then it should be washed before use.	

(4) GLAZED TILES

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Water absorption	777-1970	Shall not exceed 18%	
2	Crazing	777-1970	Shall not show any sign of crazing after two cycles of test in an autoclave.	
3	Chemical Resistance	777-1970	Glazed surface (white or cream) shall show no deterioration.	

(5) COARSE AGGREGATES (METAL)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Aggregate crushing value.	2386-1963 (Part IV)	(a) Shall not exceed 45% for aggregates used for concrete other than for wearing coat. (b) Shall not exceed 30% for concrete wearing surfaces. (run ways, roads, pavement)	
2	Aggregate Impact Value	2386-1963	(a) Shall not exceed 45% by weight for concrete other than for wearing surface. (b) Shall not exceed 30% for concrete wearing surfaces.	
3	Aggregate Abrasion Value (Using Los Angeles)	2386-1963 (Part IV)	(a) Shall not exceed 50% for aggregates to be used in concrete other than for wearing surface. (b) Shall not exceed 30% for aggregates to be used in concrete wearing surfaces.	

(6) BRICKS (COMMON BURNT CLAY BUILDING BRICKS)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Compressive Strength (a) Average	1077-1976	Average compressive strength not less than 35 kg/cm ²	
	(b) Individual	1077-1976	Not less than 20% of minimum average required	
2	Water absorption	1077-1976	Shall not be more than 20%	
3	Efflorescence	1077-1976	Shall not be more than moderate.	

(7) SOLID LOAD BEARING BLOCKS

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Density	2185-1979 (Part-I)	Not less than 1800 kg/cum	
2	Compressive strength	2185-1979 (Part-I)	Not less than 4.0 N / mm ²	
	(b) Individual	2185-1979 (Part-I)	Not less than 3.2 N /mm ²	
3	Water absorption	2185-1979 (Part-I)	Not to exceed 10% by weight.	
4	Drying shrinkage	2185-1979 (Part-I)	Not to exceed 0.1%	

NOTE :- In R.C.C. framed structured building, non load bearing solid bricks are used. I.S. code does not specify any test results for these. However for HOLLOW NON LOAD BEARING UNITS, results required are
(1) Density - Less than 1500 kg/cum but not less than 1000 kg /cum
(2) Compressive strength - Average not less than 1.5 N/mm². Individual not less than 1.2 N/mm².

(8) MARBLE MOSAIC TILES

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	Water absorption	1237-1980	Average value shall not exceed 10%.	
2	Wet transverse strength	1237-1980	Average value shall not be less than 3 N/mm ²	
3	Resistance to wear			
	(a) For general purpose	1237-1980	(a) Average wear shall not exceed 3.5mm. (b) Wear on individual specimen shall not exceed 4mm.	
	(b) Heavy duty floor tile	1237-1980	(a) Average wear shall not exceed 2mm. (b) Individual shall not exceed 2.5mm.	

(8) FLUSH DOOR SHUTTERS (SOLID CORE TYPES)

SR. NO.	LABORATORY	RELEVANT I.S. CODE	PHYSICAL REQUIREMENTS	RESULT OBTAINED
1	End Immersion test	2202-1980 (Part-I)	There shall be no declaration.	
2	Knife test	2202-1980 (Part-I)	Should pass through the test.	
3	Glue Adhesion test	2202-1980 (Part-I)	Should pass through the test.	
4	Type test	2202-1980 (Part-I)	Should pass through the test.	

*** NORMS FOR FIELD TESTS OF VARIOUS MATERIALS**

be recorded.

The details of physical field test at site are specified
The table also shows the results required of all the tests. Actual results at site may differ and hence a separate column is added for actual results to

The required results for various materials are based on practical acceptance and may vary from site to site or as per standard norms.

(1) CEMENT

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Grade	33/43/53	
2	Freshness test a) Manufacturing date b) Lump test	Printed week, month year No lumps should be present	
3	Fineness test a) Feeling to the fingers after rubbing in the fingers.	It should feel silky	
4	Weight of each bag.	50 kg.	
5	Floating test	Should float on water before sinking	
6	Paste test	Should gain some strength after 24 hours curing	
7	Type of bag	Jute/Polythene/Paper bag	
8	Original Stitching	Should be intact.	

(2) BINDING WIRE

SR.NO.	FIELD TEST DETAILS	REQUIRED RESULTS	ACTUAL RESULTS
1	Gauge of wire	As ordered (Normal gauge 17S.W.G.)	
2	Bending test for hardness	should be soft for twisting	

FLOW CHART NO. (a)

SPECIMEN QUALITY REPORT FOR STEEL							
NAME OF THE ORGANIZATION			NO. :				
			SITE :				
			DATE :				
QUALITY REPORT							
MATERIAL :		QUANTITY		SUPPLIED BY:			
CHALLAN NO. :		DATE:		TRADE MARK :			
TEST TAKEN BY :- (Junior Engineer)							
SR.NO.	TEST TAKEN			RESULT OBTAINED			
	1 Tor making						
	2 Colour						
	3 Weight per metre						
	SR.NO.	SIZE	THEORETICAL WEIGHT (kg/m)			ACTUAL WEIGHT (kg/m)	DIFF. (kg/m)
	1	6mm	0.22				
	2	8mm	0.39				
3	10mm	0.62					
4	12mm	0.89					
5	16mm	1.58					
4	Pitch of twist of bar						
5	Bending for hardness						
6	Rusting						
7	Diameter of bar						
8	Length of bar						
9	Theoretical weight (as calculate)						
10	No. of bars per bundle						
						Signature	
P.E.'s remark -							
Signature							
C.E.'s remark -							
Signature							
C.I.C.	1. Account	2. Purchase Dept.	3	4			

FLOW CHART NO. (b)

SPECIMEN QUALITY REPORT FOR CEMENT		
NAME OF THE ORGANIZATION		NO. :
		SITE :
		DATE :
QUALITY REPORT		
MATERIAL :	QUANTITY	SUPPLIED BY:
CHALLAN NO. :	DATE:	TRADE MARK :
TEST TAKEN BY :- <i>(Junior Engineer)</i>		
SR.NO.	TEST TAKEN	RESULT OBTAINED
1	<i>Grade and colour</i>	
2	<i>Fineness test</i>	
3	<i>Freshness test (Manufacturing date)</i>	
4	<i>Lump test</i>	
5	<i>Average weight (Average of 5 bags)</i>	
6	<i>Packing</i>	
7	<i>Paste test</i>	
8	<i>Floating test</i>	
P.E.'s remark -		Signature
		Signature
C.E.'s remark -		
		Signature

FLOW CHART NO. (c)

SPECIMEN QUALITY REPORT FOR BRICKS		
NAME OF THE ORGANIZATION		NO. :
		SITE :
		DATE :
QUALITY REPORT		
MATERIAL :	QUANTITY	SUPPLIED BY:
CHALLAN NO. :	DATE:	TRADE MARK :
TEST TAKEN BY :- <i>(Junior Engineer)</i>		
SR.NO.	TEST TAKEN	RESULT OBTAINED
1	<i>Colour</i>	
2	<i>Edges</i>	
3	<i>Size</i>	
4	<i>Frog (depth & size)</i>	
5	<i>Water absorption</i>	
6	<i>Soundness test</i>	
7	<i>Burnt</i>	
8	<i>Make</i>	
9	<i>Strength</i>	
10	<i>% of breaking</i>	
P.E.'s remark -		Signature
C.E.'s remark -		Signature
		Signature

FLOW CHART NO. (a)

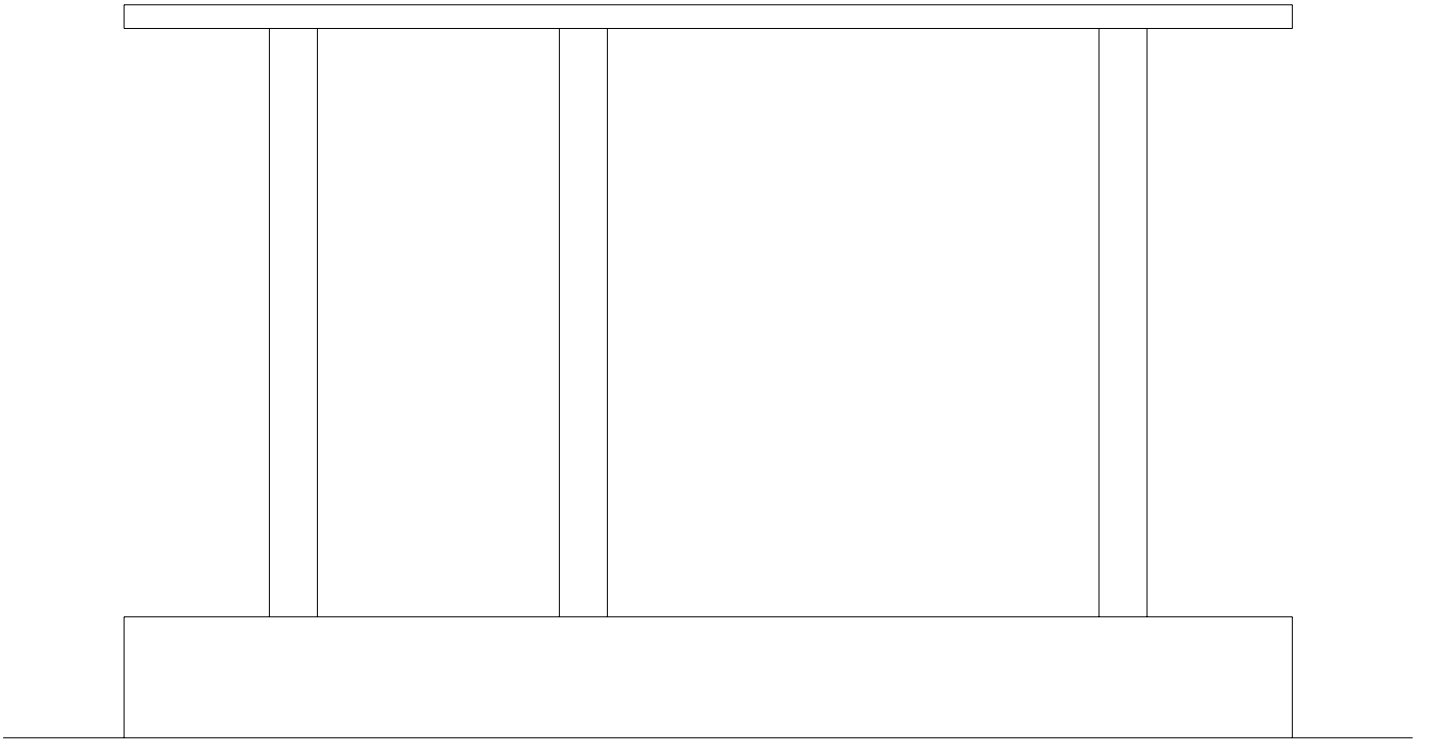
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NAME OF THE ORGANIZATION			NO. :				
			SITE :				
			DATE :				
QUALITY REPORT							
MATERIAL :		QUANTITY		SUPPLIED BY:			
CHALLAN NO. :		DATE:		TRADE MARK :			
TEST TAKEN BY :- (Junior Engineer)							
SR.NO.	TEST TAKEN			RESULT OBTAINED			
1	Tor making						
2	Colour						
3	Weight per metre						
	SR.NO.	SIZE	THEORETICAL WEIGHT (kg/m)			ACTUAL WEIGHT (kg/m)	DIFF. (kg/m)
	1	6mm	0.22				
	2	8mm	0.39				
	3	10mm	0.62				
	4	12mm	0.89				
	5	16mm	1.58				
4	Pitch of twist of bar			Signature			
5	Bending for hardness						
6	Rusting						
7	Diameter of bar						
8	Length of bar						
9	Theoretical weight (as calculate)						
10	No. of bars per bundle						
P.E.'s remark -						Signature	
C.E.'s remark -						Signature	
C.I.C.	1. Account	2. Purchase Dept.	3			4	

FLOW CHART NO. (b)

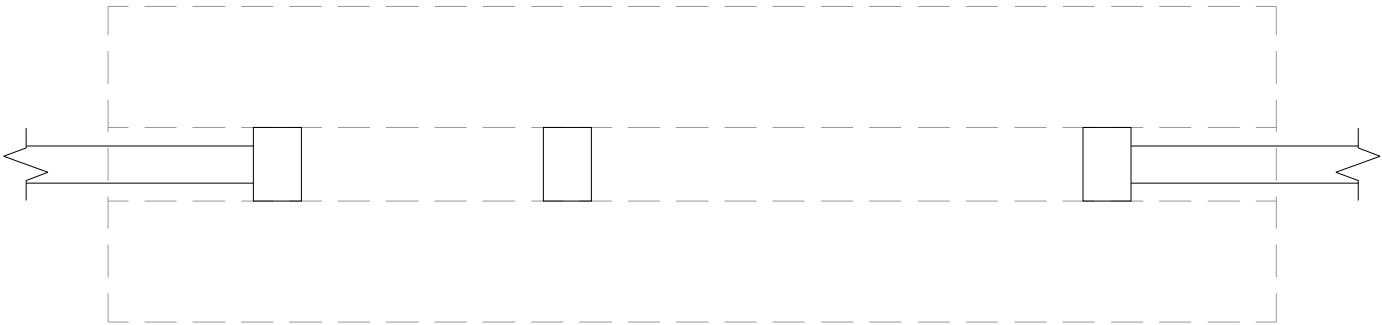
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NAME OF THE ORGANIZATION		NO. :
		SITE :
		DATE :
QUALITY REPORT		
MATERIAL :	QUANTITY	SUPPLIED BY:
CHALLAN NO. :	DATE:	TRADE MARK :
TEST TAKEN BY :- <i>(Junior Engineer)</i>		
SR.NO.	TEST TAKEN	RESULT OBTAINED
1	<i>Grade and colour</i>	
2	<i>Fineness test</i>	
3	<i>Freshness test (Manufacturing date)</i>	
4	<i>Lump test</i>	
5	<i>Average weight (Average of 5 bags)</i>	
6	<i>Packing</i>	
7	<i>Paste test</i>	
8	<i>Floating test</i>	
P.E.'s remark -		Signature
		Signature
C.E.'s remark -		
		Signature

FLOW CHART NO. (c)

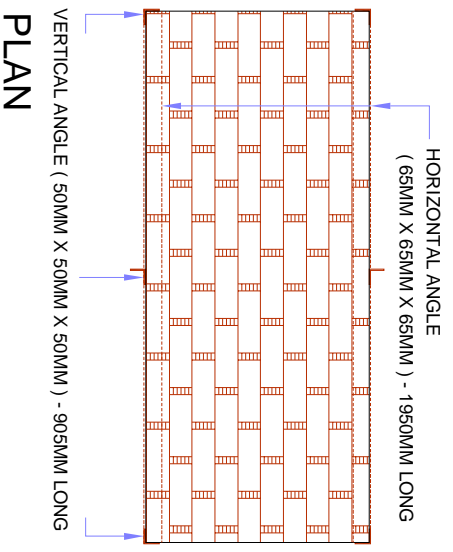
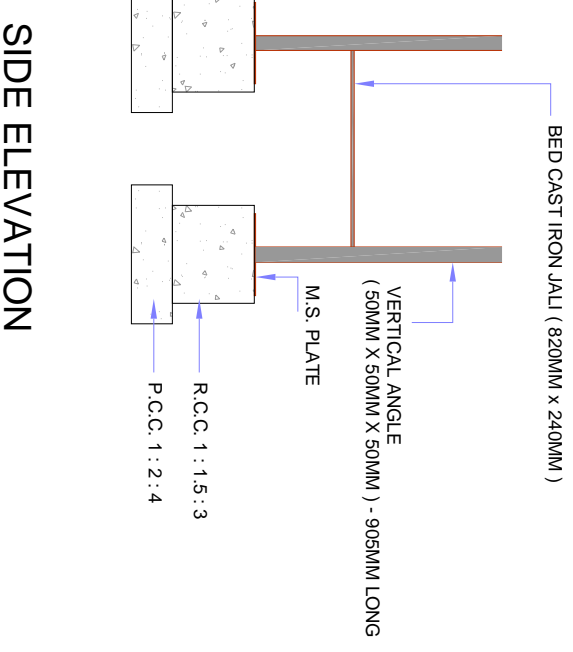
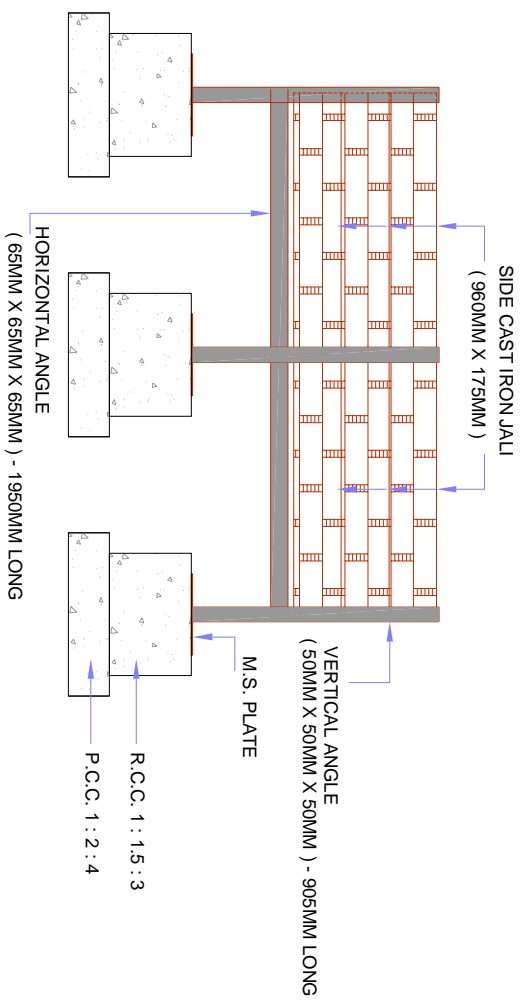
SPECIMEN QUALITY REPORT FOR BRICKS		
NAME OF THE ORGANIZATION		NO. :
		SITE :
		DATE :
QUALITY REPORT		
MATERIAL :	QUANTITY	SUPPLIED BY:
CHALLAN NO. :	DATE:	TRADE MARK :
TEST TAKEN BY :- <i>(Junior Engineer)</i>		
SR.NO.	TEST TAKEN	RESULT OBTAINED
1	<i>Colour</i>	
2	<i>Edges</i>	
3	<i>Size</i>	
4	<i>Frog (depth & size)</i>	
5	<i>Water absorption</i>	
6	<i>Soundness test</i>	
7	<i>Burnt</i>	
8	<i>Make</i>	
9	<i>Strength</i>	
10	<i>% of breaking</i>	
P.E.'s remark -		Signature
C.E.'s remark -		Signature
		Signature



ELEVATION



PLAN



PROJECT:-

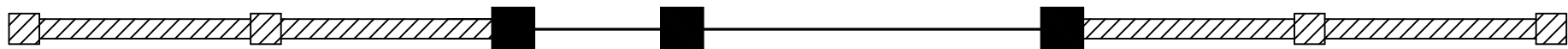
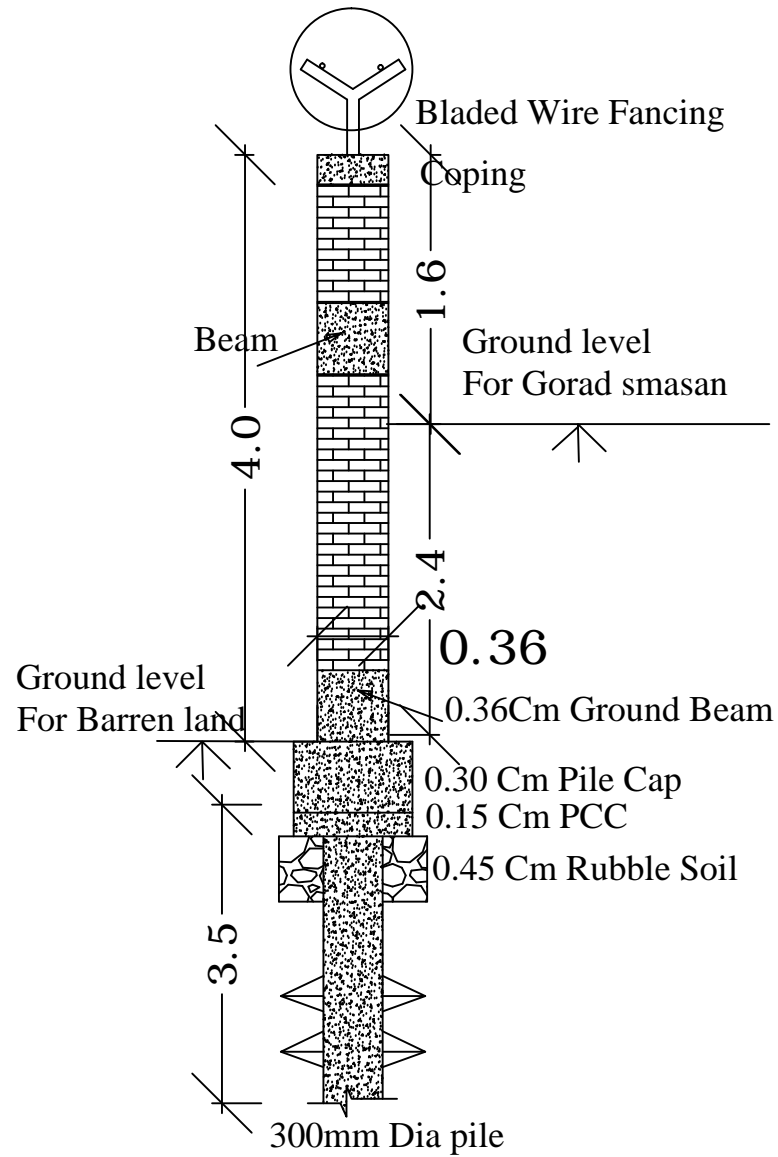
મોક્ષમંદિર માં ચૂદ બનાવવાનું કામ

AT:- BHAVNAGAR

DRG. NAME:-
PLAN AND ELEVATION

DATE :- 02 / 07 / 2016

DRAWN BY:-
BUILDING DEPT.
BMC, BHAVNAGAR.



PLAN