



## DRAFT TENDER PAPERS

Name of Work :- Const. Of Soyala-1 Anganwadi Building at Sanand Ta. Sanand Dist. Ahmedabad Package No. AHD/Anganwadi/24 (2026-2027) (Soyala-1) Total-1

D.T.P. Cost. Rs. 1312283.20

Sr. No.	Name of Work	No.
1	Const. Of Soyala-1 Anganwadi Building at Sanand Ta. Sanand Dist. Ahmedabad Package No. AHD/Anganwadi/24 (2026-2027) (Soyala-1) Total-1	2

**GOVERNMENT OF GUJARAT  
ROADS & BUILDING DEPARTMENT  
SACHIVALAY, GANDHINAGAR**

## **ANNEXURE – II Notice Inviting On-Line Tender**

Details about Tender :-Tender Notice No. 03 2026-2027

(Including as per Corrigendum)

Department Name	:-	(R&B) Dept. Gandhinagar
Circle	:-	Superintending Engineer Ahmedabad Panchayat ( R & B) Circle L.D. Engineering Collage Compound, Navrangpura Ahmedabad
Division	:-	Executive Engineer, R & B Panchayat Division Laldarwaja, Bhadra Ahmedabad-380001
IFB No.	:-	Tender Notice No. 03 of 2026-2027
Name of Project	:-	Building
Name of Work	:-	Const. Of Soyala-1 Anganwadi Building at Sanand Ta. Sanand Dist. Ahmedabad Package No. AHD/Anganwadi/24 (2026-2027) (Soyala-1) Total-1
Estimated Contract Value (INR)	:-	Rs. 1312283.20
Period of Completion (in Months)	:-	9 (Nine) Months
Bidding Type	:-	Single bid system
Bid Call (Nos)	:-	1
Tender Currency Type	:-	Single
Tender Currency Settings	:-	Indian Rupee (INR)
Joint Venture	:-	Not Applicable
Rebate	:-	Applicable

### **Amount Details**

Bid Document Fee	:-	Rs. 900/-
Bid Document Fee Payable To	:-	Executive Engineer, R & B Panchayat Division Ahmedabad
Bid Security / EMD (INR)	:-	Rs. 13200/-
Bid Security / EMD in favour of	:-	Executive Engineer, R & B Panchayat Division Ahmedabad

### **Tender Dates**

Bid Document Downloading Start Date	:-	29/05/2026 hrs 12.00
Bid Document Downloading End Date	:-	30/06/2026 hrs 18.00
Pre Bid Opening Date	:-	01/07/2026 hrs 18.00
Bid Validity Period	:-	<b>120days from the Date of Price bid Opening</b>
Submission of certain documents etc. in person in the office of the E.E. (R&B) Division, Ahmedabad		Submission of EMD. Tender fee and other Documents during office hours: Up to date 01/07/2026 to 10/07/2026 in the office of the Executive Engineer, (R&B) Panchayat Division, Laldarwaja Ahmedabad
Remarks	:-	Demand Draft for EMD & Tender fee shall be submitted in Electronic Format Only thorough Online( By Scanning) While Uploading the bid. This submission shall mean that EMD & tender fee are received Accordingly offer of those shall be opened whose EMD & tender fee is received electronically. However for the purpose of realization of D.D. bidder shall sand the D.D in original through RPAD so as to reach to

		Executive Engineer, R & B Panchayat Division, Jilla Panchayat Bhavan, Laldarwaja , Ahmedabad-380001 Within 7 days from the last date of uploading. Penaltative action for not submitting D.D. in original to E.E. by bidder shall be initiated. D.D. for Exemption Certificate is not necessary. However Exemption Certificate shall have to be submitted electronically through online. <b><u>Amount of Bank Solvency must be 20 % of Amount put to tender</u></b> All the documents in supporting of bid and prequalification documents shall be submitted in electronic format only through online (by scanning ) & hard copy will not be accepted and considered.
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#### **Other Details**

Officer Inviting Bids	:-	Executive Engineer, R & B Panchayat Division Ahmedabad
Bid Opening Authority	:-	Executive Engineer, R & B Panchayat Division Ahmedabad
Address	:-	Office of the Executive Engineer, R & B Panchayat Division Ahmedabad Ph. No. (079-25511608)

#### **General Terms and Conditions**

- (1) Bidders can download the tender document free of cost from the website.
- (2) Bidders have to submit Technical bid as well as Price bid in Electronic for only on nprocure website till the Last Date & time for submission.
- (3) Offers in physical form will not be accepted in any case.
- (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 requeste take benefit of the same.

Bidders who wish to participate in online tenders will have to procure / should h legally valid Digital Certificate as per Information Technology Act-2000 using w they can sign their electronic bids. Bidders can procure the same from any of license certifying Authority of India or can contract (n)code solutions-A divisio GNFC Ltd, who are licensed Certifying Authority by Govt. of India.

All bids should be digitally signed, for details regarding digital signature certificate related training involved the below mentioned address should be contacted:

(n) Code Solutions

A division of GNFC

301, GNFC Infotower, Bodakdev,

Ahmedabad – 380 054 (India)

Tel: +91 26857316 / 17 / 18

Fax: +91 79 26857321

E-mail: nprocure@gnvfc.net

Web-site: www.rnb.nprocure.com

Toll Free: 1800-233-1010(Ext. 321)

**SPECIAL  
CONDITIONS  
&  
GENERAL  
RESOULATION**

## **GENERAL INSTRUCTIONS:-**

1. The fees for on line tender document will not be refunded under any circumstances.
2. EMD in the form specified in tender document only shall be accepted.
3. Tender without Tender document fees, Earnest Money Deposit (EMD) and which do not fulfill all or any of the condition of submitted incomplete in any shall not be accepted.
4. Condition tender shall not be accepted.
5. The tender notice shall form a part of tender documents.
6. The tenders are advised to read carefully the Instruction for Tenderer and Eligibility Criteria contained in the tender documents.
7. The internet site address for E-Tender is <https://rnb.nprocure.com> and that to corporate web site is [www.nprocure.com](http://www.nprocure.com)
8. Free training camp for bidders will be organized on every saturday between 1.00 to 5.00 PM at (n) code solutions. A division of GNFC, 301, GNFC Infotower, Bodakdev, Ahmedabad-380054 (Indian) Bidders are requested to take benefit of the same.
9. The R & B reserves the right to reject any or all tenders without assignning and reason there of.
10. Detailed working drawings for the work can be viewed only by Autocad version while on line tender down loading.

## **SPECIAL CONDITION**

The unit rates of controlled cement concrete items of RCC Works of Mix M-200 & M-250 included in tender are taken considering Cement Consumption as shown below in Table-A.

**TABLE-A**

SR. NO.	GRADE OF cONTROLLED CEMENT CONCRETE	CEMENT CONSUMPTION AS PER sor IN BAGS/ CUM	REMARKS
1	2	3	4
1	M-200	8.00	
2	M-250	9.00	

The contractor has to submit the mix design for different grades of cement concrete at his own before execution as directed and to be approved from the Executive in charge. Reduction in rates of RCC items put into the tender by the contractor shall be given according to the cement consumption of the approved mix design of cement concrete for that item. If the cement consumption of the mix design is less than as prescribed in Table-A. The recovery shall be carried out as per the input rate of Cement mentioned in Clause 59A The Condition is also applicable to the (i) excess quantity for RCC items and (ii) Extra item Rate Lists. The Condition is to be followed in addition to Clause-14.

Dated Signature of The Contractor

બાંધકામના મટીરીયલ્સ તેમજ કોમ્પોનેન્ટ્સ  
સેમ્પલની ગુણવત્તા માટેના પશ્ચિક્ષણ ૯૦ ટકા  
પરીક્ષણ સ્થળ પર તથા ૧૦ ટકા પરીક્ષણ

માન્ય લેબોરેટરી / ગેરી ધ્વારા કરાવવા બાબત.

ગુજરાત સરકાર  
માર્ગ અને મકાન વિભાગ  
પરિપત્ર ક્રમાંક પરચ/૧૦૨૦૦૭-૨૮/સ  
સચિવાલય ગાંધીનગર  
તારીખ ૧૬/૨/૨૦૦૮

પરિપત્ર:-

બાંધકામના મટીરીયલ્સ તેમજ કોપેનેન્ટીના સેમ્પલની ગુણવત્તા માટેના પરિક્ષણ હાલ ગેરી કે માન્ય સંસ્થા (લેબોરેટરી) મારફતે કરવામાં આવે છે. કામોની પ્રગતિની સમીક્ષા દરમિયાન ક્ષેત્રીય અધિકારીઓ તરફથી જાણવા મળેલ છે કે ઉક્ત હયાત પ્રક્રિયામાં ટેસ્ટીંગ પરિણામો વિલંબથી મળે છે. જેમાં સમય પણ ખુબ વ્યતિત થાય છે. ઈજારદાર એસોસિયેશન તરફથી આવી રજુઆતો મળે છે. આથી આ મુશ્કેલી ધ્યાને લેતા ઈજારદાર ધ્વારા જે તે માટે સ્થાપવામાં આવતી લેબોરેટરીમાં સ્થળ પર જ પરીક્ષણ કરવામાં આવે તો વિલંબ નિવારી શકાય તે બાબત વિચારણા હેઠળ હતી પુખ્ત વિચારણાના અંતે નીચે મુજબની નીતી હાલના તબક્કે અનુસરવા નક્કી કરવામાં આવ્યું.

પ્રવર્તમાન પધ્ધતિમાં ફેરફાર કરી ફીક્વન્સી અનુસાર જરૂરી પરિક્ષણો પૈકી ૧૦ ટકા માન્ય લેબોરેટરી ધ્વારા અને ૯૦ ટકા ફીલ્ડ લેબોરેટરી ધ્વારા કરાવવાના રહેશે. જેમા નીચે દર્શાવેલ પરિક્ષણો સ્થળ પર કરવાના રહેશે છે.

એ	એગ્રીગેટ	(૧) ગ્રેડેશન (૨) ફ્લેકીનેશ અને ઇલોગેશન વેલ્યુ (૩) ઇમ્પેક્ટ વેલ્યુ
બી	માટી	(૧) ફિલ્ડ એફડીડી અને એફએમસી (૨) સીવ એનાલીસીસ
સી	રેતી	(૧) ગ્રેડેશન
ડી	ઈંટો	(૧) ડાયમેનશન અને ટોલરન્સ ટેસ્ટ
ઈ	કોકીટ	(૧) નોન ડીસ્ટ્રીક્ટીવ ટેસ્ટ (એલ્ટ્રા સોનીક ટેસ્ટીંગ પધ્ધતિથી)
એફ	બીટયુમીનસ મીક્સ	(૧) ડામરની ટકાવારી

શરતો :-

૧. ઈજારદારે કામની ગુણવત્તા માટે ધારા ધોરણ પ્રમાણેની અને ઉપર જણાવેલ પરિક્ષણો માટે પ્રમાણિત થયેલ જરૂરી તમામ સાધનો સહિતની ફિલ્ડ ટેસ્ટીંગ લેબોરેટરી સ્વ ખર્ચે કામના સ્થળ યોગ્ય જગ્યા ઉપર સ્થાપવાની રહેશે. રસ્તાના કામ માટે લાગુ પડતા પ્લાન્ટના સ્થળને કામનુ સ્થળ ગણી શકાય.

૨. ધારા ધોરણ પ્રમાણેના પરિક્ષણોની સંખ્યા પૈકી ૮૦ ટકા પરિક્ષણ ફિલ્ડ લેબોરેટરીમાં ઈજારદારના અધિકૃત ક્વોલીફાઇડ ઈજનેર જેઓને સંબંધિત કાર્યપાલક ઈજનેરશ્રીએ આઈ કાર્ડ આપેલ હોય તેમના ધ્વારા ખાતાના ના.કા.ઈ./ મ.ઈ./અ.મ.ઈ./ ની હાજરીમાં જ કરવાના રહેશે અને પરિણામોમાં સંયુક્ત સહીઓ કરવાની રહેશે જ્યારે ૧૦ ટકા પરિક્ષણ ગેરી/ સરકાર ધ્વારા માન્ય લેબોરેટરી મારફતે કરાવવાના રહેશે.
૩. કુલ પરિક્ષણોના ૮૦ ટકા પરિક્ષણ એક જ સ્થળે એકજ સમયે એકજ તબક્કામાં નહીં કરતા કામની પ્રગતિ મુજબ જે તબક્કાએ જે તે કામગીરીને અનુરૂપ જે મટીરીયલ્સ વાપરવાનું થતું હોય તદઅનુસાર શરૂઆપના તબક્કામાં રાખવું વચ્ચેના તબક્કામાં તેમજ આખરી તબક્કામાં કરાવવાનું રહેશે. આમ છતાં આ બાબતે સ્થાનિક કક્ષાએથી ના.કા.ઈ.શ્રીએ જરૂરીયાત મુજબ તબક્કાવાર પરીક્ષણો નક્કી કરવાના રહેશે.
૪. ગુણવત્તા નિયમન ધારા ધોરણ પ્રમાણેના બધાજ રજીસ્ટર નિયમિત રીતે નિભાવવાના રહેશે. અને તે જે તે સ્થળે લેબોરેટરીમાં ઉપલબ્ધ રહે તેમ રાખવાના રહેશે.
૫. જો કોઈ કારણસર ટેસ્ટીંગના સાધન અપ્રાપ્ય હોય અથવા વસાવવામાં સમય જાય તેમ હોય કે વ્યવહાર ન હોય (જેમ કે ઇલેક્ટ્રોમેટ્રિક બેરીંગ) તો આવા પરીક્ષણો સરકાર માન્ય સંસ્થાઓમા કરાવી શકાશે. અને આ બાબતનો નિર્ણય સંબંધિત કા.ઈ.શ્રી/ ના.કા.ઈ.શ્રી એ કરવાનો રહેશે.
૬. વિભાગના ક્ષેત્રિય તાંત્રિક સ્ટાફે ના.કા.ઈ./ મ.ઈ./અ.મ.ઈ એ તેમજ ઈજારદારના તાંત્રિક સ્ટાફ ધ્વારા ગેરીમાં પરિક્ષણ જાતે કરવાનો સંતોષકારક અનુભવ મેળવી આ બાબતનું ગેરીનું પ્રમાણપત્ર પણ મેળવવાનું રહેશે. જે તે જિલ્લા પ્રાદેશિક સ્તરે ગેરીની લેબોરેટરીમાં કોર્ષ કન્ડક્ટ કરવા માટે જરૂરી ફી જે તે વિભાગના કા.ઈ.શ્રીએ ચુકવવાની રહેશે અને આ કાર્યવાહી સમયબધ્ધ પૂર્ણ થાય તે માટે સંબંધિત અ.ઈ.શ્રીએ આ કામગીરીની વખતોવખત સમીક્ષા કરવાની રહેશે.
૭. આ પરિપત્રથી ૮૦ ટકા પરિક્ષણો લેબોરેટરીમાં કરવાનો અમલ તા.૧/૧/૦૮ થી કરવાનો રહેશે.

(આર.કે. ચૌહાણ)

ખાસ ફરજ પરના અધિકારી (વિ.યો)

માર્ગ અને મકાન વિભાગ

પ્રતિ,

૧. માન. મંત્રીશ્રી (મા.મ) વિભાગના અંગત સચિવશ્રીની જાણ સારુ.
૨. મુ.ઈ.શ્રી (મા.મ.) અને અ.સ.શ્રી માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર
૩. મુ.ઈ.શ્રી (પંચા) અને અ.સ.શ્રી માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર



૪. મુ.ઈ.શ્રી(ને.હા.) અને અ.સ.શ્રી માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર
૫. મુ.ઈ.શ્રી(પા.યો) અને અ.સ.શ્રી માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર
૬. મુ.ઈ.શ્રી(ગુનિ.) અને અ.સ.શ્રી માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર
૭. નિયામકશ્રી(એસટીસી) સ્ટાફ ટ્રેનીંગ કોલેજ ગાંધીનગર
૮. મુ.ઈ.શ્રી (પીએપી) માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર
૯. નાણાકીય સલાહકાર શ્રી (મા.મ. વિ.) નાણા વિભાગ સચિવાલય ગાંધીનગર
૧૦. સર્વે અ.ઈ.શ્રીઓ મા.મ. વર્તુળ પેટા/ મા.મ. વર્તુળ /ને.હા. વર્તુળ એક્સપ્રેસ-વે-વર્તુળ/પાટનગર યોજના વર્તુળ
૧૧. સર્વે કા.ઈ.શ્રીઓ ઉપર્યુકત વર્તુળો હસ્તકના સર્વે વિભાગો
૧૨. સર્વે તાંત્રિક અધિકારીશ્રીઓ (ના.કા.ઈ.શ્રીઓ સહિત)
૧૩. સર્વે પ્રોજેક્ટ શાખાઓ (રસ્તાને લગતી) માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર
૧૪. સીલેક્ટ ફાઈલ.

ટેન્ડરીંગમાં ટેન્ડર ફી અંગેનો ડ્રાફ્ટ ચેકસ્કેન  
કરી ઈ ટેન્ડરીંગના અન્ય ડોક્યુમેન્ટ સાથે રજુ કરવા

અને ટેન્ડર મોકલવા બાબત.

**પરિપત્ર**

માર્ગ અને મકાન વિભાગમાં હાલ રૂા. ૫૦ લાખથી વધુ રકમના ટેન્ડરો ઈ-ટેન્ડર પધ્ધતિથી મેળવવામાં આવે છે. પૂર્વતતી પધ્ધતિ મુજબ ટેન્ડર ફી તથા અર્નેસ્ટ ડીપોઝીટ વિભાગીય કચેરીએ રુબરુ ચોકકસ સમયમર્યાદા માં મેળવ્યા બાદ એજન્સીના ટેન્ડર ખોલવામાં આવે છે. આ પધ્ધતિમાં મળેલ ફરીયાદ ધ્યાનમાં લેતા ઈ ટેન્ડર પધ્ધતિમાં નીચે મુજબ ફેરફાર કરવા નિર્ણય લેવામાં આવે છે. આ શરતનો સમાવેશ દરેક ટેન્ડર નોટીસ - ટેન્ડરનાં મુસદ્દામાં કરવાનો રહેશે.

Demand Draft for E.M.D. & Tender fee shall be submitted in electronic format only through online (by scanning) while uploading the bid. This submission shall mean that E.M.D. & tender fee are received for purpose of opening the bid. Accordingly offer of those shall be opened whose E.M.D. & tender fee is received electronically. However for the purpose of realization of D.D. bidder shall send the D.D. in original through R.P.A.D. so as to reach to Executive Engineer Division ..... within 7 days from the last date of uploading penaltative action for not submitting D.D. in Original to E.E. by bidder shall be initiated. D.D. for Exemption Certificate is not necessary. However Exemption Certificate shall have to be submitted Electronically through online.

Any documents in supporting of tender bid shall be submitted in electronic format only through online (by scanning etc) & hard copy will not accepted separately.

ટેન્ડર માટે બાનાની રકમ (ઈ.એમ.ડી.) તથા ટેન્ડર ફી ના ડીમાન્ડ ડ્રાફ્ટ ઓન લાઈન સ્કેન કરી ઈલેક્ટ્રોનિક ફોરમેટમાં ટેન્ડર અપલોડ કરવાનો રહેશે. આ પ્રકારે જુ થયેલ વિગતે બાનાની રકમ અને ટેન્ડર ફી મળેલ ગણવાની રહેશે અને તદ્દનુસાર ટેન્ડર ખોવામાં આવશે તે અનુસાર ઈલેક્ટ્રોનિક ફોરમેટમાં બાનાની રકમ અને ટેન્ડર ફી મળેલ હોય તેની જ ઓફર ખોલવામાં આવશે. ખરેખર ચુકવણા માટે ટેન્ડર ભરનારે ડીમાન્ડ ડ્રાફ્ટ અસલમાં રજીસ્ટર્ડ પોસ્ટ એ.ડી. ને કાર્યપાલક ઈજનેરશ્રી, .....વિભાગ ..... ને અપલોડીંગની છેલ્લી તારીખથી દિન-૭ માં મળે તે અનુસાર રજુ કરવાના રહેશે. અસલમાં ડીમાન્ડ ડ્રાફ્ટ નહી મોકલનાર સામે શિક્ષાત્મક પગલા શરુ કરવામાં આવશે. બાના મુક્તિ માટે ડીમાન્ડ ડ્રાફ્ટ જરુરી બનશે નહી. પરંતુ મુક્તિના પ્રમાણપત્ર ઈલેક્ટ્રોનિક ઓન લાઈન રજુ કરવાનું રહેશે.

ટેન્ડર બીડના માટે જરુરી આધાર માટેના કોઈ પણ ડોક્યુમેન્ટ ઓન લાઈન ઈલેક્ટ્રોનિક ફોરમેટમાં સ્કેન કરી મોકલવાના રહેશે. અને હાર્ડ કોપી અલાયદી રીતે સ્વીકારવામાં આવશે નહી.

ગુજરાત રાજ્યપાલશ્રીના હુકમથી અને તેમના નામે,

ઉપસચિવ  
માર્ગ અને મકાન વિભાગ

પ્રતિ

સર્વ અધિક્ષક ઈજનેરશ્રીઓ  
રાજ્ય વિભાગ - પંચાયત મા.મ. વર્તુળ- ને.હા. વર્તુળ- પા.યો.વર્તુળ  
રા.મા.યો. વર્તુળ ગાંધીનગર સહીત  
સર્વ શાખાઓ મા.મ. વિભાગ સચિવાલય ગાંધીનગર

કોન્ટ્રાક્ટર ધ્વારા પુરો પાડવામાં આવતા ડામર ના ભાવ તફાવત બાબત

ગુજરાત સરકાર  
માર્ગ અને મકાન વિભાગ  
પરિપત્રક્રમાંક એસટીઆર ૧૦૨૦૦૧ મં. ૩૪ - ૨૯ હ  
૧૪લ સરદાર ભવન, સચિવાલય ગાંધીનગર  
તા.૨/૨/૨૦૦૭

**અનુસંધાન**

- (૧) આવિભાગના (૧)પરિપત્ર ક્રમાંક એસટીઆર ૧૦૯૭-૮૨- હ તા. ૨૭/૧૧/૯૭
- (૨) પરિપત્રક્રમાંક એસટીઆર ૧૦૯૭ મં. ૮૨- હ તા. ૨૧/૧૧/૯૮
- (૩) પરિપત્ર ક્રમાંક એસટીઆર-૧૦-૨૦૦૧-મં.-૩૪-૨૯-હ તા. ૪/૧૦૨૦૦૫

## પરિપત્ર

માર્ગ અને મકાન વિભાગ દ્વારા હાથ ધરવામાં આવતા કામોમાં સીમેન્ટ સ્ટીલ હને ડામર ઈજારદાર દ્વારા પુરા પાડવામાં આવે છે. જેમાં ઈજારદારને ભાવ તફાવત ચુકવવા/ વસુ કરવાની જોગવાઈ છે.

સીમેન્ટ અને સ્ટીલના ભાવ તફાવત ચુકવવા/વસુલ કરવાની જોગવાઈ કામ શરૂ કર્યાથી પુરુ કરવાની મુળ સમય મર્યાદા અને વધારેલી સમય મર્યાદા સુધી લાગુ પડે છે. જ્યારે ડામરના કિસ્સામાં કામ પુરુ કરવાની વધારેલ સમય મર્યાદામાં ભાવ તફાવતની રકમ આપવા અંગે વિસંગતતા હોઈ ગુજરાત કોન્ટ્રાક્ટર્સ એસોસીએશન અમદાવાદની રજૂઆત થયેલ છે. જે ધ્યાને લઈ પુખ્ત વિચારણાના અંતે ઉપરોક્ત અનુસંધાન ૨ માં દર્શાવેલ તા.૨૧/૧૧/૮૮ ના પરિપત્રની સુચના ક્રમાંક ૨૨૬ ગણી તેની જગ્યાએ નીચે મુજબ સુધારો કરવામાં આવે.

૨ રીઝર્વ બેન્કના બુલેટીનમાં ડામરના કોઈ ઈન્ડેક્સ ન હોવાથી ઈજારદાર વર્ક ઓર્ડર આપ્યા બાદ જે ડામર ખરીદે તેના રીફાઈનરીના અસલ બીલો રજૂ કરે અને ખરીદેલ ડામરનો જથ્થો વર્ક ઓર્ડર મુજબના કામમાં ટેન્ડર મુજબની મુળ સમય મર્યાદા અને સરકારી કારણોના લીધે વધારેલી સમય મર્યાદા દરમ્યાન વાપરે તેના બીલના ખરીદ ભાવ અને ટેન્ડરમાં દર્શાવેલ સ્ટાર રેટ વચ્ચેના તફાવતની રકમનું ચુકવણું / વસુલાત (રીકવરી) કરવાની રહેશે.

જે કિસ્સામાં કામ પુર્ણ કરવામાં ઈજારદારના કારણોના લીધે જે વિલબ થયેલ હોય તે સમય ગાળાની સમય મર્યાદા વધારવામાં આવે તે દરમ્યાનનો ભાવ તફાવત મળવા પાત્ર થશે.

કામની મુદત વધારવા અંગેની દરખાસ્તમાં પુરતી ચકાસણી કરી વિલંબના કારણો ખાતાની ભુલના કારણે કે ઈજારદારની ભુલના કારણે હોય તે અલગ દર્શાવવાના રહેશે.

આમ સીમેન્ટ અને સ્ટીલના ભાવફેર આપવાની જે જોગવાઈ છે તે મુજબ ન ડામર માટે પણ ઉપર જણાવ્યા અનુસાર મુળ સમય મર્યાદા અને વધારેલ સમય મર્યાદામાં ભાવ તફાવત ચુકવણું/વસુલાત (રીકવરી) કામના ચુકવણાના ચાલુ બીલોમાં કરવાની રહેશે.

અનુસંધાનમાં દર્શાવેલ પરિપત્રોઅન્ય સુચનાઓ યથાવત રહેશે. આ સુધારો વિભાગના નાણાંકીય સલાહકાર શ્રીની તા.૨૨/૧/૨૦૦૭ ની નોંધથી મળેલ સંમતિ અને બહાર પાડવામાં આવે છે. આ પરિપત્રનો અમલ પરિપત્રની તારીખથી નવા ડ્રાફ્ટ ટેન્ડરમાં કરવાના રહેશે.

ગુજરાત રાજ્ય પાલશ્રીના હુકમથી અને તેમના નામે.

સહી/-  
(પી.બી. શાહ)  
ઉપસચિવશ્રી (યં અને મ)  
માર્ગ અને મકાન વિભાગ

પ્રતિ,

સર્વે અધિક્ષક ઈજનેરશ્રીઓ

માર્ગ અને મકાન વિભાગ હેઠળના તમામ (પંચાયત મા.મ. વર્તુળ/રા.ધો.મા./રા. રસ્તા વર્તુળ)

નકલ રવાના :-

(૧) સર્વે કાર્યપાલક ઈજનેરશ્રીઓ (પંચાયત મા.મ. વિભાગ સહિત)

(૨) વિભાગના દરેક તાંત્રિક અધિકારીઓ

(૩) વિભાગની દરેક તાંત્રિક શાખાઓ

(૪) નાણા શાખા મા.મ. વિભાગ સચિવાલય ગાંધીનગર

(૫) સિલેક્ટ ફાઈલ ૨૦૦૭

(૬) ના.સ.અ.શ્રી સિલેક્ટ ફાઈલ ૨૦૦૭

(૭) ગુજરાત કોન્ટ્રાક્ટર્સ એસોસીએશન અમદાવાદ

ગુજરાત સરકાર

ઉદ્યોગ અને ખાણવિભાગ

ઠરાવ ક્રમાંક: એમએમઆર/૧૧૨૦૦૦/૨૦૧૩/૬૪.

સચિવાલય, ગાંધીનગર

તારીખ : ૧/૮/૨૦૦૪

વંચાણે લીધા ::-

(૧) ઉદ્યોગ , ખાણ અને ઉર્જા વિભાગનો ઠરાવ ક્રમાંક: એમસીઆર-૨૧૬૮-૭૩૮૦-૬૪. તા.૧૨/૧૨/૧૯૬૮

- (૨)ઉધોગ, ખાણ અને ઉર્જા વિભાગના ઠરાવ ક્રમાંક:એમસીઆર-૨૧૬૮-૮-૬૬૮૫-છ, તા. ૧/૧/૧૯૮૭  
(૩)ઉધોગ, ખાણ અને ઉર્જા વિભાગનો ઠરાવ ક્રમાંક: એમસીઆર-૨૧૮૮-(૮)૬૫-છ તા.૨૫/૧/૧૯૮૧  
(૪)ઉધોગ અને ખાણ વિભાગનો ઠરાવ ક્રમાંક: એમસીઆર-૧૦૮૭-૨૮૫૬-છ. તા. ૬/૧૧/૧૯૮૭  
(૫)માન.મુખ્યમંત્રીશ્રીના અધ્યક્ષપણા હેઠળ યોજાયેલ એમ્પાવર્ડ કમીટીની તા. ૧૮/૬/૨૦૦૪ ની બેઠકની કાર્યવાહીનોંધ

ઠ રા વ :-

ઉધોગ, ખાણ અને ઉર્જા વિભાગના સંદર્ભ-(૩) હેઠળના ઠરાવથી એવી જોગવાઈ કરવામાં આવેલ કે રાજ્ય સરકારના, પંચાયતોના અને સરદાર સરોવર નર્મદા નિગમના બાંધવામાં આવતાં રસ્તાઓનાં કે સિંચાઈ વગેરેના કામો માટે જ્યારે સાદી માટી (ઓર્ડીનરી કલે-અર્થ) અને (સોફ્ટ) મુરમ વાપરવામાં આવે ત્યારે ગુજરાત ગૌણ ખનિજ નિયમ, ૧૯૬૬ મુજબ રોયલ્ટી લેવાના નિયમો લાગુ પડશે નહીં. એટલે કે આ કામો માટે કોન્ટ્રાક્ટરો પાસે સાદી માટી (ઓર્ડીનરી કલે-અર્થ) અને (સોફ્ટ) મુરમ માટે રોયલ્ટી લેવાની થશે નહીં તથા સંદર્ભ-(૪) હેઠળના વિભાગના તા.૬/૧૧/૮૭ ના ઠરાવથી ગુજરાત વિદ્યુતબોર્ડ ધ્વારા હાથ ધરવામાં આવતાં કામો માટે પણ ઉપર મુજબ રોયલ્ટી મુકિતનો લાભ આપવામાં આવેલ. ઉપર્યુક્ત જોગવાઈના કારણે રાજ્યમાં ગેરકાયદેસર રીતે આ ખનિજોનો વપરાશ થતો હોવાનું.

જણાયેલ છે. જેના પરિણામે રાજ્ય સરકારે રોયલ્ટીની આવક ગુમાવવી પડે છે માટે ઉપરોક્ત હુકમોની જોગવાઈની સમીક્ષા કરી તે દૂર કરવાની બાબત સરકારશ્રીની વિચારણા હેઠળ હતી. તા. ૧૮/૬/૨૦૦૪ ના રોજ માન.મુખ્યમંત્રીશ્રીના અધ્યક્ષપણા હેઠળ યોજાયેલ એમ્પાવર્ડ કમીટીની બેઠકમાં નક્કી થયા મુજબ સંદર્ભ-૩ તથા સંદર્ભ-૪ હેઠળના વિભાગના તા. ૨૫/૧/૮૧ તથા તા. ૬/૧૧/૮૭ ના ઠરાવો આથી રદ કરવામાં આવે છે.

ગુજરાતના રાજ્યપાલશ્રીના હુકમથી અને તેમના નામે .

સહી/-

(આર. બી. વ્યાસ)

નાયબ સચિવઉધોગ અને ખાણ વિભાગ

ગુજરાત સરકાર

માર્ગ અને મકાન વિભાગ

પરિપત્ર ક્રમાંક: ટીએનસી-૧૦-૨૦૦૨-(૧૪)-સ.

સચિવાલય, ગાંધીનગર

તારીખ : ૨૭/૪/૨૦૦૫

વિષય :- રાજ્ય સરકારના બાંધકામ માટે વપરાતા ગૌણ ખનિજની રોયલ્ટી ભરવા બાબત.

સંદર્ભ : ઉધોગ અને ખાણ વિભાગનો ઠરાવ ક્રમાંક: એમએમઆર-૧૧૨૦૦૦-૨૦૧૩-છ.

તા. ૧/૮/૨૦૦૪

## પ રિ પ ત્ર :-

ઉધોગ, ખાણ અને ઉર્જા વિભાગના તા. ૨૫/૧/૮૧ ના ઠરાવ ક્રમાંક: એમસીઆર-૨૧૮૮-(૮)-૬૫-૬૭ અન્વયે રાજ્ય સરકારના, પંચાયતના અને સરદાર સરોવર નર્મદા નિગમના બાંધવામાં આવતાં રસ્તાઓના કે સિંચાઈ વગેરેના કામો માટે જ્યારે સાદી માટી (ઓર્ડીનરી કલે-અર્થ) અને (સોફ્ટ) મુરમ વાપરવામાં આવે ત્યારે ગુજરાત ગૌણ ખનિજ નિયમ-૧૯૬૬ મુજબ રોયલ્ટી લેવાનો નિયમ લાગુ પડશે નહીં. એટલે કે આ કામો માટે કોન્ટ્રાક્ટરો પાસે સાદી માટી (ઓર્ડીનરી કલે-અર્થ) અને (સોફ્ટ) મુરમ માટે રોયલ્ટી લેવાની થશે નહીં તેવી જોગવાઈ કરવામાં આવેલ છે. હવે ઉપર સંદર્ભમાં દર્શાવેલ ઉધોગ અને ખાણ વિભાગના તા. ૧/૮/૨૦૦૪ ના ઠરાવથી તા. ૨૫/૧/૮૧ ના ઠરાવ રદ કરવામાં આવેલ છે.

આથી હવે બી-૧ ટેન્ડર ફોર્મ માં ખંડ-૩૬ અને બી-૨ ટેન્ડર ફોર્મમાં ખંડ-૩૫ માં નીચે મુજબ સુધારો કરવામાં આવે છે.

રાજ્ય સરકારના બાંધકામ માટે વપરાતા ગૌણ ખનિજની રોયલ્ટી બાબત.

(૧) તા. ૧-૩-૮૧ ના ઠરાવ મુજબ . . . . . મુરમ સિવાયના

અન્ય સુધીના શબ્દો રદ કરી ફક્ત નીચે મુજબ જોગવાઈ અમલમાં રહેશે.

ગૌણ ખનિજ બાબતમાં રા. ગૌ. ખ. નિ. ૧૯૬૬ અને તેના અનુસંધાનમાં વખતોવખત બહાર પાડવામાં આવેલ ઠરાવો લાગુ પડશે, અને તે મુજબ લીઝ કે પરમીટ લેવાનું અને રોયલ્ટી ભરવાની રહેશે(ઉધોગ અને ખાણ વિભાગ ઠરાવ ક્રમાંક: એમએમઆર-૧૧-૨૦૦૦-૨૦૧૩-૬૭ તા. ૧/૮/૦૪)

(અશોક પંડ્યા)

ઉપસચિવશ્રી

માર્ગ અને મકાન વિભાગ

પ્રતિ,

સર્વે અધિક્ષક ઇજનેરશ્રી,

(મા.મ.વર્તુળો, પંચાયત (મા.મ)વર્તુળો/એક્સપ્રેસ વે વર્તુળ/રાજ્ય માર્ગ યોજના વર્તુળ

રાષ્ટ્રીય ધોરી માર્ગ વર્તુળો/પાટનગર યોજના વર્તુળ સહિત/

સર્વે કાર્યપાલક ઇજનેરશ્રીઓ(ઉપરોક્ત વર્તુળો હેઠળના તમામ વિભાગો સહિત)

નકલ રવાના :-

-- ઉધોગ અને ખાણ વિભાગ, સચિવાલય ગાંધીનગર

-- નર્મદા, જળસંપત્તિ, પાણી પુરવઠા અને કલ્પસર વિભાગ, સચિવાલય, ગાંધીનગર

-- નિયામકશ્રી, ઇજનેરી સંશોધન સંસ્થા, વડોદરા -- નિયામકશ્રી, એન્જીનીયરીંગ સ્ટાફ કોલેજ, ગાંધીનગર

-- મેનેજીંગ ડીરેક્ટરશ્રી, ગુજરાત રાજ્ય બાંધકામ નિગમ લી., ગાંધીનગર --મેનેજીંગ ડીરેક્ટરશ્રી, ગુજરાત રાજ્ય માર્ગ વિકાસ નિગમ લી, ગાંધીનગર--સર્વે તાંત્રિક અધિકારીશ્રીઓ(ના.કા.ઈ. સહિત) મા.મ.વિભાગ, સચિવાલય

--સર્વે પ્રોજેક્ટ શાખાઓ, મા.મ.વિ.સચિવાલય, --સીલેક્ટ ફાઈલ.

માલસામાન પરીક્ષણ અંગે ટેસ્ટની સંખ્યા અને સ્વીકૃતીના ધોરણો દર્શાવતુ પત્રક ગુણવત્તા

નિયમન માર્ગ અને મકાન વિભાગ

૧	૨	૩	૪
૧	સીમેન્ટ		
	(ક) સેટીંગ ટાઈમ	૫૦ ટનની ટકા થેલીઓમાંથી ૧૫ કીલોનો એક સેમ્પલ લેવાનો રહે છે.	૩૦ મીનીટ કરતા ઓછું નહીં
	ઈનીશીયલ,		
	ફાઈનલ	૫૦ થી ૧૦૦ ટન-૨ સેમ્પલ	૬૦૦ મીનીટ કરતા વધારે નહીં
		૧૦૦ થી ૨૦૦ ટન-૩ સેમ્પલ	
		૨૦૦ થી ૩૦૦ ટન-૪ સેમ્પલ	
		૩૦૦ થી ૫૦૦ ટન-૫ સેમ્પલ	
		૫૦૦ થી ૮૦૦ ટન-૬ સેમ્પલ	
		૮૦૦ થી ૧૩૦૦ ટન-૭ સેમ્પલ	
	(ખ) ફાઈનનેશ	પાંચ સેમ્પલ માંથી એક ટેસ્ટ (આઈ.એસ. સીવ ૮૦ માઈક્રોન)	૮૦ માઈક્રોનની સીવમાંથી ૮૦% અગર વધુ પગાર થવું જોઈએ.
	(ગ) કન્સીસ્ટેન્સી ટેસ્ટ	એક સેમ્પલ (દરેક સેમ્પલ ઉપર મુજબ)	૩૦% જેટલું
	(ઘ) કોપ્રેસીવ ટેસ્ટ	ત્રીજા દીવસે ઓ.પી.સી. માટે ૧૧૦ કી.ગ્રા./સે.મી. <sup>૨</sup>	દરેક સેમ્પલ ઉપર મુજબ
		સાતમા દિવસ માટે ૨૨૦ કી.ગ્રા / સે.મી. <sup>૨</sup>	
		અઠવાવીસ માં દિવસે ઓ.પી.સી. માટે ૩૧૦ કી.ગ્રા./ સે.મી. <sup>૨</sup>	
	(અ) ફાઈનનેશ ટેસ્ટ પેસીફીક સરફેસ દ્વારા	ઓ.પી.સી. માટે ૨૦૦૦ કી.ગ્રા./સે.મી. <sup>૨</sup> વધારે	ઉપર મુજબ પાંચ સેમ્પલમાંથી એક ટેસ્ટ
		પી.પી.સી. માટે ૩૦૦૦ કી.ગ્રા./સે.મી. <sup>૨</sup> વધારે	
	(બ) રાસાયણિક પુથકકરણ આઈ.એશ ૪૦૩૨-૮૮૬	૧. મેગ્નેશિયમ ઓક્સાઈડ ૬% થી ઓછું	ઉપર મુજબ પાંચ સેમ્પલમાંથી એક ટેસ્ટ.
		૨. સલ્ફર ટ્રાય ઓક્સાઈડ ૨.૭૫% થી ઓછું	
		૩. ઈઝીશયન લોશ ૫% સુધી	
૨	રેતી		
	(અ) સીલ્ટકન્ટેન્ટ	૧૫૦ ઘન મી. એક ટેસ્ટ (એક સેમ્પલ ૧૦ કી.ગ્રા)	૩% સુધી સ્પેસીફિકેશન નિયત કરેલા ધોરણ મુજબ સામાન્ય રીતે ચોથા ઝોન માંથી આવતી રેતી વાપરવી નહીં.
	(બ) ફાઈનનેશ મોડ્યુલસ		
૩	ગ્રીટ કપચી (ડામરકામ માટે)	બીટુ મીનસ મેક્રાડમ, ગ્રીટ અને કપચીના અલગ સ્પેશીફિકેશન નિયત કરેલા ધોરણો મુજબ બે તેમજ મીક્ષ એગ્રીગેટના દરરોજ બે ટેસ્ટ એક જ પ્લાન્ટ ઉપરથી લેવાના રહેશે. (અલગ અલગ બે અને ડ્રાયરમાંથી બે)	સ્પેસીફિકેશનના નિયત કરેલા ધોરણો મુજબ.
	(ક) ગ્રેડેશન ટેસ્ટ	પ્રતિ ૨૦૦ ઘન મીટરે એક ટેસ્ટ	ડામર સપાટી માટે ૧૨% થી વધુ નહીં.
	(ખ) ફ્લેકીનેશ ટેસ્ટ	પ્રતિ ૨૦૦ ઘન મીટરે એક ટેસ્ટ	ડબલયુ બી.એમ. સપાટી માટે ૧૫% થી વધુ નહીં
	(ગ) ઇમેક્સ ટેસ્ટ	પ્રતિ ૨૦૦ ઘન મીટરે એક ટેસ્ટ	૩૦ % થી વધુ નહીં.
	(ઘ) એબ્રેશન ટેસ્ટ	પ્રતિ ૨૦૦ ઘન મીટરે એક ટેસ્ટ	૩૫ % થી વધુ નહીં.
	(ચ) કપચીનો સ્ટ્રીપીંગ ટેસ્ટ	દર ૫૦ થી ૧૦૦ ઘન મીટરે એક ટેસ્ટ દરરોજ	ફ્વોલીટી ફ્રેક્ચર મેન્યુઅલ પુષ્ક ૨૬ મુજબ
	ગ્રીટ કપચી		૨૫ % થી વધુ નહીં.
	(૧) ગ્રેડેશન ટેસ્ટ	૧૦૦ ઘ.મી	
	(૨) ફ્લેકીનેશ ટેસ્ટ	૧૦૧ થી ૫૦૦ ઘ.મી	
	(૩) ઇમેક્સ ટેસ્ટ	૫૦૧ થી ૧૫૦૦ ઘ.મી	
	(૪) એબ્રેશન ટેસ્ટ	૧૫૦૧ થી ૫૦૦૦ ઘ.મી	
	(૫) કશીંગ ટેસ્ટ		
	(૬) સ્ટ્રીપીંગ ટેસ્ટ		ઓછામા ઓછો એક ટેસ્ટ એક કામ માટે

•	•	(૭) ગ્રેડેશન ટેસ્ટ એટ પ્લાન્ટ સાઇટ	•	દર ૧૦૦ મે.ટને એક ટેસ્ટ,રોજના ઓછામા ઓછા બે ટેસ્ટ ફરજિયાત	•	કોઇ સુધારો નહિ.
•	•	(૮) બાઇડર કન્ટેન્ટ	•	દર ૧૦૦ મે.ટને એક ટેસ્ટ,રોજના ઓછામા ઓછા બે ટેસ્ટ ફરજિયાત	•	કોઇ સુધારો નહિ.
•	•	(૯) ડામરની જરૂરીયાત પ્રમાણે ગુણવત્તાનું પરિક્ષણ	•	ટેન્કરની સંખ્યા	•	પરીક્ષણની સંખ્યા
•	•		•	૫ થી ૧૦	•	૧
•	•		•	૧૧ થી ૨૦	•	૨
•	•		•	૨૧ થી ૫૦	•	૩
•	•		•	૫૧ થી ૧૦૦	•	૪
•	•		•	૧૦૧ થી ૧૫૦	•	૫
•	•		•	૧૫૧ થી ૫૦૦	•	૮
•	•		•	બાકી દરેક ૫૦ ટેન્કર દીઠ	•	૧
•	•	(અ) ડામર એકસ્ટ્રેશન ટેસ્ટ	•	બે ટેસ્ટ એક જ પ્લાન્ટ માટે લેવાના રહેશે	•	૦.૩ % (નિયત ધોરણોના)
	•	(બ) ડામરની ગુણવત્તાનો ટેસ્ટ (પેનીટ્રેશન ટેસ્ટ)	•	દર ૧૦૦ ટને એક ટેસ્ટ અથવા જરૂરિયાત મુજબ.	•	૦.૮૦ ૪ %
					•	૮૦-૨૨૫ ૫ %
					•	૨૨૫ થી ઉપર ૦ %
•	૪	•	•		•	
	•	•	•	૨૦૦૦ ઇંટોના જથ્થામાંથી ૨૦ ઇંટો લેવાની રહે છે.	•	મોડરેટ
	•	•	•	૩૫૦૦૦ ઇંટોના જથ્થામાંથી ૩૨ ઇંટો લેવાની રહે છે.	•	૨૦ % થી વધુ નહીં.
	•	•	•	અને દરેક ૫૦૦૦૦ ઇંટોના જથ્થામાંથી ૫૦ ઇંટો લેવાની રહે છે.	•	એવરેજ ૩૫ કી.ગ્રા./ સે.મી. <sup>૨</sup> થી ઓછું નહીં. અને દરેક રીઝલ્ટ નિયત ધોરણોના ૨૦ થી ઓછું હોવું જોઈએ.
•	૫	•	•		•	
	•	•	•	૮૦૦૦ ટાઈલ્સમાંથી ૬ ટાઈલ્સ લેવાની રહે છે.	•	વધુમાં વધુ ૧૦ %
	•	•	•	૮૦૦૦ ટાઈલ્સમાંથી ૧૨ ટાઈલ્સ લેવાની રહે છે.	•	ભીની સુકી
	•	•	•		•	૮૦ કી.ગ્રા./સેમી <sup>૨</sup> ૧૨૦ કી.ગ્રા./સેમી <sup>૨</sup>
	•	•	•		•	(ઓછામાં ઓછી)
	•	•	•	૮૦૦૦ ટાઈલ્સમાંથી ૬ ટાઈલ્સ લેવાની રહે છે.	•	એવરેજ ધસારો ૩.૫ મી.મી. થી વધુ નહીં.
•	૬	•	•		•	
	•	•	•	એક સોર્સ માટે એક જ વખત ટેસ્ટ લેવાનો રહેશે. પછી જો શંકા થાય તો જ.	•	ટીડીએસ (મી. ગ્રા/લીટર-૩૦૦૦ )
					•	સલ્ફેટ (મી.ગ્રા./લીટર-૫૦૦)
					•	પી.એચ.વેલ્યુ ૬ થી ૮
					•	ક્લોરાઈડ મી.ગ્રા./ લીટર-૨૦૦૦ (પી.પી.સી.)
					•	૧૦૦૦ (આર.સી.સી.)

• ૭ • સીમેન્ટ કોર્કીટના કચુબ ટેસ્ટ

- (અ) ઓડીનરી અને કંટ્રોલ કોર્કીટ માટે આઈ.એસ. ૪૫-૧૯૭૮
  - જથ્થો સેમ્પલની સંખ્યા
  - ૧ થી ૫ ધન મીટર ૧
  - ૨ થી ૧૫ ધન મીટર ૨
  - ૧૬ થી ૨૦ ધન મીટર ૩
  - ૩૧ થી ૫૦ ધન મીટર ૪
  - ૫૧ થી ઉપરના ૪ + દરેક
  - જથ્થા માટે ૫૦ ધન મીટર અથવા તેના ભાગ માટે એક સેમ્પલ
  - (૧ સેમ્પલ - ૬ કચુબ)
- (બ) ઓડીનરી અને કંટ્રોલ કોર્કીટ પુલોના કામ માટે આઈ.આર.સી. ૨-૧૯૬૬ મુજબ ગતિ ૫૦ ધન મી.ના જથ્થા માટે ૧૦ કચુબ લેવાના જે પૈકી ૫ કચુબ ૭ દિવસના અંતે અને ૫ કચુબ ૨૮ દિવસના અંતે ટેસ્ટ કરાવવાના રહે છે.
- કોર્કીટ કામ દરમિયાન પહેલા ૬ દિવસ માટે કાયમ ઉપર મુજબ કચુબ લેવાના અને ત્યાર પછી ત્રણ દિવસે એકવાર કચુબ ભરવાના રહે છે.
- (ક) સીમેન્ટ કોર્કીટ બીમના કામ માટે પ્રતિ ૩૦ ધન મી.ના જથ્થા માટે ૧૦ કચુબ ભરવાના જે પૈકી ૫ કચુબ ૭ દિવસ અને બાકીના ૫ કચુબ ૮ દિવસે ટેસ્ટ કરાવવાના રહેશે.

• ૮ • લોખંડ

• (ક) માઈલ્ડ સ્ટીલ (આર.સી.સી.)

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- (ખ) ટ્વિસ્ટેડ સ્ટીલ બાર
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• (ગ) પ્રીસ્ટ્રેસડ કોર્કીટ માટે સ્ટીલના તાર

- ૪૦ ટને ઓછામાં આછું એક ટેસ્ટ લેવાના રહે છે.
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- ૪૦ ટને ઓછામાં આછું એક ટેસ્ટ લેવાના રહે છે.
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- ૪૦ ટને ઓછામાં આછું એક ટેસ્ટ લેવાના રહે છે.
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- કાર્બનીક પદાર્થ ૨૦૦
- અકાર્બનીક પદાર્થ ૩૦૦૦
- (બ) જુદા જુદા ગ્રેડના કોર્કીટ માટે નિયત કરેલ મજબુતાઈ મેળવવાની જરૂરી છે.
 

૭ દિવસ	૨૮ દિવસ
કી.ગ્રા/સે.મી. <sup>૨</sup>	કી.ગ્રા/સે.મી. <sup>૨</sup>
એમ.૧૦૦- ૭૦	૧૦૦
એમ.૧૫૦- ૧૦૫	૧૫૦
એમ.૨૦૦- ૧૩૫	૨૦૦
એમ.૨૫૦- ૧૭૦	૨૫૦
એમ.૩૦૦- ૨૦૦	૩૦૦
- આ ઉપરાંત આઈ.એસ.આર-૧૯૭૮ ના કો. મુજબ વિશિષ્ટ મજબુતાઈ (કેરેક્ટરી સ્ટીક સ્ટ્રેન્થ ની ગણતરી કરીને મેળવવાની હોય છે.
- (બ) દરરોજ ટેસ્ટ કરેલા કચુબની સરેરાસ કોમપ્રેસીવ સ્ટ્રેન્થ નિયત ધોરણોથી ઓછી ના હોવી જોઈએ. દરરોજ ટેસ્ટ કરેલા કચુબના ૨૦ % કચુબની સ્ટ્રેન્થ નિયત ધોરણોની સ્ટ્રેન્થ ના ૮૫ટકા થી ઓછી ના હોવી જોઈએ.

જાડાઈ મીમી	અલ્ટીમેટ ટેન્સાઈલ સ્ટ્રેન્થ (કી.ગ્રા/સે મી <sup>૨</sup> )	ઇલ્ડટ્રેસ (કી.ગ્રા/સે મી <sup>૨</sup> )	ઇલોગેશન ના ટકા
૦-૨૦	૪૨	૨૨	૨૩
૨૦-૪૦	૪૨	૨૪	૨૩
૪૦ થી વધુ	૪૨	૨૪	૨૩
બધી સાઈઝ માટે	૪૮.૫	૪૨.૫	૧૪.૫
૮.૦	૧૪૦	આવેલ	૪ ગ્રોજ
૭.૦	૧૫૦	ટેન્સાઈલ	૪લેન્થ
૫.૦	૧૬૦	સ્ટ્રેન્થથી	૪૨૦૦ મીમી



• ૪.૦	• ૧૭૫	• ઓછામાં	• ૩
• ૩.૦	• ૧૮૦	• ઓછું	• ૨.૫
		૮૫%	

માર્ગ અને મકાન વિભાગ દ્વારા રાજ્યના રસ્તાઓનું બાંધકામ અને તેની મરામત અને જાળવણી ની કામગીરી માટે તા. ૧/૧૨/૮૭ થી અમલમાં આવે તે રીતે જે કોઈ કામના ટેન્ડરો વિભાગ દ્વારા બહાર પાડવામાં આવે તેમાં ડામર વિભાગ દ્વારા પુરો ન પાડતા કોન્ટ્રાક્ટર દ્વારા બારોબાર જે તે ઓઈલ કંપની મા ડામર ના પૈસા ભરી લાવવાનો રહેશે તે પ્રમાણે સ્પષ્ટ સુચના અચૂક આપવી એટલે કે તા. ૧/૧૨/૮૭ બાદ માગવામાં આવતા કોઈપણ ટેન્ડરોમાં શીડ્યુલ એ મા વિભાગ દ્વારા ડામર પુરો પાડવાની આઈટમો નો સમાવેશ કરવાના રહેશે નહીં.

૧. ઇજારદાર ડામર કચાથી લાવ્યા તે અંગેનું બીલ અસલમાં વિભાગને રજૂ કરવાનું રહેશે.

૨. રીફાઈનરી ના ગેટપાસ પણ બીલ સાથે સામેલ કરવાના રહેશે.

૩. ડામર જે ટેન્કરમાં લાવવામાં આવે છે તે ટેન્કરનો વાહન નંબર બતાવવાનો રહેશે.

૪. ડામર ઉપર ઇજારદાર શ્રી ને એડવાન્સ પેમેન્ટ અથવા સીક્યોર એડવાન્સ મળી શકશે નહીં.

૫. ઇજારદારે રજૂ કરેલ ડામરના અસલ બીલમાં ડામરનો ગ્રાડ કોલીટી અંગેનો ઉલ્લેખ હોવો જોઈએ આ અંગે ઇજારદારે ડામરના ગ્રેડ અંગેનું ટેસ્ટ રીઝલ્ટ / ગ્રેડ અંગેનું પ્રમાણપત્ર રજૂ કરવાનું રહેશે.

૬. ઇજારદારે ડામરની આવક / વપરાશ / બચત અંગેનું રજીસ્ટર પ્લાન્ટ સાઈટ ઉપર નિભાવવાનું રહેશે.

ઉપરોક્ત અનુસંધાનમાં જણાવેલ તા. ૨૭/૧૧/૮૭ ના પરીપત્રની સુચના ક્રમાંક ૭ રદ ગણી તેના બદલે નીચે મુજબની સુચનાઓ મુજબ કાર્યવાહી કરવાની રહેશે.

(૧) સુચના ક્રમાંક (૭)

(અ) રૂ. ૫.૦૦ લાખ સુધીનો અંદાજીત રકમના કામોના ડામર કામોના ટેન્ડરોમાં ડામરનો ભાવ દર્શાવવાનું રહેશે. નહીં તેમજ તેવા કામો માંટે ડામરનો ભાવ તફાવત પણ ચૂકવવાનો / વસુલ કરવાનો રહેશે નહીં. (બ) રૂ. ૫.૦૦ લાખથી વધુ અંદાજીત કીમતના ડામર ભાવ તફાવતની જોગવાઈ નીચે દર્શાવેલ વિગતે કરવાની રહેશે.

(૧) ડામર નો જરૂરી સ્ટાર રેટ જે માસમાં ડીટીપી મંજૂર થાય તે માસના રીફાઈનરી ના ભાવ ટેન્ડરમાં જથ્થા સામે દર્શાવવાના રહેશે. (૨) રીઝર્વ બેન્કના બુલેટીનમાં ડામર ના હોઈ ઇન્ડેક્સ નો હોવાથી ઠેકેદાર વર્ક ઓર્ડર આપ્યા બાદ જે ડામર ખરીદે તે રીફાઈનરી ના મુળ બીલો રજૂ કરે અને ખરીદેલ જથ્થો વર્ક ઓર્ડર મુજબ કામમાં વાપરે ત્યારે અને ટેન્કર મુજબની સમય મર્યાદામાં કામ પૂર્ણ કરે ત્યારે બીલો ખરીદ ભાવ સાથે ઉપરોક્ત (૧) મા જણાવેલ સ્ટાર રેટ વચ્ચે તફાવત જણાય તો ચૂકવણ / રીકવરી (એડજસ્ટમેન્ટ) કરવાની રહેશે. (૩) રૂ. ૫.૦૦ લાખથી વધુ અંદાજીત રકમના કામો મા આ જોગવાઈ કરી વર્ક ઓર્ડરની તારીખથી ચૂકવણ રીકવરી કરવાની રહેશે. (૪) ઠેકેદારે ખરીદેલ ડામરના ટેસ્ટિંગના જરૂરી પ્રમાણપત્રો ઠેકેદારે સાદર કરવાના રહેશે. (૫) જે કામની અંદાજીત કિંમત રૂ. ૨૫.૦૦ લાખ કે તેથી વધુ હોય અને સમય મર્યાદા બાર માસ કે તેથી વધુ હોય તેવા કિસ્સામાં પ્રાઈઝ વેરીફિકેશન (લેબર મર્ટીરીયલ પી.ઓ.એલ.) ગણવાની થતી કામની રકમ ખર્ચ માંથી ડામરની કીમત તથા ઉપર મુજબનો ડામરનો તફાવત પણ બાદ કરવાનો રહેશે. મહત્તમ મર્યાદા ગણતી વખતે પણ ડામરની અંદાજ માં લેવાયેલ બેઝીક ભાવથી થતી કિંમત ગણી અંદાજીત રકમ માંથી બાદ કરી બાકી રહેલ રકમ પર હાલની પ્રવર્તમાન જોગવાઈ અનુસાર મહત્તમ મર્યાદા ગણવાની રહેશે.

(૨) કોન્ટ્રાક્ટર ખરીદેલ ડામર સાથે વિભાગીય કચેરી એ પી ફોર્મ પુરું પાડવાનું રહેશે નહીં.

ડામરના પરીક્ષણો ની રીકવન્સી તથા ડામર ના સાઈટ ઉપર પરીક્ષણ બાબત દક્ષિણ ગુજરાત તાંત્રીક અધિકારીઓ / કર્મચારીઓ ને સ્થળ પર પડતી મુશ્કેલી ની રજૂઆત ના અનુસંધાને હોટમીક્ષ પ્લાન્ટ અને પેવરથી કરવાના ડામરના કામમાં ડામરના ટેસ્ટિંગ મા પડતી મુશ્કેલીઓ અને તે અંગેના સુચનો બાબત સરકારશ્રીની વિચારણા આથી સર્વે હોટમીક્ષ પ્લાન્ટ થી કરવાના ડામર કામમાં ડામર ના પરીક્ષણ કરવા સ્થળ ઉપર યોગ્ય માળખાકીય સવલતો તથા સાધનો ઉપલબ્ધ કરવામાં આવે તો ડામર પરીક્ષણની કામગીરી ત્રીજી કર્મચારી માં પ્લાન્ટ સાઈટ ઉપર થઈ શકે તે માટે વિચારણા હાથ ધરવામાં આવેલ છે.

પ્રવર્તમાન પદ્ધતી મુજબ ડામર કામના ટેન્ડરો મા ઇજારદારે પ્લાન્ટ ઉત્તર ડામર લાવીને કામો કરવાની જોગવાઈ થઈ હોય નવા ડામર કામનો ટેસ્ટ થયા બાદજ ઉપયોગ કરવો જરૂરી હોય દરેક પ્લાન્ટ સાઈટ ઉપર ડામર પરીક્ષણ માટેની માળખાકીય સવલતો તથા સાધનો ઇજારદાર દ્વારા ઉપલબ્ધ હોવા જરૂરી બને છે. આથી સર્વે સંબંધીતો સુચનાઓ પાઠવવામાં આવે છે કે પ્લાન્ટ સાઈટ ઉપર પરીક્ષણની જોગવાઈ હવે પછી થી ડામર કામના ટેસ્ટમાં અવશ્યરખવાની રહેશે. વધુમાં સ્થળ ઉપર ની ટેસ્ટ કામગીરી માટેનું જ્ઞાન દરેક તાત્રીક કર્મચારી ને રહે તે માટે ડામર ના પરીક્ષણની તાલીમ ગેરી ને જુદી જુદી પ્રયોગશાળા તરફથી વિભાગના દરેક મદદનીશ ઇજનેર / અધિક મદદનીશ ઇજનેર / નાયબ કાર્યપાલક ઇજનેર / કાર્યપાલક ઇજનેરને

મેળવવાની રહેશે. પ્લાન્ટ સાઈટ ઉપર ડામરના પરીક્ષણો નુ રજીસ્ટર ક્ષેત્રીય અધિકારીશ્રી એ નિભાવવાનુ રહેશે. પ્લાન્ટ સાઈટ ઉપર પરીક્ષણની પધ્ધતી માંટે નીચે પ્રમાણેની ટેન્કરમાં જોગવાઈ રાખવાની રહેશે.

(૧) માળખાકીય સવલત સ્થળ ઉપર આશરે ૨૫ ચો.મી. ના ક્ષેત્રફળની પાકા બાંધકામ વાળી લેબોરેટરી જરૂરી પાણી તથા લાઈટની સુવિધા સહીત રાખવાની રહેશે. (૨) સાધનો ની સવલત ડામર કામના નીચે દર્શાવેલ જુદા જુદા પરીક્ષણો માટેની તેની સામે દર્શાવેલ આઈ.એસ. મુજબના સાધનો ઉપલબ્ધ કરવાના રહેશે.

(૧) પેનીટ્રેસન ટેસ્ટ : આઈ.એસ. ૧૨૦૩ (૨) સોફ્ટનીંગ પોઈન્ટ ટેસ્ટ : આઈ.એસ. ૧૨૦૪ (૩) ડકટી લીટી ટેસ્ટ :- આઈ.એસ. ૧૨૦૮ (૩) વીસ્કો સીટી ટેસ્ટ :- ૧૨૦૬ (૫) સ્પેસીફિકેશન ગ્રેવીટી ટેસ્ટ :- આઈ.એસ. ૧૨૦૪ ઉપરોક્ત સાધનો આઈ.એસ. પ્રમાણીત હોવા જોઈએ તેમજ તેને નિયમિત રીતે સેલીબ્રેટ કરાવી કાર્યરત હાલતમાં રાખવાના રહેશે. પરીક્ષણની સંખ્યા : એમ.ઓ. એસ્ટી સ્પેસીફિકેશન સેકશન ૯૦૦ મુજબ ડામર કામોના કોલીટી ઓફ બાયંડરના ટેસ્ટની સંખ્યા બેઝ રીકવરટર્ડ દર્શાવેલ છે. તે જોતા દર બે ટેન્કર દીઠ નમુના ત્રણ પરીક્ષણો પ્લાન્ટ સાઈટ ઉપર કરવાના રહેશે. તદ ઉપરાંત હવે પછીથી નીચે ટેબલના સ્તંભ ૩ અને ૪ માં દર્શાવ્યા પ્રમાણેના પરીક્ષણો ગેરી માપણ કરવાના રહેશે.

આઈ.એસ. ૧૨૦૧ / ૧૯૭૮ મુજબ પરીક્ષણોની સંખ્યા		પરીક્ષણ કરવાની સુધારેલ સંખ્યા	
ટેન્કરની સંખ્યા	પરીક્ષણની સંખ્યા	ટેન્કરની સંખ્યા	પરીક્ષણની સંખ્યા
	૧	૫ થી ૧૦	૧
૨ થી ૧૫	૨	૧૧ થી ૨૦	૨
૧૬ થી ૫૦	૩	૨૦ થી ૫૦	૩
૫૧ થી ૧૫૦૦	૫	૫૧ થી ૫૦૦	૪
		બાકીના દરે ૫૦ ટેન્કર દીઠ	૧

ઉપર મુજબના ડામરના સાઈટ ઉપર તેમજ ગેરી મા પરીક્ષણો કરવાની જોગવાઈઓ હવે પછીના દરેક ડામર કામના ટેન્કરો માં અવશ્ય રાખવાની રહેશે. આ સુચનાઓનો અમલ યુસ્ત પણ થાય તેવું દરેક ૧૦૦૦ ક્ષેત્રીય અધિકારીઓ અવશ્ય ધ્યાન રાખવું પરીપત્ર ક્રમાંક એસ.એસ.આર. ૧૦૯૯ - આઈ.પી. ૯૧ (૯) સ તા. ૨૬/૭/૯૯

ટીડીએસ અંગે જોગવાઈ કરવાનો સુધારો (ઠરાવ ક્રમાંક વેવેઅ / ગાંધી / વવટ / ટીડીએસ ૯૭.૯૮ / જા: ૪૪૫૧ તા. ૧૯/૭/૯૭ તા. ૧/૪/૦૭ થી વેચાણવેરા કાયદામાં કરેલ જોગવાઈ મુજબ રૂ. ૧૦.૦૦ લાખથી વધુ કિંમત ના વર્ક્સ / કોન્ટ્રાક્ટ સંબંધે રકમની ચુકવણી વખતે ચુકનારે ચુકવાની રકમ ના બે ટકા લેખે રકમ વેરા પેટે મુળ સ્થળેથી કપાત કરીને ટીડીએસ ૧૦ દિવસ સરકારી ભરણા માંટેના સાદા ચલનથી વેચાણવેરા સદરે જમા કરાવવાના રહેશે તા. ૧/૪/૨૦૦૨ પછી ચુકવવા પાત્ર થતી વર્ક્સ કોન્ટ્રાક્ટ વધે તેવા સંજોગો મા બે ટકાની ટીડીએસ ની કપાત કરવાની રહેશે.

તા. ૨૨/૪/૨૦૦૨ વેચાણવેરા કમિશ્નર ગુ.રા. અમદાવાદ

રાજ્ય માં વૃક્ષારોપણને પ્રોત્સાહન મળે તે અંગેના સર્વે પ્રયત્નો રાજ્ય સરકાર દ્વારા કરવામાં આવે છે. વર્ષો વર્ષ વૃક્ષ રોપવાના કાર્યક્રમ નુ આયોજન પણ મોટા પાયે કરવામાં આવે છે. આ પ્રયત્નને વેગ આપવા બંધાઈ રહેલ / નવા બંધાતા મકાનોનીકામગીરી અંગે નીચે મુજબની સુચનાઓ આપવા મા આવે છે. (૧) નવા મકાનો માં અંદાજો ના ભાગ રૂપે વૃક્ષરોપણ માવજત અને ઉછેરની કામગીરી નો સમાવેશ અંદાજમા અવશ્ય કરવો (૨) મકાનના કંપાઉન્ડમાં ૬.૬ મીટરના અંતરે વૃક્ષો રોપવાની જોગવાઈ કરવી (૩) ઝડપથી ઉગી શકે લાંબુ ટકી રહે અને લીલોતરી આપે તેવા વૃક્ષોની પસંદગી વાવેતર માંટે કરવી (૪) વૃક્ષોની માવજત પાણી પાવુ તથા ખાતર વગેરે સઘળી બાબતો નો આઈટમમાં સમાવેશ કરવો મકાન બાંધકામ નો પાયો ખોદાણની સાથે વૃક્ષો રોપવા જેથી મકાન પુર્ણ થાય ત્યારે સંબંધીત ખાતાને મકાનની સાથેસાથ ઉછેરેલા વૃક્ષો પણ સોંપી સકાય આ માટે જરૂર જણાય તો કંપાઉન્ડ વોલ નુ બાંધકામ શરૂઆત માં હાથ ધરવુ શક્ય હોય તો મકાન ના કંપાઉન્ડ ની સાથોસાથ આસપાસ ના વિસ્તારમાં વન વિભાગના સહકાર થી વધારાના વૃક્ષોનો વાવેતર પણ કરવુ આ સુચનાઓનુ યુસ્ત પણે અમલ કરવા તથા તેની સમાંતરે સમીક્ષા કરવા સર્વે કાર્યપાલક ઇજનેરશ્રી ઓ / અધિક્ષક ઇજનેરશ્રી ઓ ને આથી સુચના આપવા મા આવે છે .

રાજ્ય સરકારના બાંધકામ માટે વપરાતા ગૌણ ખનિજની રોયલ્ટી ભરવા બાબત.

ગુજરાત સરકાર

ઉદ્યોગ અને ખાણ વિભાગ

ઠરાવ ક્રમાંક : એમએમઆર/૧૧૨૦૦૦/૨૦૧૩/છ

સચિવાલય, ગાંધીનગર

તારીખ : 1-SEP-2004

વંચાણે લીધા :-

(૧) ઉદ્યોગ, ખાણ અને ઉર્જા વિભાગનો ઠરાવ ક્રમાંક:એમસીઆર-૨૧૬૮-૭૩૮૦-છ

તા. ૧૨/૧૨/૧૯૬૯.

(૨) ઉદ્યોગ, ખાણ અને ઉર્જા વિભાગનો ઠરાવ ક્રમાંક:એમસીઆર-૨૧૬૮-૮- ૬૬૮૫-છ, તા. ૧/૧/૧૯૮૭

(૩) ઉદ્યોગ, ખાણ અને ઉર્જા વિભાગનો ઠરાવ ક્રમાંક:એમસીઆર-૨૧૮૮-(૮)૬૫-છ તા. ૨૫/૧/૧૯૯૧.

(૪) ઉદ્યોગ અને ખાણ વિભાગનો ઠરાવ ક્રમાંક:એમસીઆર-૧૦૯૭-૨૮૫૬-છ, તા. ૬/૧૧/૧૯૯૭.

(૫) માન. મુખ્યમંત્રીશ્રીના અધ્યક્ષપણા હેઠળ યોજાયેલ એમ્પાવર્ડ કમીટીની તા. ૧૮/૬/૨૦૦૪ ની બેઠકની કાર્યવાહી નોંધ.

ઠ રા વ :-

ઉદ્યોગ, ખાણ અને ઉર્જા વિભાગના સંદર્ભ-(૩) હેઠળના ઠરાવથી એવી જોગવાઈ કરવામાં આવેલ કે રાજ્ય સરકારના, પંચાયતોના અને સરદાર સરોવર નર્મદા નિગમના બાંધવામાં આવતાં રસ્તાઓનાં કે સિંચાઈ વગેરેના કામો માટે

જ્યારે સાદી માટ્ટ (ઓર્ડીનરી કલે-અર્થ) અને (સોફ્ટ) મુરમ વાપરવામાં આવે ત્યારે ગુજરાત ગૌણ ખનિજ નિયમ, ૧૯૬૬ મુજબ રોયલ્ટી લેવાના નિયમો લાગુ પડશે નહીં. એટલે કે આ કામો માટે કોન્ટ્રાક્ટરો પાસે સાદી માટી (ઓર્ડીનરી કલે-અર્થ) અને (સોફ્ટ) મુરમ માટે રોટલ્ટી લેવાની થશે નહીં તથા સંદર્ભ-(૪) હેઠળના વિભાગના તા. ૬/૧૧/૯૭ ના ઠરાવથી ગુજરાત વિદ્યુતબોર્ડ ધ્વારા હાથ ધરવામાં આવતાં કામો માટે પણ ઉપર મુજબ રોટલ્ટી મુક્તિનો લાભ આપવામાં આવેલ.

ઉપર્યુક્ત જોગવાઈના કારણે રાજ્યમાં ગેરકાયદેસર રીતે આ ખનિજોનો વપરાશ થતો હોવાનું જણાયેલ છે. જેના પરિણામે રાજ્ય સરકારે રોટલ્ટીની આવક ગુમાવવી પડે છે માટે ઉપરોક્ત હુકમોની જોગવાઈની સમીક્ષા કરી તે દૂર કરવાની બાબત સરકારશ્રીની વિચારણા હેઠળ હતી. તા. ૧૮/૬/૨૦૦૪ ના રોજ માન. મુખ્યમંત્રીશ્રીના અધ્યક્ષપણા હેઠળ યોજાયેલ એમ્પાવર્ડ કમીટીની બેઠકમાં નક્કી થયા મુજબ સંદર્ભ-૩ તથા સંદર્ભ-૪ હેઠળના વિભાગના તા. ૨૫/૧/૯૧ તથા તા. ૬/૧૧/૯૭ ના ઠરાવો આથી રદ કરવામાં આવે છે.

ગુજરાતના રાજ્યપાલશ્રીના હુકમથી અને તેમના નામે.

સહી/-

(આર. બી. વ્યાસ)

નાયબ સચિવઉદ્યોગ અને ખાણ વિભાગ

ગુજરાત સરકાર

માર્ગ અને મકાન વિભાગ

પીશ્રવત્ર ક્રમાંક:ટીએનસી/૧૦૮૮-(૪)-સ

સચિવાલય, ગાંધીનગર

તારીખ : ૨૧.૧૦.૨૦૦૫

પરિપત્ર:-

વિષય: કોન્ટ્રાક્ટરો ને સરકારી કામના ટેન્ડરોમાં શેડ્યુલ-એ હેઠળ સરકારી વિભાગો દ્વારા સિમેન્ટ તથા લોખંડ પુરાપાડવાની પ્રથા રદ કરવાને કારણે પ્રાઇસ એસ્કેલેશનના હુકમોમાં સંબંધિત સુધારો કરવા બાબત (ક્લોઝ ૫૯-૫૯-એ-(બી-૨)અને ક્લોઝ ૬૦-૬૦એ(બી-૧)

સંદર્ભ: (૧) સરકારી ઠરાવક્રમાંક:સીસીએ-૧૫૭૪-સી-૧૭૪૧-(૩૬)-સ,તા:૩૧-૮-૮૧

(૨) સરકારી ઠરાવક્રમાંક:સીસીએ-૧૫૭૪-સી-૧૭૪૧-(૩૬)-સ,તા:૭-૪-૮૩

(૩) સરકારી ઠરાવક્રમાંક:ટીએનસી-૧૦૮૮- (૪)-સ,તા:૩૧-૮-૮૧

(૪) સરકારી ઠરાવક્રમાંક:ટીએનસી-૧૦૮૮- (૪)-સ,તા:૫-૧૦-૯૧

(૫) સરકારી ઠરાવક્રમાંક:ટીએનસી-૧૦૮૮- (૪)-સ,તા:૭-૪-૯૨

(૬) સરકારી ઠરાવક્રમાંક:ટીએનસી-૧૦૮૮-આઇબી-૨૨૦- (૧૮)-સ,તા:૩૧-૩-૦૫

સરકારશ્રીના ઉપર સંદર્ભ(૩) માં દર્શાવેલ તા.૩૧-૮-૯૧ના ઠરાવથી ટેન્ડર ફોર્મના ક્લોઝ ૫૯-૫૯-એ-(બી-૨)અને ક્લોઝ ૬૦-૬૦એ(બી-૧) માં સુધારો કરવામાં આવેલ. ઉપર સંદર્ભ(૬)માં દર્શાવેલ તા:૩૧-૩-૦૫ ના

પરિપત્રથી સરકારી કામ ના ટેન્ડરોમાં શેડ્યુલ-એ હેઠળ સરકારી વિભાગો દ્વારા કોન્ટ્રાક્ટરો ને સિમેન્ટ તથા લોખંડ પુરા પાડવાની જોગવાઈ રદ કરવામાં આવેલ છે. ઉપરોક્ત સંદર્ભ(૩) માં દર્શાવેલ તા.૩૧-૮-૯૧ના ઠરાવથી કરેલ ફેરફાર ફક્ત રૂ.૧૫.૦૦ લાખ થી વધુ રકમન કામો માટે હતા.પ્રસ્તુત બાબતમાં પુખ્ત વિચારણાને અંતે હવે રૂ.૧૫.૦૦ લાખ થી નીચે ની કોઈપણ રકમના કામોમાં પણ સ્ટારરેટની જોગવાઈ રાખવાનો નિર્ણય થયેલ છે.

આ પરિપત્રનો અમલ તે રવાના થયાની તારીખથી કરવાનો રહેશે

આ હુકમો આ વિભાગના ફાઇઅલ ક્રમાંક ટીએનસી -૧૦૮૮-આઈબી-૨૨૦- (૧૮)-સ, પર સરકારી શ્રીની તા.૧૨-૭-૨૦૦૪ ના રોજ મળેલ સંમતિથી બહાર પાડવામાં આવે છે

ગુજરાતના રાજ્યપાલશ્રીના હુકમથી અને તેમના નામે,

(અશોક પંડ્યા)

ઉપસચિવ

માર્ગ અને મકાન વિભાગ

પ્રતિ,

નર્મદા જળસંપત્તિ,પાણી પુરવઠા અને કલ્પસર વિભાગ, સચિવાલય, ગાંધીનગર

સર્વે અધિક્ષક ઈજનેરશ્રીઓ.(મા.મ.વર્તુળ ,પંચાયત, મા.મ.વર્તુળ,/રા.ધો.મા./રાજ્ય માર્ગ યો.વર્તુળ/એક્સપ્રેસ વે વર્તુળ/ પાટનગર યોજના વર્તુળ સહિત)

સર્વે કાર્યપાલક ઈજનેરશ્રીઓ(ઉપરોક્ત વર્તુળ હેઠળના તમામ વિભાગો)

સર્વે તાંત્રિક અધિકારીઓ,માર્ગ અને મકાન વિભાગ, સચિવાલય ગાંધીનગર

સર્વે પ્રોજેક્ટ શાખાઓ,માર્ગ અને મકાન વિભાગ, સચિવાલય ગાંધીનગર

સિલેક્ટ ફાઈલ

ગુજરાત સરકાર  
માર્ગ અને મકાન વિભાગ  
પરિપત્રક્રમાંક એસએસઆર-૧૦૨૦૦૪-આઇબી-૪૧(૨૪)-સ  
સચિવાલય ગાંધીનગર  
તા.૨/૧૨/૨૦૦૬

વિષય : મકાનો અને અન્ય બાંધકામના કામદારો ના કલ્યાણ સેસ.એક્ટ ૧૯૯૬ હેઠળ ૧% સેસ “ગુજરાત બિલ્ડીંગ એન્ડ

અધર કન્સ્ટ્રક્શન વર્કસ વેલફેર બોર્ડ”માં જમા કરાવવા અંગે.

સંદર્ભ: (૧) શ્રમ અને રોજગાર વિભાગ, સચિવાલય ગાંધીનગર નો ઠરાવ ક્રમાંક : સીડબલ્યુએ-૨૦૦૪/૮૪૧-એમ-૩,

તા: ૩૦-૦૧-૨૦૦૬

(૨) શ્રમ અને રોજગાર વિભાગ, સચિવાલય ગાંધીનગર નો ઠરાવ ક્રમાંક : સીડબલ્યુએ-૨૦૦૪/૧૮૩૧-એમ-૩,

તા: ૯-૧૨-૨૦૦૫

પરિપત્ર:

ઉપરોક્ત વિષયના સંદર્ભ માં દર્શાવેલ શ્રમ અને રોજગાર વિભાગ, સચિવાલય ગાંધીનગરના તા: ૩૦-૦૧-૨૦૦૬ અને તા: ૯-૧૨-૨૦૦૫ ના ઠરાવો(નકલ સામેલ છે) તરફ સર્વે સંબંધિતોનું ધ્યાન દોરતા આથી જણાવવામાં આવે છે કે મંજૂર કરાતા ડ્રાફ્ટ ટેન્ડર પેપર્સમાં “સેસ” અંગે જોગવાઈ કરીને ઇજારદારોના દર મહિને કરેલ કામના બિલના ચુકવણામાથી ૧(એક) ટકો સેસ કાપીને તે રકમ “ગુજરાત બિલ્ડીંગ એન્ડ અધર કન્સ્ટ્રક્શન વર્કસ વેલફેર બોર્ડ”ના સંદર્ભ: (૨) હેઠળ ના ઠરાવથીનિયત કરેલ હેડ-સબહેડ ખાતે સંબંધિત કાર્યપાલક ઇજનેરશ્રી દ્વારા જમા કરાવવાની રહેશે.હવે પછીથી જે ન્વા અંદાજો મંજૂર કરવામાં આવે તેવા અંદાજ ની દરેક આઇટમના ભાવોમાં ૧% વધારો કરીને વધારેલ ભાવ મુજબ અંદાજો મંજૂર કરવાના રહેશે.તથા ડ્રાફ્ટ ટેન્ડર પેપર્સમાં તે મુજબ રકમ મુકવાની રહેશે. મોટા અને સુવાચ્ય અક્ષરે ITB માં બીલ માંથી કપાત થનાર બધાજ પ્રકારના ટેક્સ/સેસ વિગેરેનો ઉઅલ્લેખ કરવાનો રહેશે.

આ સુચના નો અમલ ચુસ્તપણે થાય તેની સંબંધિતો એ નોંધ લઈ તે મુજબ કાર્યવાહી અચૂક રીતે હાથ ધરવાની રહેશે.

(અશોક પંડ્યા)

ઉપસચિવ

માર્ગ અને મકાન વિભાગ

પ્રતિ,

સર્વે અધિક્ષક ઈજનેરશ્રીઓ.(મા.મ.વર્તુળ/પંચાયત,મા.મ.વર્તુળ,/ને.હા.વર્તુળ./એક્સપ્રેસવેવર્તુળ/રા.મા.યો.વર્તુળ/ પાટનગર યોજના વર્તુળ તથા ઇલેક્ટ્રીકલ મા.મ. એક્સપ્રેસ વે વર્તુળ સહિત)

સર્વે કાર્યપાલક ઈજનેરશ્રીઓ(ઉપરોક્ત વર્તુળો હસ્તકના સર્વે વિભાગો)

સર્વે તાંત્રિક અધિકારીઓ,ના.કા.ઇ.શ્રીઓ સહીત,માર્ગ અને મકાન વિભાગ, સચિવાલય ગાંધીનગર

સર્વે પ્રોજેક્ટ શાખાઓ,માર્ગ અને મકાન વિભાગ, સચિવાલય ગાંધીનગર

સિલેક્ટ ફાઈલ-૨૦૦૬ સ-શાખા મા.અને મ. વિભાગ, સચિવાલય ગાંધીનગર

## **Opening of New Sub-head of Account**

Government of Gujarat  
Labour and Employment Department  
No: CWA-2004-1831-M(3)  
Sachivalaya, Gandhinagar  
Dated: 09/12/2005

Read:

(1) Commissioner of Labour(Factory Wing),Ahmedabad,Letter No; CL-DISH-A-LAW-2004-1748,Dated:3-6-2004

(2)Finance Department,Gandhinagar,LetterNo: ONS-102005-5435(133)-K Dated :01-12-2005

### **RESOLUTION**

Under the Gujarat Building and other Construction Worker's(Regulation of Employment and Condition of Service) Rules 2003, the proposal to meet with the expenditure incurred for the various welfare activities for the beneficiaries of Gujarat Building and Other Construction Workers' Welfare Board and payment of salaries to his establishment of the said board,has been received from Commissioner of Labour,vide his letter referred to in the permeable. The said proposal was under active consideration for some time. After careful consideration,the government is pleased to open a New Sub-Head of Account as under:-

- Demand No:- • -
  - Major Head:- • 0230-Labour and Employment
  - Sub Major Head:- • -
  - Minor Head:- • 106-Fees under Contract Labour(Regulation and Abolition) Rules
  - Sub Minor Head:- • (03)-Contribution frombeneficiaries building workers under Gujarat Building & Other Construction Workers' Welfare Cess Act 1996
- 
- Demand No:- • -
  - Major Head:- • 0230-Labour and Employment
  - Sub Major Head:- • -
  - Minor Head:- • 106-Fees under Contract Labour(Regulation and Abolition) Rules
  - Sub Minor Head:- • (04)-Income from cess levied under Gujarat Building & Other Construction Workers' Welfare Cess Act 1996
- 
- Demand No:- • 57
  - Major Head:- • 2230-Labour and Employment
  - Sub Major Head:- • 01-Labour



- Minor Head:-      • 111-Social Security of Labour
- Sub Minor         • (05)-Activities of the Gujarat Building & Other Construction
- Head:-               Workers' Welfare Cess Act 1996

- 2.0 The Competent Authority(Registering Officer or the Appellate Officer as the case may be) shall arrange to deposit the amount in the said head by challan in the respective treasury or in the bank specified by the State Government,accordingly.
- 3.0 This order is issued in corporate with Finance Department's letter Dated 01-12-2005,referred to in preamble.
- By order and in the name of the Governor of Gujarat.

Sd/-  
(S.K.Bamaniya)  
Under Secretary to Govt. of Gujarat,  
Labour and Employment Department

To:

1. The Principal Secretary and Chairman,Gujarat Building and Other construction Workers' Welfare Board,Sachivalaya,Gandhinagar
2. The Commissioner of Labour,Gujarat State,O-3,New Mental Hospi. Compound,Meghaninagar, Ahmedabad
3. The Director,Industrial Safety & Health,O-9, New Mental Hospi. Compound,Meghaninagar, Ahmedabad
4. The Accountant General,Gujarat,Ahmdabad
5. The Accountant General,Gujarat,Rajkot
6. All District Treasury Officers
7. The Deputy Commissioner of Labour,C/0 the Commissioner of Labour,Gujarat State, Meghaninagar, Ahmedabad
8. The Member Secretary, Gujarat Building and Other construction Workers' Welfare Board, C/0 Office of the Commissioner of Labour,Gujarat State, Meghaninagar, Ahmedabad-16
9. The Finance Department(K-Branch) sachivalaya,Gandhinagar
- 10.The Section Officer,M-1 Br. Labour and Employment department,sachivalaya,Gandhinagar
- 11.The Branch select file
- 12.The Dy. S.O. select file.

and Building and Other Construction workers Welfare  
Cess Act, 1996

Government of Gujarat  
Labour and Employment Department  
No: CWA-2004-1831-M(3)  
Sachivalaya, Gandhinagar  
Dated: 30-Jan-2006

Read: Labour & Employment Department, Gandhinagar GR No: CWA-2004-1831-M(3) dated 9-12-2005

**RESOLUTION**

Building and other constructions workers are one of the largest and most vulnerable segments of unorganized labour. Their work is characterized byb inherent risk to life and limb of the workers and also by casual nature, temporary relationship between employer and employee, uncertain working hours, lack of basic amenities and inadequate welfare facilities.

Government of India has decided to constitute Welfare Boards for such workers in every state and accordingly, the Building and other Construction workers (Regulation of Employment & Conditions of Service) Act 1996 was enacted by Parliament and brought into force from 19<sup>th</sup> August, 1996. Implementation of the Act including cess collection has already commenced in Kerala, Karnataka, Tamil Nadu and Delhi. Under the said Act, Government of Gujarat has constituted a Board under section 18. The State Government has been given powers to make rules for carrying out the provisions of this Act.

Accordingly, Government of Gujarat made Gujarat Building and other Construction Workers (Regulation of Employment and Condition of Service) Rules, 2003 and published these Rules vide Notification No: GHR 2003- CWA-2000-1869-M(3), dated 18<sup>th</sup> August 2003. Government of Gujarat has also constituted the Gujarat building and other Construction Workers welfare Board vide Notification No: GHR/2004/163/ CWA /2004 /3743-M3, dated 18<sup>th</sup> December 2004. Secretary (labour) has been appointed as Chairman.

Government of India has also enacted the Building and other Construction Workers Welfare Cess Act (hereinafter called as Cess Act) and brought it in force from 19<sup>th</sup> August 1996. The Cess Act Provides for the levy and collection of cess on the cost of construction incurred by the employers, for increasing the resources of the Welfare Board. Section 3 of the Cess Act provides that Cess shall be levied and collected at a rate not less than 1% of the cost of Construction incurred by an employer. Rule 5 of the Building and Other Construction Workers' Welfare Cess Rules, 1998 reads as follows:

- (1) The proceeds of the cess collected under Rule 4 shall be transferred by such Government Office, Public Sector Undertakings, Local authority or cess collector, to the Board along with the form of challan prescribed (and in the head of account of the Board) under the accounting procedures of the state, by whatever name they are known.
- (2) Such Government Office or Public Sector Undertaking may deduct from the cess collected or claim from the Board, as the case may be, actual collection expenses not exceeding one Percent of the total amount collected.
- (3) The amount collected shall be transferred to the Board within thirty days of its collection.

Moreover under Rule 6 every employer within thirty days of commencement of his work or payment of cess, as the case may be has to furnish information in Form 1 to the Assessing Officer .

Under Rule 12, the Assessing Officer in cases where the employer has not pay the cess or has paid less cess, can impose a penalty upto the amount of cess payable.

By Government of Gujarat Notification No: GHR/2005/04/CWA/2004/841/M3 dated 3<sup>rd</sup> January 2005, all Heads of Departments of the Government of Gujarat, all Exexutive Heads of Public Sector Undertakings and all Executive Heads of Local Authority(except Gram panchayat and Nagar Panchayat) are declared as Cess Collectors and Assessing Officer.

The Building and other Construcion workers Welfare Board has passed the necessary resolution to collect the cess with effect from 13thy December 2004.

Accordingly the cess is payable by Government Officers, Public Sector Undertakings and Local Authority or Cess Collector to the Board in Challan prescribed in the following Head/Sub Head:

- Major Head:-      • 0230-Labour and Employment
- Minor Head:-      • 106-Fees under Contract Labour(Regulation and Abolition) Rules
- Sub      Minor      • (04)-Income from cess levied under Gujarat Building & Other
- Head:-                      Construction Workers' Welfare Cess Act 1996

Approval of the Finance Department,Government of Gujarat has been taken for meeting the expenditure to be incurred for the various welfare activities by the Gujarat Building and Other Construction Workers Welfare Board and the opening of the Accounting Head/SubHead in file No: CWA – 2004-1831-M3 on 1<sup>st</sup> December 2005(Copy of Resolution dated 9/12/2005is enloed)

All Government Departments Public Sector Undertakings and Local Authority are instructed to pay the above cess as per the Act.All departments, Public Sector Undertakings and Local Authority are also advised to incorporate the 1% Cess in their estimates for all new works.  
By order and in the name of the Governor of Gujarat.

Sd/-

(Vinod Babbar)

Principal Secretary to Government,  
Labour and Employment Department

Principal Secretary to Chief Minister,Sachivalaya,Gandhinagar

Ps to all Ministers

Ps to all Minister of state

PS to Chief secretary

Accountant General,Gujarat,Rajkot/Ahmdabad

All Department of sachivalaya with a request to circulate to all HODS/Boards/Corporations under their administrative control

Pay & Account Office,Ahmedabad/Gandhinagar

Resident Audit Office. Ahmedabad/Gandhinagar

All heads of Departments under Local & Employment Department

All District Panchayat

All Municipal Corporations

Branch Select File

Dy.S.O.Select File

ઈ ટેન્ડરીગમાં ટેન્ડર ફી અનેઅન્ય ડોક્યુમેન્ટ રજુ કરવા અંગે.

ગુજરાત સરકાર  
માગ અને મકાન વિભાગ  
પરિપત્ર ક્રમાંક પરચ-૧૦૨૦૦૮-પ-સ  
સચિવાલય ગાંધીનગર  
તા. ૨૭-૧૧-૨૦૦૮

પરિપત્ર

માર્ગ અને મકાન વિભાગમાં હાલ માં ટેન્ડરો ઈ-ટેન્ડર પદ્ધતિથી મેળવવામાં આવે છે. તે અંન્વયે સમાન ક્રમાંકના તા.૧૮/૧/૦૮ ના પરિપત્ર માં ટેન્ડર ફી અને બાનાની રકમ જે તે કાર્યપાલક ઈજનેરશ્રી ને ખરેખર ચુકવવા માટે દિન-૭ મં અસલમાં રજીસ્ટર્ડ પોસ્ટ એ.ડી થી મોકલવાની તેમજ અસલમાં ડીમાન્ડ ડ્રાફ્ટ નહિ મોકલનાર સામે શિક્ષાત્મક પગલા લેવાની જોગવાઈ હતી. ઉપરોક્ત પરિપત્રમાં નીચે મુજબ અંશ:ત સુધારો કરી આ શરત નો સમાવેશ ટેન્ડર નોટીસ/ ટેન્ડર મુસદ્દામાં Through R.P.A.D. so as to reach to Executive Engineer Division ..... within 7 days from the last date of uploading ને બદલે " to S.E at the time of tender opening

or Send the same through R.P.A.D. so as to reach to Executive Engineer Division ..... within 7 days from the last date of opening.” સુધારો કરવામા આવે છે.તેમજ ખરેખર ટેન્ડર ફી તેમજ બાનાની રકમ નિયત સમયમાં ઇજારદાર ન ભરે તો ઇજારદારની નોંધણી એક વર્ષ માટે એવેન્સ માં રાખવાની કાર્યવાહી કરી ઇ- ટેન્ડરીંગ નો કોડ એક વર્ષ માટે રદ કરાશે.

ગુજરાત રાજ્યપાલશ્રીના હુકમથી અને તેમના નામે,

(આર.કે. ચૌહાણ)

ખાસ ફરજ પર ના અધિકારી  
માર્ગ અને મકાન વિભાગ

પ્રતિ

સર્વે મુખ્ય ઇજનેર અન અધિક સચિવશ્રી, માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર

સર્વે ઉપસચિવશ્રી, માર્ગ અને મકાન વિભાગ સચિવાલય ગાંધીનગર

સર્વ અધિક્ષક ઇજનેરશ્રીઓ ,રાજ્ય વિભાગ - પંચાયત મા.મ. વર્તુળ- ને.હા. વર્તુળ- પા.યો.વર્તુળરા.મા.યો. વર્તુળ ગાંધીનગર સહીત

સર્વ કાર્યપાલક ઇજનેરશ્રીઓ , માર્ગ અને મકાન વર્તુળ - પંચાયત મા.મ. વર્તુળ- ને.હા. વર્તુળ- પા.યો.વર્તુળરા.મા.યો. વર્તુળ ગાંધીનગર સહીત

સર્વ શાખાઓ મા.મ. વિભાગ સચિવાલય ગાંધીનગર

સીલેક્ટ ફાઈલ

ટેન્ડર માં ભરેલ અસામાન્ય ઊંચા ભાવોના સંદર્ભે કામ પર પડતા  
ખર્ચ પર નિયંત્રણ રાખવા તથા કામની નાણાકીય પ્રગતિ ભૌતિક  
પ્રગતિ સાથે સુમેળમાં રહે તે માટે જરૂરી જોગવાઈ કરવા બાબત

ગુજરાત સરકાર

માર્ગ અને મકાન વિભાગ

પરિપત્ર ક્રમાંક પરચ-૧૦૨૦૦૮-૬૧-સ

સચિવાલય ગાંધીનગર

તા. ૨૭-૧૧-૨૦૦૮

પરિપત્ર:ટેન્ડર માં અસામાન્ય ઊંચા કે નીચા ભાવો ઇજારદારશ્રીઓ દ્વારા ઘણી વાર ભરાતા હોવાનું સરકારશ્રીના ધ્યાન પર આવેલ છે. આવા કિસ્સાઓ માં કામની નાણાકીય અને ભૌતિક પ્રગતિ નો સુમેળ ન રહેવાની સંભાવના રહેલી છે..આથી કામની ભૌતિક પ્રગતિ પ્રમાણે નાણાકીય પ્રગતિ રહે કે જેથી સરકારશ્રી પર સમય પહેલા અયોગ્ય નાણાકીય બોજ ન પડે તે માટે નીચી મુજબની જોગવાઈ ટેન્ડર મા કરવાનો નિર્ણય કરવામાં આવેલ છે.આ જોગવાઈ તમામ કામો ના આ પરિપત્રની તારીખ પછી મંજૂર થતા ડી.ટી.પી માં અચૂક કરવાની રહેશે.

જોગવાઈ: જે કોઈ આઈટમનો ભરેલ ભાવ, તે આઈટમ ના ટેન્ડર માં મુકેલ અંદાજીભાવ કરતાં ટેન્ડર માં મુકેલ અંદાજી રકમથી સમગ્ર ટેન્ડર જેટલું ઊંચું કે નીચું મંજૂર થયું હોય તે ટકાવારી થી ૧૦% થી વધુ ઉંચો રહેતો હોય તેવી આઈટમનું ચુકવણી રનીંગ બીલ વખતે તે આઈટમના અંદાગજીત ભાવ + / - મંજૂર ટેન્ડરની ટકાવારી + તે આઈટમના અંદાજી ભાવ ના ૫% ની મર્યાદામાં કરવામા આવશે. આ રીતે વીથહેલ કરેલ રકમ કામ સંતોષકારક પૂર્ણ થયે ફાઇનલબીલ મંજૂર કરતી વખતે વ્યાજભારણ વગર છૂટી કરવામાં આવશે.

ઉદાહરણ:

ઉક્ત જોગવાઈની સ્પષ્ટ સમજણ માટે આ સાથે આપેલ ઉદાહરણ ધ્યાને લેવું.

• ૧ • ટેન્ડરમાં મુકેલ અંદાજી રકમ

• ૩. • ૧૦૦/-

• ૨ • મંજૂર થયેલ ટેન્ડર ની રકમ	• રૂ. • ૧૧૦/-
• ૩ • ટેન્ડરમાં મુકેલ અંદાજી રકમ સામે ખરેખર મંજૂર થયેલ ટેન્ડર ની ટકાવારી	• • ૧૦%
• ૪ • ટેન્ડરમાં એક આઇટમનો ટેન્ડર મા મુકેલ અંદાજી ભાવ	• રૂ. • ૧૦/-
• ૫ • તે આઇટમનો ભરેલ ભાવ	• રૂ. • ૧૪/-
• ૬ • તે આઇટમનો ભરેલ ઉચા ભાવની ટકાવારી	• • ૪૦%
• ૭ • તે આઇટમ માટે રનિંગ બીલ વખતે ચુકવવાપાત્ર ભાવ	• રૂ. • ૧૦ + કોલમ ૩ પ્રમાણે ૧૦% ઉંચા +અંદાજી ભાવના ૫% = ૩.૧૧.૫૦
• ૮ • ફાઇનલ બિલ વખતે વ્યાજભારણ વગર ચુકવવાપાત્ર અને વીથહેલ્ડ રાખેલ ભાવ	• રૂ. • ૧૪.૦૦ – ૧૧.૫૦ = રૂ. ૨.૫૦

જો સદર આઇટમના ભાવ રૂ.૧૨.૦૦ કે તેથી નીચા ભરેલ હોય તો રનિંગબીલ માં ભાવ કપાત આ જોગવાઇ મુજબ કરવાની રહેત નહિ.

(આર.કે. ચૌહાણ)

ખાસ ફરજ પર ના અધિકારી

માર્ગ અને મકાન વિભાગ

પ્રતિ:તમામ અધિક્ષક ઈજનેરશ્રીઓ, માર્ગ અને મકાન વિભાગ તમામ કાર્યપાલક ઈજનેરશ્રીઓ , માર્ગ અને મકાન વિભાગ

નકલ રવાના:૧) સચિવશ્રીના અંગતમદદનીશ,મા.મ.વિભાગ ૨) તમામ મુખ્ય ઈજનેરશ્રી અને અ.સ.શ્રી,મા.મ.વિભાગ

૩) તમામ તાત્રિક ઉપસચિવશ્રીઓ, મા.મ.વિભાગ ૪) ના.કા.ઇ.શ્રીઓ, મા.મ.વિભાગ પ્રોપર

૫) નાણાશાખા , મા.મ.વિભાગ૬) ના.સિ.અ. સિલેક્ટ ફાઇલ ૭) શાખા સીલેક્ટ

બાંધકામના મટીરીયલ્સ તેમજ કોમ્પોનેન્ટ્સ સેમ્પલની ગુણવત્તા માટેના પરીક્ષણ પૈકીના ૮૦% પરીક્ષણ સ્થળ પર તથા ૧૦% પરીક્ષણ સરકાર માન્ય લેબોરેટરી / ગેરી ધ્વારા તથા ૧૦% ગેરી લેબોરેટરીમાં કરાવવા બાબત.

ગુજરાત સરકાર,  
માર્ગ અને મકાન વિભાગ,  
પરિપત્ર ક્રમાંક:- પરચ/૧૦૨૦૦૭/૨૮/સ  
સચિવાલય, ગાંધીનગર.  
તારીખ: ૩૧/૧૨/૨૦૦૮.

### પરિપત્ર

બાંધકામના મટીરીયલ્સ તેમજ કોમ્પોનેન્ટ્સના સેમ્પલની ગુણવત્તા માટેના પરીક્ષણ હાલ ગેરી કે સરકાર માન્ય સંસ્થા (લેબોરેટરી) મારફતે કરવામાં આવે છે, કામોની પ્રગતિની સમીક્ષા દરમિયાન ક્ષેત્રીય અધિકારીઓ તરફથી જાણવા મળેલ છે કે ઉક્ત હયાત પ્રક્રિયામાં ટેસ્ટીંગના પરિણામો વિલંબથી મળે છે, જેમાં સમય પણ ખૂબ વ્યતિત થાય છે. ઈજારદાર એસોસિયેશન તરફથી આવી રજુઆતો મળે છે, આથી આ મુશ્કેલી ધ્યાને લેતાં ઈજારદારશ્રી ધ્વારા જે તે કામ માટે સ્થાપવામાં આવતી લેબોરેટરીમાં સ્થળ પર જ પરીક્ષણ કરવામાં આવે તો વિલંબ નિવારી શકાય તે બાબત વિચારણા હેઠળ હતી, પુખ્ત વિચારણાના અંતે નીચે મુજબની નીતિ હાલના તબક્કે અનુસરવા નક્કી કરવામાં આવ્યું છે.

નીચે જણાવેલ પરીક્ષણોમાં પ્રવર્તમાન પદ્ધતિમાં ફેરફાર કરી ફીક્વન્શી અનુસાર જરૂરી પરીક્ષણો પૈકી ૧૦% સરકાર માન્ય લેબોરેટરી/ગેરી તથા ૧૦% ગેરી લેબોરેટરી અને ૮૦% ફીલ્ડ લેબોરેટરી ધ્વારા કરાવવાના રહેશે. પરંતુ ગેરીમાં નીચેના દરેક પૈકી ઓછામાં ઓછું ૧ (એક) પરીક્ષણ ગેરી લેબોરેટરીમાં કરવાનું રહેશે તથા ઓછામાં ઓછું એક પરીક્ષણ ગેરી / સરકાર માન્ય લેબોરેટરીમાં કરાવવાનો રહેશે. જેમાં નીચે દર્શાવેલ પરીક્ષણો સ્થળ પર કરવાના રહે છે.

એ	એગ્રીગેટ	(૧) ગ્રેડેશન (૨) ફ્લેકીનેશ અને ઈલોગેશન વેલ્યુ (૩) ઈમ્પેક્ટ વેલ્યુ (૪) વોટર અબસોર્પશન
બી	માટી	(૧) ફિલ્ડ એફડીડી અને એફએમસી (૨) સીવ એનાલીસીસ

સી	રેતી	(૧) ગ્રેડેશન
ડી	ઈટો	(૧) ડાયમેનશન અને ટોલરન્સ ટેસ્ટ (૨) વોટર અબસોર્પશન
ઈ	ક્રોકીટ	(૧) નોન ડિસ્ટ્રીક્ટીવ ટેસ્ટ (એલ્ટ્રા સોનીક ટેસ્ટીંગ પદ્ધતિથી) (૨) સ્લમ્પ ટેસ્ટ (૩) કોમ્પ્રેસીવ સ્ટ્રેન્થ
એફ	બીટયુમીનસ મીક્સ	(૧) ડામરની ટકાવારી
જી	ડ્રાય મીક્ષ મટીરીયલ	(૧) ગ્રેડેશન

#### શ રતો :-

૧. ઈજારદારે કામની ગુણવત્તા માટે ધારા ધોરણ પ્રમાણેની અને ઉપર જણાવેલ પરિક્ષણો માટે પ્રમાણિત થયેલ જરૂરી તમામ સાધનો સહિતની ફિલ્ડ ટેસ્ટીંગ લેબોરેટરી સ્વ ખર્ચે કામના સ્થળે યોગ્ય જગ્યા ઉપર સ્થાપવાની રહેશે. રસ્તાના કામ માટે લાગુ પડતા પ્લાન્ટના સ્થળને કામનું સ્થળ ગણી શકાય. પરંતુ કામનું સ્થળ લેબોરેટરીથી દૂર હોય તો ઈજારદારશ્રી ધ્વારા મોબાઈલ લેબોરેટરીની જરૂરી વ્યવસ્થા રાખવાની રહેશે.
૨. કા.ઈ.શ્રી જયારે સ્થળ પર તેઓનું ચેકીંગ કરવા જાય ત્યારે ટેસ્ટીંગ તેઓએ તેમની રૂબરૂમાં પણ કરાવવાનું રહેશે.
૩. ધારા ધોરણ પ્રમાણેના પરીક્ષણોની સંખ્યા પૈકી ૮૦% પરીક્ષણ ફિલ્ડ લેબોરેટરીમાં ઈજારદારના અધિકૃત કવોલીફાઈડ ઈજનેર કે જેઓને સંબંધિત કાર્યપાલક ઈજનેરશ્રીએ I-CARD આપેલ હોય તેમના ધ્વારા ખાતાના ના.કા.ઈ./ મ.ઈ./અ.મ.ઈ. ની હાજરીમાં જ કરવાના રહેશે અને પરિણામોમાં સંયુક્ત સહીઓ કરવાની રહેશે જયારે ૧૦% પરિક્ષણ ગેરી/સરકાર માન્ય લેબોરેટરી (ઓછામાં ઓછું એક પરીક્ષણ) અને ૧૦% ગેરી લેબોરેટરી (ઓછામાં ઓછું એક પરીક્ષણ) મારફતે કરાવવાના રહેશે.
૪. કુલ પરિક્ષણોના ૮૦ % પરિક્ષણ એક જ સ્થળે એકજ સમયે એકજ તબક્કામાં નહીં કરતાં કામની પ્રગતિ મુજબ જે તબક્કાએ જે તે કામગીરીને અનુરૂપ જે મટીરીયલ્સ વાપરવાનું થતુ હોય તદ્દનુસાર શરૂઆતના તબક્કામાં રાખવું વચ્ચેના તબક્કામાં તેમજ આખરી તબક્કામાં કરાવવાનું રહેશે. આમ છતાં આ બાબતે સ્થાનિક કક્ષાએથી ના.કા.ઈ.શ્રીએ જરૂરીયાત મુજબ તબક્કાવાર પરીક્ષણો નક્કી કરવાના રહેશે.



૮. મુ.ઈ.શ્રી (પીએનપી) માર્ગ અને મકાન વિભાગ, સચિવાલય, ગાંધીનગર.

૯. નાણાંકીય સલાહકારશ્રી (મા.મ.વિ.), નાણાં વિભાગ, સચિવાલય, ગાંધીનગર

૧૦. સર્વે અ.ઈ.શ્રીઓ મા.મ. વર્તુળ, પેટા/મા.મ. વર્તુળ/ને.હા. વર્તુળ/ એક્સપ્રેસ-વે-વર્તુળ/ પાટનગર યોજના વર્તુળ.

૧૧. સર્વે કા.ઈ.શ્રીઓ ઉપર્યુક્ત વર્તુળો હસ્તકના સર્વે વિભાગો.

૧૨. સર્વે તાંત્રિક અધિકારીશ્રીઓ (ના.કા.ઈ.શ્રીઓ સહિત )

૧૩. સર્વે પ્રોજેક્ટ શાખાઓ (રસ્તાને લગતી ) માર્ગ અને મકાન વિભાગ, સચિવાલય, ગાંધીનગર.

૧૪. સીલેક્ટ ફાઈલ.

૭. નિયામકશ્રી (એસટીસી) સ્ટાફ ટ્રેનીંગ કોલેજ, ગાંધીનગર.

**As per Govt R & B Deptt. Letter No. C.E. (R & B) Office 46/2007 Dated 25/7/2007**

Demand draft for EMD Pre qualification bid & Tender fee shall be submitted in electronic format only through on line (by scanning) while uploading the bid, This submission shall mean that EMD & tender fee is received electronically. However for the purpose of realization of demand draft. bidder shall send the Demand Draft in original through R.P.A.D. so as to reach to Executive Engineer, R & B Division Ahmedabad. During dt.8/8/2012 to 16/8/2012 . Penaltative action for not submitting Demand Draft in original to EE by bidder shall be initiated Demand Draft for Exemption Certificate is not necessary. However Exemption Certificate shall have to be submitted electronically through online.

Any documents in supporting of bid shall be submitted in electronic format only through online (by scanning etc) & hard copy will not accepted separately.

Sign of Contractor

Executive Engineer  
A'bad (R & B) Division,  
Ahmedabad.

ક્રમાંક:પરચ-૨૦૧૦-૧૭૧૩૨૨/(૨૧)ડ.૧

માર્ગ અને મકાન વિભાગ

૧૪/૩, સરદાર ભવન

સચિવાલય, ગાંધીનગર

તા. ૧૮/૩/૨૦૧૨

પ્રતિ,

અધિક્ષક ઇજનેરશ્રી

પંચાયત (મા.મ)વર્તુળ-૧,૨

રાજકોટ/અમદાવાદ

વિષય :- ટેન્ડર ૨૦ ટકા થી વધુ નીચા આવતા ઘટાડાની રકમમાં ૫ ટકા લેખે  
વધારાની સીક્યુરીટી ડીપોઝીટ લેવા અંગે.

ઉપરોક્ત વિષય પરત્વેના તા. ૨/૨/૧૦ ના પત્ર ક્રમાંક:આરપીસી-૨/ટેન્ડર/જન/૨૫૮/અન્વયે જણાવવાનું કે, ઉક્ત વિષય સંદર્ભે તા. ૨૧/૧/૧૦ ના રોજની મીટીંગમાં થયેલ ચર્ચા મુજબ ઇજારદારશ્રીઓના ટેન્ડરો અંદાજી કિંમતથી ઘણા નીચા આવે છે. ૨૦ ટકા થી વધુ નીચા આવતા ટેન્ડરો માટે ઇજારદારશ્રી પાસેથી ટેન્ડરની અંદાજી રકમ સામે સ્વીકૃતિ થતી ટેન્ડરની રકમના તફાવત (ઘટાડાની રકમ ઉપર) ના ૫ ટકા વધારાની સીક્યુરીટી ડીપોઝીટ લેવાની દરખાસ્ત ગ્રાહ્ય રાખવામાં આવે છે. તદ્ઉપરાંત વર્તમાન સમયમાં ૧૫ ટકા થી વધુના નીચા ટેન્ડરોની પણ ૫ ટકા વધારાની સીક્યુરીટી ડીપોઝીટ લેવા જણાવવામાં આવે છે.

સેક્શન અધિકારી

માર્ગ અને મકાન વિભાગ

**Name of Work :-** Const. Of Soyala-1 Anganwadi Building at Sanand Ta. Sanand Dist. Ahmedabad Package No. AHD/Anganwadi/24 (2026-2027) (Soyala-1) Total-1

## SCHEDULE – B

### Memorandum Showing items of Works to be Carried out

Sr. No.	Item of Work	Quantities estimated but may be more or less	Unit	Tender Rates In Figures Rs.P.S.	Total Amount According to Estimated Quantities
1	3	2	6	4	7
1	Item no- 1 Excavation for foundation upto 1.5 mt.depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50meter lead (B) Dense or Hard soil	61.410	Cum	149.67	9191.23
2	Item no- 2 Carrying out plinth treatment to post construction / existing structure by spraying chemical solution for termite control treatment including labour and material consistment with I.S.I specification. Using Chlordene and Chiorpurfiles 20 EC. As per 6131_ part- II Consentration Weight one percent is recommended i.e. one litre 20 EC chemical emulsion dillute with 19 liter give 1 % concentration inclusive of one litre chemical emulsion appication at the rate of 5 Litre chemical / Sqmt. of surface is recommended as per I.S.	68.910	Sqm	105.95	7301.01
3	Item no- 3 Providing and laying cement concrete 1:4:8 (1- Cement : 4- coarse sand : 8- crushed stone aggregates 40 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth	8.480	Cum	2838.81	24073.11
4	Item no- 4 Providing and laying cement concrete 1:3:6 (1- Cement : 3- Coarse sand : 6- crushed stone aggregate 40mm normal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth	8.410	Cum	3228.39	27150.76
5	Item no- 5 Filling in plinth with sand under floors including watering ramming, consolidating and dressing complete.	14.270	Cum	460.19	6566.91
6	Item no- 6 Filling foundation and plinth with murrum or selected soil in layer of 20 cm in thickness including ramming watering and consolidating etc. complete	134.000	Cum	289.06	38734.04
7	Item no- 7 Filling available excavated Earth (Excluding Rock ) in trench plinth side of foundation . in layer not excluding 20 cm in depth consolidation each deposited layer by ramming and watering etc. complete	23.070	Cum	130.39	3008.10

8	Item no- 8 Providing and laying cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 crushed stone aggregates 20 mm nominal size) and curing complete including cost of form work in (A) Wall caps/ copings.	1.840	Cum	4046.21	7445.03
9	Item no- 9 Providing and laying ordinary cement concrete 1:1.5:3 (1 Cement : 1.5 coarse sand : 3 graded stone aggregates 20mm nominal size) and finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement of R.C.C. work in (A) BEAMS :(ii) Having cross-sectional area more than 0.05 Sq.m. and up to 0.08 Sq.m.	1.210	Cum	8963.84	10846.25
10	Item no- 10 Providing and laying ordinary cement concrete 1:1.5:3 (1 Cement : 1.5 coarse sand : 3 graded stone aggregates 20mm nominal size) for R.C.C. Lintel including finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement	0.320	Cum	9090.84	2909.07
11	Item no- 11 Providing & laying Ordinary cement concrete 1:1.5:3 (1cement : 1.5 coarse sand 3 graded stone aggregate 20 mm nominal size) and finishing the smooth with curing etc. complete including the cost of formwok but excluding the cost of reinforcement for RCC work in (II) slabs having more than 10 cm and upto 13 cm thickness.	7.320	Cum	7258.19	53129.95
12	Item no- 12 Providing T M T. bar reinforcement of Fe-500D for R.C.C. work including bending binding and placing in position complete up to All floor Level	937.000	Kg.	76.21	71408.77
13	Item no- 13 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 1:5. (1- Cement : 5 -fine sand) B) Conventional	33.540	Cum	4051.78	135896.70
14	Item no- 14 Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./ Sq.Cm. in super structure in Cement Mortar 1:5. (1- Cement : 5 -fine sand) (B) Conventional	22.770	Cum	4326.75	98520.10
15	Item no- 15 Half brick masonry in common brunt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1- Cement : 4 -coarse sand ) in super structure above plinth up to floor two level Conventional Bricks for All Floors.	11.070	Sqm	653.17	7230.59
16	Item no- 16 Providing and fixing alluminium anodised glazed door rectangular frame 60mm x 40mm x 2mm @ 1.037 Kg./ Rmt. weight, flush	5.440	Sqm	5990.68	32589.30

	door shutters, solid core construction with frame of first class hardwood with cross board and face veneer or plywood face panels , including anodised alluminium butt hinges with necessary screws. including Laminated sheet 1 mm thick,S.S. stoper 30cm long ASIS 304 grade,S.S. Aldrap 30cm long ASIS 304 grade,S.S. Handle 15cm long ASIS 304 grade,S.S. Handle Door stop ASIS 304 grade(2) 35 mm thick.				
17	Item no- 17 Providing and fixing window having extruded aluminum Colour anodized section frame main outer size 63.50 x 38.10 x 1.95 mm,@ Wt 1.094 Kg / Rmt, horizontal two track member size 61.85 mm x 31.75 mm x 1.20mm @ wt.of 0.695 Kg/mt, vertical member of size 61.85 mm x 31.75mm x 1.30 mm @ wt.of 0.659 Kg/mt with sliding shutters of horizontal member size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, vertical member of size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, @ Wt. 0.457 Kg/mt with 5 mm thick transparent bronze colour tinted float glass with powder coated aluminum fittings and fixtures and transparent silicon sealant glass fixing to frame as per details etc complete for window.	4.790	Sqm	1713.70	8208.62
18	Item no- 18 Providing and fixing standared extruded of alluminium section of size 63mm x 38.10mm x 1.2mm @ Wt. 0.643 Kg/mt with colour anodized alluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation	3.160	Sqm	1175.56	3714.77
19	Item no- 19 Providing and fixing M.S. grills of required pattern to wooden frames of windows etc. with M.S. flats at required spacings and frame alround, square or round bars with round headed bolts and nuts or by screws (A) Plain Grill. including Applying priming coat and Painting two coats (excluding priming coat) etc. complete.	198.440	Kg.	106.07	21048.53
20	Item no- 20 Providing and laying Vitrified tiles 8 to10 mm thick, 36" x36" in flooring treads of step sand landing laid on a bed of 12mm thick cement mortar 1:3 (1 cement : 3-coarse sand ) finishing with flush pointing in white cement.	45.250	Sqm	1484.61	67178.60
21	Item no- 21 Providing & Fixing 30 mm thick polished Kota-stone slabs for Shelves of Cupboard shelves including making grooves in walls and finishing with C.M.( 1:1) and polishing etc. Complete.	11.780	Sqm	709.06	8352.73
22	Item no- 22 P & L 24"x24" vitrified 8mm thick tile flooring over 20mm(average) base of cement	1.760	Sqm	1397.83	2460.18

	mortar 1:6 ( 1 cement:6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finised with flush pointing & cleaning the surface etc. complete for antiskit				
23	Item no- 23 Providing and laying Vitrified tiles 8 to10 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	25.020	Sqm	1538.85	38502.03
24	Item no- 24 Providing and laying broken china mosaic flooring for Terrece using 12mm to 20mm of broken piece of glazed tiles to be laid over cement mortar bedding of CM (1:3) to plain or slope & to be tempered to bring Mortar cream out upto surface using white cement including rounding off junction and extending them up to 15 cm along the wall clearing water and oxalic acied etc as directed	53.360	Sqm	747.29	39875.39
25	Item no- 25 Providing and fixing machine cut, free edges, mirror polished Granite stone slab 18 mm thick for vertical wall/ Doors/ Windows Sill, Jams for cladding as per design including full moulded round inside edge and laid on 10 mm thick cement mortar 1:3 ( 1 cement: 3 coarse sand) jointed with grey cement slurry including rubbing and polishing finishing etc. complete.	25.680	Sqm	2823.61	72510.30
26	Item no- 26 Providing 15mm thick cement plaster in single coat on Rough (Similar) side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (i) Cement mortar 1:3 (1-cement: 3 sand) and finishing with a floating coat of neat cement slurry.etc. complete.	106.460	Sqm	176.58	18798.71
27	Item no- 27 Providing 10 mm thick cement plaster in single coat on Ceiling / sofit of stair for interior plastering finished even and smooth in (ii) Cement mortar 1:3 (1-cement 3 - sand )for Ground Floor	52.210	Sqm	153.67	8023.11
28	Item no- 28 Applying two coats of acrylic lappy (putty) and two coats of primer & 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.	133.650	Sqm	119.82	16013.94
29	Item no- 29 20 mm thick sand faced cement plaster on walls upto 10 mt height above ground level consisting of 12 mm. Thick backing coat of c.m. 1:3 (1 cement : 3 sand) and 8 mm. Thick	138.500	Sqm	300.66	41641.41

	finishing coat of c.m. 1:1 (1 cement : 1 sand) etc. complete as directed.				
30	Item no- 30 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	138.500	Sqm	114.53	15862.41
31	Item no- 31 Constructing a cooking platform 60 cm. width and 70 cm high resting on B.B.Masonry walls 23 cm.thick in C.M. (1:6) with (i) Fixing or precast R.C.C.1:2:4) 8 cm. thick slab with marble chips set in C.M. (1:6) (6mm thick terrazo) with plastering on exposed faces walls in C.M. (1:4) etc complete. including the approved quality stainless steel sink of size 600 X 400 X 150 including fixing the sink in the stone platform with waste pipe and whole work as per instruction of Engineer in charge.	1.200	Rmt	2483.99	2980.79
32	Item no- 32 Providing laying and jointing in true line and level 15mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.	15.000	Rmt	72.65	1089.75
33	Item no- 33 Providing laying and jointing in true line and level 25mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.	20.000	Rmt	91.84	1836.80
34	Item no- 34 Providing laying and jointing in true line and level 32 mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.	10.000	Rmt	119.15	1191.50
35	Item no- 35 Provdg. & fixing gun metal check or nonreturn full way wheel valve. (C) 25 mm dia.	5.000	Each	420.63	2103.15



36	Item no- 36 Providing and fixing to wall ceiling floor 10 Kg. F/Cm2 working pressure polythene pipes for soil waste and ventilating pipes of the following outside dia. low density, complete with necessary fittings ,wall clamps etc including making good the wall ceiling and floor. (F) 75 mm	14.000	Rmt	277.43	3884.02
37	Item no- 37 Providing and fixing to wall ceiling floor 10 Kg. F/Cm2 working pressure polythene pipes for soil waste and ventilating pipes of the following outside dia. low density, complete with necessary fittings ,wall clamps etc including making good the wall ceiling and floor. (G) 110 mm	15.000	Rmt	336.24	5043.60
38	Item no- 38 Providing and fixing PVC SWR Nahni Trap IS 14735 for drain - 100 mm diameter with jali of the following nominal diameter of self cleansing design with C.I. screwed down or hinged grating including the cost of cutting and making good the walls.	2.000	Each	571.08	1142.16
39	Item no- 39 Providing and fixing Screw down Quarter turn bib taps of following size (A) Brass chromium plated screw down Bib tap (Ii) 20 mm dia	2.000	Nos	214.81	429.62
40	Item no- 40 Providing and fixing wash basin with single hole for pillar tap with C.I. Or M.S. brackets painted with including cutting holes and making good the same including fittings, (fixing C.P brass waste 32 mm dia),(fixing M.I. fisher union 32 mm dia),(fixing pillar tap,cap stan head , screw down high pressure with screws, shank sand back nuts. 15mm dia), (fixing brass screw down stop tap15mm dia), (fixing Rubber plug) (A) Vitreous China (ii) Flat back wash Basin 550mm x 400mm size (i) in white colour	2.000	Nos	2092.55	4185.10
41	Item no- 41 Providing and fixing water closet squatting Pan (Indian type W.C.Pan) size 580mm (A) Vitreous China.(I) Long pattern, White colour including Providing and fixing(100mm 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) (A) Vitreous China.), (G.I. inlet connection for flush pipe with W.C. Pan) (C.P. Brass 1/2 turn flush cock 25 mm dia)	2.000	Nos	1535.97	3071.94
42	Item no- 42 Providing erecting and fixing double coated Syntex or equivalent PVC. (ISI) mark water tank of required capacity each with all necessary fittings & connection etc. comp on terrace.	1000.000	Liter	3.95	3950.00

43	Item no- 43 Providing and fixing S.W. Gully trap with C.I. Grating brick masonry chamber and water tight C.I. Cover with frame of 300 mm. X 300 size (inside) with standard weight (I) Square mouth traps (C) 100 mm. X 100 mm size P type	1.000	Nos	1292.19	1292.19
44	Item no- 44 Constructing brick masonry chamber for under ground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35 Kg/cm <sup>2</sup> in cm. 1:5 C.I. Cover with frame (light duty) 455 mm. X 610 mm. Internal dimensions, total weight of cover with frame to be not less than 38 Kgs. weight 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 cement mortar 1:3 finished smooth with a floating coat of neat cement on walls & bed concrete etc. complete. (I) inside dimensions, 455 mm. x 610 mm. And 450 mm. Deep for single pipe line.	1.000	Nos	2932.93	2932.93
45	Item no- 45 Constructing brick masonry chamber for under ground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35 Kg/cm <sup>2</sup> in cm. 1:5 C.I. Cover with frame (light duty) 455 mm. X 610 mm. Internal dimensions, total weight of cover with frame to be not less than 38 Kgs. weight 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 cement mortar 1:3 finished smooth with a floating coat of neat cement on walls & bed concrete etc. complete. [II] Inside dimensions 500 mm. x 700 mm. & 450 mm. deep for pipe lines one or two.	1.000	Nos	3660.76	3660.76
46	Item no- 46 Providing and constructing soak pit of size 2.46mt. outer and 6.0mt. deep including 23cm thick brick masonry for top 0.75mt. height solid masonry in cement mortar 1:6 and remaining honey combed masonry in cement mortar 1:6 and covered with jodhpuri patti C.I. pipe 100mm dia 1.8mt. long etc. comp. as directed including 15mm plaster in C.M. 1:4 over jodhpuri patti.	1.000	Nos	41305.11	41305.11
47	Item no- 47 Providing and fixing 90 cm high Stainless Steel railing made from anticorrosive 304 grade S.S. pipe of 50 mm dia (16 gauge) as	15.000	Rmt	3662.27	54934.05

	hand rail with S.S. 304 grade baluster of 32 mm dia (16 gauge) as a vertical support fixed in RCC slab / steps of stair at 1.2 Mt. c/c including three horizontal S.S. pipes of 16 mm dia (16 Gauge) at equal distance fixed by 16 mm dia (16 Gauge) S.S. pipe with baluster including accessories as per detailed drawing as directed etc. complete.				
48	Item no- 48 Construction of an under ground masonry water tank of size 2.00 m X 2.00 m X 1.50 m = 6000 litre capacity as per the approved drawing & design etc. complete.	2000.000	Litre	12.26	24520.00
49	Item no- 49 Providing and fixing pre-cast Rubber Dye/steel Dye interlocking concrete block 60 mm thick with grade of concrete M300 pneumatic compressed /vibrated mechanically and as per approved design Confirming to IS 15658 : 2006 including 35mm Sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC : SP 63-2018 etc. Complete.	45.000	Smt	686.90	30910.50
50	Item no- 50 Providing and laying cement concrete 1:2:4 (1 Cement : 2- Coarse sand : 4-graded stone aggregates 20 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth	0.780	Cum	3697.91	2884.37
51	Item no- 51 (i) Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1 Cement: 4-coarse sand) in foundation and plinth (B) Conventional	5.460	Smt	599.84	3275.13
52	Item no- 52 Providing 15mm thick cement plaster in single coat on brick /concrete walls for interior plastering upto floor two level and finished even and smooth in. (ii)Cement mortar 1:4 (1 cement:4-sand ) with finishing in floating coat of neat cement slurry	13.640	Smt	205.37	2801.25
53	Item no- 53 Providing and laying cement concrete flooring 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) laid in one layer and finished with a floating coat of neat cement. (B) 50mm thick.	1.440	Smt	351.56	506.25
54	Item no- 54 Providing and laying in ground 110 mm diameter PVC rain Water pipe 6 Kg./ Sq.cm. necessary fittings connection as per detailed drawing as directed by Engineer - in - charge.	30.000	Rmt	334.08	10022.40
55	Item no- 55 Providing and laying in ground 150mm diameter PVC rain Water pipe 6 Kg./ Sq.cm. necessary fittings connection as per detailed drawing as directed by Engineer - in - charge.	10.000	Rmt	429.76	4297.60

56	Item no- 56 Brickwork 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-fine sand) (B) Conventional	1.550	Cum	4021.02	6232.58
57	Item no- 57 Providing formwork 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 4M. and removal of the same for in situ reinforced concrete and plain concrete work in. (A) Foundations Footings Bases of Columns etc. and Mass concrete.	1.200	Smt	173.40	208.08
58	Item no- 58 Supplying of crused stone aggregate of 25 to 40 mm size as directed with 5 Km. lead	0.200	Cum	661.90	132.38
59	Item no- 59 Supplying of coarse sand as directed with 5 Km. lead	0.610	Cum	419.42	255.85
60	Item no- 60 Point wiring for Light / Fan/ Bell/ Primary Point with 2-1.5 sq. mm & earth wire of 1.5 sq. mm (green) both are of ISI marked 1.1 kv grade FRLS PVC insulated multi strand copper wires upto max length of 10 mt, in below type of pipe erected with 6A Tissino Type ISI marked flush type switch / bell push and accessories erected on Metal / PVC /Wooden Box covered with 3 mm thick PC (Poly carbonate) /Acrylic/Laminated sheet. with necessary Lamp holder/ceiling rose / H.D.Connector as directed.(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete (Elect S.O.R. P NO. 17 Item No. 1-1-1 (f)	15.000	No.	390.87	5863.05
61	Item no- 61 Providing & erecting Approved make Ceiling Fan with double ball bearing ISI mark with Condenser 230 volt A.C.50 Hz 1200 mm sweep complete having 3 blades aluminium body and blade sets having ornamental design shanks , canopy erected with earthing. [ Make shall be approved by Engineer in Charge] (Elect S.O.R P NO. 123 item code 5-1-3)	3.000	No.	2311.89	6935.67
62	Item no- 62 Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sinks hallbe made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with companymark/name 160V to 270V, Power Factor more than 0.95, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy> 85 lumens/watt	5.000	Ea.	295.93	1479.65

	,LED LED driver efficiency > 85 % ( fitting required LM-79 & LM-80 Certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.TheEngineer inchargemayselect any wattage capacity between the ranges shown.) (A) Tube Light with integral driver. (iii) 18-20 Watts, Surge-2KV,IP-20, conventional 4 feet (Elect. SOR P.NO.56 It Code 2-15-1 Cat. III)				
63	Item no- 63 Point wiring for independent PLUG with following size mains earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires upto 10 mt length, in following below of pipe erected complete with ISI marked 3 / 5 Pin socket and tissino type switch erected with earth continuity connection erected on Metal / PVC/Wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic/Laminated sheet.[A] For 6 amp plug and 6 amp switch with 2- 1.5 sq. mm Cu. Mains from near by switchboard/ db board upto 6 mt.(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete (Elect S.O.R. P NO. 18 Item 1-1-2 (f)	2.000	No.	347.44	694.88
64	Item no- 64 Providing & erecting 240 V MCB double pole switch for motor & inductive load (C Curve) having 10 KA breaking capacity & confirms to IS: 8828 in existing box having following capacity(A) 6 to 32 Amp(Elect S.O.R. P NO. 87 Item No. 3-10-2 cat II)	1.000	No.	270.68	270.68
65	Item no- 65 Providing and erecting Pipe type earthing with 40 mm dia 2.5 mtr long 'B' grade G.I. pipe with necessary coupling buch buried in specially prepared earth pit & G.I. earth wire of 8 SWG erected & connected as directed (For panel) (Elect S.OR P NO. 95 Item No. 3-14-6-B)	1.000	No.	823.15	823.15
66	Item no- 66 Providing & erecting open well horizontal mono block pump set with cast iron body, complete for three phase submersible motor having SECTION 9-4 [A] For 1.5 HP 3 phase open well horizontal mono block pump set suitable for 190 LPM @ 20 mtr head suitable for 40 mm dia delivery pipe Catt-II (Elect S.OR P NO. 241 Item No. 9-4-2)	1.000	No.	10284.83	10284.83
67	Item no- 67 Providing and fixing 600 mm x 450 mm bevelled edge mirror of superior glass mounted on 6 mm thick plywood sheet or PVC framing and fixed to wooden plugs with C.P brass screw and washers. {SOR. P No 177 It. Code. 23024}	1.000	Nos	833.73	833.73

68	Item no- 68 Providing and fixing C.P. brass towel rail complet with C.P. brass brakets fixed to wooden plugs with cpbrass screws ( B ) 600 mm X 20mm size {SOR. P No. 177 It. Code. 23025}	1.000	Nos	603.19	603.19
69	Item no- 69 Sheesham wood study Table and Chair. Table dimension 34 inches length , 18 inches width and 30 inches height. Primary material solid sheesham woodand secondary material 15mm solid MDF color teak finish style. (MR)	1.000	No.	11992.74	11992.74
70	Item no- 70 2 Seater School Benches and Desks (small) for childrens (MR)	5.000	No.	5095.45	25477.25
71	Item no- 71 Furniture for Cup board	1.000	LS	20200.00	20200.00
72	Item no- 72 Premium quality Kids Play school indoor setup (1) Amazon basic junior BPA free 4 to score Giant premium plastic games set. (MR)	1.000	Set	20042.44	20042.44
73	Item no- 73 Premium quality Kids Play school indoor setup (2) Jazz Drum set. (MR)	1.000	Set	825.17	825.17
74	Item no- 74 Premium quality Kids Play school indoor setup (3) Play rubber tiles. (MR)	1.000	Set	3584.49	3584.49
75	Item no- 75 Premium quality Kids Play school indoor setup (4) Clapjoy slingo fastest finger first board. (MR)	1.000	Set	607.01	607.01
76	Item no- 76 Premium quality Kids Play school indoor setup (5) OK play see saw yellow/ green. (MR)	1.000	Set	7674.99	7674.99
77	Item no- 77 Premium quality Kids Play school indoor setup (6) OK play Rocker medium for kids, boat ride on toy (MR)	1.000	Set	2513.89	2513.89
78	Item no- 78 Premium quality Kids Play school indoor setup (7) Table tennis trainer (MR)	1.000	Set	619.13	619.13
79	Item no- 79 Premium quality Kids Play school indoor setup (8) table tennis press button (MR)	1.000	Set	384.81	384.81
80	Item no- 80 Premium quality Kids Play school indoor setup (9) Dawnwake Baby play (MR)	1.000	Set	4305.63	4305.63
81	Item no- 81 3D Wall painting (two coats)oainting tech that creates the illusion of depth and dimention on a flate surface wall art that can be use public place3D model physical body using collection of point in 3D space connected by various geometric entities curve surface with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even draw a pictures and writing a slogan releated of diffrent painting and other theme based like harritage painting,cleaness,plastic free city,save water, save daughter,go green,clean city, etc.shade including throughly brushing the surface free	20.600	Sqm	1878.60	38699.16

	from mortar droppings and other foreign matter and sand papered smooth etc.all material,scaffolding, additional coats if required and labour or painter as directed by Engineer in Charge . Method 1. Removing Dust from wall with use of wire brush and sand paper . 2.Prepare surface with appying exterior puty , cement slurry, or plastering which one required for even surface. 3. Appying Base coat of primmer 4. apply final even coat of colour 5. Draw line picture 6. pre detaling for painting 7. final detailing of 3D painting 8. applying lacquer protection coat on the whole painting area (make :- Asian Paints, Burger, Nerolac. Equivalent brand as approved by the authority. )				
82	Item no-82 2D Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even draw a pictures and writing a slogan releated of SWATCHHTA SURVEKSHAN Campain and other theme based like a harritage,cleaness,plastic free city,save water, save daughter,go green,clean city,City importance etc.shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth etc.all material,scaffolding, additional coats if required and labour or painter as directed by Engineer in Charge . Method 1. Removing Dust from wall with use of wire brush and sand paper . 2.Prepare surface with appying exterior puty , cement slurry, or plastering which one required for even surface. 3. Appying Base coat of primmer 4. apply final even coat of colour 5. Draw line picture 6. pre detaling for painting 7. final detailing of 2D painting 8. applying lacquer protection coat on the whole painting area (make :- Asian Paints, Burger, Nerolac. Equivalent brand as approved by the authority. )	20.600	Sqm	1373.60	28296.16
	-				1312283.20

Rs. Thirteen Lacs Twelve Thousand Two Hundred Eighty Three & Paise Twenty Only

I/We am / are wolling to carry out the work at ..... % above/ below percent (Should be wrtten in figures and words) of the estimated rate mentioned above. Amount of my/ our tender works out as under.

\*Estimated Amount

\*Estimated Amount

Put to tender Rs. .... Put to tender Rs. ....

Add.....% above Rs. .... Deduct .....% below Rs. ....

Total Rs. .... Net. Rs. ....

In Words ..... In Words .....

.....  
(\* Please strike out whichever is not applicable.)

Notes 1 - All work shall be carried out as per Public Works Department Handbook and other specifications of Division or as directed.

નોંધ -૧ :- બધું જ કામ બાંધકામ વિભાગની પુસ્તિકા અને ડિવિઝનની બીજી ખાસ વિગત મુજબ અથવા સૂચના પ્રમાણે કરી આપવાનું રહેશે.

Notes 2 - All the columns in Schedule should be filled in ink and the total of the entries in the last column should be struck by the contractor under his signature.

નોંધ -૨ :- અનુસૂચિમાં બધા ખાનાની વિગતો સહીથી ભરવી અને છેલ્લા ખાનાની નોંધોનો સરવાળો કરી કોન્ટ્રાક્ટરે પોતાની સહી કરવી

Deputy Executive Engineer  
R & B Panchayat Sub Division  
Sanand

Executive Engineer  
R & B Panchayat Divisions  
Ahmedabad



# Specification

Name of Work :- Const. Of Soyala-1 Anganwadi Building at Sanand Ta. Sanand Dist. Ahmedabad Package No. AHD/Anganwadi/24 (2026-2027) (Soyala-1) Total-1

## TENDER OF ITEM SPECIFICATION

<b>Sr. No.</b>	<b>Name of road</b>	<b>Item No.</b>	<b>Page No.</b>
1	Item no- 1 Excavation for foundation upto 1.5 mt.depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50meter lead (B) Dense or Hard soil		
2	Item no- 2 Carring out plinth treatment to post construction / existing structure by spraying chemical solution for termite control treatment including labour and material consistment with I.S.I specification. Using Chlordene and Chiorpurfiles 20 EC. As per 6131_ part- II Consentration Weight one percent is recommended i.e. one litre 20 EC chemical emulsion dillute with 19 liter give 1 % concentration inclusive of one litre chemical emulsion appication at the rate of 5 Litre chemical / Sqmt. of surface is recommended as per I.S.		
3	Item no- 3 Providing and laying cement concrete 1:4:8 (1- Cement : 4- coarse sand : 8- crushed stone aggregates 40 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth		
4	Item no- 4 Providing and laying cement concrete 1:3:6 (1- Cement : 3- Coarse sand : 6- crushed stone aggregate 40mm normal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth		

5	Item no- 5 Filling in plinth with sand under floors including watering ramming, consolidating and dressing complete.		
6	Item no- 6 Filling foundation and plinth with murrum or selected soil in layer of 20 cm in thickness including ramming watering and consolidating etc. complete		
7	Item no- 7 Filling available excavated Earth (Excluding Rock ) in trench plinth side of foundation . in layer not excluding 20 cm in depth consolidation each deposited layer by ramming and watering etc. complete		
8	Item no- 8 Providing and laying cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 crushed stone aggregates 20 mm nominal size) and curing complete including cost of form work in (A) Wall caps/ copings.		
9	Item no- 9 Providing and laying ordinary cement concrete 1:1.5:3 (1 Cement : 1.5 coarse sand : 3 graded stone aggregates 20mm nominal size) and finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement of R.C.C. work in (A) BEAMS :(ii) Having cross-sectional area more than 0.05 Sq.m. and up to 0.08 Sq.m.		
10	Item no- 10 Providing and laying ordinary cement concrete 1:1.5:3 (1 Cement : 1.5 coarse sand : 3 graded stone aggregates 20mm nominal size) for R.C.C. Lintel including finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement		
11	Item no- 11 Providing & laying Ordinary cement concrete 1:1.5:3 (1cement : 1.5 coarse sand 3 graded stone aggregate 20 mm nominal size) and finishing the smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for RCC work in (II) slabs having more than 10 cm and upto 13 cm thickness.		
12	Item no- 12 Providing T M T. bar reinforcement of Fe-500D for R.C.C. work including bending binding and placing in position complete up to All floor Level		
13	Item no- 13 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 1:5. (1- Cement : 5 -fine sand) B) Conventional		
14	Item no- 14 Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./ Sq.Cm. in super structure in Cement Mortar 1:5. (1- Cement : 5 -fine sand) (B) Conventional		
15	Item no- 15 Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1- Cement : 4 -coarse sand ) in super structure above plinth up to floor two level Conventional Bricks for All Floors.		
16	Item no- 16 Providing and fixing alluminium anodised glazed door rectangular frame 60mm x 40mm x 2mm @ 1.037 Kg./ Rmt. weight, flush door shutters, solid core construction with frame of first class hardwood with cross board and face veneer or plywood face panels , including anodised alluminium butt hinges with necessary screws. including Laminated sheet 1 mm thick,S.S. stoper 30cm long ASIS 304 grade,S.S. Aldrap 30cm long ASIS 304 grade,S.S. Handle 15cm long ASIS 304 grade,S.S. Handle Door stop ASIS 304 grade(2) 35 mm thick.		
17	Item no- 17 Providing and fixing window having extruded aluminum Colour anodized section frame main outer size 63.50 x 38.10 x 1.95 mm,@ Wt 1.094 Kg / Rmt, horizontal two track member size 61.85 mm x 31.75 mm x 1.20mm @ wt.of 0.695 Kg/mt, vertical member of size 61.85 mm x 31.75mm x 1.30 mm		

	@ wt.of 0.659 Kg/mt with sliding shutters of horizontal member size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, vertical member of size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, @ Wt. 0.457 Kg/mt with 5 mm thick transparent bronze colour tinted float glass with powder coated aluminum fittings and fixtures and transparent silicon sealant glass fixing to frame as per details etc complete for window.		
18	Item no- 18 Providing and fixing standard extruded of aluminium section of size 63mm x 38.10mm x 1.2mm @ Wt. 0.643 Kg/mt with colour anodized aluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation		
19	Item no- 19 Providing and fixing M.S. grills of required pattern to wooden frames of windows etc. with M.S. flats at required spacings and frame around, square or round bars with round headed bolts and nuts or by screws (A) Plain Grill. including Applying priming coat and Painting two coats (excluding priming coat) etc. complete.		
20	Item no- 20 Providing and laying Vitrified tiles 8 to 10 mm thick, 36" x 36" in flooring treads of step sand landing laid on a bed of 12mm thick cement mortar 1:3 (1 cement : 3-coarse sand ) finishing with flush pointing in white cement.		
21	Item no- 21 Providing & Fixing 30 mm thick polished Kota-stone slabs for Shelves of Cupboard shelves including making grooves in walls and finishing with C.M.( 1:1) and polishing etc. Complete.		
22	Item no- 22 P & L 24"x24" vitrified 8mm thick tile flooring over 20mm(average) base of cement mortar 1:6 ( 1 cement:6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finished with flush pointing & cleaning the surface etc. complete for antiskit		
23	Item no- 23 Providing and laying Vitrified tiles 8 to 10 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		
24	Item no- 24 Providing and laying broken china mosaic flooring for Terrace using 12mm to 20mm of broken piece of glazed tiles to be laid over cement mortar bedding of CM (1:3) to plain or slope & to be tempered to bring Mortar cream out upto surface using white cement including rounding off junction and extending them up to 15 cm along the wall clearing water and oxalic acid etc as directed		
25	Item no- 25 Providing and fixing machine cut, free edges, mirror polished Granite stone slab 18 mm thick for vertical wall/ Doors/ Windows Sill, Jams for cladding as per design including full moulded round inside edge and laid on 10 mm thick cement mortar 1:3 ( 1 cement: 3 coarse sand) jointed with grey cement slurry including rubbing and polishing finishing etc. complete.		
26	Item no- 26 Providing 15mm thick cement plaster in single coat on Rough (Similar) side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (i) Cement mortar 1:3 (1-cement: 3 sand) and finishing with a floating coat of neat cement slurry.etc. complete.		
27	Item no- 27 Providing 10 mm thick cement plaster in single coat on Ceiling / soffit of stair for interior plastering finished even and smooth in (ii) Cement mortar 1:3 (1-cement 3 - sand )for Ground Floor		
28	Item no- 28 Applying two coats of acrylic lappy (putty) and two coats of primer & 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.		
29	Item no- 29 20 mm thick sand faced cement plaster on walls upto 10 mt height above ground level consisting of 12 mm. Thick backing coat of c.m. 1:3 (1 cement : 3 sand) and 8 mm. Thick finishing coat of c.m. 1:1 (1 cement : 1 sand) etc. complete as directed.		
30	Item no- 30 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		
31	Item no- 31 Constructing a cooking platform 60 cm. width and 70 cm high resting on B.B.Masonry walls 23 cm.thick in C.M. (1:6) with (i) Fixing or precast R.C.C.1:2:4) 8 cm. thick slab with marble chips set in C.M. (1:6) (6mm thick terrazo) with plastering on exposed faces walls in C.M. (1:4) etc complete. including the approved quality stainless steel sink of size 600 X 400 X 150 including fixing the sink in the stone platform with waste pipe and whole work as per instruction of Engineer in charge.		
32	Item no- 32 Providing laying and jointing in true line and level 15mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc.including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.		
33	Item no- 33 Providing laying and jointing in true line and level 25mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc.including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.		
34	Item no- 34 Providing laying and jointing in true line and level 32 mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc.including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.		
35	Item no- 35 Provdg. & fixing gun metal check or nonreturn full way wheel valve. (C) 25 mm dia.		
36	Item no- 36 Providing and fixing to wall ceiling floor 10 Kg. F/Cm2 working pressure polythene pipes for soil waste and ventilating pipes of the following outside dia. low density, complete with necessary fittings ,wall clamps etc including making good the wall ceiling and floor. (F) 75 mm		
37	Item no- 37 Providing and fixing to wall ceiling floor 10 Kg. F/Cm2 working pressure polythene pipes for soil waste and ventilating pipes of the following outside dia. low density, complete with necessary fittings ,wall clamps etc including making good the wall ceiling and floor. (G) 110 mm		
38	Item no- 38 Providing and fixing PVC SWR Nahni Trap IS 14735 for drain - 100 mm diameter with jali of the following nominal diameter of self cleansing design with C.I. screwed down or hinged grating including the cost of cutting and making good the walls.		

39	Item no- 39 Providing and fixing Screw down Quarter turn bib taps of following size (A) Brass chromium plated screw down Bib tap (Ii) 20 mm dia		
40	Item no- 40 Providing and fixing wash basin with single hole for pillar tap with C.I. Or M.S. brackets painted with including cutting holes and making good the same including fittings, (fixing C.P brass waste 32 mm dia),( fixing M.I. fisher union 32 mm dia),(fixing pillar tap,cap stan head , screw down high pressure with screws, shank sand back nuts. 15mm dia), (fixing brass screw down stop tap15mm dia), (fixing Rubber plug) (A) Vitreous China (ii) Flat back wash Basin 550mm x 400mm size (i) in white colour		
41	Item no- 41 Providing and fixing water closet squatting Pan (Indian type W.C.Pan) size 580mm (A) Vitreous China.(I) Long pattern, White colour including Providing and fixing(100mm 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) (A) Vitreous China.),(G.I. inlet connection for flush pipe with W.C. Pan) (C.P. Brass 1/2 turn flush cock 25 mm dia)		
42	Item no- 42 Providing erecting and fixing double coated Syntex or equivalent PVC. (ISI) mark water tank of required capacity each with all necessary fittings & connection etc. comp on terrace.		
43	Item no- 43 Providing and fixing S.W. Gully trap with C.I. Grating brick masonry chamber and water tight C.I. Cover with frame of 300 mm. X 300 size (inside) with standard weight (I) Square mouth traps (C) 100 mm. X 100 mm size P type		
44	Item no- 44 Constructing brick masonry chamber for under ground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35 Kg/cm <sup>2</sup> in cm. 1:5 C.I. Cover with frame (light duty) 455 mm. X 610 mm. Internal dimensions, total weight of cover with frame to be not less than 38 Kgs. weight 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 cement mortar 1:3 finished smooth with a floating coat of neat cement on walls & bed concrete etc. complete. (I) inside dimensions, 455 mm. x 610 mm. And 450 mm. Deep for single pipe line.		
45	Item no- 45 Constructing brick masonry chamber for under ground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35 Kg/cm <sup>2</sup> in cm. 1:5 C.I. Cover with frame (light duty) 455 mm. X 610 mm. Internal dimensions, total weight of cover with frame to be not less than 38 Kgs. weight 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 cement mortar 1:3 finished smooth with a floating coat of neat cement on walls & bed concrete etc. complete. [II] Inside dimensions 500 mm. x 700 mm. & 450 mm. deep for pipe lines one or two.		
46	Item no- 46 Providing and constructing soak pit of size 2.46mt. outer and 6.0mt. deep including 23cm thick brick masonry for top 0.75mt. height solid masonry in cement mortar 1:6 and remaining honey combed masonry in cement mortar 1:6 and covered with jodhpuri patti C.I. pipe 100mm dia 1.8mt. long etc. comp. as directed including 15mm plaster in C.M. 1:4 over jodhpuri patti.		
47	Item no- 47 Providing and fixing 90 cm high Stainless Steel railing made from anticorrosive 304 grade S.S. pipe of 50 mm dia (16 gauge) as hand rail with S.S. 304 grade baluster of 32 mm dia (16 gauge) as a vertical support fixed in RCC		

	slab / steps of stair at 1.2 Mt. c/c including three horizontal S.S. pipes of 16 mm dia (16 Gauge) at equal distance fixed by 16 mm dia (16 Gauge) S.S. pipe with baluster including accessories as per detailed drawing as directed etc. complete.		
48	Item no- 48 Construction of an under ground masonry water tank of size 2.00 m X 2.00 m X 1.50 m = 6000 litre capacity as per the approved drawing & design etc. complete.		
49	Item no- 49 Providing and fixing pre-cast Rubber Dye/steel Dye interlocking concrete block 60 mm thick with grade of concrete M300 pneumatic compressed /vibrated mechanically and as per approved design Confirming to IS 15658 : 2006 including 35mm Sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC : SP 63-2018 etc. Complete.		
50	Item no- 50 Providing and laying cement concrete 1:2:4 (1 Cement : 2- Coarse sand : 4- graded stone aggregates 20 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth		
51	Item no- 51 (i) Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1 Cement: 4-coarse sand) in foundation and plinth (B) Conventional		
52	Item no- 52 Providing 15mm thick cement plaster in single coat on brick /concrete walls for interior plastering upto floor two level and finished even and smooth in. (ii) Cement mortar 1:4 (1 cement:4-sand ) with finishing in floating coat of neat cement slurry		
53	Item no- 53 Providing and laying cement concrete flooring 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) laid in one layer and finished with a floating coat of neat cement. (B) 50mm thick.		
54	Item no- 54 Providing and laying in ground 110 mm diameter PVC rain Water pipe 6 Kg./ Sq.cm. necessary fittings connection as per detailed drawing as directed by Engineer - in - charge.		
55	Item no- 55 Providing and laying in ground 150mm diameter PVC rain Water pipe 6 Kg./ Sq.cm. necessary fittings connection as per detailed drawing as directed by Engineer - in - charge.		
56	Item no- 56 Brickwork 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-fine sand) (B) Conventional		
57	Item no- 57 Providing formwork 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 4M. and removal of the same for in situ reinforced concrete and plain concrete work in. (A) Foundations Footings Bases of Columns etc. and Mass concrete.		
58	Item no- 58 Supplying of crushed stone aggregate of 25 to 40 mm size as directed with 5 Km. lead		
59	Item no- 59 Supplying of coarse sand as directed with 5 Km. lead		
60	Item no- 60 Point wiring for Light / Fan/ Bell/ Primary Point with 2-1.5 sq. mm & earth wire of 1.5 sq. mm (green) both are of ISI marked 1.1 kv grade FRLS PVC insulated multi strand copper wires upto max length of 10 mt, in below type of pipe erected with 6A Tissino Type ISI marked flush type switch / bell push and accessories erected on Metal / PVC /Wooden Box covered with 3 mm thick PC (Poly carbonate) /Acrylic/Laminated sheet. with necessary Lamp holder/ceiling rose / H.D.Connector as directed.(f) with medium class Rigid		

	PVC pipe and accessories erected concealed in wall/ceiling complete (Elect S.O.R. P NO. 17 Item No. 1-1-1 (f))		
61	Item no- 61 Providing & erecting Approved make Ceiling Fan with double ball bearing ISI mark with Condenser 230 volt A.C.50 Hz 1200 mm sweep complete having 3 blades aluminium body and blade sets having ornamental design shanks , canopy erected with earthing. [ Make shall be approved by Engineer in Charge] (Elect S.O.R P NO. 123 item code 5-1-3)		
62	Item no- 62 Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sinks hallbe made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with company mark/name 160V to 270V, Power Factor more than 0.95, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy> 85 lumens/watt ,LED LED driver efficiency > 85 % ( fitting required LM-79 & LM-80 Certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.TheEngineer inchargemayselect any wattage capacity between the ranges shown.) (A) Tube Light with integral driver. (iii) 18-20 Watts, Surge-2KV,IP-20, conventional 4 feet (Elect. SOR P.NO.56 It Code 2-15-1 Cat. III)		
63	Item no- 63 Point wiring for independent PLUG with following size mains earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires upto 10 mt length, in following below of pipe erected complete with ISI marked 3 / 5 Pin socket and tissino type switch erected with earth continuity connection erected on Metal / PVC/Wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic/Laminated sheet.[A] For 6 amp plug and 6 amp switch with 2- 1.5 sq. mm Cu. Mains from near by switchboard/ db board upto 6 mt.(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete (Elect S.O.R. P NO. 18 Item 1-1-2 (f))		
64	Item no- 64 Providing & erecting 240 V MCB double pole switch for motor & inductive load (C Curve) having 10 KA breaking capacity & confirms to IS: 8828 in existing box having following capacity(A) 6 to 32 Amp(Elect S.O.R. P NO. 87 Item No. 3-10-2 cat II)		
65	Item no- 65 Providing and erecting Pipe type earthing with 40 mm dia 2.5 mtr long 'B' grade G.I. pipe with necessary coupling buch buried in specially prepared earth pit & G.I. earth wire of 8 SWG erected & connected as directed (For panel) (Elect S.OR P NO. 95 Item No. 3-14-6-B)		
66	Item no- 66 Providing & erecting open well horizontal mono block pump set with cast iron body, complete for three phase submersible motor having SECTION 9-4 [A] For 1.5 HP 3 phase open well horizontal mono block pump set suitable for 190 LPM @ 20 mtr head suitable for 40 mm dia delivery pipe Catt-II (Elect S.OR P NO. 241 Item No. 9-4-2)		
68	Item no- 67 Providing and fixing 600 mm x 450 mm bevelled edge mirror of superior glass mounted on 6 mm thick plywood sheet or PVC framing and fixed to wooden plugs with C.P brass screw and washers. {SOR. P No 177 It. Code. 23024}		
69	Item no- 68 Providing and fixing C.P. brass towel rail complet with C.P. brass brakets fixed to wooden plugs with cpbrass screws ( B ) 600 mm X 20mm size {SOR. P No. 177 It. Code. 23025}		

70	Item no- 69 Sheesham wood study Table and Chair. Table dimension 34 inches length , 18 inches width and 30 inches height. Primary material solid sheesham woodand secondary material 15mm solid MDF color teak finish style. (MR)		
71	Item no- 70 2 Seater School Benches and Desks (small) for childrens (MR)		
72	Item no- 71 Furniture for Cup board		
73	Item no- 72 Premium quality Kids Play school indoor setup (1) Amazon basic junior BPA free 4 to score Giant premium plastic games set. (MR)		
74	Item no- 73 Premium quality Kids Play school indoor setup (2) Jazz Drum set. (MR)		
75	Item no- 74 Premium quality Kids Play school indoor setup (3) Play rubber tiles. (MR)		
76	Item no- 75 Premium quality Kids Play school indoor setup (4) Clapjoy slingo fastest finger first board. (MR)		
77	Item no- 76 Premium quality Kids Play school indoor setup (5) OK play see saw yellow/ green. (MR)		
78	Item no- 77 Premium quality Kids Play school indoor setup (6) OK play Rocker medium for kids, boat ride on toy (MR)		
79	Item no- 78 Premium quality Kids Play school indoor setup (7) Table tennis trainer (MR)		
80	Item no- 79 Premium quality Kids Play school indoor setup (8) table tennis press button (MR)		
81	Item no- 80 Premium quality Kids Play school indoor setup (9) Dawnwake Baby play (MR)		
82	Item no- 81 3D Wall painting (two coats)ainting tech that creates the illusion of depth and dimention on a flate surface wall art that can be use public place3D model physical body using collection of point in 3D space connected by various geometric entities curve surface with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even draw a pictures and writing a slogan releated of diffrent painting and other theme based like harritage painting,cleaness,plastic free city,save water, save daughter,go green,clean city, etc.shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth etc.all material,scaffolding, additional coats if required and labour or painter as directed by Engineer in Charge . Method 1. Removing Dust from wall with use of wire brush and sand paper . 2.Prepare surface with appying exterior puty , cement slurry, or plastering which one required for even surface. 3. Appying Base coat of primmer 4. apply final even coat of colour 5. Draw line picture 6. pre detaling for painting 7. final detailing of 3D painting 8. applying lacquer protection coat on the whole painting area (make :- Asian Paints, Burger, Nerolac. Equivalent brand as approved by the authority. )		
83	Item no-82 2D Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even draw a pictures and writing a slogan releated of SWATCHHTA SURVEKSHAN Campain and other theme based like a harritage,cleaness,plastic free city,save water, save daughter,go green,clean city,City importance etc.shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth etc.all material,scaffolding, additional coats if required and labour or painter as directed by Engineer in Charge . Method 1. Removing Dust from wall with use of wire brush and sand paper . 2.Prepare surface with appying exterior puty ,		



	cement slurry, or plastering which one required for even surface. 3. Applying Base coat of primer 4. apply final even coat of colour 5. Draw line picture 6. pre detailing for painting 7. final detailing of 2D painting 8. applying lacquer protection coat on the whole painting area (make :- Asian Paints, Berger, Nerolac. Equivalent brand as approved by the authority. )		
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Deputy Executive Engineer  
R & B Panchayat Sub Division  
Sanand

Executive Engineer  
R & B Panchayat Division  
Ahmedabad

Item no- 1 Excavation for foundation upto 1.5 mt.depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50meter lead (B) Dense or Hard soil

**4.0.0 (a)** Excavation for foundation upto 1.5 M depth including sorting out and stacking useful materials disposing of the excavated stuff upto 50 metre 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 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 site 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 center 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 tractor shall assume full responsibility for alignment elevation and dimension of each and all parts of the work. Contractor shall supply labourers, 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 other reason excavation is made 22 deeper or wider than 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 all lift.

**6.0. Mode of measurement and 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 by the Engineer-in-charge. No payment shall be made for surplus

excavation made in excess of above requirements or due to slopping 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.

Item no- 2 Carrying out plinth treatment to post construction / existing structure by spraying chemical solution for termite control treatment including labour and material consistent with I.S.I specification. Using Chlordene and Chiorpurfiles 20 EC. As per 6131\_ part- II Concentration Weight one percent is recommended i.e. one litre 20 EC chemical emulsion dilute with 19 liter give 1 % concentration inclusive of one litre chemical emulsion application at the rate of 5 Litre chemical / Sqmt. of surface is recommended as per I.S.

**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. Mode of measurements and payment**

3.1. The area 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. up to 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. meter.,

Item no- 3 Providing and laying cement concrete 1:4:8 (1- Cement : 4- coarse sand : 8- crushed stone aggregates 40 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth

**1.0. Materials :** Water shall conform to M-I. 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 tests. The proportion of the concrete mix shall be 1 : 2 :

4 (1 cement: 4 coarse sand ; 8 graded stone aggregate 40 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-150, M-200, M-250 specified as per. I.S. Corresponding 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 bag 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 Kgs. of cement maximum.

1 2 3 4

M-100 (1 : 3: 6) 300 Liters Generally 1 : 2 for fine aggregate 34 Liters

M-150 (1 : 2 : 4) 2.20 " to coarse aggregate by volume 32 "

M-200 (1 : 1 1/2 : 3) 160 " but subject to and upper limit 30 "

M-250 ( 1:1:2) 100 " of 1 : 1 1/2 and lower limit 1 : 3 27 "

2.4. The water cement ratios shall not more than those specified in the above table. The cement content of the mix specified

in the Table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement

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 bound to give a concrete mix

which is just sufficiently wet to be placed and compacted without difficulty with the means available.

2.6. The maximum size of coarse aggregate shall be as large as possible within the limits specified but in no case greater than

one fourth 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 comers 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.

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2.9. Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be important and

the nominal maximum size may sometimes be as great as OF 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 cement 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 sizes shall be used for measuring

sand aggregate. The size of the boxes (internal) shall be 35 cms. x 25 cms. and 40 Cms. deep. While measuring the aggregate

and sand, the box 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 bulkage shall be made.

### **3.2 Mixing:**

3.2.1. For all work, concrete shall be mixed in a mechanical mixer which alongwith other accessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand, cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about 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 watertight 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 placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also 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 of 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 I.S. 1199-1959. The slump of 10 mm. to 25 mm. shall be adopted when vibrators are used and 80 mm. when vibrators are not used.

### **4.4. 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 form work shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete.

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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 shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction 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 not be dropped into place from a height exceeding

2 metres. When trucks 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 shall be protected from weather, including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process. It shall be covered with wet sacking, hessian or other similar absorbant 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. Masonary 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 I.S. 1199-1959 and cubes shall be made, cured and tested at 7 days or 28 days as per requirements in accordance with I.S. 516-1959. 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
1-5Cmt.	1	16-30Cmt.	3
6-15Cmt.	2	31-50	4

51 and above 4 + one additional for each additional 50 M. 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 the 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. Tire average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150

Kg/Cm 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 docs 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:**

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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 for removal of form work, due consideration shall be given to local conditions, character of the structure, the weather and other condition 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 expiry of 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 soffit

and struts are removed, the concrete surface shall be exposed, where necessary in order to ascertain that the concrete has sufficiently hardened. Centring shall be gradually and uniformly lowered in such manner as to permit the concrete to take

stresses due to its own weight uniformly and gradually. Where internal metal ties 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

shuttering, 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 fine caused by form joints, all cavities produced

by the removal of form ties 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 the proportions used in the grade of concrete that is-being finished 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. Surfaces 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 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 the structure affected.

#### 4.0. Mode of measurement and payment:

4.1. The consolidated cubical contents of concrete work as specified in item shall be measured. The concrete laid in excess

of section shown on drawings or as directed shall not be measured. No deduction shall be made for (a) Ends of dissimilar materials such as joists, beams, posts, girders, rafters, purline trusses, corbels and steps etc up to 500 Sq.

Cm. in section.

(b) Opening up to 0.1 Sq. M.

4.2. The rate includes cost of all materials, labour, tools and plant required for mixing, placing, position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing concrete of the strength. The

rate excludes the cost of form work.

4.3. The rate shall be for a unit of one cubic metre.

Item no- 4 Providing and laying cement concrete 1:3:6 (1- Cement : 3- Coarse sand : 6- crushed stone aggregate 40mm normal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth

**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 tests. The proportion of the concrete mix shall be 1 : 2 :

4 (1 cement: 2 coarse sand ; 4 graded stone aggregate 10 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-150, M-200, M-250 specified as per. I.S. Corresponding 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 bag 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 Kgs.

of cement

maximum.

1 2 3 4

M-100 (1 : 3: 6) 300 Liters Generally 1 : 2 for fine aggregate 34 Liters

M-150 (1 : 2 : 4) 2.20 " to coarse aggregate by volume 32 "

M-200 (1 : 1 1/2 : 3) 160 " but subject to and upper limit 30 "

M-250 ( 1:1:2) 100 " of 1 : 1 1/2 and lower limit 1 : 3 27 "



2.4. The water cement ratios shall not more than those specified in the above table. The cement content of the mix specified in the Table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement 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 bound to give a concrete mix which is just sufficiently wet to be placed and compacted without difficulty with the means available.

2.6. The maximum size of coarse aggregate shall be as large as possible within the limits specified but in no case greater than one fourth 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.

33

2.9. Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be important and the nominal maximum size may sometimes 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 cement 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 sizes shall be used for measuring sand aggregate. The size of the boxes (internal) shall be 35 cms. x 25 cms. and 40 Cms. deep. While measuring the aggregate and sand, the box 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 bulkage shall be made.

### **3.2 Mixing:**

3.2.1. For all work, concrete shall "be mixed in a mechanical mixer which alongwith other accessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand, cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about 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 watertight 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 placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also 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 of 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 I.S. 1199-1959. The slump of 10 mm. to 25 mm. shall be adopted when vibrators are used and 80 mm. when vibrators are not used.

#### **4.4. 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 form work shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete.

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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 shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction 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 not be dropped into place from a height exceeding 2 metres. When trucks 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 shall be protected from weather, including rain, running water, shocks,

vibration, traffic, rapid temperature changes, frost and drying out process. It shall be covered with wet sacking, hassain or other similar absorbant 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. Masonary 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 I.S. 1199-1959 and cubes shall be made, cured and tested at 7 days or 28 days as per requirements in accordance with I.S. 516-1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a resonable 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
1-5Cmt.	1	16-30Cmt.	3
6-15Cmt.	2	31-50	4

51 and above 4 + one additional for each additional 50 M. 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 the 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. Tire average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150 Kg/Cm 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 docs 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:**

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3.8.1. The Engineer-in charge shall be informed in advance by the contractor of his intention lo strike the form work. While fixing the time for removal of form work, due consideration shall be given to local conditions, character of the structure, the weather and other condition that influence the setting of concrete and pf 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 expiry of 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 soffit and struts are removed, the concrete surface shall be exposed, where necessary in order to ascertain that the concrete has sufficiently hardened. Centring shall be gradually and uniformly lowered in such manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal ties 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 shuttering, 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 fine caused by form joints, all cavities produced by the removal of form ties 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 the proportions used in the grade of concrete that is-being finished and of as dry consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure thorough Riling in all voids. Surfaces 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 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 the structure affected.

#### **4.0. Mode of measurement and payment:**

4.1. The consolidated cubical contents of concrete work as specified in item shall be measured. The concrete laid in excess of section shown on drawings or as directed shall not be measured. No deduction shall be made for (a) Ends of dis-similar materials such as joits, beams, posts, girders, rafters, purline trusses, corbels and steps etc upto 500 Sq. Cm. in section.

(b) Opening upto 0.1 Sq. M.

4.2. The rate includes cost of all materials, labour, tools and plant required for mixing, placing, position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing concrete lied strength The rate excludes the cost of form work.

4.3. The rate shall be for a unit of one cubic metre.

Item no- 5 Filling in plinth with sand under floors including watering ramming, consolidating and dressing complete.

**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 :** 2.1. The relevant specifications of item No. 4.12 shall be followed except that sand shall be filled inundo, floors, including watering, ramming, consolidating and dressing etc. complete.

**3.0. Mode of measurement and 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

Item no- 6 Filling foundation and plinth with murrum or selected soil in layer of 20 cm in thickness including ramming watering 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 materials and natural mixture of clay of calcarions origin. The size of murrum shall not be more than 20 mm.

2.0 Workmanship : 2.1. The relevant specifications of item No. 7 shall be followed except that the murrum or selected soil shall be filled in foundation and plinth in 20 cms. layers including consolidating, ramming, watering, dressing etc. complete.

Mode of measurement and payment:

The relevant specifications of item No. 7 shall be followed.

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.

The rate shall be for a unit of one cubic metre.

Item no- 7 Filling available excavated Earth (Excluding Rock ) in trench plinth side of foundation . in layer not excluding 20 cm in depth consolidation each deposited layer by ramming and watering 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 materials and natural mixture of clay of calcarions origin. The size of murrum shall not be more than 20 mm.

2.0 Workmanship : 2.1. The relevant specifications of item No. 7 shall be followed except that the murrum or selected soil shall be filled in foundation and plinth in 20 cms. layers including consolidating, ramming, watering, dressing etc. complete.

Mode of measurement and payment:

The relevant specifications of item No. 7 shall be followed.

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.

The rate shall be for a unit of one cubic metre.

Item no- 8 Providing and laying cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 crushed stone aggregates 20 mm nominal size) and curing complete including cost of form work in (A) Wall caps/ copings.

**1.0. Materials :** Water shall conform to M-I. 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 tests. The proportion of the concrete mix shall be 1 : 2 :

4 (1 cement: 2 coarse sand ; 4 graded stone aggregate 10 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-150, M-200, M-250 specified as per. I.S. Corresponding 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 Kgs.

of cement

maximum.

1 2 3 4

M-100 (1 : 3: 6) 300 Liters Generally 1 : 2 for fine aggregate 34 Liters

M-150 (1 : 2 : 4) 2.20 " to coarse aggregate by volume 32 "

M-200 (1 : 1 1/2 :3) 160 " but subject to and upper limit 30 "

M-250 ( 1:1:2) 100 " of 1 : 1 1/2 and lower limit 1 : 3 27 "

2.4. The water cement ratios shall not more than those specified in the above table. The cement content of the mix specified

in the Table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement

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 bound to give a concrete mix

which is just sufficiently wet to be placed and compacted without difficulty with the means available.

2.6. The maximum size of coarse aggregate shall be as large as possible within the limits specified but in no case greater than

one fourth 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 comers 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.

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2.9. Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be important and

the nominal maximum size may sometimes 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 cement 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 sizes shall be used for measuring sand aggregate. The size of the boxes (internal) shall be 35 cms. x 25 cms. and 40 Cms. deep. While measuring the aggregate and sand, the box 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 bulkage shall be made.

### **3.2 Mixing:**

3.2.1. For all work, concrete shall "be mixed in a mechanical mixer which alongwith other accessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand, cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about 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 watertight 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 placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also 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 of 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 I.S. 1199-1959. The slump of 10 mm. to 25 mm. shall be adopted when vibrators are used and 80 mm. when vibrators are not used.

#### **4.4. 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 form work shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete.

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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 shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction 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 not be dropped into 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 panicles 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 shall be protected from weather, including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process. It shall be covered with wet sacking, hassain or other similar absorbant 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. Masonary 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 I.S. 1199-1959 and cubes shall be made, cured and tested at 7 days or 28 days as per requirements in accordance with I.S. 516-1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a resonable 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
1-5Cmt.	1	16-30Cmt.	3
6-15Cmt.	2	31-50	4

51 and above 4 + one additional for each additional 50 M. 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 the 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 strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150

Kg/Cm 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:**

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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 for removal of form work, due consideration shall be given to local conditions, character of the structure, the

weather and other condition 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 expiry of 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 soffit

and struts are removed, the concrete surface shall be exposed, where necessary in order to ascertain that the concrete has

sufficiently hardened. Centring shall be gradually and uniformly lowered in such manner as to permit the concrete to take

stresses due to its own weight uniformly and gradually. Where internal metal ties 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

shuttering, 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 fine caused by form joints, all cavities produced

by the removal of form ties 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 the proportions used in the grade of concrete that is-being finished and of as dry consistency as is possible

to use. Considerable pressure shall be applied in filling and pointing to ensure thorough Riling in all voids. Surfaces 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 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 the structure affected.

#### **4.0. Mode of measurement and payment:**

4.1. The consolidated cubical contents of concrete work as specified in item shall be measured. The concrete laid in excess

of section shown on drawings or as directed shall not be measured. No deduction shall be made for

(a) Ends of dis-similar materials such as joits, beams, posts, girders, rafters, purline trusses, corbels and steps etc upt 500 Sq.

Cm. in section.

(b) Opening upto 0.1 Sq. M.

4.2. The rate includes cost of all materials, labour, tools and plant required for mixing, placing, position, vibrating and

compacting, finishing, as directed, curing and all other incidental expenses for producing concrete lied strength The

rate excludes the cost of form work.

4.3. The rate shall be for a unit of one cubic metre.

Item no- 9 Providing and laying ordinary cement concrete 1:1.5:3 (1 Cement : 1.5 corse sand : 3 graded stone aggregates 20mm nominal size) and finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement of R.C.C. work in (A) BEAMS :(ii) Having cross-sectional area more than 0.05 Sq.m. and up to 0.08 Sq.m.

**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 tests. The proportion of the concrete mix shall be 1 : 2 :

4 (1 cement: 2 coarse sand ; 4 graded stone aggregate 10 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-150, M-200, M-250 specified as per. I.S. Corresponding 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 Kgs.  
of cement  
maximum.

1 2 3 4

M-100 (1 : 3: 6) 300 Liters Generally 1 : 2 for fine aggregate 34 Liters

M-150 (1 : 2 : 4) 2.20 " to coarse aggregate by volume 32 "

M-200 (1 : 1 1/2 : 3) 160 " but subject to and upper limit 30 "

M-250 ( 1:1:2) 100 " of 1 : 1 1/2 and lower limit 1 : 3 27 "

2.4. The water cement ratios shall not more than those specified in the above table. The cement content of the mix specified

in the Table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement

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 bound to give a concrete mix

which is just sufficiently wet to be placed and compacted without difficulty with the means available.

2.6. The maximum size of coarse aggregate shall be as large as possible within the limits specified but in no case greater than

one fourth 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.

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2.9. Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be important and

the nominal maximum size may sometimes 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 cement 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 sizes shall be used for measuring

sand aggregate. The size of the boxes (internal) shall be 35 cms. x 25 cms. and 40 Cms. deep. While measuring the aggregate

and sand, the box 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 bulkage shall be made.

### **3.2 Mixing:**

3.2.1. For all work, concrete shall "be mixed in a mechanical mixer which alongwith other aecessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand, cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about 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 watertight 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 placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also be spread in a layer of uniform thickness on the mixing platform. Dry coarse and fine aggregate arid cement shall then be mixed thoroughly by turning over to get a mixture to uniform colour. Specified quantity of 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 I.S. 1199-1959. The slump of 10 mm. to 25 mm. shall be-adopted when vibrators are used and 80 mm. when vibrators are not used.

#### **4.4. 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 form 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 shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction 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 not be dropped into 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 wafer 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 shall be protected from weather, including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process. It shall be covered with wet sacking, hassain or other similar absorbant 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. Masonary 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 I.S. 1199-1959 and cubes shall be made, cured and tested at 7 days or 28 days as per requirements in accordance with I.S. 516-1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a resonable 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
1-5Cmt.	1	16-30Cmt.	3
6-15Cmt.	2	31-50	4

51 and above 4 + one additional for each additional 50 M. 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 the 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. Tire average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150 Kg/Cm 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 docs 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 for removal of form work, due consideration shall be given to local conditions, character of the structure, the weather and other condition 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 expiry of 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 soffit and struts are removed, the concrete surface shall be exposed, where necessary in order to ascertain that the concrete has sufficiently hardened. Centring shall be gradually and uniformly lowered in such manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal ties 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 shuttering, 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 fine caused by form joints, all cavities produced by the removal of form ties 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 the proportions used in the grade of concrete that is-being finished 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. Surfaces 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 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 the structure affected.

#### **4.0. Mode of measurement and payment:**

4.1. The consolidated cubical contents of concrete work as specified in item shall be measured. The concrete laid in excess of section shown on drawings or as directed shall not be measured. No deduction shall be made for

(a) Ends of dis-similar materials such as joits, beams, posts, girders, rafters, purline trusses, corbels and steps etc upto 500 Sq.

Cm. in section.

(b) Opening upto 0.1 Sq. M.

4.2. The rate includes cost of all materials, labour, tools and plant required for mixing, placing, position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing concrete lied strength The rate excludes the cost of form work.

4.3. The rate shall be for a unit of one cubic metre.

Item no- 10 Providing and laying ordinary cement concrete 1:1.5:3 (1 Cement : 1.5 corse sand : 3 graded stone aggregates 20mm nominal size) for R.C.C. Lintel including finishing smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcemen

### 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. Coarse aggregate shall conform M-12.

1.2. The shuttering to be provided shall be of ordinary timber plank and shall conform to M-26.

1.3. 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. General

2.1. The concrete mix shall be designed from preliminary tests. The proportion of the concrete mix shall be 1:1.5:3 (1 cement : 1.5 coarse sand : 3 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 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./cm.

2.3. 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 of Concrete                      Compressive strength of 15 cms. cubes in kg/cmt. at 28 days, conducted in accordance with I.S. 516-1959.**

	<b>Preliminary test Min.</b>	<b>Work Test Min.</b>
<b>M 150</b>	200	150
<b>M 200</b>	260	200
<b>M 250</b>	320	250
<b>M 300</b>	380	300
<b>M 350</b>	440	350
<b>M 400</b>	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<sup>3</sup> in plain concrete and not less than 250 kg/m<sup>3</sup> in reinforced concrete.

**3.4** The form work shall conform to the shape lines and dimensions as shown on the plans and be 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.

#### **4.0. Clearing and Treatment of forms:**

**4.1.** 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..

#### **5.0 Stripping time:**

**5.1.** 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 up to 4.5. m.....7 days.

(ii) Spanning over 4.5 mm.....14 days.

(d) Removal of props t beams and Arches:

(i) Spanning up to 6 m.....14 days.

(ii) Spanning over 6 m.....21 days.

#### **6.0 Procedure when removing the form work :**

**6.1.** 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.

#### **7.0 Centering:**

**7.1.** 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.

**7.2.** The props of centering shall be provided on firm foundation or base of sufficient strength to carry the loads without any settlement.

7.3. 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.

**8.0 Scaffolding:**

8.1. All scaffolding, hoisting arrangements and ladders etc. required for the facilitating of conceding 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 with stand 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.

8.2. The scaffolding, hoisting arrangements and ladder shall allow easy approach to the work spot and afford easy inspection.

8.3. The rate is applicable to all condition of working and height up to 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.

**9.0 Re-Use:**

9.1. 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.

**10.0 Mode of measurement & payment**

10.1. 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, falters, purling trusses, corbels and steps etc. up to 500 Sq, Cm. in section.

10.2. Form work shall be measured as the area in square meters 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.

10.3. 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.

10.4. 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 includes the cost of form work.

10.5. The rate shall be for a unit of **one cubic meter**.

Item no- 11 Providing & laying Ordinary cement concrete 1:1.5:3 (1cement : 1.5 coarse sand 3 graded stone aggregate 20 mm nominal size) and finishing the smooth with curing etc. complete including the cost of formwork but excluding the cost of reinforcement for RCC work in (II) slabs having more than 10 cm and upto 13 cm thickness.

**1.0. Materials :** Water shall conform to M-I. 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 tests. The proportion of the concrete mix shall be 1 : 2 :

4 (1 cement: 2 coarse sand ; 4 graded stone aggregate 10 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-150, M-200, M-250 specified as per. I.S. Corresponding 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 bag 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 Kgs.

of cement  
maximum.

1 2 3 4

M-100 (1 : 3: 6) 300 Liters Generally 1 : 2 for fine aggregate 34 Liters

M-150 (1 : 2 : 4) 2.20 " to coarse aggregate by volume 32 "

M-200 (1 :1 1/2 :3) 160 " but subject to and upper limit 30 "

M-250 ( 1:1:2) 100 " of 1 : 1 1/2 and lower limit 1 : 3 27 "

2.4. The water cement ratios shall not more than those specified in the above table. The cement content of the mix specified

in the Table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement

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 bound to give a concrete mix

which is just sufficiently wet to be placed and compacted without difficulty with the means available.

2.6. The maximum size of coarse aggregate shall be as large as possible within the limits specified but in no case greater than

one fourth 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 comers 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.

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2.9. Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be important and

the nominal maximum size may sometimes 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 cement 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 sizes shall be used for measuring sand aggregate. The size of the boxes (internal) shall be 35 cms. x 25 cms. and 40 Cms. deep. While measuring the aggregate and sand, the box 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 bulkage shall be made.

### **3.2 Mixing:**

3.2.1. For all work, concrete shall "be mixed in a mechanical mixer which alongwith other accessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand, cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about 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 watertight 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 placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also 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 of 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 I.S. 1199-1959. The slump of 10 mm. to 25 mm. shall be adopted when vibrators are used and 80 mm. when vibrators are not used.

#### **4.4. 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 form work shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete.

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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 shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction 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 not be dropped into place from a height exceeding 2 metres. When trucks 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 shall be protected from weather, including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process. It shall be covered with wet sacking, hassain 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. Masonary 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 I.S. 1199-1959 and cubes shall be made, cured and tested at 7 days or 28 days as per requirements in accordance with I.S. 516-1959. 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
1-5Cmt.	1	16-30Cmt.	3
6-15Cmt.	2	31-50	4

51 and above 4 + one additional for each additional 50 M. 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 the 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. Tire average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150

Kg/Cm 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:**

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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 for removal of form work, due consideration shall be given to local conditions, character of the structure, the

weather and other condition 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 expiry of 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 soffit

and struts are removed, the concrete surface shall be exposed, where necessary in order to ascertain that the concrete has

sufficiently hardened. Centring shall be gradually and uniformly lowered in such manner as to permit the concrete to take

stresses due to its own weight uniformly and gradually. Where internal metal ties 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

shuttering, 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 fine caused by form joints, all cavities produced

by the removal of form ties 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 the proportions used in the grade of concrete that is-being finished and of as dry consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure thorough Riling in all voids. Surfaces 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 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 the structure affected.

**4.0. Mode of measurement and payment:**

4.1. The consolidated cubical contents of concrete work as specified in item shall be measured. The concrete laid in excess of section shown on drawings or as directed shall not be measured. No deduction shall be made for (a) Ends of dis-similar materials such as joits, beams, posts, girders, rafters, purline trusses, corbels and steps etc upt 500 Sq. Cm. in section.

(b) Opening upto 0.1 Sq. M.

4.2. The rate includes cost of all materials, labour, tools and plant required for mixing, placing, position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing concrete lied strength The rate excludes the cost of form work.

4.3. The rate shall be for a unit of one cubic metre.

Item no- 12 Providing T M T. bar reinforcement of Fe-500D for R.C.C. work including bending binding and placing in position complete up to All floor Level

Specification for this item shall conform to item no. 5.4.11,

P. 37 of General Technical Specifications for building work except that the thermo mechanically treated bars (TMT) shall be used instead of H.Y.S.D. bars for all floors.

*TMT bar shall conform to IS 1786/FC 415 for R.C.C. work. It shall be purchased from approved manufacturer and necessary proof of purchase shall be submitted. Bars shall be tested in Govt. or Govt. approved laboratory before use. All necessary tests shall be carried out as per instruction of engineer in charge.*

*415 TMT bar shall conform to min 415 Mpa yield strength. Tensile strength of min 600 Mpa and elongation percentage min 22.The chemical composition of bars shall be as below.*

*% Max.*

<i>Carbon</i>	<i>0.25</i>
<i>Sulphur</i>	<i>0.05</i>

*Phosphorus* 0.05

*Sulphur and* 0.01

*Phosphorus*

*Rate shall be for a unit of one kg*

## **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 accurately 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 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 drawing 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 drawing. All the bars protruding from concrete and to which other bars are to be spliced 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 wires (annealed) of size not less than 1 mm. in such manner that they do not slip over each other at the time of fixing and concreting.

2.6. As far as possible, bars of full length shall be used. In case this is not possible, overlapping of bars shall be done as directed. When practicable, overlapping bars shall not touch each other, but be kept apart by 25 mm. or 1.25 times the maximum size of the coarse aggregate whichever is greater by concrete between them. 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 movement is maximum.

2.7. Whenever indicated on the drawings or desired by the Engineer-in-charge, bars shall be joined by couplings which shall have a cross-section sufficient to transmit the full stresses of bars. The ends of the bars that are joined by coupling shall be upset for sufficient length so that the effective cross section at the base of threads is not less than 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 be 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 per cent 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, grease, 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 measurement and payment

3.1 For the propose of calculating consumption wastage shall not be permitted beyond 5 percent Excess consumption over 5 % will be charged at penal vate.\

3.2 Reinforcement shall be measured in length including overlaps separately for different diameters as actually used in the work . Where welding or comping is resorted to in place of 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 reinforment shall be calculated in tonnes 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 end 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 included cost of steel binding wires its carting from department store to work site cutting binding placing, binding & fixing in position as shown on the drawing and as directed. It shall also inclu. All devices for keeping reinforcement in approved postion Cost of joining as per approved method and all wastage and speller bars.

3.4 The rate shall be for a unit of 1.00 Kg

Item no- 13 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 1:5. (1- Cement : 5 -fine sand) B) Conventional

### 1.0. Materials

Bricks 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 1:6 (1 cement: 6 fine sand) by volume.

#### 2.2. Wetting of bricks:

2.2.1. 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 up wards. A set of tools comprising of wooden straight edges, mason's spirit level, square half meter 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 meter 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, it shall be leveled, 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

engineer's 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.

- 2.7. 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.
- 2.8. 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.
- 2.9. For the face of brick work, where plastering is to be done, joints shall be racked 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. & First floor shall be measured and paid under this item rate includes cost of all materials & labour.
- 3.2. Brick work in parapet shall be included in the corresponding masonry item of floor 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 up to 300 mm. dia. hold fasts of doors, and window built into masonry and pipes etc. for concealed wiring.
  - (6) Forming charges of section not 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.

Item no- 14 Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./ Sq.Cm. in super structure in Cement Mortar 1:5. (1- Cement : 5 -fine sand) (B) Conventional

**1.0. Materials**

Bricks 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 1:6 (1 cement: 6 fine sand) by volume.

**2.2. Wetting of bricks:**

**2.2.1.** 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 up wards. A set of tools comprising of wooden straight edges, mason's spirit level, square half meter 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 meter 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, it shall be leveled, 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 engineer's 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.

- 2.7.** 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.

- 2.8.** 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.

- 2.9.** For the face of brick work, where plastering is to be done, joints shall be racked 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. & First floor shall be measured and paid under this item rate includes cost of all materials & labour.



- 3.2.** Brick work in parapet shall be included in the corresponding masonry item of floor 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 up to 300 mm. dia. hold fasts of doors, and window built into masonry and pipes etc. for concealed wiring.
  - (6) Forming charges of section not 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.

Item no- 15 Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1- Cement : 4 -coarse sand ) in super structure above plinth up to floor two level Conventional Bricks for All Floors.

## **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. 7** except that the brick work of half brick 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 coarse 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 said 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. After every three course 2 nos. of 6mm mild steel round bars shall be embedded in cement mortar.

## **3.0. Mode of measurement and payment**

- 3.1. The half brick masonry work in [superstructure](#) 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. 7** shall be followed. The length shall be measured nearest to one cm.
- 3.3. The rate includes the cost of providing 2 nos. of 7mm dia. mild steel round bars after every 4th course.
- 3.4. The rate shall be for a unit of one sq. meter.

Item no- 16 Providing and fixing alluminium anodised glazed door rectangular frame 60mm x 40mm x 2mm @ 1.037 Kg./ Rmt. weight, flush door shutters, solid core construction with frame of first class hardwood with cross board and face veneer or plywood face panels , including anodised alluminium butt hinges with necessary screws. including Laminated sheet 1 mm thick,S.S. stoper 30cm long ASIS 304 grade,S.S. Aldrap 30cm long ASIS 304 grade,S.S. Handle 15cm long ASIS 304 grade,S.S. Handle Door stop ASIS 304 grade(2) 35 mm thick.

## **.0 MATERIAL**

### **1.1 Aluminum standard section**

#### **1.1.1 Main outer frame of rectangular tube**

Aluminum alloy used in the manufacture of extruded Ventilation section shall confirm to I S designation HEA-WP of I S 733-1975 and also Designation WVG –WP of I S 1285-1975 section shall be as specified in the drawing and design

Size of the **rectangular tube** shall confirm **65.0 X 25.0 X 1.25 mm**

All sections shall be Free from any scratches or holes or any damages on surface. All section shall have finished luster surface on all sides

#### **1.1.2. frame for ventilation portion**

Aluminum alloy used in the manufacture of extruded Ventilation section shall confirm to I S designation HEA-WP of I S 733-1975 and also Designation WVG –WP of I S 1285-1975 section shall be as specified in the drawing and design

Size of the **frame** shall confirm **65.0 X 25.0 X 1.25 mm**

All channels shall be Free from any scratches or holes or any damages on surface. All section shall have finished luster surface on all sides

#### **1.1.4 PVC rubber top and bottom**

Top and bottom channel of rubber shall be of approved make and quality and shall be Free from any scratches or holes or any damages on surface.

All channels shall have finished luster surface on all sides

### **1.3 Glass**

The glass shall be of approved make having thickness of 5 mm The glass shall be clear and free from scratches and cracks The glass shall be provided on the top

### **1.5. Rubber Gasket**

Rubber gasket shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

### **1.6. Fixtures**

#### **1.6.2 Louvers assembly**

Louvers assembly shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

#### **1.1.4 Bolts,**

All bolts shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

## **2.0 WORKMANSHIP**

The Work of aluminum ventilation shall be done with extreme finishing. The glass shall be fitted on louvers assembly as directed by Engineer in charge using glazing clips and rubber gaskets as required All the fixtures and fastenings shall be fitted at right place and as directed by Engineer in charge. Floor spring shall be fitted properly so as to align the ventilation properly and shall be given trial of opening and closing properly.

### **3.0 Mode of Measurement & Payment :**

**3.1.** The unit rate of aluminum ventilation shall include the cost of all materials, cost of anodizing, cost of all necessary fixtures and fastenings, labour charges for fixing frames, ventilations and fixing the ventilation in wall at the place shown in drawing and as instructed by Engineer in charge, all tools and plant required for assembling and fixing in position, finishing as per direction of the Engineer-in-charge, and all other incidental expenses for preparing ventilation frame and louvers of specified size to complete the ventilation structure or its components as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing and making walls good by plaster patch colour etc as required

**3.2.** The ventilation shall be measured for its improvising and fixing aluminum Ventilators having standard extruded alluminium outer frame size hollow sections frame of size 65mm x25.0mm x 1.25 mm having wt per Rmt = 0.497 Kg per mtr including providing 5 mm thick sheet glass adjustable louvers with rubber gasket including all labour and equipments etc. complete with ventilator above. For **V3/A** and height, limiting dimensions to those specified on plan or as directed.

**3.3.** The rate shall be for a unit of one squire meter.

Item no- 17 Providing and fixing window having extruded aluminum Colour anodized section frame main outer size 63.50 x 38.10 x 1.95 mm, @ Wt 1.094 Kg / Rmt, horizontal two track member size 61.85 mm x 31.75 mm x 1.20mm @ wt.of 0.695 Kg/mt, vertical member of size 61.85 mm x 31.75mm x 1.30 mm @ wt.of 0.659 Kg/mt with sliding shutters of horizontal member size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, vertical member

of size 40mm x 18mm x 1.29mm @ wt.of 0.456Kg/mt, @ Wt. 0.457 Kg/mt with 5 mm thick transparent bronze colour tinted float glass with powder coated aluminum fittings and fixtures and transparent silicon sealant glass fixing to frame as per details etc complete for window.

## **.0 MATERIAL**

### **1.1 Aluminum standard section**

#### **1.1.1 Main outer frame of rectangular tube**

Aluminum alloy used in the manufacture of extruded Ventilation section shall confirm to I S designation HEA-WP of I S 733-1975 and also Designation WVG –WP of I S 1285-1975 section shall be as specified in the drawing and design

Size of the **rectangular tube** shall confirm **65.0 X 25.0 X 1.25 mm**

All sections shall be Free from any scratches or holes or any damages on surface. All section shall have finished luster surface on all sides

#### **1.1.2. frame for ventilation portion**

Aluminum alloy used in the manufacture of extruded Ventilation section shall confirm to I S designation HEA-WP of I S 733-1975 and also Designation WVG –WP of I S 1285-1975 section shall be as specified in the drawing and design

Size of the **frame** shall confirm **65.0 X 25.0 X 1.25 mm**

All channels shall be Free from any scratches or holes or any damages on surface. All section shall have finished luster surface on all sides

#### **1.1.4 PVC rubber top and bottom**

Top and bottom channel of rubber shall be of approved make and quality and shall be Free from any scratches or holes or any damages on surface.

All channels shall have finished luster surface on all sides

### **1.3 Glass**

The glass shall be of approved make having thickness of 5 mm The glass shall be clear and free from scratches and cracks The glass shall be provided on the top

### **1.5. Rubber Gasket**

Rubber gasket shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

### **1.6. Fixtures**

#### **1.6.2 Louvers assembly**

Louvers assembly shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

#### **1.1.4 Bolts,**

All bolts shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

## **2.0 WORKMANSHIP**

The Work of aluminum ventilation shall be done with extreme finishing. The glass shall be fitted on louvers assembly as directed by Engineer in charge using glazing clips and rubber gaskets as required All the fixtures and fastenings shall be fitted at right place and as directed by Engineer in charge. Floor spring shall be fitted properly so as to align the ventilation properly and shall be given trial of opening and closing properly.

## **3.0 Mode of Measurement & Payment :**

**3.1.** The unit rate of aluminum ventilation shall include the cost of all materials, cost of anodizing, cost of all necessary fixtures and fastenings, labour charges for fixing frames, ventilations and fixing the ventilation in wall at the place shown in drawing and as instructed by Engineer in charge, all tools and plant required for assembling and fixing in position, finishing as per direction of the Engineer-in-charge, and all other incidental expenses for preparing ventilation frame and louvers of specified size to complete the ventilation structure or its components as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing and making walls good by plaster patch colour etc as required

**3.2.** The ventilation shall be measured for its improvising and fixing aluminum Ventilators having standard extruded alluminium outer frame size hollow sections frame of size 65mm x25.0mm x 1.25 mm having wt per Rmt = 0.497 Kg per mtr including providing 5 mm thick sheet glass adjustable louvers with rubber gasket including all labour and equipments etc. complete with ventilator above. For **V3/A** and height, limiting dimensions to those specified on plan or as directed.

**3.3.** The rate shall be for a unit of one squire meter.

Item no- 18 Providing and fixing standared extruded of alluminium section of size 63mm x 38.10mm x 1.2mm @ Wt. 0.643 Kg/mt with colour anodized alluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation

## **.0 MATERIAL**

### **1.1 Aluminum standard section**

#### **1.1.1 Main outer frame of rectangular tube**

Aluminum alloy used in the manufacture of extruded Ventilation section shall confirm to I S designation HEA-WP of I S 733-1975 and also Designation WVG –WP of I S 1285-1975 section shall be as specified in the drawing and design

Size of the **rectangular tube** shall confirm **65.0 X 25.0 X 1.25 mm**

All sections shall be Free from any scratches or holes or any damages on surface. All section shall have finished luster surface on all sides

#### **1.1.2. frame for ventilation portion**

Aluminum alloy used in the manufacture of extruded Ventilation section shall confirm to I S designation HEA-WP of I S 733-1975 and also Designation WVG –WP of I S 1285-1975 section shall be as specified in the drawing and design

Size of the **frame** shall confirm **65.0 X 25.0 X 1.25 mm**

All channels shall be Free from any scratches or holes or any damages on surface. All section shall have finished luster surface on all sides

#### **1.1.4 PVC rubber top and bottom**

Top and bottom channel of rubber shall be of approved make and quality and shall be Free from any scratches or holes or any damages on surface.

All channels shall have finished luster surface on all sides

#### **1.3 Glass**

The glass shall be of approved make having thickness of 5 mm The glass shall be clear and free from scratches and cracks The glass shall be provided on the top

#### **1.5. Rubber Gasket**

Rubber gasket shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

#### **1.6. Fixtures**

##### **1.6.2 Louvers assembly**

Louvers assembly shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

##### **1.1.4 Bolts,**

All bolts shall be of approved make. shall be Free from any scratches or holes or any damages on surface. and shall have finished luster surface on all sides

## **2.0 WORKMANSHIP**

The Work of aluminum ventilation shall be done with extreme finishing. The glass shall be fitted on louvers assembly as directed by Engineer in charge using glazing clips and rubber gaskets as required All the fixtures and fastenings shall be fitted at right place and as directed by Engineer in charge. Floor spring shall be fitted properly so as to align the ventilation properly and shall be given trial of opening and closing properly.

### **3.0 Mode of Measurement & Payment :**

**3.1.** The unit rate of aluminum ventilation shall include the cost of all materials, cost of anodizing, cost of all necessary fixtures and fastenings, labour charges for fixing frames, ventilations and fixing the ventilation in wall at the place shown in drawing and as instructed by Engineer in charge, all tools and plant required for assembling and fixing in position, finishing as per direction of the Engineer-in-charge, and all other incidental expenses for preparing ventilation frame and louvers of specified size to complete the ventilation structure or its components as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing and making walls good by plaster patch colour etc as required

**3.2.** The ventilation shall be measured for its improvising and fixing aluminum Ventilators having standard extruded alluminium outer frame size hollow sections frame of size 65mm x25.0mm x 1.25 mm having wt per Rmt = 0.497 Kg per mtr including providing 5 mm thick sheet glass adjustable louvers with rubber gasket including all labour and equipments etc. complete with ventilator above. For **V3/A** and height, limiting dimensions to those specified on plan or as directed.

**3.3.** The rate shall be for a unit of one squire meter.

Item no- 19 Providing and fixing M.S. grills of required pattern to wooden frames of windows etc. with M.S. flats at required spacings and frame alround, square or round bars with round headed bolts and nuts or by screws (A) Plain Grill. including Applying priming coat and Painting two coats (excluding priming coat) etc. complete.

#### **1.0. Materials**

The structural steel shall conform to M-22 Paint shall conform to M44

#### **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.

**2.4** Grill shall be painted Mat finished oil paint two coats followed by one coat of red lead primer.

#### **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.

Item no- 20 Providing and laying Vitrified tiles 8 to10 mm thick, 36" x36" in flooring treads of step sand landing laid on a bed of 12mm thick cement mortar 1:3 (1 cement : 3-coarse sand ) finishing with flush pointing in white cement.

#### **1.0. Materials**

Water shall conform to M-1. Cement mortar shall conform to M-11. **Vitrified flooring tiles** shall conform to ISO 13006. The size, thickness and shade & quality of vitrified tiles shall be got approved from Engineer in charge before use.

## **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 10 mm. while the masonry is being laid. In case of concrete wall the surface shall be chiseled 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 roughened 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 smoothened.
- 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 meters, 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. meter.

Item no- 21 Providing & Fixing 30 mm thick polished Kota-stone slabs for Shelves of Cupboard shelves including making grooves in walls and finishing with C.M.( 1:1) and polishing etc. Complete.

Item no- 22 P & L 24"x24" vitrified 8mm thick tile flooring over 20mm(average) base of cement mortar 1:6 ( 1 cement:6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finised with flush pointing & cleaning the surface etc. complete for antiskit

## **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 must be 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. It 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 meters correct to two places decimal, length and breadth shall be measured correct to a centimeter and between the finished face of skirting dedo plaster and no deduction shall be made nor extra paid for any opening in floor of areas up to 0.1 sq

**3.2.** The rate shall be for a unit of one sq. meter

Item no- 23 Providing and laying Vitrified tiles 8 to 10 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. **Vitrified flooring tiles** shall conform to ISO 13006. The size, thickness and shade & quality of vitrified tiles shall be got approved from Engineer in charge before use.

**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 10 mm. while the masonry is being laid. In case of concrete wall the surface shall be chiseled 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 roughened 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 smoothened.

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 meters, 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. meter.

Item no- 24 Providing and laying broken china mosaic flooring for Terrece using 12mm to 20mm of broken piece of glazed tiles to be laid over cement mortar bedding of CM (1:3) to plain or slope & to be tempered to bring Mortar cream out upto surface using white cement including rounding off junction and extending them up to 15 cm along the wall clearing water and oxalic acied etc as directed

### **MATERIALS**

Water shall confirm to M 1 Cement mortar shall confirm to M 11 and white cement glaze tiles shall confirm to M 55 of General Specification of materials.

### **WORKMANSHIP**

The sub grade shall be cleaned wetted and mopped. The bedding shall 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 to place woodenplansk across the squat on it. The white glazed tiles shall be laid on cement mortar bedding of 20 mm thick in C.M. 1:3 The mortar shall have sufficient plasticity for laying and these shall have lumps that would interfere with the ecennes of bedding The base shall be cleared and wall not less than 20 mm at any place. The proportion of the cement mortar shall be asspecified in the items. The waterproofing material of approved brand shall be added @ rate of 1 Kg/ 10 sqm or as per instruction of manufacture.

### **FIXING TILES.**

The tiles before laying shall be soaked in water for at least two hours. Neat grey cement grout at 2.0 Kg. cement /sqmt of honey like consistency shall be spread over the mortar bedding as directed. The edges of the tiles measured with neat cement slurry . The tiles shall be pressed and gently

lapped with a wooden mallet till they are properly bedded and in level with the adjoining tiles. There shall be not hollows in bed or joints.

The white glazed tiles shall be broken in to pieces of 12 to 25 mm size.

The joints shall be filled with grey cement grout with wire brush of trowed to a depth of 5 mm and loose materials removed white cement shall be used for pointing the joints After fixing the tiles finally an uneven place the flooring shall be kept wet and allowed to nature undisturbed for 7 days.

Before laid cement mortar in CM 1:3 as a bedding necessary C.c. 1:2:4 shall be done for making required grade if any so as water run to water spout easily. The specification of C.C. 1:2:4 shall be following as per relevant items of attached booklet.

No any extra payment shall be done for addition work of C.C. 1:2:4 if any and water proofing materials to be used in C.M. 1:3 for bedding of china mosaic tiles flooring.

### **CLEANING**

The surplus cement grout that may have come out of the joints shall be cleared off before it sets. One the floor has set if shall be carefully washed cleaned by dilute acid and dared. Proper precaution and measures shall be taken to ensure that the tiles are not damaged any way till the completion of the construction.

The white glazed china mosaic tiles shall be breaked as pr requirement and direction given by Engineer in charge. The white glazed tiles shall be fixed in C.M. 1:3 The joints shall be filled with white cement and all joints shall be rubbed and finished in line and level. The necessary approved format guarantee bond for 7 (Seven) year shall be furnished by the contractor for leakage works as per format attached.

### **MADE OF MEASUREMENT & PAYMENT**

The work done shall be measured in sqmt for visible are work done The length and width of the flooring shall be measured not between the face of skirting or dedos or plastered face of walls as the case may be the paving under dedo or skirting shall not be measured no deduction shall be made for extra paid for any opening thee floor of area up to 0.1 sqmt. Nothing extra shall be paid for laying thee floors at different levels in the same rooms.

The rate shall be for a unit of one smt.

Item no- 25 Providing and fixing machine cut, free edges, mirror polished Granite stone slab 18 mm thick for vertical wall/ Doors/ Windows Sill, Jams for cladding as per design including full moulded round inside edge and laid on 10 mm thick cement mortar 1:3 ( 1 cement: 3 coarse sand) jointed with grey cement slurry including rubbing and polishing finishing etc. complete.

Granite shall confirm Specification no. M-52 from specification booklet for Building works. Cement mortar shall confirm Specification no. M-11 of specification booklet for Building works.

Other all specifications for workman ship and laying shall be same as 14.43(B) of specification booklet on page no. 99 for kotah stone flooring.

Workmanship : The work should be carried out as per drawing and as per direction of Engineer in charge. The joints shall be cleaned and flush pointed filled with white / coloured cement matching to granite stone, The surface shall be kept wet for 7 days. After curing the surface shall be washed clean.

Mode of Measurement & Payment:

The unit rate for P/F granite provided, tools and plant required mix, placing in position, finishing as per direction of the Engineer-in-charge, curing and finishing all other incidental expenses to complete the structure or its components as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing and removing of all scaffolding and forms required for the work.

The granite shall be measured for its length and width of granite provided, dimensions to those specified on plan or as directed. The rate shall be for a unit of one square meter.

The payment will be made on square meter basis of the finished work

Item no- 26 Providing 15mm thick cement plaster in single coat on Rough (Similar) side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (i) Cement mortar 1:3 (1-cement: 3 sand) and finishing with a floating coat of neat cement slurry.etc. complete.

**17.58.(I)** 15 mm. thick cement plaster in single coat on fair side pf brick concrete walls for interior plastering upto floor twolevel and finished even and smooth in (i) C.M. 1:3.

**1.0. Materials:** **1.1.** Water M-1. The cement mortar of proportion 1 : 3 shall conform to M-13.

**2.0. Workmanship:**

2.1. Scaffolding : Wooden ballies, bamboos, planks, treaties 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 roughened by wire brushing if it is not hard and by racking 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 surface 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 supporting ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

**2.3. Applications 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 movement 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 trowelling or overworking the float shall be avoided. All comers, arrises, angles and junctions 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 the size required. 105

2.3.2. Cement plaster shall be used within half an hour after addition of water. Any 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. 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 mattings 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.

Item no- 27 Providing 10 mm thick cement plaster in single coat on Ceiling / soffit of stair for interior plastering finished even and smooth in (ii) Cement mortar 1:3 (1-cement 3 - sand )for Ground Floor

#### **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:***

2.2. **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.**

##### **2.3. *Preparation of back-ground :***

2.3.1. 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 residues is left on the surface. Trimming of projections on brick/concrete surfaces where necessary shall be carried out to get an even surface.

2.3.2. Raking of joints in case of masonry where necessary shall be allowed to dry out for sufficient period before carrying out the plaster work.

2.3.3. 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.

2.3.4. 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 15x15 cms. shall be first applied horizontally and vertically at not more than 2 meters 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, arises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Hounding or chamfering, corners, arises 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 arises. It shall not be closed on the body of features such as plaster bands and cornices not at the corners or arises. 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 matting or gunny bags on the outside of the plaster and keeping them wet.

#### **1.0 *Mode of measurements & payment***

- 1.1. The rate shall include the cost of all materials, labour and scaffolding etc. involved in the operations described under workmanship.
- 1.2. All plastering shall be measured in square meters unless otherwise specified. Length breadth or height shall be measured correct to a centimeter.
- 1.3. 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.
- 1.4. This item includes plastering up to floor two level.
- 1.5. 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.
- 1.6. Soffits of stairs shall be measured as plastering on ceilings, following soffits shall be measured separately.
- 1.7. 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.
- 1.8. 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.
- 1.9. 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.
- 1.10. The rate shall be for a unit of One sq. meter.

Item no- 28 Applying two coats of acrylic lappy (putty) and two coats of primer & 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.

### **1.0. Materials**

Water shall be conform 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 From Building Specification Book shall be followed.

**2.2. Preparation of surface :** The relevant specification of item No. 18.44 Para 2.2 From Building Specification Book 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 moldings, 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 paint shall not be done within 3 to 4 weeks of application

**2.6. Protective payment :** The relevant specifications of item No. 18.11 From Building Specification Book shall be followed.

**3.0. Mode of measurements and payment**

**3.1.** The relevant specifications of item No. 18.11 From Building Specification Book shall be followed.

**3.2.** The rate shall be for a unit of One sq. meter.

Item no- 29 20 mm thick sand faced cement plaster on walls upto 10 mt height above ground level consisting of 12 mm. Thick backing coat of c.m. 1:3 (1 cement : 3 sand) and 8 mm. Thick finishing coat of c.m. 1:1 (1 cement : 1 sand) etc. complete as directed.

**17.58.(I)** 20 mm. thick cement plaster in single coat on fair side pf brick concrete walls for interior plastering upto floor twolevel and finished even and smooth in (i) C.M. 1:3.

**1.0. Materials: 1.1.** Water M-I. The cement mortar of proportion 1 : 3 shall conform to M-13.

**2.0. Workmanship:**

2.1. Scaffolding : Wooden ballies, bamboos, planks, treaties and other scaffolding shall be sound. These shall be properlyexamined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of thewalls.

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 matterby water or by brushing. Smooth surface shall be roughened by wire brushing if it is not hard and by racking if it is hard. Incase 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 onthe surface. Trimming of projections on brick/concrete surface 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 carryingout 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 areashall 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 arc ready and the temporary supporting ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

**2.3. Applications of plaster :**

2.3.1. The plaster about 15 x 15 cms. shall be first applied horizontally and vertically al not more than 2 metres intervals over the entire surface to serve as gauge. The surfaces of these gauges shall be truly inplane 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 movement 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 trowelling or overworking the float shall be avoided. All corners, arrises, angles and junctions 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 the size required. 105

23.2. Cement plaster shall be used within half an hour after addition of water. Any 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. 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 mattings 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 centimetre.

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 10mm. 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. Flowing soffits shall be measured separately.

3.7. For jambs, soffits, sills etc. for openings not exceeding 0.5 sq. mt. each in area for ends of joists, 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 manner: (a) No deductions shall be made for ends of joists, 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 opening for finish to plaster around ends of joists, beam 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 area of plaster and/or pointing as the case may be.

3.8. For openings having door frames equal to 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 opening but jambs, soffits and sills shall be measured.

3.10. The rate shall be for a unit of one sq. metre.



Item no- 30 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

**18.51.** Finishing wall with water proofing cement paint on an undecorated wall surfaces (two coats) to give an approved brand and manufacture and of required shape even shade after thoroughly brushing the surface to remove all dirt and remains of loose powdered materials.

**1.0. Materials :** 1.1. The water shall conform to M-l. Cement water proofing 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 white wash colour wash 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 shall be prepared by adding paint powder to water and stirring to obtain a thick paste, which shall then be diluted to a brushable consistency. Generally, equal volumes of paint powder and water make a satisfactory paint. In all cases, the manufacturer'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 thicken, affecting flowing and finish. The drums of cement paint 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 7°C within 48 hours after application.

2.4.2. When weather conditions are such as to cause damage the work shall be carried out in the shade 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 undercoated surfaces, the surfaces 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 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 relatively short stiff hog or fibre bristles. The paint shall be brushed in uniform thickness and shall be free from excessive heavy brush marks. The surfaces shall be well brushed out.

2.4.7. Water proof cement paint shall not be applied on surfaces 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. Protection measures shall be taken as per item No. 18.11 para 2.6.

**3.0. Mode of measurements & 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.

**Item no- 31 Constructing a cooking platform 60 cm. width and 70 cm high resting on B.B.Masonry walls 23 cm.thick in C.M. (1:6) with (i) Fixing or precast R.C.C.1:2:4) 8 cm. thick slab with marble chips set in C.M. (1:6) (6mm thick terrazo) with plastering on exposed faces walls in C.M. (1:4) etc complete. Including the approved quality stainless steel sink of size 600 X 400 X 150 including fixing the sink in the stone platform with waste pipe and whole work as per instruction of Engineer in charge.**

Item no- 32 Providing laying and jointing in true line and level 15mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

1.0 Materials : 1.1. The low density polythene pipe of specified diameter with 6 Kg./F. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The specials and fillings required shall be of best quality.

2.0 Workmanship: The P.V.C. Pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid P.V.C. Pipes, due Above ground installation of rigid P.V.C. pipe should be undertaken after precautions are observed for their protection The rigid P.V.C. pipe lines should not be kept exposed above ground when it passes through public place, railway lines, P.V.C. pipes shall be supported at the followings intervals : Closet support spacings shall be provided, if recommended by the manufacturer. The guide line indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes P.V.CV. pipes shall be fixed on wall with wooden plugs and suitable clamps. Jointing the pipes : The pipes and sockets shall be accurately cut. The ends of the pipes and filling should be absolutely free from dirt and If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from Laying pipes in trenches : The pipes shall be laid over uniform relatively soft fine grained soil found to be free of presence of hard objects such The pipes laid underground shall not be less than one metre from the ground level. The pipe shall be positioned in the 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. against dirt sun rays and mechanical damage.

roads, road side and footpaths.

20 mm. dia. 500 mm.

25 mm. dia. 750 mm.

32mm. dia. 900mm.

shall be kept in view during execution.

dust The outside surface of the pipes and the inside of the fillings 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 unpregnated 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.

the Engineer-in-charge.

as large flints, rocky projections, large tree roots etc. The width of the trenches shall be minimum width required for working.

trenches so as to avoid any induced stresses due to reflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0 Mode of measurements & payment: The relevant specifications of item No. 23.2 (A) shall be followed except that the P.V.C. pipes of specified dia. shall be

The rate shall be for a unit of one running metre. paid under this item.

Item no- 33 Providing laying and jointing in true line and level 25mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the

wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

1.0 Materials : 1.1. The low density polythene pipe of specified diameter with 6 Kg./F. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The specials and fillings required shall be of best quality.

2.0 Workmanship: The P.V.C. Pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid P.V.C. Pipes, due Above ground installation of rigid P.V.C. pipe should be undertaken after precautions are observed for their protection The rigid P.V.C. pipe lines should not be kept exposed above ground when it passes through public place, railway lines, P.V.C. pipes shall be supported at the followings intervals : Closet support spacings shall be provided, if recommended by the manufacturer. The guide line indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes P.V.CV. pipes shall be fixed on wall with wooden plugs and suitable clamps. Jointing the pipes : The pipes and sockets shall be accurately cut. The ends of the pipes and filling should be absolutely free from dirt and If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from Laying pipes in trenches : The pipes shall be laid over uniform relatively soft fine grained soil found to be free of presence of hard objects such The pipes laid underground shall not be less than one metre from the ground level. The pipe shall be positioned in the 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. against dirt sun rays and mechanical damage.

roads, road side and footpaths.

20 mm. dia. 500 mm.

25 mm. dia. 750 mm.

32mm. dia. 900mm.

shall be kept in view during execution.

dust The outside surface of the pipes and the inside of the fillings 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 unpregnated 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.

the Engineer-in-charge.

as large flints, rocky projections, large tree roots etc. The width of the trenches shall be minimum width required for working.

trenches so as to avoid any induced stresses due to reflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0 Mode of measurements & payment: The relevant specifications of item No. 23.2 (A) shall be followed except that the P.V.C. pipes of specified dia. shall be

The rate shall be for a unit of one running metre. paid under this item.

Item no- 34 Providing laying and jointing in true line and level 32 mm dia. U.P.V.C. Pipe ( SCH-40) for cold water including fittings as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concealed as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.

1.0 Materials : 1.1. The low density polythene pipe of specified diameter with 6 Kg./F. Sq. Cm. working pressure shall conform to I.S. 3076-1968. The specials and fillings required shall be of best quality.

2.0 Workmanship: The P.V.C. Pipes of specified diameter shall be fixed as directed. Due to thermal expansion of rigid P.V.C. Pipes, due Above ground installation of rigid P.V.C. pipe should be undertaken after precautions are observed for their protection The rigid P.V.C. pipe lines should not be kept exposed above ground when it passes through public place, railway lines, P.V.C. pipes shall be supported at the followings intervals : Closet support spacings shall be provided, if recommended by the manufacturer. The guide line indicated by the manufacturer regarding handling, transportation, storing, laying and jointing of pipes P.V.CV. pipes shall be fixed on wall with wooden plugs and suitable clamps. Jointing the pipes : The pipes and sockets shall be accurately cut. The ends of the pipes and filling should be absolutely free from dirt and If any manufacturer recommends its own methods of jointing the same shall be adopted after necessary approval from Laying pipes in trenches : The pipes shall be laid over uniform relatively soft fine grained soil found to be free of presence of hard objects such The pipes laid underground shall not be less than one metre from the ground level. The pipe shall be positioned in the 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. against dirt sun rays and mechanical damage.

roads, road side and footpaths.

20 mm. dia. 500 mm.

25 mm. dia. 750 mm.

32mm. dia. 900mm.

shall be kept in view during execution.

dust The outside surface of the pipes and the inside of the fillings 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, 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.

the Engineer-in-charge.

as large flints, rocky projections, large tree roots etc. The width of the trenches shall be minimum width required for working.

trenches so as to avoid any induced stresses due to reflection. Any deviation required shall be obtained by using proper type of rubber ring joints.

3.0 Mode of measurements & payment: The relevant specifications of item No. 23.2 (A) shall be followed except that the P.V.C. pipes of specified dia. shall be

The rate shall be for a unit of one running metre. paid under this item.

Item no- 35 Providing & fixing gun metal check or nonreturn full way wheel valve. (C) 25 mm dia.

**1.0. Materials :** The gun metal check or non return full way wheel valve or specified dia, shall conform to I.S. : 778-1964. The non-return valve shall be of 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 flaps 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.

**3.2.** The rate shall be for a unit of **One number**

Item no- 36 Providing and fixing to wall ceiling floor 10 Kg. F/Cm<sup>2</sup> working pressure polythene pipes for soil waste and ventilating pipes of the following outside dia. low density, complete with necessary fittings, wall clamps etc including making good the wall ceiling and floor. (F) 75 mm

**1.0. Materials**

**1.1.** The low density polythene pipe of specified diameter with 6 Kg/Sq. Cm, working pressure shall conform to I.S. 3076-1968. 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 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 under taken after preparations are observed for their protection against direct sun rays and mechanical damage.

**2.3.** The rigid P.V.C. pipe lines should not be kept exposed above ground when it passes through public places, railway lines, road side and foot paths.

**2.4.** P.V.C. pipes shall be supported at the following intervals :

-20 mm. dia 500 mm. -25 mm. dia 750mm. -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 meter 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 meter**

Item no- 37 Providing and fixing to wall ceiling floor 10 Kg. F/Cm<sup>2</sup> working pressure polythene pipes for soil waste and ventilating pipes of the following outside dia. low density, complete with necessary fittings, wall clamps etc including making good the wall ceiling and floor. (G) 110 mm

**1.0. Materials**

**1.1.** The low density polythene pipe of specified diameter with 6 Kg/Sq. Cm, working pressure shall conform to I.S. 3076-1968. 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 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 under taken after preparations are observed for their protection against direct sun rays and mechanical damage.

**2.3.** The rigid P.V.C. pipe lines should not be kept exposed above ground when it passes through public places, railway lines, road side and foot paths.

**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 pf 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 of 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 meter 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 meter**

Item no- 38 Providing and fixing PVC SWR Nahni Trap IS 14735 for drain - 100 mm diameter with jali of the following nominal diameter of self cleansing design with C.I. screwed down or hinged grating including the cost of cutting and making good the walls.

**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 Nahni 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. 782.-1976.

**3.0. Mode of measurements and payment**

**3.1.** The rate includes cost of all labour, materials, tools and plants etc. required for satisfactory completion of this item including

lead, jointing and testing.

**3.2. The rate shall be for a unit of one number**

Item no- 39 Providing and fixing Screw down Quarter turn bib taps of following size (A) Brass chromium plated screw down Bib tap (Ii) 20 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.

Item no- 40 Providing and fixing wash basin with single hole for pillar tap with C.I. Or M.S. brackets painted with including cutting holes and making good the same including fittings, (fixing C.P brass waste 32 mm dia),( fixing M.I. fisher union 32 mm dia),(fixing pillar tap,cap stan head , screw down high pressure with screws, shank sand back nuts. 15mm dia), (fixing brass screw down stop tap15mm dia), (fixing Rubber plug) (A) Vitreous China (ii) Flat back wash Basin 550mm x 400mm size (i) in white colour

**1.0. Materials**

**1.1.** The white glazed earthenware wash basin shall be 550 mm. x 400mm. 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 C.M. 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, plaster 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 and 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.

Item no- 41 Providing and fixing water closet squatting Pan (Indian type W.C.Pan) size 580mm (A) Vitreous China.(I) Long pattern, White colour including Providing and fixing(100mm 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) (A) Vitreous China.), (G.I. inlet connection for flush pipe with W.C. Pan) (C.P. Brass 1/2 turn flush cock 25 mm dia)

#### 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 C M. 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.

Item no- 42 Providing erecting and fixing double coated Syntex or equivalent PVC. (ISI) mark water tank of required capacity each with all necessary fittings & connection etc. comp on terrace.

1.1 Polythene water storage tanks shall be as per IS : 12701 this material should be light weight, non-toxic all fittings material shall be H.D.P.E./brass.

1.2 The PVC tank shall be of ISI mark and approved quality and brand like Infra or Sintex or equivalent. Contractor should provide tank of different capacity as per actual requirement at each portion of building.

#### 1) MATERIALS:

1.3 The thickness of PVC materials shall be as per companies' specification. The size of tank shall be decided by engineer in-charge.

2.1 Water tank shall be installed on perfectly plained and smooth surface.

2.2 Outlet pipe shall be 7.5cm high than bottom surface.

2.3 Diameter of overflow pipe shall be bigger than inlet pipe diameter.

2.4 Unions shall be used in inlet and outlet pipe.

2.5 For connection in water tank required vicer and check nut shall be used.

2.6 Fitting shall be done by G.I. /PVC pipe as per instruction of engineer in-charge in each tank. All joints shall be of leak proof.

2.7 Fixing shall be done with suitable material suggested / instructed by EIC.

3.1 The rate includes for all labour, materials, tools and equipment required to complete the work in satisfactory manner.

3.2 The rates shall be on a unit of "Ltr" basis for completed item to the satisfaction of EIC.

#### 2) WORKMANSHIP:

Before commencement of work information shall be given to EIC. Work shall be carried out as per instruction received by EIC

#### 3) .MODE OF MEASUREMENT AND PAYMENT:

Item no- 43 Providing and fixing S.W. Gully trap with C.I. Grating brick masonry chamber and water tight C.I. Cover with frame of 300 mm. X 300 size (inside) with standard weight (I) Square mouth traps (C) 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 150 mm. x 100 mm. size shall conform to M-70.

#### 2.0. 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 330 mm. inside with bricks in CM 1:5 (1 cement : 5 sand) shall be built with a 100 mm. brick work round OH; gully trap from the top of bed concrete up to 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 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 & 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.

Item no- 44 Constructing brick masonry chamber for under ground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35 Kg/cm<sup>2</sup> in cm. 1:5 C.I. Cover with frame (light duty) 455 mm. X 610 mm. Internal dimensions, total weight of cover with frame to be not less than 38 Kgs. weight 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 cement mortar 1:3 finished smooth with a floating coat of neat cement on walls & bed concrete etc. complete. (I) inside 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

**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. 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.I. 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 Cms x 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 C.M. 1:5 and 23 Cms. thick as per relevant specifications of item 6.12(8).

**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 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 meter 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 plaster on the bed concrete.



**2.8. Painting :** After 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 paid separately. However, fixing the connection pipes in the walls of gully chamber 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.

**2.5.** The cover slab shall be constructed as per relevant specifications of 89

**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.

Item no- 45 Constructing brick masonry chamber for under ground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35 Kg/cm<sup>2</sup> in cm. 1:5 C.I. Cover with frame (light duty) 455 mm. X 610 mm. Internal dimensions, total weight of cover with frame to be not less than 38 Kgs. weight 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 cement mortar 1:3 finished smooth with a floating coat of neat cement on walls & bed concrete etc. complete. [II] Inside dimensions 500 mm. x 700 mm. & 450 mm. deep for pipe lines one or two.

**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

**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. 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.I. 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 Cms x 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 C.M. 1:5 and 23 Cms. thick as per relevant specifications of item 6.12(8).

**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 meter 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 plaster on the bed concrete.

**2.8. Painting :** After 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 paid separately. However, fixing the connection pipes in the walls of gully chamber 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.

2.5. The cover slab shall be constructed as per relevant specifications of 89

**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.

Item no- 46 Providing and constructing soak pit of size 2.46mt. outer and 6.0mt. deep including 23cm thick brick masonry for top 0.75mt. height solid masonry in cement mortar 1:6 and remaining honey combed masonry in cement mortar 1:6 and covered with jodhpuri patti C.I. pipe 100mm dia 1.8mt. long etc. comp. as directed including 15mm plaster in C.M. 1:4 over jodhpuri patti.

Item no- 47 Providing and fixing 90 cm high Stainless Steel railing made from anticorrosive 304 grade S.S. pipe of 50 mm dia (16 gauge) as hand rail with S.S. 304 grade baluster of 32 mm dia (16 gauge) as a vertical support fixed in RCC slab / steps of stair at 1.2 Mt. c/c including three horizontal S.S. pipes of 16 mm dia (16 Gauge) at equal distance fixed by 16 mm dia (16 Gauge) S.S. pipe with baluster including accessories as per detailed drawing as directed etc. complete.

All materials shall confirm by engineer in charge.

Item itself describes the workmanship, sizes and method of work.

The rate includes cost of materials, all labors, tools tackles etc. required for satisfactory completion of item. Item shall be supplied at site of work in store as directed.

The payment shall be made on Rmt basis

Item no- 48 Construction of an under ground masonry water tank of size 2.00 m X 2.00 m X 1.50 m = 6000 litre capacity as per the approved drawing & design etc. complete.

**1) MATERIALS:**

1.1 Polythene water storage tanks shall be as per IS : 12701 this material should be light weight, non-toxic all fittings material shall be H.D.P.E./brass.

1.2 The PVC tank shall be of ISI mark and approved quality and brand like Infra or Sintex or equivalent. Contractor should provide tank of different capacity as per actual requirement at each portion of building.

1.3 The thickness of PVC materials shall be as per companies' specification. The size of tank shall be decided by engineer in-charge.

**2) WORKMANSHIP:**

Before commence of work information shall be given to EIC. Work shall be carried out as per instruction received by EIC

2.1 Water tank shall be installed on perfectly plained and smooth surface.

2.2 Outlet pipe shall be 7.5cm high than bottom surface.

2.3 Diameter of overflow pipe shall be bigger than inlet pipe diameter.

2.4 Unions shall be used in inlet and outlet pipe.

2.5 For connection in water tank required vicer and check nut shall be used.

2.6 Fitting shall be done by G.I. /PVC pipe as per instruction of engineer in-charge in each tank. All joints shall be of leak proof.

2.7 Fixing shall be done with suitable material suggested / instructed by EIC.

**3) .MODE OF MEASUREMENT AND PAYMENT:**

3.1 The rate includes for all labour, materials, tools and equipment required to complete the work in satisfactory manner.

3.2 The rates shall be for a unit of "Ltr" basis for completed item to the satisfaction of EIC.

Item no- 49 Providing and fixing pre-cast Rubber Dye/steel Dye interlocking concrete block 60 mm thick with grade of concrete M300 pneumatic compressed /vibrated mechanically and as per approved design Confirming to IS 15658 : 2006 including 35mm Sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC : SP 63-2018 etc. Complete.

## Scope

Interlocking Concrete Block Pavement (ICBP) shall consist of a surface layer of appropriate sized concrete paving blocks paved and compacted over a thin bedding sand layer of specified grading, which is spread over a properly constructed and profiled base course and is bounded by properly installed edge restraints. The joints shall be filled by fine sand of specified grading. The work shall include supplying laying and paving of blocks including all materials, labour and equipment and performing all operations in connection with the laying of ICBP as per these Specifications.

## 2. Materials

2.1. The Concrete Paving Block shall conform to the relevant IS standard.

2.2. Bedding sand : Bedding sand shall conform to the grading given in Table 1500.6.

2.3. Joint filling sand : Joint filling sand shall conform to grading given in Table 1500.6.

### TABLE : GRADINGS FOR BEDDING AND JOINT FILLING SAND

IS Sieve Size (mm) Per cent Passing

For Bedding Sand For Joint Filling Sand.

Sr.No.	IS Sieve Size (mm )	For Bedding Sand	Per cent Passing For Joint Filling Sand
1	10.00	100	100
2	4.75	90 – 100	90 – 100
3	2.36	60 - 95	75 – 100
4	1.18	15 -34	55 -90
5	0.60	25 -60	35 – 59
6	0.30	5 -20	8 – 30
7	0.15	0 -10	0 -10
8	0.075	0 -5	0 -5

## 4.3. Buffer

Buffer of specified quantity of paving blocks (of the same shape, size and thickness) required for normal maintenance of paved area as specified by the Engineer, shall be supplied and stored for replacement as and when needed. Normally this will be 5 per cent of the blocks used in the paved area.

## 4.4. Block Thickness

For rural roads catering to heavy vehicles, the minimum thickness of paving blocks shall be 60 mm for traffic up to 100 vehicles per day, and 80 mm for projected traffic from 100 to 200 vehicles per day.

## 4.5. Dimensions and Tolerances

The dimensions and tolerances of paving blocks shall conform to the Specifications given in Table 1500.7. Aspect ratio is the ratio of length to thickness of blocks. Chamfer is the bevelled edge, provided on the top surface of a block. Plan area is the horizontal area bounded by the vertical faces. Wearing surface area is the horizontal area bounded by the vertical faces, minus the area reduced due to the presence of chamfer.

### TABLE : DIMENSIONS AND TOLERANCES FOR PAVING BLOCKS

S. No.	Dimension	Recommended Values	Tolerance Limit
(1)	Width W To be specified by Manufacturer		±2 mm

(2)	Length L To be specified by Manufacture	±2 mm	
(3)	Thickness T 60 to 80 mm	±3 mm	
[Type here] Ratio L/T Maximum : 4.0		[Type here] ±0.2	Aspect
(4)	Chamfer (Arris) Miximum : 5 mm Maximum : 7 mm ±1 mm	Plan Area Maximum : 0.03 m <sup>2</sup> +0.001 m <sup>2</sup>	
(5)	Wearing Face Area Minimum 75% of Plan Area	-1%	
(6)	Squareness Nil	±2 mm	

### 3. Compressive Strength

3.1. The average 28 days compressive strength of 8 blocks shall be 30 MPa and strength of individual block shall not be less than 26 MPa.

3.2. The 28 days compressive strength of paving blocks tested as per relevant IS specification shall be determined as explained hereinafter.

3.2.1. Compression testing machine of adequate capacity shall be used for testing of blocks. The steel bearing plates shall have a minimum thickness of 25 mm. The surface area of the bearing side of the plate should be such that no edge of the bearing plate is less than 10 mm from the outer edge of the paving block being tested.

3.2.2. In case the testing surface of the paving block departs from a plain surface by more than 0.05 mm, capping using suitable materials shall be adopted for testing as per IS:516.

3.2.3. The blocks shall be stored for 24 ± 4 hours in water maintained at a temperature of (20± 5)°C before testing. The dimensions and plan areas of the block shall be determined. The bearing plates of the testing machine shall be wiped clean. The specimen shall be clamped between the plates in such a way that the axes of the specimen are vertically aligned with those of the bearing plates.

3.2.4. The load shall be applied without shock and increased continuously at a rate of 15± 3 N/mm<sup>2</sup>/minute until no greater load can be sustained by the specimen or delamination occurs. The maximum load applied to the specimen shall be noted..

3.2.5. The apparent compressive strength of individual block shall be calculated by dividing the maximum load (N) by the plan area (mm<sup>2</sup>). The corrected compressive strength shall be calculated by multiplying the apparent compressive strength by the appropriate correction factor from Table 1500.8. The strength shall be expressed to the nearest 0.1 N/mm<sup>2</sup>.

**TABLE 1500.8 : CORRECTION FACTORS FOR THICKNESS AND CHAMFER OF PAVING BLOCK FOR CALCULATION OF COMPRESSIVE STRENGTH**

Paving Block Thickness (mm)	Correction Factor for	
	Plain Block	Chamfered Block
60	1.00	1.06
80	1.12	1.18

3.2.6. Water Absorption: The water absorption being the average of five blocks shall be not more than 6 per cent by mass.

#### 3.2.7. Edge Blocks

The edge blocks shall have equivalent cube compressive strength not less than 30 MPa. The road kerbs provided on the edges of the road also serve the purpose of edge blocks. In case the end kerbs are not provided, 300 mm x 300 mm x 150 mm of M30 grade concrete edge blocks or other suitable size as per drawings or direction of the Engineer shall be provided.

### 7.2. Subgrade

The Subgrade shall conform to Clause 1501.5.1 of these Specifications. The soaked CBR of subgrade soil shall not be less than 4 per cent.

#### 4.8. Sub-base

The sub-base shall be 100 mm thick granular layer conforming to Clause 401 or 100 mm thick WBM Gr.I conforming to Clause 405 of these Specifications. In case the subgrade soil is clayey, the sub-base shall be extended over the full formation width for proper drainage.

#### 4.9. Base Course

A minimum 100 mm thick layer of granular/stabilized base course shall be provided. The base course layer shall be extended beyond the edge restraints. The material shall conform to Clause 402 of these Specifications.

4.10. Bedding Sand . Bedding sand conforming to Table 1500.6 shall be uniformly laid to a compacted thickness of 25 mm for 60 mm thick blocks and 30 mm for 80 mm thick blocks. Bedding sand shall be unloaded in small piles regularly placed over the base course and shall preferably have a moisture content of about 6 per cent which will facilitate its spreading and compaction. Bedding sand shall be screeded in a uniform layer over the base course. The screed can be guided to level by tensioned string lines set above the base course. At the time of screeding, the thickness of sand must allow for the amount by

which it will be subsequently compacted which is normally about 25 per cent more than the compacted thickness. Screeding shall not proceed beyond about 1 m ahead of the planned end of block paving for the day. Sand shall preferably be compacted with a manual, fabricated plate compactor and the level shall be readjusted using the screed.

The surface profile of the screeded bedding sand shall match that required for the completed pavement.

#### 4.11. Paving Pattern

The pattern in which blocks are to be paved shall be decided in advance from the two choices or their derived forms available. These are the herringbone and stretcher patterns

4.11.1. By and large, these patterns are the same as adopted for brick paving. All shapes of blocks are not amenable to the above paving patterns. For paving in trafficked areas, herringbone pattern shall be adopted for ensuring better performance. Paving shall commence and progress from one starting line only.

Wherever possible, paving shall commence adjacent to or against edge restraint.

As a guide to the characteristics of typical vibrating plate compactors, standard compactors have a weight of 90 kg, a plate area of 0.3 m<sup>2</sup> and apply a centrifugal force of 1500 kg. Heavy duty compactors weigh between 300 to 600 kg, have a plate area of about 0.5 to 0.6 m<sup>2</sup> and apply a centrifugal force in the range of 2000-3000 kg. Use of heavy duty compactors is desirable for trafficked pavements.

4.12.1. Trial length : The contractor shall lay a trial length of 30 m and get it inspected and approved by the Engineer before proceeding with the regular paving work. The trial length shall be rectified /relaid if found deficient in any respect. The procedure demonstrated in the laying of trial length shall be followed while executing the main construction work.

4.13. Opening to Traffic The pavement can be opened to traffic as soon as the construction work is completed.

4.14.1. Transverse profile : When measured by a camber template, the transverse profile shall not deviate by more than 10 mm from the design profile.

4.14.2. Longitudinal profile: When measured by a 3 m straight edge, the longitudinal profile shall not deviate by more than 12 mm from the design profile.

#### 4.15. Acceptance Criteria

From each lot of 500 blocks, 5 blocks shall be selected at random for water absorption and compressive strength tests. In case the number of blocks in the lot is less than 500, a minimum 1 per cent of the blocks delivered to site shall be tested for water absorption and strength. The blocks shall be first tested for water absorption and these shall meet the requirement of Clause 1504.5.2.6 of these Specifications. The same five blocks (or minimum 1 per cent) shall be tested for strength and shall conform to the strength as per Clause 1504.5.1 of these Specifications.

The paved surface shall meet the tolerances for lines, levels, and grades etc. as given in Section 1800 of these Specifications.

#### 4.16. Measurements for Payment

The measurement of the paved area shall be in square metres measured from the inner edge of edge restraints on one side of the pavement to the inner edge of the edge restraints on the transverse side of the pavement. The measurement of the edge restraints shall be in number of units or in cubic metres.

#### 4.17. Rate

The contract unit rate shall include the cost of blocks, cost of stacking, Transportation to site and paving including supply and application of bedding sand and joint filling sand. The rate shall include full compensation for labour, tools, plant,

equipment, testing and all incidentals to the work, including all royalties, taxes, storage rents wherever necessary, and all leads and lifts.

Item no- 50 Providing and laying cement concrete 1:2:4 (1 Cement : 2- Coarse sand : 4- graded stone aggregates 20 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth

### 1.0 *Materials*

ਬਿੰਦੂਕ੍ਰਮ ਰੁੱਖਸ਼ਾਸ਼ ਭਾਗਾਂ ਦਾ ੧-੧. ਖੁੱਲ੍ਹਾ ਰੁੱਖਸ਼ਾਸ਼ ਭਾਗਾਂ ਦਾ ੧-੩. ਟਿੱਕੁ ਰੁੱਖਸ਼ਾਸ਼ ਭਾਗਾਂ ਦਾ ੧-੬. ਅਧਿਕ ਰੁੱਖਸ਼ਾਸ਼ ਭਾਗਾਂ ਦਾ ੧-੮. ਅਧਿਕਤਮ ਰੁੱਖਸ਼ਾਸ਼ ੨੦੦ ਗ੍ਰਾਮ ਰੁੱਖਸ਼ਾਸ਼ ਭਾਗਾਂ ਦਾ ੧-੧੨.

### 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-150, 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 bag 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 Kgs. of cement maximum
1	2	3	4
M-100 (1:3:6)	300 Liters	Generally 1:2 for fine aggregate to coarse aggregate by volume 160 but subject to an upper limit of 1:1.1/2 and lower limit	34 Liters
M-150 (1:2:4)	220 Liters		32 Liters
M-200 (1:1.1/2:3)			30 Liters
M-250 (1:1:2)	100 Liters		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 met eased 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 coarse 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 bar 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 maybe 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. meter 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 with shaking ramming or hammering. The proportioning of sand shall be on the basis of its dry volume and in case of damp sand, be made allowances for bulk age shall.

### 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 claim 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 oil 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 watertight 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 of uniform colour. Specified quantity of 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 I.S. 1199-193. 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 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 meter when internal vibrators are used and not exceeding 0.30 meter 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 meters. 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.

**3.5.5.** Curing:

**3.5.6.** Immediately after compaction, concrete weather including rain, running water, shocks, vibration, traffic, rapid temperature charges, frost and drying out process. It shall be covered with wet sacking has Sian 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.

**3.5.7.** Sampling and testing of concrete:

**3.5.8.** Samples from fresh concrete shall be taken as per I.S. 1199-1959 and cubes shall be made, cured and tested at 7 days or 28 days as per requirements in accordance with I.S. 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:

**3.5.9.**

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.		

**3.5.10.** 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.

**3.5.11.** The average of the group of cubes cast for each day shall not be less than the specified cube strength of 150 K/g Cm<sup>2</sup> 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.

### **3.6. Stripping:**

**3.6.1.** 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,

**3.6.2.**

**3.6.3.** 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.

**3.6.4.** 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.

**3.6.5.** 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

**4.1.1.** (a) Ends of dissimilar materials such as joints, beams, posts, girders, girders, purling trusses, corbels and steps etc., up to 500 Sq. Cm. in section.

**4.1.2.** 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.

4.2. The rate shall be for a unit of one cubic meter.

Item no- 51 (i) Half brick masonry in common burnt clay building bricks having crushing strength not less than 35 Kg/Sq.Cm. in Cement mortar 1:4 (1 Cement: 4-coarse sand) in foundation and plinth (B) Conventional

1. In case of ordinary concrete mix not required to be designed by preliminary tests and proportions of cement fine aggr. and coarse aggr. are specified by volume as given in table below for different four grades designated as ordinary M 100 M 150 M 200 and M 250

2. In the designation of a concrete mix letter M refers to the mix and the numbers to the specified 28 days work cube compressive strength of that mix on 150 mm cubes expressed in Kg/ cm

3. The ordinary concrete mix shall generally be specified by volume. For cement which normally comes in bags and is used by weight volume shall be worked out taking 50 Kg. of cement as 0.035 cubic metre in volume while measuring aggregate by volume shaking ramming or hammering shall not be done proportioning of sand be as per its dry volume in case it is damp allowance for bulking shall be made as per IS 2386 (Part III)

4. In proportions required for ordinary concrete containing one 50 Kg bag of cement for different proportions of mix shall be as given in the Table below.

Grade of Concrete	Mix by Volume	Total quantity of dry aggregate by volume per 50 Kg cement to be taken as sum of individual volume of fine & coarse aggregate maximum (1 cubic metre = 100 Litres)	Proportions of fine aggregate to coarse aggregate	Quantity of water per 50 Kg of cement maximum
Ordinary M 200	1:3:6	300	Generally 1:2 for fine aggr. to coarse aggr. by volume but to a upper limit of 1:1.5 and lower limit of 1:3	34
Ordinary M 150	1:2:4	220		32
Ordinary M 200	1:1.5:3	160		30
Ordinary M 250	1:1:2	100		27

5. Following shall be the maximum nominal size of coarse aggr. for the different items of work.

- |      |                                                                                                                               |    |    |
|------|-------------------------------------------------------------------------------------------------------------------------------|----|----|
| i.   | Plain C.C.                                                                                                                    | 60 | mm |
| ii.  | Solid type piers abutments and Wing walls and their pier caps (Coarse aggregate of size up to 40 mm shall be machine crushed) | 40 | mm |
| iii. | C.C. wearing coat M - 150 (Coarse aggr. of size up to 40 mm shall be machine crushed)                                         | 20 | mm |

6. Fine aggregate shall be clean hard coarse sand. It shall be free from the dust and such other substance. The sand shall be got approved by the Engineer in charge.

7. All materials shall be stored as to prevent their deterioration or intrusion of their quality and fitness for the work. Any materials which has deteriorated or has been damaged or is otherwise considered defective by the Engineer in charge shall not be used in the work.

8. Cement shall be stored above the ground level in perfectly dry and watertight sheds and shall be stocked not more than eight bags high. Wherever bulk storage containers are used, their capacity should be sufficient to cater to the requirements at site and should be cleaned at least once every 3 to 4 months. Cement more than 3 to 4 month old shall invariably be tasted to ascertain that it satisfies the acceptability requirements. The aggregate shall be stored in such a way as to prevent admixture or foreign materials. Different sizes of fine or coarse aggr. shall be stored in separate stock piles sufficiently removed from each other to prevent intermixing the materials at edges of the piles.

9. The water for mixing shall be potable water to the satisfaction of the Engineer in charge. The quantity of water shall be just sufficient to produce a dense concrete of required workability for the job.

10. For all work concrete shall be mixed in a mechanical mixer along with other accessories shall be kept in first class working condition and so maintained throughout the Construction. Mixing shall be continued till materials are uniformly distributed and an uniform colour of the entire mass is obtained and each individual particles of the coarse aggre. shows complete coating of mortar constraining its proportionate amount of cement in on case shall the mixing be done for less than 2 minutes after all ingredients have been put in to the mixer.

11. When hand mixing is permitted by the Engineer in charge for small jobs or for certain other reasons it shall be done on a smooth watertight platform shall be so arranged that no foreign materials shall get mixed with concrete nor does the mixing water flow out. Cement in required number of bags shall be placed in a uniform layer on top of the measured quantity of fine and coarse aggre. which shall also be spread in a layer of uniform thickness on the mixing platform Dry, coarse and fine aggre. and cement then shall be mixed thoroughly by turning over to 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.

12. 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 Engineer in charge the first batch concrete from the mixer shall contain only two third of normal quantity of coarse aggregate Mixing plants shall be thoroughly cleaned before changing from one type of cement to another.

13. The method of transported and placing concrete shall be approved by the Engineer in charge concrete shall be so transported and placed that no contamination segregation or loss of its constituent material takes place. all from work and reinforcement contained on it shall be cleaned and made free standing water dust snow or ice immediately before placing of concrete No concrete shall be placed in any part of the structure until approval of the of the Engineer in charge has been obtained.

14. If concreting is not started within 24 hours of the approval being given it shall have to be obtained against from the Engineer in charge. Concreting shall proceed continuously over the area between construction joints. Fresh concrete shall not be placed against concrete shall be compacted in its final for more than 30 minutes unless a proper construction joint is formed. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer unless carried in properly designed agitators operating continuously when this time shall be within 2 hr. of the addition of cement to the mix and within 30 minutes of its discharge from the agitator. Except where otherwise

agreed to by the Engineer in charge concrete shall be disposed in horizontal layer 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.

15. Unless otherwise agreed to by the Engineer in charge concrete shall not be dropped into place from a height exceeding 2 metres. when trucking or chutes are used they shall be kept clean and used in such way as to avoid segregation. When concreting has to be resumed on a surface which has hardened it shall be roughened swept clean thoroughly watered and cleaned with a 13 mm thick layer of mortar composed of cement and sand immediately before placing of new concrete. Where concrete has not fully hardened, all laitance shall be removed by scrubbing before placing of new concrete. where concrete has not fully care being taken to avoid dislodgement of particulars 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.

16. 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 vibrator cannot be used sufficient vibrators in serviceable condition shall be kept at site so that spare equipment is always available in the event of break downs.

17. Immediately after compaction concrete shall be protected against harmful effects of weather including rain running water shocks vibrations due to traffic rapid temperature changes fast drying process it shall be covered with wet sacking hessian or other similar absorbent materials approved by the engineer in charge soon after the initial set. It shall be kept continuously wet for a period of not less than 14 days from the date of placement. Masonry work over the foundation concrete may be started after 48 hours of its laying but the curing of concrete shall be continued for a minimum period of 14 days.

18. Formwork shall include all temporary or permanent forms required for forming the concrete together with all temporary construction required for their support. Forms for concrete shall be constructed of metal or timber suitably lined and be of substantial and rigid construction true to shape and dimensions shown on the drawings. Where metal forms are used all bolts and rivets shall be countersunk and set into ground to provide a smooth plane surface. Where timber is used shall be well seasoned free from knots projection nails splits or other defects that may mark the cement surface of concrete. For exposed concrete faces timber for shuttering shall be wrought on all faces in contact with concrete.

19. Forms shall be made mortar tight and shall be made sufficiently rigid by the use of ties and bracing to prevent any displacement or sagging between supports. They shall be strong enough to withstand all pressure ramming and vibration without deflection from the prescribed lines occurring during and after placing the concrete screw jacks or hardwood wedges where required shall be provided to make up any settlement in the formwork either before or during the placing of concrete. Suitable camber shall be provided in horizontal members of surface specially in long spans to counteract the effects of any deflection. The framework shall be so fixed as to provide for such camber. Forms shall be so constructed as to be removable in sections in the desired sequence without damaging the surface of concrete or disturbing other sections Unless otherwise specified of directed chamfers or fillets of size 25 mm x 25 mm shall be provided at all angles of framework to avoid sharp corners.

20. Work strength tests shall be made in accordance with IS : 516 Each test shall be conducted on ten specimens five of which shall be tested at seven days and the remaining five at 28 days. The

samples of concrete shall be taken on each day to concreting and cubes shall be made at the rate of one for every 5 cubic metre of concrete or as part thereof. However, if concreting done in a day is less than 15 cubic meter the minimum number of cubes can be reduced to 6 with the specific permission of the Engineer-in-charge. Similar works tests shall be carried out whenever the quality and grading of suitable increased as deemed necessary by the Engineer-in-charges when procedure of tests given above reveal a poor quality of concrete and in other special cases.

21. The average strength of the group of cubes cast for each day shall not be less than the specified works cube-strength. 20 percent of the cubes for each day may have values less than the specified strength, providing the lowest value is not less than 85 percent of the specified strength.

22. R.C.C. work shall have exposed concrete surface. Centering design and its erection shall be approved by the Engineer-in-charge. One carpenter with helper will invariably be kept present throughout the period of concreting. Movement of labour and other persons shall be totally prohibited over reinforcement laid in position. For access to different parts suitable 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, kaptchi or metal plates shall not be used for this purpose. Concreting of important structural members shall always be done in the presence and under the supervision of departmental person not below the rank of Asst. Engineer/ Add. Asst. Engineer Overseer or as instructed by the Engineer in charge. After removal of form work checks that concrete produced is of good quality plastering shall not be allowed to the exposed faces of concrete.

23. In reinforced concrete the volume occupied by reinforcement shall not be deducted. The slab shall be measurement as running continuously and the beam as the portion below the slab.

24. All necessary labour materials, equipment etc. for sampling preparing test cubes curing etc. shall be provided by the concretor. Testing of the materials and concrete may be arranged by the Engineer-in-charge in an approved laboratory at the cost of the contractor.

25. The payment will be made on cmt basis of the finished work.

26. The unit rate for concrete shall include of all materials labour tools and plants required for mixing placing in positions vibrating and compacting finishing as per direction of the Engineer in Charge curing and all other incidental expenses for producing concrete of specified strength to complete the structure or its components as shown in the drawings and according to these specifications. The rate shall also include the cost of making fixing and removing of all centering and forms required for the work centering

Item no- 52 Providing 15mm thick cement plaster in single coat on brick /concrete walls for interior plastering upto floor two level and finished even and smooth in. (ii)Cement mortar 1:4 (1 cement:4-sand ) with finishing in floating coat of neat cement slurry

**17.58.(I)** 15 mm. thick cement plaster in single coat on fair side of brick concrete walls for interior plastering upto floor two level and finished even and smooth in (i) C.M. 1:3.

**1.0. Materials:** 1.1. Water M-1. The cement mortar of proportion 1 : 3 shall conform to M-13.

**2.0. Workmanship:**

2.1. Scaffolding : Wooden ballies, bamboos, planks, treaties 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 roughened by wire brushing if it is not hard and by racking 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 surface 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 supporting ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

### **2.3. Applications 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 movement 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 trowelling or overworking the float shall be avoided. All corners, arrises, angles and junctions 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 the size required. 105

2.3.2. Cement plaster shall be used within half an hour after addition of water. Any 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. 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 mattings 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.

Item no- 53 Providing and laying cement concrete flooring 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) laid in one layer and finished with a floating coat of neat cement. (B) 50mm thick.

#### **1.0 Materials**

- **Cement:** Shall conform to IS 269 (Ordinary Portland Cement) or IS 455 (Portland Slag Cement).
- **Coarse Sand:** Shall conform to IS 383 and shall be clean, sharp, and free from silt or organic matter.
- **Graded Stone Aggregate:** 20 mm nominal size, hard, durable, machine-crushed stone as per IS 383.
- **Water:** Shall be clean, fresh, and free from deleterious matter, conforming to IS 456 requirements.

## 2.0 General

- 1.1. The concrete shall be of proportion **1 : 2 : 4** (1 part cement : 2 parts coarse sand : 4 parts graded stone aggregate) by volume.
- 1.2. The mix shall produce a dense, workable concrete suitable for flooring work.
- 1.3. The average compressive strength of 1:2:4 concrete shall correspond approximately to **M-150** grade.
- 1.4. Water-cement ratio shall not exceed **0.55** to maintain adequate workability and strength.
- 1.5. Flooring shall be laid only after completion of masonry and roof work above to avoid damage.

## 3.0 Workmanship

### 3.1 Preparation of Base

- The base concrete or sub-grade shall be thoroughly cleaned, wetted, and brought to a uniform level.
- The surface shall be free from dust, oil, and loose particles before placing concrete.
- If flooring is to be laid over an old surface, the top shall be roughened and coated with neat cement slurry (2 kg/m<sup>2</sup>).

### 3.2 Proportioning and Mixing

- Proportioning shall be done by volume, with 1 bag of cement = 0.0342 m<sup>3</sup>.
- Mixing shall be done in a mechanical mixer for at least **2 minutes** after adding water.
- For hand mixing (if permitted by the Engineer-in-Charge), 10 % extra cement shall be added.

### 3.3 Laying

- Concrete shall be laid in one layer of **50 mm uniform thickness** between the fixed side forms.
- Flooring panels shall generally not exceed **2 m × 2 m** in size, separated by glass or brass strips or dummy grooves.
- The concrete shall be thoroughly compacted using wooden floats or power trowel and struck smooth.

### 3.4 Finishing

- Immediately after laying, the surface shall be finished with a **floating coat of neat cement** slurry (2 kg cement/m<sup>2</sup>).
- The flooring shall be trowelled to obtain a smooth and even finish without excessive laitance.

### 3.5 Curing

- Curing shall commence after initial set and shall continue for a **minimum of 14 days** using wet hessian or ponding.
- The surface shall be protected from rapid drying, rain, or mechanical injury during curing period.

## 4.0 Mode of Measurement & Payment

- 4.1. Flooring shall be measured in **square meters (m<sup>2</sup>)**, the thickness being specified (here 50 mm).
- 4.2. The rate includes the cost of all **materials, labour, tools, mixing, laying, finishing, curing, and all incidental work** to complete the flooring as per specification.
- 4.3. The rate excludes the cost of base concrete or sub-grade (if any).
- 4.4. No deduction shall be made for small openings up to **0.1 m<sup>2</sup>** each.

Item no- 54 Providing and laying in ground 110 mm diameter PVC rain Water pipe 6 Kg./ Sq.cm. necessary fittings connection as per detailed drawing as directed by Engineer - in - charge.

## 1.0 Materials

### 1.1 PVC Pipe:

- Pipes shall be **unplasticized PVC (uPVC)** conforming to **IS:4985 – 2021** (*Specification for Unplasticized PVC Pipes for Potable Water Supply*).
- Pressure class: **6 kg/cm<sup>2</sup> (Class 2)**.
- Nominal diameter: **110 mm (Outer Diameter as per IS Standard)**.
- Pipes shall be free from visible defects such as cracks, air bubbles, or deformation.

### 1.2 Fittings:

- Bends, tees, reducers, end caps, inspection pieces, and couplers shall be of **matching class and size**, confirming to
- **IS:7834 – 1987** (*PVC Fittings for Water Supply*).
- Fittings shall be factory-made and free from sharp edges or distortions.

### 1.3 Jointing Material:

- **Solvent cement** suitable for uPVC pipe, conforming to **IS:14182 – 1994**, shall be used.
- Surfaces to be jointed shall be **clean, dry, and dust-free** before applying solvent.

### 1.4 Bedding and Backfill Material:

- Bedding shall consist of **fine sand or selected soil**, 100 mm thick under the pipe.
- Backfill material shall be **soft soil**, free from stones or debris.

## 2.0 General

- All pipes and fittings shall be from **approved manufacturers**.
- Work shall be executed according to **IS:7634 (Part I & II) – 1975** (*Code of Practice for Installation of PVC Pipe Systems*).
- Proper alignment, slope, and level must be maintained as per drawings for effective drainage.

## 3.0 Workmanship

### 3.1 Excavation:

- Trench width shall be sufficient for jointing and backfilling operations.
- Depth of trench shall be as per design to provide proper slope for rainwater discharge.
- Excavated soil shall be stacked separately for reuse.

### 3.2 Bedding and Laying:

- A **100 mm thick bed of fine sand** shall be prepared in the trench.
- Pipes shall be laid **true to line and gradient**, with socket ends facing upstream.
- Joints shall not rest directly on hard objects or stones.

### 3.3 Jointing:

- Pipe ends shall be cleaned and checked for alignment before jointing.
- **Solvent cement** shall be applied evenly on both surfaces, joined quickly, and held for at least 1 minute.

- The joint shall be allowed to **cure for 24 hours** before testing.

### 3.4 Testing:

- Hydraulic pressure test shall be carried out at **1.5 times the working pressure (i.e., 9 kg/cm<sup>2</sup>)** for 10 minutes.
- No visible leakage or pressure drop shall be allowed.

### 3.5 Backfilling:

- After successful testing, trenches shall be refilled in **layers not exceeding 150 mm**, properly watered and compacted.
- Extra soil shall be disposed of within the site as directed.

## 4.0 Measurement

- The measurement shall be taken in **running meters (Rmt)** of completed pipe work including fittings.
- Lengths of specials (bends, tees, reducers, etc.) shall not be deducted.
- Depth of trench, if payable separately, shall be measured as per schedule.

## 5.0 Rate and Payment

### 5.1 The rate shall include:

- Supply of **110 mm dia, 6 kg/cm<sup>2</sup> uPVC pipe** and all specials/fittings.
- **Excavation, bedding, laying, jointing, and testing** complete.
- **Solvent cement, backfilling, watering, and compaction.**
- **All leads, lifts, labour, and incidental expenses** for satisfactory completion.

### 5.2 Unit of Payment:

- Rate shall be for **one running meter (Rmt)** of pipe laid, jointed, tested, and accepted.

Item no- 55 Providing and laying in ground 150mm diameter PVC rain Water pipe 6 Kg./ Sq.cm. necessary fittings connection as per detailed drawing as directed by Engineer - in - charge.

### 1.5 Materials

#### 1.6 PVC Pipe:

- Pipes shall be **unplasticized PVC (uPVC)** confirming to **IS:4985 – 2021** (*Specification for Unplasticized PVC Pipes for Potable Water Supply*).
- Pressure class: **6 kg/cm<sup>2</sup> (Class 2)**.
- Nominal diameter: **110 mm (Outer Diameter as per IS Standard)**.
- Pipes shall be free from visible defects such as cracks, air bubbles, or deformation.

#### 1.7 Fittings:

- Bends, tees, reducers, end caps, inspection pieces, and couplers shall be of **matching class and size**, confirming to
- **IS:7834 – 1987** (*PVC Fittings for Water Supply*).
- Fittings shall be factory-made and free from sharp edges or distortions.

#### 1.8 Jointing Material:



- **Solvent cement** suitable for uPVC pipe, conforming to **IS:14182 – 1994**, shall be used.
- Surfaces to be jointed shall be **clean, dry, and dust-free** before applying solvent.

### 1.9 Bedding and Backfill Material:

- Bedding shall consist of **fine sand or selected soil**, 100 mm thick under the pipe.
- Backfill material shall be **soft soil**, free from stones or debris.

## 2.0 General

- All pipes and fittings shall be from **approved manufacturers**.
- Work shall be executed according to **IS:7634 (Part I & II) – 1975** (*Code of Practice for Installation of PVC Pipe Systems*).
- Proper alignment, slope, and level must be maintained as per drawings for effective drainage.

### 3.6 Workmanship

#### 3.7 Excavation:

- Trench width shall be sufficient for jointing and backfilling operations.
- Depth of trench shall be as per design to provide proper slope for rainwater discharge.
- Excavated soil shall be stacked separately for reuse.

#### 3.8 Bedding and Laying:

- A **100 mm thick bed of fine sand** shall be prepared in the trench.
- Pipes shall be laid **true to line and gradient**, with socket ends facing upstream.
- Joints shall not rest directly on hard objects or stones.

#### 3.9 Jointing:

- Pipe ends shall be cleaned and checked for alignment before jointing.
- **Solvent cement** shall be applied evenly on both surfaces, joined quickly, and held for at least 1 minute.
- The joint shall be allowed to **cure for 24 hours** before testing.

#### 3.10 Testing:

- Hydraulic pressure test shall be carried out at **1.5 times the working pressure (i.e., 9 kg/cm<sup>2</sup>)** for 10 minutes.
- No visible leakage or pressure drop shall be allowed.

#### 3.11 Backfilling:

- After successful testing, trenches shall be refilled in **layers not exceeding 150 mm**, properly watered and compacted.
- Extra soil shall be disposed of within the site as directed.

## 4.0 Measurement

- The measurement shall be taken in **running meters (Rmt)** of completed pipe work including fittings.
- Lengths of specials (bends, tees, reducers, etc.) shall not be deducted.
- Depth of trench, if payable separately, shall be measured as per schedule.

## 5.3 Rate and Payment

### 5.4 The rate shall include:

- Supply of 110 mm dia, 6 kg/cm<sup>2</sup> uPVC pipe and all specials/fittings.
- Excavation, bedding, laying, jointing, and testing complete.
- Solvent cement, backfilling, watering, and compaction.
- All leads, lifts, labour, and incidental expenses for satisfactory completion.

### 5.5 Unit of Payment:

- Rate shall be for **one running meter (Rmt)** of pipe laid, jointed, tested, and accepted.

Item no- 56 Brickwork 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-fine sand) (B) Conventional

#### 1.0 *Materials*

ਬਿੰਦੂਕ੍ਰਿਤ ਰੁੱਖਸ਼ਾਸ਼ ਭੁੱਖੰਸ਼ੁ ਦੰ ੮੧. ਫੁੱਕੁੰਦ ਰੁੱਖਸ਼ਾਸ਼ ਭੁੱਖੰਸ਼ੁ ਦੰ ੮੩. ਫਿੰਕੁ ਰੁੱਖਸ਼ਾਸ਼ ਭੁੱਖੰਸ਼ੁ ਦੰ ੮੬.  
੭ਸ਼ੁਭਭੁਕ੍ਰਿਤ ਰੁੱਖਸ਼ਾਸ਼ ਭੁੱਖੰਸ਼ੁ ਦੰ ੮੧੫. ਫੁੱਕੁੰਦੁੰ ਸ਼ੁਦੀਸ਼ੁ ਰੁੱਖਸ਼ਾਸ਼ ਭੁੱਖੰਸ਼ੁ ਦੰ ੮੧੧.

#### 2.0 *Workmanship*

##### 2.1. *Proportion:*

2.1.1. The proportion of the cement mortar shall be 1:6 (1 cement: 6 fine sand) by volume.

##### 2.2. *Wetting of bricks:*

2.2.1. 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 up wards. A set of tools comprising of wooden straight edges, man son's spirit level, square half meter 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 meter 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 leveled, 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 engineer's 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***

**3.1.** The measurements of this item shall be taken for the brick masonry fully completed in foundation up to plinth. The limiting dimensions not exceeding those shown on the plinths or as directed shall be final. Battered tapered and curved portions shall be measured net.

**3.2.** No deduction shall be made from the quantity of brick work, nor 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 up to 300 mm. dia hold fasts, and doors and windows 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 meter.

Item no- 57 Providing formwork 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 4M. and removal of the same for in situ reinforced concrete and plain concrete work in. (A) Foundations Footings Bases of Columns etc. 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 constructed as to remain sufficiently rigid during the placing and compacting of the concrete. Adequate arrangements shall be made by the contractor to safeguard 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 expire 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 up to 4.5. m.....7 days.
  - (ii) Spanning over 4.5 mm..... 14 days.
- (d) Removal of props t beams and Arches:
  - (i) Spanning up to 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 up to 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. Mode of Measurements & Payment**

**3.1.** Form work shall be measured as the area in square meters to shuttering in contract 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.

**3.1.** 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.

**3.2.** The rate is for the completed item

**3.3.** The rate shall be for a unit of one sq. meter.

Item no- 58 Supplying of crushed stone aggregate of 25 to 40 mm size as directed with 5 Km. lead

### **1.0 Materials**

#### **1.1 Stone Aggregate:**

- The coarse aggregate shall consist of **hard, durable, crushed stone** obtained from approved quarry sources.
- Stones shall be **angular in shape** and free from dust, clay, organic matter, or other deleterious substances.
- Flaky, elongated, or soft particles shall not exceed **15% by weight**.
- The aggregate shall conform to **IS: 383 – 2016** (*Specification for Coarse and Fine Aggregates for Concrete*).

#### **1.2 Size Range:**

- The supplied material shall be **machine crushed** and screened to obtain sizes **25 mm to 40 mm**.
- The gradation shall meet the following limits:

Sieve Size (mm)	Percentage Passing
40	100
25	35 – 70
20	0 – 15
10	0 – 5

### 1.3 Physical Properties:

Property	Requirement	Test Reference
Aggregate Crushing Value	$\leq 30\%$	IS:2386 (Part 4)
Los Angeles Abrasion Value	$\leq 40\%$	IS:2386 (Part 4)
Water Absorption	$\leq 2\%$	IS:2386 (Part 3)
Specific Gravity	$\geq 2.6$	IS:2386 (Part 3)

### 1.4 Water (if used for washing):

- Water shall be clean, potable, and free from salts or organic impurities.

## 2.0 General

- The contractor shall obtain material only from an **approved quarry** having crushing and screening facilities.
- The material shall be screened to required size before dispatch.
- All **royalty, quarry fees, seigniorage, and taxes** shall be borne by the contractor.

## 3.0 Workmanship

### 3.1 Collection and Loading

- Crushed stone aggregates shall be collected, screened, and loaded into trucks mechanically.
- Aggregates shall be clean and uniformly graded at the time of dispatch.

### 3.2 Transportation

- The material shall be transported to site by **trucks/tippers** within a **lead of 5 km**.
- The truck shall be covered with tarpaulin to avoid loss or contamination during transit.

### 3.3 Unloading and Stacking

- Aggregates shall be unloaded on **dry, level ground**, free from mud or vegetation.
- Stacks shall be **uniform, measurable, and separated by size** (if multiple sizes are used).
- Stacks shall be measured in cubic meters (m<sup>3</sup>) for payment.

## 4.0 Measurement

- Measurement shall be taken in **cubic meters (m<sup>3</sup>)** of stacked quantity at site.
- For volume computation, a **deduction of 7%** shall be made towards voids as per standard PWD practice.

## 5.0 Rate and Payment

### 5.1 The rate shall include:

- Cost of crushed stone aggregate (25–40 mm) from approved quarry,
- Royalties, taxes, quarry fees, seigniorage charges,
- Loading, unloading, stacking, and transportation up to 5 km lead,
- All labour, tools, and incidental works for proper completion.

### 5.2 Mode of Payment:

- Payment shall be made per cubic meter (m<sup>3</sup>) of aggregate supplied, stacked, and accepted by the Engineer-in-Charge.

Item no- 59 Supplying of coarse sand as directed with 5 Km. lead

### 1.0 Materials

#### 1.1 Coarse Sand:

- Coarse sand shall be **natural river sand** or **crushed stone sand** obtained from an approved source.
- The sand shall be **clean, sharp, angular**, and free from clay, loam, mica, salts, and organic impurities.
- It shall conform to **IS: 383 – 2016** (*Specification for Coarse and Fine Aggregates for Concrete*).
- **Fineness Modulus (F.M.)** shall be between **2.5 to 3.0** for coarse sand.

#### 1.2 Quality Requirements:

Property	Requirement
Clay, silt & dust content	Not more than 3% by weight
Organic impurities	Shall not exceed the color limit of standard solution as per IS:2386 (Part 2)
Bulk density	1500–1700 kg/m <sup>3</sup> (approx.)
Grading	Zone I or Zone II (as per IS:383)

#### 1.3 Water (if used for washing):

- Water used for washing or cleaning sand shall be clean, potable, and free from salts or acids.

## 2.0 General

- The contractor shall supply coarse sand **from an approved quarry or river bed source**, ensuring quality and quantity as per direction of Engineer-in-Charge.
- The sand shall be **stacked properly in measurable heaps** at the specified site or godown.
- All **royalty, quarry fees, seigniorage, and taxes** shall be included in the supply rate.

## 3.0 Workmanship

### 3.1 Collection and Loading

- The sand shall be collected from the approved source, screened, and cleaned of all impurities before dispatch.
- Loading shall be done manually or mechanically into trucks or trolleys ensuring no contamination with foreign materials.

### 3.2 Transportation

- Sand shall be transported by **trucks, tractors, or tippers** over a distance not exceeding **5 km lead**, as specified.
- During transport, suitable measures (like tarpaulin cover) shall be taken to avoid loss of material.

### 3.3 Unloading and Stacking

- Sand shall be unloaded at site and **stacked on a dry, level, and well-prepared ground** to prevent contamination.
- Stack dimensions shall be recorded for volume measurement.
- A typical stack shall have **1.25 m height** and side slopes not steeper than **1:2**.

## 4.0 Measurement

- Measurement shall be done in **cubic meters (m<sup>3</sup>)** of stacked quantity at site.
- A deduction of **8% for voids** shall be made from the measured stack volume to arrive at net supply quantity (as per standard PWD practice).

## 5.0 Rate and Payment

5.1 The rate shall include the cost of:

- **Material (Coarse Sand)** with approved quality,
- **Royalties, taxes, quarry fees**, and seigniorage charges,
- **Loading, unloading, and stacking** at site,
- **Transportation with 5 km lead**, and
- **All labour, tools, and incidental works** required for satisfactory completion.

5.2 Payment shall be made per **cubic meter (m<sup>3</sup>)** of sand supplied and accepted by the Engineer-in-Charge.

Item no- 60 Point wiring for Light / Fan/ Bell/ Primary Point with 2-1.5 sq. mm & earth wire of 1.5 sq. mm (green) both are of ISI marked 1.1 kv grade FRLS PVC insulated multi strand copper wires upto max length of 10 mt, in below type of pipe erected with 6A Tissino Type ISI marked flush type switch / bell push and accessories erected on Metal / PVC /Wooden Box covered with 3 mm thick PC (Poly carbonate) /Acrylic/Laminated sheet. with necessary Lamp holder/ceiling rose / H.D.Connector as directed.(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete

Item no- 61 Providing & erecting Approved make Ceiling Fan with double ball bearing ISI mark with Condenser 230 volt A.C.50 Hz 1200 mm sweep complete having 3 blades aluminium body and blade sets having ornamental design shanks , canopy erected with earthing.

Item no- 62 Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sinks shall be made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with company mark/name 160V to 270V, Power Factor more than 0.95, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy > 85 lumens/watt ,LED LED driver efficiency > 85 % ( fitting required LM-79 & LM-80 Certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer in charge may select any wattage capacity between the

ranges shown.) (A) Tube Light with integral driver. (iii) 18-20 Watts, Surge-2KV, IP-20, conventional 4 feet

Item no- 65 Providing and erecting Pipe type earthing with 40 mm dia 2.5 mtr long 'B' grade G.I. pipe with necessary coupling buch buried in specially prepared earth pit & G.I. earth wire of 8 SWG erected & connected as directed (For panel)

Item no- 66 Providing & erecting open well horizontal mono block pump set with cast iron body, complete for three phase submersible motor having SECTION 9-4 [A] For 1.5 HP 3 phase open well horizontal mono block pump set suitable for 190 LPM @ 20 mtr head suitable for 40 mm dia delivery pipe Catt-II

Item no- 67 Providing and fixing 600 mm x 450 mm bevelled edge mirror of superior glass mounted on 6 mm thick plywood sheet or PVC framing and fixed to wooden plugs with C.P brass screw and washers.

Item no- 68 Providing and fixing C.P. brass towel rail complet with C.P. brass brakets fixed to wooden plugs with cpbrass screws ( B ) 600 mm X 20mm size

Item no- 69 Sheesham wood study Table and Chair. Table dimension 34 inches length , 18 inches width and 30 inches height. Primary material solid sheesham woodand secondary material 15mm solid MDF color teak finish style.

Item no- 70 2 Seater School Benches and Desks (small) for childrens

Item no- 71 Furniture for Cup board

Item no- 72 Premium quality Kids Play school indoor setup (1) Amazon basic junior BPA free 4 to score Giant premium plastic games set.

Item no- 73 Premium quality Kids Play school indoor setup (2) Jazz Drum set.

Item no- 74 Premium quality Kids Play school indoor setup (3) Play rubber tiles.

Item no- 75 Premium quality Kids Play school indoor setup (4) Clapjoy slingo fastest finger first board.

Item no- 76 Premium quality Kids Play school indoor setup (5) OK play see saw yellow/ green.

Item no- 77 Premium quality Kids Play school indoor setup (6) OK play Rocker medium for kids, boat ride on toy Item no- 78 Premium quality Kids Play school indoor setup (7) Table tennis trainer

Item no- 79 Premium quality Kids Play school indoor setup (8) table tennis press button

Item no- 80 Premium quality Kids Play school indoor setup (9) Dawnwake Baby play

Item no- 81 3D Wall painting (two coats)oainting tech that creates the illusion of depth and dimention on a flate surface wall art that can be use public place3D model physical body using collection of point in 3D space connected by various geometric entities curve surface with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even draw a pictures and writing a slogan releated of diffrent painting and other theme based like harritage painting,cleaness,plastic free city,save water, save daughter,go green,clean city, etc.shade including



thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth etc.all material,scaffolding, additional coats if required and labour or painter as directed by Engineer in Charge . Method 1. Removing Dust from wall with use of wire brush and sand paper . 2.Prepare surface with appying exterior puty , cement slurry, or plastering which one required for even surface. 3. Appying Base coat of primmer 4. apply final even coat of colour 5. Draw line picture 6. pre detaling for painting 7. final detailing of 3D painting 8. applying lacquer protection coat on the whole painting area (make :-Asian Paints, Burger, Nerolac. Equivalent brand as approved by the authority. )

## 1.0 Materials

- **Water:** Shall conform to M-1.
- **Cement-based Putty:** White cement-based wall putty of approved brand such as *Birla White, JK, or equivalent*, conforming to IS 1477 (Part 1 & 2).
- **Primer:** Interior-grade acrylic primer conforming to IS 109 and suitable for plastic emulsion finish.
- **Paint:** Plastic Emulsion Paint of approved brand (e.g. *Asian Paints, Nerolac, Berger, Dulux, or equivalent standard quality*) conforming to IS 5411 (Part 1) for interior use.
- **Shade:** As approved by the Engineer-in-Charge.

## 2.0 Workmanship

### 2.1 Surface Preparation:

- The surface shall be clean, dry, and free from dust, grease, efflorescence, and loose particles.
- Old paint or mortar droppings shall be removed completely.
- Surface shall be sandpapered smooth and dusted off before applying putty.

### 2.2 Application of Putty and Primer:

- One or more coats of white cement-based putty shall be applied evenly to fill minor undulations and hairline cracks.
- After drying, the surface shall be rubbed smooth with fine sandpaper.
- One coat of acrylic primer shall then be applied uniformly over the entire surface and allowed to dry completely as per manufacturer's recommendation.

### 2.3 Painting:

- Three coats of approved plastic emulsion paint shall be applied by brush, roller, or spray, maintaining uniform shade and finish.
- Each coat shall be applied only after the previous coat has dried completely.
- The final surface shall have a smooth, even, and pleasing appearance free from brush marks, patches, or streaks.

### 2.4 Protection and Cleaning:

- Surfaces such as floors, doors, windows, and fittings shall be properly covered during painting.
- After completion, paint stains on floors or fittings shall be cleaned using suitable solvents.

## 3.0 Mode of Measurement & Payment

- The work shall be measured in **square meters** of wall surface actually painted.
- Deductions shall be made for openings exceeding 0.5 m².
- No extra payment shall be made for scaffolding, curing, or protection of adjacent surfaces.
- The rate shall include cost of all materials, labour, primer, putty, paint, and surface preparation complete as directed by the Engineer-in-Charge.

Item no-82 2D Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even draw a pictures and writing a slogan related

of SWATCHHTA SURVEKSHAN Campaign and other theme based like a harritage,cleanness,plastic free city,save water, save daughter,go green,clean city,City importance etc.shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth etc.all material,scaffolding, additional coats if required and labour or painter as directed by Engineer in Charge . Method 1. Removing Dust from wall with use of wire brush and sand paper . 2.Prepare surface with appying exterior puty , cement slurry, or plastering which one required for even surface. 3. Appying Base coat of primmer 4. apply final even coat of colour 5. Draw line picture 6. pre detaling for painting 7. final detailing of 2D painting 8. applying lacquer protection coat on the whole painting area (make :- Asian Paints, Burger, Nerolac. Equivalent brand as approved by the authority. )

### 1.0 Materials

- **Water:** Shall conform to M-1.
- **Cement-based Putty:** White cement-based wall putty of approved brand such as *Birla White, JK, or equivalent*, conforming to IS 1477 (Part 1 & 2).
- **Primer:** Interior-grade acrylic primer conforming to IS 109 and suitable for plastic emulsion finish.
- **Paint:** Plastic Emulsion Paint of approved brand (e.g. *Asian Paints, Nerolac, Berger, Dulux, or equivalent standard quality*) conforming to IS 5411 (Part 1) for interior use.
- **Shade:** As approved by the Engineer-in-Charge.

## 2.5 Workmanship

### 2.6 Surface Preparation:

- The surface shall be clean, dry, and free from dust, grease, efflorescence, and loose particles.
- Old paint or mortar droppings shall be removed completely.
- Surface shall be sandpapered smooth and dusted off before applying putty.

### 2.7 Application of Putty and Primer:

- One or more coats of white cement-based putty shall be applied evenly to fill minor undulations and hairline cracks.
- After drying, the surface shall be rubbed smooth with fine sandpaper.
- One coat of acrylic primer shall then be applied uniformly over the entire surface and allowed to dry completely as per manufacturer's recommendation.

### 2.8 Painting:

- Three coats of approved plastic emulsion paint shall be applied by brush, roller, or spray, maintaining uniform shade and finish.
- Each coat shall be applied only after the previous coat has dried completely.
- The final surface shall have a smooth, even, and pleasing appearance free from brush marks, patches, or streaks.

### 2.9 Protection and Cleaning:

- Surfaces such as floors, doors, windows, and fittings shall be properly covered during painting.
- After completion, paint stains on floors or fittings shall be cleaned using suitable solvents.

## 3.0 Mode of Measurement & Payment

- The work shall be measured in **square meters** of wall surface actually painted.
- Deductions shall be made for openings exceeding 0.5 m<sup>2</sup>.
- No extra payment shall be made for scaffolding, curing, or protection of adjacent surfaces.
- The rate shall include cost of all materials, labour, primer, putty, paint, and surface preparation complete as directed by the Engineer-in-Charge.

**Item No. 60 to 82 is Specification in electrical Book Attached**

Name of Work :- Const. Of Soyala-1 Anganwadi Building at Sanand Ta. Sanand  
Dist. Ahmedabad Package No. AHD/Anganwadi/24 (2026-2027) (Soyala-1) Total-1

## SCHEDULE FOR TESTING OF MATERIALS

For ensuring quality control and workmanship, Various tests prescribed below for materials shall be taken at periodical intervals as stipulated below.

The materials shall be got tested at Government recognised Laboratory, (R & B) of field Laboratory of GERI (R & B) for which 1 % of the estimated amount pur to Tender shall be recovered from the contractor from the R.A. bills and final bills at the testing charges shall be paid to the GERI by the Government However if the charges increase over 1 % no excess recovery shall be made from the contractor as per resolution of B & C Department dated 10<sup>th</sup> May 1985 vide TNC/1085 (4)s.

Item No. as per schedule B	Brief Description of Materials to be tested	Qty. of Materials	Prescription of test which shall be carried out	Frequency @ which test shall be carried out		Total No. of Test to be taken
	45 to 90 mm		Gradation Test	1 to 100 Cmt – 1 Test		
	45 to 63 mm			100 to 500 cmt – 3 Test		
	25 to 40 mm metal		Impact value	500 to 1500 cmt – 5 Test		
	10 to 20 mm kapchi		Flakiness Index	1500 to 5000 cmt – 7 Test		
	6 mm size grit					
	10 to 12 mm kapchi					
	6 to 10 mm grit					
	19.20 to 26.5 mm					
	13.20 to 19.20 mm					
	4.75 to 13.20 mm					
	2.36 to 4.75 mm					
	5.60 to 11.20 mm					
	2.80 to 5.60					
	Quarry Spall					
	40 mm nominal sie					
	20 mm MCBT					
2	Sand		Stripping Value	-As above-		
3	Murum		P. I. Value	One test per / 50 Cmt		
4	Sand		Silt Content	One test per work		
	Stone dust		Gradation	One test per 200 Cmt		
5	Asphalt		1 Penetration Test as per I.S. 1203	No. of Tankar	Test	
	(ii) Emulsion			1 to 10	1	
				11 to 20	2	
				21 to 50	3	
				50 to 100	4	
				Remaining every 50 tankar		
				1		
			2. Ductility Test	As per I.S. 1208		
			3. Specification Gravity Test	As per I.S. 1202		
			4. Softening point Test	As per I.S. 1204		
			5. Viscosity Test	As per I.S. 1206		

6	Tack coat		Binder temperature for application	Irregular close in intervals Two tests per day	
			Rate of spread of binder grading		
7	Carpet & seal coat mix		temperature of binder in boiler, aggregates in the dryer and mix at the time of laying and rolling (Binde content vide 45 IMD 2172)	One Test on individual contitunents and mixed aggregates from the dryer for each 100 tonnes on mix subject to minimum of two tests per plant per day.	
				One Test for each 100 tons of mix subjects to mini. of Two per day plnat	
			Rate of spreaded mix materials	Reguler control through checjs on layer thickness.	
8	Bricks		Water absorption	1 test per 50000 Bricks	
			Efflorence		
			Size		
			Compressive Strength		
9	Cement		Consistency	Up to 50 T	1 test
			Setting time	100 T	2 tests(As per
			Compressive stemgth	200 T	3 tests GERI
			Fineness	300 T	4 tests Manual
			Chemical analysis	500 T	5 Tests 2002)
			Soundess	800 T	6 tests
				1300 T	7 tests
				and 8 tests for longer consingment	
10	Steel T.M.T. Bar		Tensile Strength	1 Test/40tonnes/per category	
	M.S. Bar		Yield Stress		
			Elongation		
			Size		
11	C C cube 1.1.5.3		Compressive Strength	Only C.C. M.P	No. of test
	M-100		(I.S. 516 – 1959)	1 to 5	1 No
	M-150			6 to 15	2 No
	M-200			16 to 20	3 No
	M-250			31 to 50	4 No
	C.C. 1:3:6			51 & above	4 + 1
				(For each additional 50 or part thereof)	

The number of test will be as per Manual of Quantity Control of latest Govt. G.R./ Circulars will be final .

The Contractor shall have to pay 1 % of the estimate cost put to tenders all testing of materials & same shall be deducated from their bills for the works. The testing of various materials shall be carried out in DERI and result received shall be binding to all i.e. the contractor and Govt.

Testing charges of GERI shall be born by Govt. No refund be made nor extra charges over 1 % shall be recoverable from the ccontractor.s

Deputy Executive Engineer  
R & B Panchayat Sub Division  
Sanand

Executive Engineer  
R & B Panchayat Divisions  
Ahmedabad

