

**REQUEST FOR PROPOSAL (RFP) FOR SUPPLY OF STORE AND MATERAILS FOR
CONSTRUCTION OF CLASS ROOM AT APS MATHURA, UP**

1. APS, Mathura invites offers in two-bid system from established vendors for supply of stores and materials for construction of class room at APS Mathura (UP). For complete details and format of RFP, please log on to website of APS, Mathura www.apsmathuracantt.com.
2. Date of commencement of issue of RFP : 23.01.2020.
3. Last date of submission of RFP : 04.02.2020.
4. Opening of Bid : 04.02.2020.
5. Earnest Money Deposit (Bid Security) : Rs 25000/- (Rupees Twenty five Thousand Only)Refundable. In addition to above , a DD of Rs. 500/- which is non refundable also to be sent
6. All conditions and parameters will be evaluated with reference to the firms submitting tenders. The school reserves the right to reject any / all applications without assigning any reason whatsoever. No brokers / intermediaries shall be entertained.
7. For further enquiry please contact to 0565-2401742

Principal
APS, Mathura Cantt

REQUEST FOR PROPOSAL (RFP) FOR SUPPLY OF STORE AND MATERAILS FOR CONSTRUCTION OF CLASS ROOM AT APS MATHURA, UP

1. **Scope of Work.** APS, Mathura (henceforth referred as School) intends for supply of store and materials for construction of class room at APS, Mathura (UP).

Location	Number of Shelter
APS, Mathura Cantt	02 Nos.

2. **Terms of Execution of Work and Liquidated Damages.** The supply of materials is to be completed in a period of 30 days commencing from the 5th day of acceptance of work order issued by the school or within the stipulated period specified in the work order for the schedule of installation. Any delay in completion of the work over the stipulated period will attract a penalty of 0.5 % of the contract value per week subject to a maximum of 10 % of contract value. School reserves the right to recover these amounts by any mode. LD shall be calculated per week basis. Part of week will be treated as a week for this purpose.

3. **Bid Sytem.** The tendering process shall follow a single bid system viz, Financial Bid (Annx III).The sealed envelopes alongwith Drafts/Pay order of EMD of Rs 25000/- should be enclosed in a second separate sealed cover prominently super subscribed as :
“Tender for supply of store and materials for construction of class room at APS, Mathura (Mathura Cantt)”

4. **EMD.** EMD of Rs 25000/- (re-fundable) in the form of demand draft / pay order issued in favour of Army Public School, Mathura Cantt, payable at HDFC Bank, Mathura. The EMD will be forfeited if the vendor refuses to accept the order or fails to carry out the obligations therein. No interest will be payable on refund of EMD. EMD of successful vendor shall be released only after successful completion of supply.

5. **Date / Time and Address of Submission.** The tender documents should be submitted in original, duly signed and stamped and should be submitted in the tender box located outside the office of the Principal, APS Mathura, RATC Lines, Mathura Cantt. Tenders should be received not later than 1500 h on **04.02.2020**.

6. **Financial Bid** The financial bid should be complete in all respects and contain all the information asked in the document. It should confirm that all required rates have been quoted in the financial bid. The bid should comprise of the following:-

- (a) Covering letter on the prescribed format as at Annx I.
- (b) Draft DD of Rs 25000/- as EMD favoring Army Public School, Mathura Cantt and payable at HDFC Bank,Mathura.
- (c) Suppliers profile as Annx II.
- (d) Financial bid complete with all rows and columns filled as Annx III.
- (e) Reference details as Annx IV.
- (f) Total cost of Supply of stores and materials for constr of class rooms at APS Mathura as Annx V **along with Drawings attached** (Drawing Sheet No 1/1 TO 1/7)
- (g) Documents (Product Brochures, Leaflets, Manual etc neatly stapled)

7. **Evaluation.** The evaluation will be processed based on the documents received from the vendors .
8. **Bid Details.** This bid (Annx III) should contain relevant price information and the rates should be quoted in INR only. The Bid should comprise the commercial version of Bill of Material as per Annx III and must contain all the Price information. The offer from the supplier should be strictly as per specifications given at Annx III and the School shall reject any offer with multiple options.
9. **Other Terms and conditions**
- (a) The school shall shortlist vendor(s) who satisfy the technical and other requirements laid down in the document. Short listed vendor(s) shall be notified telephonically / e-mail / post and may send auth. representatives to be present at the time of opening of the bid.
 - (b) Corrections / alterations to the tender document must be authenticated failing which offer will be rejected.
 - (c) Commercial offer will be on fixed basis. No upward revision in the price will be considered on account of subsequent increase in taxes etc. However, any subsequent decrease shall be passed on to the School.
 - (d) Price finalized shall remain valid for 03 months from date of finalization of deal.
 - (e) The item rates should include full, final and entire supply of stores as described in the contract. Vendor must quote rate for all items. School shall be bound to accept the lowest tender and reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.
 - (f) Tenders received late shall be rejected.
 - (g) Each page of the tender shall be signed and stamped by the vendor. Any page not signed will be rejected.
 - (h) The offer document should indicate the warranty clause as referred in Annx III.

Principal
APS, Mathura

(Letter to the School on Supplier's Letterhead)

To,
The Principal,
APS, Mathura,
RATC Lines,
Mathura Cantt
UP

Sir / Madam,

**Ref : Your RFP for SUPPLY OF STORE AND MATERAILS for construction of class room at
APS, Mathura (UP)**

With ref to the above RFP, having examined and understood the instructions, terms and conditions forming part of the RFP, we hereby enclose our offer for supply of stores and material detailed in above RFP.

We confirm that we have not been disqualified by any PSU, Govt Organisation for supply of store and materials for construction of class room at APS Mathura (Mathura Cantt).

We further confirm that the offer is in conformity with the terms and conditions as mentioned in the RFP. We also confirm that the offer shall remain valid for a period of 90 days (3 months) from the date of opening of the bid and also that the price finalized will remain valid for a period of 90 days (3 months) from the date of such finalization.

We understand that the School is not bound to accept the offer either in part or full and that the School has the right to reject the offer in full or in part without assigning any reason whatsoever. We enclose DD favoring APS Mathura Cantt, payable at HDFC Bank, Near BSA College, Mathura as per the following details:-

Details	For EMD
DD No	
DD Date	
Name of Issuing Bank	

Your's Faithfully,

(Authorised Signatory)
Name & Designation, Seal of Firm)

Date :

SUPPLIER's PROFILE

1. Name of the Org/Company and Address
2. Year of establishment
3. Whether registered with Registrar of Companies / Firms. If so, mention number date and enclose copy of registration certificate
4. Name of Director / partner / proprietor
5. Name and address of Bankers
6. Turnover of the company (2017-18, 2018-19)
7. Whether registered for GST? Mention GST no.
8. Whether registered for IT? Mention PAN no.
9. Is the company a dealer / distributor?
10. Since how long has the company been dealing in supply of **Prefab (PUF) shelters** and building construction stores
11. If you have provided similar services in other govt offices/PSU, please give details
12. Furnish names of important organizations where you have **supplied Prefab PUF Shelters** in last three years.
13. **Certificate.** Certified that the above information is true. We have no objections to enquiries being made about our credentials.

Place :

Signature

Date :

Name and designation seal of firm / company

**TECHNICAL SPECIFICATIONS: SUPPLY OF STORE AND MATERAILS FOR
CONSTRUCTION OF CLASS ROOM AT APS MATHURA, UP**

1. **Design Criteria.**

- | | | | |
|-----|---------------------------------|---|--|
| (a) | Seismic Co-efficient | - | As per seismic Zone IV. |
| (b) | Wind load | - | Equivalent to wind speed of 55 meters per sec as per IS-875. |
| (c) | Roof Slope | - | 1:4 |
| (d) | External temperature | - | 0 ⁰ C to 55 ⁰ C. |
| (e) | Termite proofing | - | Termite proof. |
| (f) | Fire resistant | - | Fire retardant, self extinguishing quality foam. |
| (g) | Ease of construction | - | Modular in design. |
| (h) | Thermal conductivity/Insulation | - | Not more than 0.022+10% |
| | | | K Cal/h/mc |
| (j) | U value of external walls | - | 0.5 ± 10% W/m ² k |

2. **Component Description.**

- | | | | |
|-----|-----------------------|---|--|
| (a) | Outer wall panels | - | Insulated. |
| (b) | False Ceiling Panels | - | 7-8 mm thick Gypsum board PVC coated. |
| (c) | Load bearing/strength | - | To be based on rectangular hollow section columns and trusses and individual column foundations. |

Earth Work

3. **Excavation.** Excavation in foundation shall be carried out in any type of soil as per the foundation plan of drawings. The earth so obtained from the excn should be kept at least one meter or one third the depth of foundation (whichever is more) from the clear edge of the excavation.
4. **Returning and filling in.** All returning and filling in should be done in layers not exceeding 25 cm each layers including well ramming and watering complete.

5. **Foundation.** Foundation will be provided using brick masonry upto Plinth Level over a brick masonry step foundation in cement mortar 1:6 over PCC 1:4:8 and stone soling as shown in drawings. 15mm thick cement plaster in cement mortar 1:4 will be provided on exposed brick masonry above ground level. Plinth height shall be 450mm from GL and shall be cladded with Glazed ceramic tiles 300 x 200 x 7mm thick in CM 1:4 (Colour of Glazed Tile Shall be uniform for all shelters).

6. **Hard Core.** Hard core shall be of hard broken stone boulders and shall be broken to gauge 63 to 40 mm. The thickness of hard-core shown on drawings/specified herein after refers to the thickness after consolidation. The consolidation shall be done by well ramming as specified in SSR Part I.

Cement Concrete Work

7. The Cement Concrete Work should be as specified and as per Drg :-

- | | | |
|-----|----------------------------|--|
| (a) | Foundation | : Fdn bed shall be in PCC 1:4:8 Type D-2, if indicated on drgs. |
| (b) | DPC | : DPC 1:2:4 Type B-1 using Water proofing compound as per manufacturer instructions. |
| (c) | Bed block | : PCC 1:2:4 Type B-1 |
| (d) | Back fill in steel Chowkat | : PCC 1:3:6 Type C-1 |
| (e) | Plinth protection | : PCC 1:3:6 Type C-2 |

8. For all concrete work IS – 456 should be referred. The concrete (PCC/ RCC) should be mechanically mixed and properly compacted by mechanical means such as Rammer, Surface Vibrator, Needle vibrator as per site requirement. The water cement ratio should be maintained as per IS.

Cement

9. Cement required for the work under the supply shall be procured, supplied and incorporated in the works by the supplier under his own arrangement. Cement shall be of tested quality and shall comply with the requirements mentioned in the relevant IS specifications as amended and particular specifications given herein after. Type of cement for the subject work shall be Portland Pozzolana Cement (PPC) 43 Grade conforming to IS -1489 (Part-I) 1991 with amdt No 1 to 3 packed on HDPE Bag of 50 Kg each conforming to IS-11652/2000 of following Makes or equivalent :-

- (a) Ambuja Cement
- (b) Birla Cement
- (c) ACC Cement
- (d) Ultratech
- (e) Shree Ultra

10. **Source of Procurement.** Cement shall be procured by the Supplier from the main producers or Authorized dealers.

11. The supplier shall furnish the particulars of the manufacturer/supplier of cement along with the date of manufacturer for every lot of cement separately. The cement so brought shall be fresh and in no case older than 60 days from the date of manufacture. The document in support of the purchases of cement shall be produced for verification by the supplier. Before placing the order for supply of cement by the supplier, he shall obtain written approval from the CO regarding name of manufacturer, quantity of cement etc. Cement shall be procured for minimum requirement of one month and not exceeding the requirement of the same for more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirement of Indian Standard Specification and each bag of cement shall bear relevant ISI mark. The content of cement shall be checked at random to verify the actual weight of cement per bag and record of consignments must be maintained. However, the content of cement per bag shall be 50 Kg only. Subject to tolerance given in clause 9.2.1.1 and Annexure "B" of IS – 8112.

TESTING OF CEMENT:

12. The supplier shall submit the manufacturer's test certificate in original along with test sheets giving the result of each physical test as applicable in accordance with relevant IS provision and the chemical composition of cement or authenticated copy thereof duly signed by the manufacturer with each consignment, as per the following IS provision :-

- (a) Method of sampling hydraulic cement as per IS – 3535: 1986.
- (b) Method of physical test for hydraulic cements as per IS – 4031.
- (c) Method of chemical analysis of hydraulic cement as per IS – 4032:1985.

Note. The manufacture test certificate and test sheet shall be furnished with each batch of cement.

Sand

13. Fine Sand shall be of approved quality, conforming to IS – 383. The fine sand for all reinforced and plain cement concrete work shall be natural sand / crushed stone sand or combination thereof. Grading/proportioning of sand shall be within limits of IS – 456: 2000, within the limits of Grading Zone – II & III. Unless otherwise indicated sand for plastering and pointing shall conform to IS – 1542. Use of sea/desert sand is prohibited. The sand shall be obtained from approved sources. The sand shall be hard, dense, strong, durable, clear and free from veins, adherent coatings, disintegrated pieces, alkali, vegetable matters and other deleterious substances.

Aggregate

14. Aggregate shall comply with the requirement of IS 383. As far as possible preference shall be given to natural aggregates. Aggregate to be used in all cement concrete works shall be of crushed / broken trap stone and shall be obtained from any of the approved quarries as approved by CO. Grading / proportioning of aggregate shall be within limits of IS – 456. The nominal maximum size of coarse aggregate should 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 fill the corners of the form. For most work, 20 mm aggregate is suitable. Where there is no restriction to the flow of concrete into sections, 40 mm or larger size may be permitted. In concrete elements with thin sections, closely spaced reinforcement or small cover, consideration should be given to the use of 10 mm nominal maximum size.

Water

15. Water shall comply with the requirement of clause 4.9 of MES Schedule Part-I and as per IS 456-2000.

Steel

16. Steel for concrete reinforcement.

- 550.
- (a) TMT Steel Bars shall conform to IS – 1786 & grade Fe – 415, Fe– 500, Fe – 550.
 - (b) Mild Steel Grade I bars shall conform to IS – 432
 - (c) Corrosion Resistant (CR) Steel.
 - (d) The CR steel wherever specified to be used in RCC works shall conform to the following requirements.
 - (e) The CR steel shall be manufactured by SAIL / TISCO /RINL using TMT process and shall conform to the grade Fe – 415. The Yield stress shall be minimum 415 N/Sq.mm. The Tensile strength shall be minimum 485 N/Sq.mm and Elongation shall be minimum 14.5 percent.
 - (f) CR steel shall have CRE = 0.75% minimum.
 - (g) In case steel of grade Fe 415 is not available, then supplier may at his option provide Fe 500 or Fe 550 at no extra cost.
 - (h) Structural Steel.
 - (i) Structural steel standard quality shall conform to IS – 226 and grade Fe – 410 – S.

(ii) Structural steel ordinary quality shall conform to IS – 1977 and Grade Fe – 410 – 0. This type of steel shall be used for structures not subjected to dynamic loading. This type of steel will not be used where welding is used in fabrication and in the areas falling in earthquake zones where severe damage is expected and design of structure is based on plastic theory.

(iii) Structural steel ordinary quality shall be used for frames of doors and windows, guard bars, grills and like and shall conform to IS – 1977 and Grade Fe – 310 – 0.

(j) Hard drawn steel wire fabric for concrete reinforcement: Fabric reinforcement shall conform to IS – 1566.

(k) Pre painted Profiled Galvanized Steel Sheets (Plain or Corrugated). Pre coated Profiled Galvanized steel sheet (GI based) , 0.5mm thick conforming to AFTM-A653/ZIF 3312/IF227/AF1397 make TATA/JINDAL/ASIAN ISI marked or equivalent

17. **Source of Steel.** Steel shall be procured by the Supplier from the main producers or Secondary producer. It should be ensured that NO Recycled steel is used. Suggested manufacturers are:-

- (a) SAIL.
- (b) Rashtriyaspat Nigam Ltd.
- (c) TISCO.
- (d) Jindal Steels.
- (e) SRMB Udyog Ltd.
- (f) ESSAR Steels.

18. **Test Certificate for Steel.** The supplier shall produce manufacturer's test certificates in original along with the test sheet giving the result of each mechanical test as applicable and the chemical composition of the steel supplied as specified in relevant I.S codes, duly signed by the manufacturer or their authorized Conversion Agents with each consignment.

19. **Structural Members.**

(a) **Column, Trusses and Purlins.** The roof shall be laid over a frame work of trusses, purlins and columns fixed using suitable fasteners with washers to make it leak proof. The truss are provided at a distance of as shown on drg (Calculated centre to centre fabricator to fabricate the purlins as per the tolerance for thickness of truss members) and shall be supported on columns made using Rectangular Hollow Steel section. The purlins shall be made using Rectangular Hollow Steel section conforming to IS : 4923 : 1997 amdt 1&2, provided on the trusses at a maximum pitch of 1m or less and are fixed and flushed at the top level of trusses with the help of MS end plates . Foundation bolts shall be fixed in PCC 1:2:4 block of reqd size.

- (b) **Verandah Column.** Verandah column shall be of rectangular hollow steel sections, fixed and shall be of required height to maintain ceiling height of the shelter. Each column shall have base plate of reqdsizewith pre drilled four holes for fixing foundation bolts with nuts and top sole plate with predrilled holes of appropriate sizes for fixing with truss.
- (c) **Principal rafter.** Principal rafter of specified span made of rectangular hollow steel section conforming to IS: 4923: 1997 alongwith base plate with suitable angle for fixing the rafter on the column.
- (d) **Base Plate and Foundation Bolts.**
- (i) **Base Plate.** Base plate of size as specified with pre drilled four holes forFixing nut/bolts at top and foundation bolts.
- (ii) **Foundation Bolts.** Foundation bolts of specified size heavy duty black bolts with hexagon head and nuts with GI washer with each main column, and each verandah column with each truss.

Brick Work

20. All brick work should be with cement mortar as specified. The ratio of cement with sand will be as under :-

- | | | |
|-----|---|---------------------|
| (a) | Sub structure and Super structure of Bldg | : Cement Mortar 1:6 |
| (b) | Septic Tank, Soak well and Manhole | : Cement Mortar 1:4 |
| (c) | All Drain Wk | : Cement Mortar 1:4 |
| (d) | All water retaining structure | : Cement Mortar 1:4 |
| (e) | All half brick wall | : Cement Mortar 1:4 |

21. **Fly Ash Bricks.** Fly Ash Bricks of size 230mm x115mm x75mm with frog size 110 x 40 x 10-20mm having min compressive Str 75 Kg/Cm² and conforming to IS 12894 of 2002.

22. **Sub Structure & Super structure.** Sub structure as per drawing shall be made of brick masonry using CM 1:6 & super structure made by PUF Panelas shown on drg. Partition walls shall be as per drawing. All bricks shall be of sub class B made of good brick earth thoroughly burnt. Wherever half brick masonry is to be constructed the masonry shall be raised from sub base and the reinforcement to be provided at every third layer of brick masonry.

DPC

23. DPC 1: 2:4 Type B-1 with water proofing compound conforming to IS 2645 liquid grade shall be provided. The qty of WPC used shall be @ 3% by weight of cement. The DPC shall run without a break throughout the length of wall even under door or other openings.

24. **Polyurethane Foam (PUF) Wall Panels.**

(a) All material required for the manufacture of shelter shall be new and shall comply with relevant Bureau of Indian Standard Specification and bear the mark.

(b) The PUF insulation material in the panel shall have fire retarding and self extinguishing properties as per any International Standard. B2 DIN 410 2 Part I. CFC / HCFC free rigid PUF as per IS 12436 Standard.

(c) Polyurethane Foam (PUF) Wall Panel shall be 63mm(Make : LLOYD/BNAL Pre Fab/Modern Pre Fab/Me Techno) thick with 0.50mm thick colouredprecoated profiled GI metal sheet on both side of the wall panel and fitted with cam-locks and tongue and groove joint with concealed fixing systems and shall be fixed on to the Girt with necessary overlap and with hot dipped galvanized self drilling fasteners having EPDM washers as per manufacturers specification.

(d) These panels are to be manufactured using high pressure dispensing machine of required capacity to inject specified amount of PUF chemical into the cavity of a full panel in one shot not exceeding 25 sec duration. This is to ensure that the liquid PUF mixture is sprayed into the cavity before the foaming reaction starts so that the insulation core of the panel is formed in one piece and provides desired structural and physical properties. The Bulk density of the insulation should be $40 \text{ kg} \pm 2\text{Kg}$ and the dispensing machinery should be equipped with a PLC controlled panel for monitoring and controlling the injection rate to assured specified uniform density requirements. The total thickness of the finished composite panel should be 60mm. The tolerance in the panel can only be on the plus side.

(e) The outer colour coated profile GI plain sheet and inner plain sheet with slight ribs should both be of 240 MPa GI with 180 GSM Zn coating/300 MPagalvalume steel with

150 GSM Alu-Zn Coating. The panels should be minimum of 0.50mm thick TCT (Total Coated Thickness) with DFT 20 microns colour coated RMP/SMP/PVDF coatingover 5 micron primer called as facing material coating on the finished surface only for protection against scratches during handling and transportation. Base metal of GI skin CRCA should be as per IS 513 and galvanization as per GR-120 IS-277.

(f) The pre coated GI sheet skin should have minimum coating of 0.5 micron Synthetic Enamel primer and 25 micron polyester top coat on the finished surface and 7-8 micron primer Alkyd Backer on backside, which is bounded to the polyurethane foam. The pre coated GI sheet should conform to IS-14246-1995 with manufacturer test certificates conforming above specification.

(g) The PUF insulated core of these composite panels should be CFC & HCFC free rigid Polyurethane Foam (PUF) as per IS 12436 Standard and should have the following properties:-

- | | | |
|--------|--|--|
| (i) | Foam overall density | : 40 ± 2kg/cu.m |
| (ii) | Foam thermal conductivity | : 0.023 W/m ⁰ K
(K-value) at 10 ⁰ C mean temp. |
| (iii) | Compressive strength @ 10% deformation | : 2.10Kg/sq.cm.205.93Kpa |
| (iv) | Tensile strength | : 2.5 Kg/sq.cm. 245.16 Kpa |
| (v) | Flexural/Bending strength | : 3.0 Kg/sq.cm.294.19 Kpa |
| (vi) | Shear strength | : 2.5 Kg/sq.cm. 245.16 Kpa |
| (vii) | Closed Cell Contents | : 90-95% |
| (viii) | Horizontal Burning | : 125mm (Extent of burn)-Max.
Fire Characteristicsretardant,
selfextinguishing quality foam. |
| (ix) | Water absorption | : 0.2% volume at 100% RH -max. |
| (x) | Water vapour Permeability | : 0.12ng/pasm at 88% RH and 38 ⁰
C-max |
| (xi) | Dimensional stability at :- | |
| | (aa) -25 ⁰ C Cold Temp | : ± 2% |
| | (ab) +70 ⁰ C Hot Temp. | : ± 2%. |
| (xii) | Green Rating Point | : 5 |

(The poly liquid components used for in-situ process of polyurethane foam for panels should be accompanied with correlating manufacturer test certificate indicating batch Nos, date of manufacture and expiry dates).

(h) 2mm thick MS sheet channel at the bottom (Floor level) and top shall be provided to slide and fit the wall panels.

(j) All composite panels should be provided with suitable number of cam locks which are fixed in place during the in-situ process itself. The placing of cam-lock should be eccentric and such that a 3.00m long x 1 m wide wall panel should be provided with 3

pairs of cam-locks on the vertical joints. The holes in the panel for operating the cam locks should be provided with PVC caps for sealing after installation.

(k) All panels should have a tongue and groove profile on all joining edges with minimum projection 10mm high and 30mm wide for airtight sealing of joints.

(l) The panel should be moulded in place using the above in-situ process after placing them in a hydraulic press with heated aluminum pattern and corner moulding so as to attain the desired finish, bonding and structural properties.

(m) All panels will be manufactured in single piece as per approved panel layout drawings using the above materials and manufacturing process.

(n) The gaps in windows and other opening should be minimized by providing flashing.

(o) The purchaser can carry out inspection of any one panel from the lot at manufacturer premises to ensure the chemical and physical properties.

(p) The colour of inside wall panel shall be off white cream colour. External cladding sheet will also be off white colour.

(q) **Panel jointing arrangements.** The insulated PUF wall panels are joined with each other with groove locking arrangement for complete sealing. The panels are fitted on the bottom track made out of 2mm thick GI sheet anchored to concrete plinth.

(r) **Gable End.** GI metal skin PUF Panel of 60mm will continue till the ridge of the truss, factory cut to the size and matching with colour of wall (off white colour) panel will be provided at both gable ends of the shelter with necessary fixing arrangement.

25. **Window Chajja.** Suitable Chajja made of will be of Pre-Painted galvalumealuminium zinc coating GI based plain steel sheet 0.5mm thick of choice colour 600mm wide and 2460mm long thick conforming to IS-277, 2003 same material as that of roof sheets reinforced with angle iron frame 35 x 35 x 5mm and Flat Iron 35 x 3mm will be provided to all external windows. The minimum projection of sunshade shall be 450mm and 300mm wider than the opening. The sunshades shall have 20 degree downward slope..

Roof

26. **Roof Structural Frame work.** The roof shall be laid over a frame work of trusses, purlins and columns fixed using suitable fasteners like self driven power screws of 3 mm dia and 3" long with inbuilt rubber and GI washers. The trusses shall be made using rectangular hollow steel sections conforming to IS 4923:1997 amdt 1 & 2. The trusses are provided at equal spacing and shall be supported on walls fixed with each using end plates and nuts & bolts at top level embedded in PCC 1:2:4. The purlins shall be made using rectangular hollow steel sections conforming to IS: 4923: 1997 amdt 1&2 provided on the trusses at a maximum pitch of 1m or less and are fixed and flushed with the top level of trusses with the help of MS end plates & nut/bolts all as shown in the drawing.

27. **Roof.** Roof covering shall be of Pre-coated profiled galvalume steel sheet (GI-Base) shall have a minimum thickness of 0.50mm profile width 1070mm of desired length with trapezoidal shape profile(conforming to ASTM A653, JIS3312, IS 277 , AS1397) of Make LOYDS/TATA/JINDAL/ ASIAN ISI marked and to be fixed by using self driven power screws of 3mm dia and 3" long with inbuilt rubber and GI washer and conforming to IS. These sheets are laid over a frame of trusses, columns and purlins fixed using suitable fastener, Ridge cover will be of PGI Sheet of size 225mm x 225mm x 0.50mm thick conforming to IS-277, 2003 having minimum 120gm galvanizing is to be fixed on the top junction of the roof using suitable fasteners. A slope of 1:4 shall be provided with maintaining the wall height at eaves and centre of gable.

28. **Roof Projection.**The roof shall have minimum projection of 0.30m on all sides and gable ends except verandah portion.

29. **Plinth Protection.** Plinth protection shall be provided on all sides of the Living Shelter at the ground level in two layers. The first layer will be soling using 40-63mm graded aggregate of thickness 75mm. The second layer will be PCC 1:3:6 using 20mm graded aggregate up to a thickness of 75mm. The width of the plinth protection will be 750 mm. Plinth of the shelter shall be cladded with Glazed ceramic tiles of size 300 x 200 x 6-7mm thick in CM 1:4 (Colour of Glazed tiles shall be same for all the Shelters).

30. **False Ceiling.** False ceiling shall be 7-8 mm thick Gypsum board PVC coated on one side and water proof coating on other side gypsum board false ceiling, fixed in hot dipped pre-coated steel section framework of size 600mm x 600mm made from GI 'L' section of size 30mm x 20mm x 1.25mm thick & 'T' sections of size 30mm x 35mm x 0.80mm conforming to IS: 277: 1992 with amdt 2, having min GSM of 120 gms, suspended from the roof trusses with the help of 4mm dia GI wire. Make : SAINT GOBAIN/DEXUNE/MODERN or equivalent.

31. **Verandah.** Verandah shall be of 1.50m in width. The coloured profile sheet roof over the verandah should be continuously provided along the roof of the structure. The verandah shall have a clear height of min 2.58m. The purlins provided in verandah are made using Rectangular Hollow Steel sections and are fixed & flushed with the top level of the truss extension member with the help of MS end plates & nut/bolts. The Verandah columns are made using Rectangular Hollow Steel sections fixed with the help of MS end plates and foundation bolts.

32. The joinery shall be as under :-

(a) **Double Door Single Shutter.** 30mm thick Flush door single leaf of size 915mm x 2080mm and wire mesh door made out of as per drg fixed on steel frame as per specifications. Flush door shutter made out of solid core construction with particle board core and plywood face panels on both sides conforming to IS 2202- (Part I)- 1999 shall open inside and wire mesh shutter made out of 30mm thick well seasoned 2nd cl approved HW shall open outside. Hold fast six in Nos will be provided on each door frame of 40 x 5 mm MS flat, 200mm long and bent on either side in opposite directions put up to a length of 75 mm and welded to the door frame as shown in drg. Each shutter will be provided with 2 Nos 200mm size Tower bolt, 1 No 250mm long aluminium anodized sliding door bolt, 2 Nos 150mm size aluminium handle, 4 Nos MS Cold rolled med wt hinge fixed with door frame. Wire mesh for fly proof shutter shall be of stainless steel of 1.18mm dia aperture and nominal dia of wire of 0.36mm conforming to IS 1566-1970.

(b) **Aluminum Sliding Window.** The aluminium sliding window of size (1.22 x 1.22m) made of aluminium outer and inner frame section of size 63 x 38.1 x 1.8mm thick with fly proof with stainless steel wire mesh and grill of aperture 4"x4" at out side with two track fixed to outer frame with screws and two Nos sliding aluminium panel frame of size (38.1 x 12.7 x 1.8mm thick with properly fixed 4mm thick glass pane and proper locking arrangements.

(c) **Opening for Desert Cooler.** Cooler opening of size 650 x 650mm with Aluminium Frame 63 x 38.1 x 1.8mm thick hollow rectangular section. The frame of Shutter shall be made out of U Channel of size 61 x 37 x 1.1mm thick and fixed complete with hinges to frame. 60mm thick PUF Sheet (Matching to colour of wall) with locking arrangement shall be fixed with the Aluminium Frame with opening downward. The frame shall be fixed in the inner most portion of wall so that door shutter is parallel to wall while opened.

BUILDERS HARDWARE

33. Unless otherwise specified hereinafter, the articles of builder's hardware shall be anodised [anodic film transparent] aluminium materials and all as specified. Thickness of anodising shall be 15 microns. Aluminium extruded sections shall be aluminium anodised white.

34. Mild steel and aluminium fittings shall be fitted with cadmium plated steel screws. Size of the screws shall be as given in the IS specifications. All items of builder's hardware shall bear ISI mark on them and the samples shall be got approved before bulk procurement.

35. Butt hinges shall be cold rolled, mild steel medium weight [with mild steel pin] and shall be of bright finish with smooth surface. They shall comply with IS – 1341.

36. Aldrop bolts shall conform to IS – 2681. Aldrop bolts shall be fixed with nuts and bolts and washer only.
37. Barrel bolt/tower bolts shall be provided with 10mm dia shoot up to 125mm and 12mm dia shoot above 150mm.
38. Make of Aluminum Builders hardware shall be CROWN / JYOTI / AMBAY ENTERPRISE / MOWJEE / DEEPAK and MS Builders Hard ware shall be of ISI marked fittings.
39. **GI Wire Cloth.** GI wire cloth until unless specified otherwise shall be of 0.56 mm nominal dia of wire and average width of aperture 1.18 mm and fixed with stainless steel wire staples. Wire cloth shall be regularly woven with a number of equally spaced parallel wires in both warp and weft directions to produce uniformly square meshes or openings.
40. **Glazing.** Glazing shall be float glass of approved brand and shade and sheet glass of ordinary quality as specified. Sheet glass shall be of ordinary glazing quality conforming to the requirement of IS – 1761. The thickness of glazing shall be as specified. Glass shall be of make MODI GUARD / HINDUSTAN / ATUL / TRIVENI GLASS/SAINT GOBAIN.
41. **Flooring.** The flooring incl skirting and dado shall be laid as per specifications .

(i) VITRIFIED TILE FLOORING

Vitrified polished porcelain floor tiles shall be of 1st quality. These tiles are classified under group B1a of the International Standard for ceramic tiles ISO : 13006. Tiles shall be hard, dense, impervious and frost resistant. Water absorption of tiles shall be less than 0.5% and flexural strength (Modulus of Rupture) shall be more than 35 N/Sqmm. Vitrified polished porcelain floor tiles shall be 600mm x600mm / 605mm x 605mm. The thickness shall be as specified by the manufacturer but not less than 7mm.

Heavy duty vitrified unpolished porcelain floor tiles for exterior use shall be of 1st quality. Heavy duty vitrified tiles shall be acid and alkali resistant, weather proof, anti skid and abrasion resistant as per International Standard for ceramic tiles ISO : 13006 and EN 176 requirement.

- (a) Water absorption <2%
- (b) Flexural Strength >35 N/Sqmm
- (c) Moh's Hardness >6
- (d) Abrasion resistance <204mm

Heavy duty vitrified tiles shall be of sizes, colour, texture and designs as indicated.

42. **Preparation of Surface and Laying.** Sub grade concrete or RCC slab on which the slabs are to be laid shall be cleaned, wetted and mopped. The bedding for the slabs shall be with cement mortar 1:6. The thickness of screed shall be as specified. The slabs shall be laid in the following manner.

43. Mortar of the specified mix shall be spread under the area of each slab, roughly to the average thickness as specified. It shall be laid on top, pressed, tapped with wooden mallet and brought to level with the adjoining slabs. It shall be lifted and laid aside. The top surface of the mortar shall then be corrected by adding fresh mortar at hollows. The mortar is allowed to harden a bit and cement slurry of honey like consistency shall be spread over the same at the rate of 4 Kg of cement per square metre area. The slab to be paved shall be lowered gently back in position bedded in level. Subsequent slabs shall be laid in the same manner and joints between adjacent slabs shall be thin as possible and run in straight line. After each slab has been laid, surplus cement grout coming out of the joints of the slabs shall be cleaned off. The surface of the flooring as laid shall be true to levels, lines and shapes as instructed. Slabs, which are fixed in the floor adjoining the wall shall enter not less than 12 mm under the plaster of skirting or dado. The junction between wall plaster and the floor shall be finished neatly and without waviness.

44. **Curing, Polishing and Finishing.** The floor shall be kept wet for a minimum period of seven days. The final grinding with machine fitted with the finest grade grit blocks (No. 320) shall be carried out the day before handing over the floor. For small areas of where circumstances so require, hand polishing may be permitted in lieu of machine polishing after laying. For hand polishing, Carborundum stones of medium Grade stone (No. 8) for first grinding and fine grade (No. 120) for final grinding shall be used. In all other respects, the process shall be similar as for machine polishing. Genr&FOL for polishing to be provided by the contractor/supplier.

45. If any slab is disturbed or damaged, it shall be refitted or replaced, properly jointed and polished. The finished floor shall not sound hollow when tapped with wooden mallet.

Finishes

46. **Finishes.** The external walls will be painted with two coats of cement based paint over a coat of lime white wash. The internal walls will be painted with two coats of Oil bound distemper over a coat of primer. Doors will be painted with two coats of synthetic enamel paint over a coat of wood primer. Trusses shall have one shop coat of red oxide. All the exposed steel members shall be painted with two coats of Synthetic Enamel Paint over a coat of red oxide. The colour / shade of paint/ distemper shall be got approved well in advance before commencing of work. Paints/primers of Shalimar/Asian Paints/Berger/Nerolac Paints as approved shall be used.

47. All paint unless until otherwise specified shall be of a quality not inferior to that specified in IS 1232 and 1236. The synthetic enamel paint shall be of 1st quality of make ASIAN (Utsav) / JENSON AND NICHOLSON (Umbrella)/ BERGER (Butterfly) / GOODLAS NEROLAC (Goody). Paint for priming coat, under coat and finishing coat will be of the same manufacturer. Tint of paint, if not mentioned in drawings will be as approved by the CO.

48. **Painting to Wooden / Steel Surfaces.** Where painting to wood / steel surfaces is indicated, prepare surfaces and apply two coats of synthetic enamel paint over a coat of primer as specified hereinbefore. Primer for wood surfaces shall be pink primer and for that of steel surfaces shall be red oxide primer. Colour and shade for under coat and finishing coat shall as approved.

49. **Workmanship.** All woodwork required to be painted shall be smoothed, sized and knotted and then applied with priming coat. Stopping and filling [filler coat] shall be done after priming coat and surfaces rubbed down to a level and smooth surface and thereafter under coat and finishing coat applied. The steel surfaces which are required to be painted shall be given two coats of paint, priming coat and undercoat after fabrication but before assembly and erection and finishing coat after assembly and erection. Irrespective of what is indicated on drawings and specified elsewhere, finishing coat and undercoat shall be with the same paint.

INTERNAL ELECTRIFICATION

50. All the item should strictly comply with the provisions contained in the Indian Electricity Act and rules framed there under. The position of light fittings/ fixture etc will be as per IE rule & standard engineering practices. "Loop in" system of wiring shall invariably be followed through out the installation. Where it is absolutely necessary, junction boxes of approved make may be used. Soldered or taped joints are not permitted for jointing under any circumstances. Porcelain connector connected with metal parts of brass shall be used. Wiring shall be with PVC insulated multi-stranded copper conductor cable (un sheathed) in casing capping and conduit pipe as indicated in schedule of internal electrification. Wiring is to be terminated in wooden switch boards for mounting fittings like switches, sockets and regulators etc, Cable for lighting and power circuit shall run separately. PVC wire (colour code) of Red, Yellow, Blue for phases, and Black for neutral and green wire for earth shall be used.

51. **Material.** The material shall comply with the following clauses mentioned against:-

(a) **Miniature Circuit Breaker.** Miniature Air Circuit Breakers shall conform to IS-8828-1978 specification for miniature air circuit breakers for AC circuits for voltage not exceeding 1000 volts. Make of MCBs Anchor/Havells/L&T ISI marked.

(b) **Cables, Cords And Earthing Leads**

(i) Cables and cords shall be from fresh stocks and shall be of approved make. Earthing lead shall consist of insulated stranded conductor.

(ii) The light and fans may be wired on a common circuit. Such circuit shall not have more than a total eight point of light, fan and light socket outlet or a load of 800 watts, whichever is less.

(iii) The power circuit shall be designed with a maximum two outlets per circuit.

(iv) Wherever the load to be fed is more than 1 KW, it shall be controlled by an isolator switch or miniature circuit breaker.

(v) Make of cables Anchor/Finolex/Havells/L&T/Wipro ISI marked.

(c) **Ceiling Rose.** Ceiling rose shall be surface type and shall comply with IS-371-1979. Ceiling roses should have three terminal plates and outside diameter not less than 63.5mm. Ceiling roses shall be provided with means for gripping flexible cord which shall not damage the insulation and/or sheath of the cord and shall be such that the load on the cords not transmitted to the terminals. Make of switches and sockets Anchor/Finolex/Havells/L&T/Wipro ISI marked.

(d) **Socket Outlets.** Socket outlets, surface or flush type 5 or 15 Amp, 250 volts shall be five pin shuttered/non shuttered or interlocking type as indicated and shall comply with the following Indian Standards :-

(i) IS-1293-1967 specification for 3 pin plugs and socket outlets.

(ii) IS-4615-1968 switch socket outlets (non interlocking type).

(iii) IS-4160-1967 specification for inter locking switch socket outlets.

(iv) Make of switches and sockets Anchor/Finolex/Havells/L&T/Wipro ISI marked.

(e) **Lamp Holder.** Lamp holder shall be metal cased type or insulated type as indicated and shall comply with IS-1258-1979 specification for bayonet lamp holders. Lamp holders shall be suitable for fixing in pendent or to bracket or angular as ordered. Make of switches and sockets Anchor/Finolex/Havells /L&T/Wipro ISI marked.

(f) **Switches/Sockets.** Fittings for concealed wiring/surface wiring such as socket outlet, flush type switches and the like shall be of high grade bakelite and of ISI marked. All switches shall be placed in the live conductor of the circuit and no single pole switch or fuse shall be inserted in the earth or earthed neutral.

(g) **Ceiling Fans (1200mm Sweep).**

(i) All ceiling fans shall be wired to ceiling roses or to special connector boxes and suspended from hook or shackles with insulators between hooks and suspension rods. There shall be no joints in the suspension rod.

(ii) Canopies on to top of suspension rod shall effectively hide the suspension.

(iii) The lead in wire shall be of nominal cross sectional area not less than 1.50 sqmm with copper conductor and shall be protected from abrasion.

(iv) Unless otherwise indicated, all ceiling fans shall be hung 2.60 meter above the floor.

- (v) Make of ceiling fans BAJAJ/CROMPTON/KHAITAN/POLAR or as approved.
- (h) **Ceiling LED Lights:** Recess mounted LED lighting fitting 36W 2x2 SUM PANEL, complete with accessories internally pre-wired ISI marked Make:Surya/Philips/Havells.
- (j) **Exhaust Fan.** 1 x Exhaust Fan of 300mm sweep with louvers shall be fixed in each gable end over ceiling level with necessary fixing arrangements, Make Bajaj/ Havells/Philips or equivalent.
- (k) **Electrical Wiring & Fittings.** Electrical points for lights & fans, 5/15 Amps sockets, electronics types fan regulators, DB boxes shall be provided as per requirement. In addition main distr switch board comprising of isolator, SP/DP MCBs shall be supplied. Elect items MCB/Switches/Socket/Cables/DBs) shall be specified ISI marked.
- (l) **Screw & Fastenings.** All the screw shall be of alloy aluminium or cadmium plated iron unless other wise conforming to IS-2412-1975.
- (m) **LED Tube lights.** LED Tubelights shall be of 20Watt 4', Make Bajaj/ Havells/Philips/Wipro/Surya/Crompton.
- (n) **Earthing.** Earthing with galvanized steel earth plate electrode 600mm x 600mm x 6.3mm thick, buried directly in ground (earth pit not less than 2.25m deep below ground level) with top edge of the plate not less than 1.5m below normal ground level connected to galvanized earth lead wire 4.0mm dia by means of bolts/nuts, check nuts and washes of GI all as shown in drawing connected to earthing test point including GI pipe welded with funnel and earth pit cover all as specified.

Note -All materials, articles and equipment's to be incorporated in the work shall be brand new and shall be procured from the manufacturer/authorised agents of the manufacturer and these shall be brought at site in the original packing. If any article is manufactured in more than one quality, the material/article of first quality shall be provided. These materials shall be got approved in writing before placing bulk order for incorporation in the works. Samples of each articles shall be produced by the contractor for the approval well in time. The approved sample shall be kept in safe custody till the completion of the work.

52. Some of the minor details/items which shall be deemed to be essential for execution and the details of which are not specifically shown on drawings or not given in the particular specifications but are essential for execution of works/services in a sound and workman like manner to be followed as per relevant Indian Standards/ code of practice.

53. **Purchase Voucher.** The supplier shall produce the original purchase voucher for all the materials procured for verification and the same will be defaced against subject supply order.5t

STORE LIST FOR EACH CLASS ROOM SHELTER OF SIZE (Shelter No 1) (19.53M X 6.1M X 3.00M WITH 1.5M WIDE VERANDAH)					
S No	Items	A/U	Qty	Rate /Unit	Total Amt
Pre Fab Structure with pre PUF panel board.					
1	Manufacture and supply of Prefabricated OR Living Shelter for erection made of Polyurethane Foam (PUF) Wall Panels of 60mm thick (Make : LLOYD/BNAL Pre Fab/Modern Pre Fab/Me Techno) with both inner and outer sheet of the panel made of GI Metal plain sheet . Inner plain sheet with slight ribs. Inner and Outer sheets to be of 240 MPa GI with 180 GSM Zn coating/300 MPagalvalume steel with 150 GSM Alu-Zn Coating of size 19.53m x 6.10m (out to out of RHS Columns) and 3.00 m clear headroom. Plan and elevation of the shelter is as per drawing att. Size and basic detail as per Costed Schedule of Works. All other specification shall be as per technical specification and drawings attached with following stores:-	Set	1		
2	(a) Polyurethane Foam (PUF) Wall Panels of 60mm thick (Make : LLOYD/BNAL Pre Fab/Modern Pre Fab/Me Techno) with both inner and outer sheet of the panel made of GI Metal plain sheet of 0.63mm thick . Inner plain sheet with slight ribs. Inner and Outer sheets to be of 240 MPa GI with 180 GSM Zn coating/300 MPagalvalume steel with 150 GSM Alu-Zn Coating with interlocking arrangement with following specification :- (i) Outer sheet profile : profiled GI metal plain sheet (ii) Inner sheet profile : GI Metal plain sheet with slight ribs. (iii) Panel thickness : minimum 60mm. (iv) Facing Material thickness of not less than 0.5 outer and inner with DFT 20 microns colourcoate MP/SMP/PVDF coating over 5 micron primer (v) Polyurethane Foam (PUF) CFC & HCFC free rigid PUF as per IS 12436 standard (vi) Foam overall density : 40 + 2kg/cum (vii) Foam thermal conductivity (K-value) at 10 degree centigrade mean temp : 0.023 W/m degree K (viii) Compressive strength @ 10% deformation : 2.10 Kg/ sq.cm. 205.93 Kpa (ix) Tensile strength : 2.5 Kg/sq.cm (x) Flexural/Bending strength : 90-95% (xi) Fire Characteristic : Fire retardant, self extinguishing and quality foam. (xii) Water absorption : 0.2% volume at 100% RH -max. (xiii) Dimensional stability at - -25 degree Centigrade Cold Temp and - +/- 2% +70 degree Centigrade Hot Temp should be - +/- 2%. (xiv) Green rating Point : 5	Sqm	168		
3	(b) Galvalume coated and prepainted U Channel made out of 1.25mm thick GI Sheet (52.5mm x 35mm) for placing of double skin insulated wall panels incl fixing arrangements	RM	130		
4	(c) Inner and outer flashing 0.50mm thick GI steel sheet at en joints of tow walls of 3.10m clear height for outer and inner joints. The flashing should have an over lap of atleast 100mm on both sides of walls and overlap of atleast 100mm on both sides of walls and fixed to the wall panel with help of self driven screws.	RM	30		
5	(d) Fabrication and supply of truss members as per drawing alongwith nut and bolts for fixing of purlins and base plate as under :- (i) Truss 6.10m span made of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS 4923 :1997 (ii) 02 Nos base plate welded to the truss on either side of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16 mm with nuts and with predrilled holes of appropriate sizes for truss. (iii) 08 Nos 16mm dia 50mm long heavy duty black bolts with hexagon head and nuts with GI washer with each truss.	Nos	8		

6	(e) Purlins of length 2.79m(measured centre to centre) made of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith 2 Nos cleats of MS sheet of size 66mm x150mm, 5mm thick continuously welded on both ends of the purlin duly drilled of 2 holes each for 12mm dia bolt for fixing of purlin with the truss. (inclusive of bolts reqd to be fixed)	Nos	77		
7	(f) Principal rafter of as per actual required span for slope of 1:4 as per drg made of rectangular hollow steel section of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith base plate of size 230mm x 230mm, 5mm thick for fixing the rafter on the column and 2 Nos cleats of MS sheet of size 66mm x150mm, 5mm thick continuously welded on other ends duly drilled of holes for fixing with 12mm dia heavy duty black bolts with hexagon head and nuts with GI washer with each rafter.	Nos	8		
8	(g) Main Column shall be of rectangular hollow steel sections of size 100mm x 50mm, 4mm wt not less than 8.59 Kg/RM conforming to IS: 4923: 1997 thick to support trusses fixed and shall be of height as reqd to achieve clear span of 3.2 between lower end of tie beam and FFL. Each column shall have base plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16mm 600mm long with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm conforming to IS: 4923: 1997 with predrilled holes of appropriate sizes for fixing with truss inclusive of 04 Nos 16mm dia 600mm long for fixing as foundation bolt and 04 Nos 16mm dia 50mm long with truss of heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of truss at bottom and top respectively.	Nos	16		
9	(h) Door column shall be of rectangular hollow steel sections of size 100mm x 50mm, 4mm thick to support tie tie runner fixed and shall be of length to provide clear height of requirement as above FFL (wt not less than 8.59 Kg/RM) upto tie runner . Each column shall have bottom plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16mm 600 mm long conforming to IS: 4923: 1997 with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with predrilled holes of appropriate sizes for fixing with tie beam/tie runner inclusive 04 Nos 16mm dia 600mm long for fixing as foundation bolt and 04 Nos 16mm dia 50mm long with truss of heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of tie runner at bottom and top respectively.	Nos	8		
10	(j) Verandah column shall be of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr thick to support extended principal rafter for verandah and shall be of length to provide slope of 1:4 as per drg above FFL (wt not less than 4.93 Kg/RM) . Each column shall have bottom plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16mm dia 600 mm long with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm thick with predrilled holes of appropriate sizes for fixing with truss inclusive of 04 No 16mm dia 600mm long for fixing as fdn bolt and 04 Nos 16mm dia 50mm long heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of truss at bottom and top respectively.	Nos	8		

11	(k) Extra column for PUF panel support shall be provided below gable end of rectangular hollow steel sections of size 100mm x 50mm, 4mm thick to support trusses fixed tie beam and shall be of length to provide clear height of 3.20m above FFL (wt not less than 8.59 Kg/RM) . Each column shall have bottom plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm conforming to IS: 4923: 1997 thick with 4 holes for fixing foundation bolts of 16mm 600 mm long with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with predrilled holes of appropriate sizes for fixing with truss alongwith 04 No 16mm dia 600mm long for fixing as fdn bolt and 04 Nos 16mm dia 50mm long heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of truss at bottom and top respectively.	Nos	2		
12	(l) Tie runner will be provided column to column made of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith 2 Nos cleats of MS sheet of size 66mm x150mm, 5mm thick continuously welded on both ends duly drilled of 2 holes each of for 12mm dia bolt for fixing of tie runner with the main column.. necessary fixing arngs(for fixing between column to column at lintel height above window/door 2100mm above FFL.2 Coats of synthetic enamel paint (with colour matching to inner sheet of Puff wall) over a coat of red oxide shall be applied over tier runners Puff panels shall be fixed with tie runners with help of self tapping screws along the length in addn to fixing with columns. . Puff panels shall be fixed with tie runners with help of self tapping screws along the length in addn to fixing with colns. (Inclusive of screws and nut/bolt reqd for fixing)	Nos	14		
13	(m) Eaves connector 300mm long made of rectangular hollow steel section of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith base plate of size 66mm x150x5mm for fixing with purlin/gable end.	Nos	30		
14	(n) Pre painted Zink coating GalvalumeRoof sheet 1070mm x 3650 mm,0.50mm thick, 550 MPa make : ISI marked JSW/BPSL/TATA.	Nos	21		
15	(n) Pre painted Zink coating GalvalumeRoof sheet 1070mm x 5180mm,0.50mm thick, 550 MPa make : ISI marked JSW/BPSL/TATA.	Nos	21		
16	(p) Pre coated Galvanized steel sheet (GI based) of 600mm x 2460 mm, 0.5mm thick confirming to AFTM-A653/ZIF 3312/IF227/AF1397 and of thick 0.50 mm for ridge profile Make LLOYDS/TATA/JINDAL/ASIAN ISI marked.	Nos	9		
17	(q) Sunshade made of will be of Pre-Painted galvalumealuminium zinc coating GI based plain steel sheet 0.5mm thick of choice colour conforming to IS-277, 2003 reinforced with angle iron frame 35 x 35 x 5mm and Flat Iron 35 x 3mm will be provided to all windows except in verandha. The minimum projection of sunshade shall be 450mm and 300mm wider than the opening. The sunshades shall have 20 degree downward slope.	Nos	4		
18	(r) Self driven power screw of 3mm in dia and 55mm long in built rubber washer and GI washer	Nos	800		
19	(s) Wooden flush door 30mm thick Flush door single leaf of size 915mm x 2080mm and fly proof door made out of as per drg fixed on steel frame as per specifications. Flush door shutter made out of solid core construction with particle board core and plywood face panels on both sides conforming to IS 2202- (Part I)- 1999 shall open inside and wire mesh shutter made out of 30mm thick well seasoned 2nd cl approved Hard Wood shall open outside with chowkat and all fitting as specified complete.	Nos	4		
20	(t) Aluminum sliding type window of size 1.2m x1.2m made of aluminum outer and inner frame section of size (63mmx38.1mmx1.8mm thick) with fly proof stainless steel wire mesh and aluminium grill of aperture 3" x 3" at out side with two track fixed to outer frame with screws and two Nos sliding aluminium panel frame of size (38.1mm x 12.7mm x 1.8mm thick) with properly fixed 4mm thick glass pane and proper locking arrangements all as per drawing specified.	Nos	8		

21	(u) Aluminium cooler opening of size 650mm x 650mm with Aluminium Frame 63mm x 38.1mm x 1.80mm thick hollow rectangular section . The frame of Shutter shall be made out of U Channel of size 64mm x 37mm x 1.1mm thick and fixed complete with hinges to frame. 63mm thick PUF Sheet(Matching to colour of wall) with locking arrangement shall be fixed with the Aluminium Frame with opening downward all as specified and approved	Nos	5		
22	(v) False ceiling fixing arrangement shall be provided for 7-8 mm thick Gypsum board PVC coated on one side and water proof coating on other side gypsum board false ceiling, fixed in hot dipped pre-coated aluminium section framework of size 600mm x 600mm made from GI 'L' section of size 30mmx 20mm x 1.25mm thick & 'T' sections of size 30mm x 35mm x 0.80mm conforming to IS: 277: 1992 with amdt 2, having min GSM of 120 gms, suspended from the roof trusses with the help of 4mm dia GI wire. Make : SAINT GOBAIN/DEXUNE/MODERN.	sqm	130		
<u>Building Material.</u>					
1	Second class Bricks of size 230mm x115mm x75mm with frog size 110 x 40 x 10-20mm having min compressive Str 75 Kg/Cm2 and conforming to IS 12894 of 2002.	Nos	16900		
2	Cement Bags PPC conforming to IS -1489 (Part-I) 1991 with amdt No 1 to 3 packed in HDPE Bag of 50 Kg each confirming to IS-11652/2000 (Make : Ambuja/Birla/Ultratech/ Shree ultra)	Bag	170		
3	Sand conforming to IS-383-1970. The sand shall be hard, dense, strong, durable, clear and free from veins, adherent coatings, disintegrated pieces, alkali, vegetable matters and other deleterious substances.	Cum	20.4		
4	Fine Sand	Cum	12.06		
5	Graded Stone Aggregate of size 40-63mm conforming to IS-383-1970	Cum	25		
6	Graded Stone Aggregate of size 40mm conforming to IS-383-1970	Cum	23.32		
7	Graded Stone Aggregate of size 20mm conforming to IS-383-1970	Cum	6.5		
<u>Hardware Material.</u>					
1	Thinner of Make : Shalimar/ Asian/Jenson and Nicholson/Berger/GoodlasNerolac	Ltr	1		
2	Water proofing compound packed in one Kg packet make Seeko/ICI/SAIL/TISCO/RINL ISI marked	Kgs	8		
4	Wood Primer (Make - Berger/Shalimar)	Ltr	2		
5	Red oxide (Zinc Chromate) Make : Shalimar/ Asian/Jenson and Nicholson/Berger/GoodlasNerolac	Ltr	3		
6	Synthetic Enamel Paint Make : Shalimar/ Asian/Jenson and Nicholson/Berger/GoodlasNerolac	Ltr	7		
7	Vitrified ceramic tiles of size 600mm x 600mm, 7 to 8mm thick Make:Johson/kajaria/Orient	Nos	450		
8	Cement base paint Make : Shalimar/ Asian/Jenson and Snowcem /Berger/GoodlasNerolac	Ltr	1.5		
9	Primer for preparing newly plastered surfaces before applying of cement base paint	Ltr	1		
10	OBD for plastered surfaces Make : Shalimar/ Asian/Jenson and Snowcem /Berger/GoodlasNerolac	Ltr	10		
11	Primer for preparing newly plastered surfaces before applying of Oil bound distemper	Ltr	5		
12	Putty for plastered surfaces of walls Make : Birla/JK	Kgs	2		
13	Fire Extinguisher 3 Kg capacity with mounting brackets. Make Minimax/Omax.	Nos	2		

Electrical stores.					
1	LED Tube light alongwith fixture 20w (4') Make Crompton Greaves/Bajaj/Havells.	Nos	6		
2	Recess mounted LED Light fitting 36 w 2' x 2' SUM PANEL, 230 v ISI Marked Make : Surya/Philips/Havells.	Nos	8		
3	Ceiling fan 1200 mm sweep complete with electronic dimmer 450W Make Crompton Greaves /Usha/ Bajaj/Orient/Havells.	Nos	12		
4	Hook for hanging ceiling fan (cost Iron)	Nos	12		
5	Bulk head fitting complete with glass and CFL 11 Watt Make : Bajaj/Crompton/Havells	Nos	2		
6	Ceiling rose 2 to 3 terminal Make- Havells/Bajaj/Anchor	Nos	14		
7	Switch piano type 5 Amps Make- Havells/ Bajaj/Anchor.	Nos	32		
8	5 Pin 15 Amps switch socket combination with PVC mounting box Make: Havells/Bajaj/Anchor.	Nos	2		
9	5 Pin 5 Amps switch socket combination with PVC mounting box Make- Havells/Bajaj/Anchor.	Nos	16		
10	MCB DB SPN 12 way Make Havells/ L&T/Indokupp/ Standard/Asian.	Nos	1		
11	MCB DP 32Amps conforming to IS 8828-1996 Make Havells/ L&T/Indokupp/Standard/Anchor.	Nos	1		
12	Miniature circuit breaker (MCB) 6 Amp to 32 Amps (single pole) Make Havells/ L&T/Indokupp/ Standard/Anchor.	Nos	10		
13	PVC switch mounting box 6" x 8" Make- Havells/Bajaj/Anchor.	Nos	8		
14	Wire PVC insulated cable 1.5 sqmm multi stranded Copper conductor single core 1100V, grade conforming to IS 694/1990 a roll of 90m long of Make: Havells/Paragon/Finolex/Plaza, ISI marked	Roll	7		
15	Wire PVC insulated cable 2.5 sqmm multi stranded Copper conductor single core 1100V, grade conforming to IS 694/1990 a roll of 90m long of Make: Havells/Paragon/Finolex/Plaza, ISI marked	Roll	2		
16	Wire PVC insulated cable 10 sqmm copper conductor unarmoured under ground 1100V grade two core conforming to IS 694/1990 Make:Havells/Paragon/Finolex/Plaza, ISI marked	Roll	1		
17	PVC casing capping 20 mm size Make Polyplast / Beralia/Power/Shakti.	RM	80		
18	PVC casing capping 25 mm size Make Polyplast / Beralia/Power/Shakti, ISI marked	RM	40		
19	PVC Tee 20mm casing capping Make Polyplast/ Beralia/ Power/Shakti.	Nos	15		
20	PVC Tee 25mm casing capping Make Polyplast/ Beralia/ Power/Shakti.	Nos	5		
21	PVC Bend 20mm Casing Capping make Polyplast/ Beralia/ Power/Shakti.	Nos	10		
22	PVC Bend 25mm Casing Capping make Polyplast/ Beralia/Power/Shakti.	Nos	5		
23	PVC Junction box 3 way 20mm Make Polyplast/ Beralia/Power/Shakti.	Nos	20		
24	PVC Junction box 4way 20mm Make Polyplast/ Beralia/ Power/Shakti.	Nos	10		
25	PVC Junction box 3 way 25mm Make Polyplast/ Beralia/ Power/Shakti.	Nos	10		
26	PVC Junction box 4 way 25mm Make Polyplast/ Beralia /Power/Shakti.	Nos	10		
27	Tape insulation 10 mtr roll Make Steel grip/Anchor grip	Roll	10		
28	GI earthing plate 600x600x6mm thick with 10 mm dia, 25 mm long 02 Nos nut & bolts.	Nos	1		
29	Common Salt	Kgs	30		
30	Charcoal	Kgs	50		
31	GI wire 4mm (8 SWG)	Kgs	5		
32	CI cover 5mm thick (300 x 300mm size) hinged to CI frame	Nos	1		
33	GI funnel with wire mesh	Nos	1		

34	Rawl plug (Pkt of 100 Nos)	Pkt	10		
35	Al strip 25 x 3mm	Mtr	10		
36	GI strip 25x3mm	Mtr	8		
37	Screw Steel Full threaded 25mm (Pkt of 100 Nos)	Pkt	4		
38	Screw Steel Full threaded 32 mm (Pkt of 100 Nos)	Pkt	2		
39	Screw Steel Full threaded 40mm (Pkt of 100 Nos)	Pkt	2		
40	PVC box of size 4"x4" for mounting ceiling rose/ pendent holder.	Nos	28		
41	Flexible conduit 20mm dia.	RM	80		
42	Conduit clips (Pkt of 100 Nos).	Pkt	5		
43	Cooler stand 600mm x 600mm x 750mm made out of 25mm Square Pipe 2mm thick reqdht at site, with min two horizontal supports in between the frame. Where ever difference in height for Cooler opening & height of stand exists, the same shall be adjusted with necessary bk staging. Bk staging shall be painted with two coats of Cement Based paint over a coat of primer).	Nos	5		
44	Exhaust fan 300mm sweep with louvers (make Crompton/Bajaj) incl fixing arrangements with gable ends over ceiling level.	Nos	4		
45	MS distribution box 3 phase 32 Amp TPN with bus bar(Size 30 cmx45cmx20cm approx).	Nos	1		
46	GI Pipe 20mm dia 6' Long Light grade Make Jindal /TATA.	Nos	1		
47	PVC Conducit pipe 25 mm	Nos	2		
48	GI Pipe 50mm dia 6' Long medium grade Make Jindal /TATA.	Nos	1		
TOOLS & PLANTS					
1	Mason threads Nylon 100 mtr yarn	Roll	2		
2	Water level pipe 30 mtr long Superior quality	Nos	1		
3	Hacksaw blade both side teeth 1' long superior quality.	Pkt	1		
4	Painting brush 3" Make Jawahar/Sagar/Priyanka/ Johnson.	Nos	4		
5	Ply wood 2.40m x 1.20mx12mm commercial type for form work.	Nos	1		
6	Scantling hard wood 50mm x 40mm, 2.40m long for form work.	Nos	4		
7	Measuring tape 30 mtr metallic.	Nos	1		
8	Measuring tape 5 Mtr steel.	Nos	1		
9	Lashing 1/2" dia 30 Mtr long.	Nos	2		
10	Nails various sizes.	Kgs	5		
11	Hiring with concrete mixer machine	days	20		
12	Complete Masion Tools (Trawler all type, Wooden plaster, Iron plaster, Nylon rope ,Tasala ,Poudah, Ganthi)	Each	3		
13	Hiring of tipper for filling of Mud	days	5		
14	Polyethylene film for covering of shuttering purpose	Kgs	2		
15	Pad Lock brass body 65mm size, seven Levers with three keys Make : Godrej/Navtal/Harrison	Nos	4		
16	Steel bucket 10 Ltr capacity	Nos	2		
17	Tile cutter machine	Nos	2		
18	Cutter Blade for Tile cutter machine	Nos	10		

19	Tool Kit Set (Drill Machine, Plastic Carry Case, Masonary drill bits, Metal drill bits, Wood drill bits, Claw hammer with rubber grip, Screw drive bits, Screw driver, Magantic adaptor, Sockets, Nut driver adaptor, Measuring tape, Combinator pliers, Adjustable knife, 3d Spirit level) Make Bosch/Black & Decker.	set	2		
				Total	
				Grand total	
				Say Rs	

STORE LIST FOR EACH CLASS ROOM SHELTER OF SIZE (Shelter No 2) (19.53M X 6.1M X 3.00M WITH 1.5M WIDE VERANDAH)					
S No	Items	A/U	Qty	Rate /Unit	Total Amt
Pre Fab Structure with pre PUF panel board.					
1	Manufacture and supply of Prefabricated OR Living Shelter for erection made of Polyurethane Foam (PUF) Wall Panels of 60mm thick (Make : LLOYD/BNAL Pre Fab/Modern Pre Fab/Me Techno) with both inner and outer sheet of the panel made of GI Metal plain sheet . Inner plain sheet with slight ribs. Inner and Outer sheets to be of 240 MPa GI with 180 GSM Zn coating/300 MPagalvalume steel with 150 GSM Alu-Zn Coating of size 19.53m x 6.10m (out to out of RHS Columns) and 3.00 m clear headroom. Plan and elevation of the shelter is as per drawing att. Size and basic detail as per Costed Schedule of Works. All other specification shall be as per technical specification and drawings attached with following stores:-	Set	1		
2	(a) Polyurethane Foam (PUF) Wall Panels of 60mm thick (Make : LLOYD/BNAL Pre Fab/Modern Pre Fab/Me Techno) with both inner and outer sheet of the panel made of GI Metal plain sheet of 0.63mm thick . Inner plain sheet with slight ribs. Inner and Outer sheets to be of 240 MPa GI with 180 GSM Zn coating/300 MPagalvalume steel with 150 GSM Alu-Zn Coating with interlocking arrangement with following specification :- (i) Outer sheet profile : profiled GI metal plain sheet (ii) Inner sheet profile : GI Metal plain sheet with slight ribs. (iii) Panel thickness : minimum 60mm. (iv) Facing Material thickness of not less than 0.5 outer and inner with DFT 20 microns colourcoate MP/SMP/PVDF coating over 5 micron primer (v) Polyurethane Foam (PUF) CFC & HCFC free rigid PUF as per IS 12436 standard (vi) Foam overall density : 40 + 2kg/cum (vii) Foam thermal conductivity (K-value) at 10 degree centigrade mean temp : 0.023 W/m degree K (viii) Compressive strength @ 10% deformation : 2.10 Kg/ sq.cm. 205.93 Kpa (ix) Tensile strength : 2.5 Kg/sq.cm (x) Flexural/Bending strength : 90-95% (xi) Fire Characteristic : Fire retardant, self extinguishing and quality foam. (xii) Water absorption : 0.2% volume at 100% RH -max. (xiii) Dimensional stability at - -25 degree Centigrade Cold Temp and - +/- 2% +70 degree Centigrade Hot Temp should be - +/- 2%. (xiv) Green rating Point : 5	Sqm	168		
3	(b) Galvalume coated and prepainted U Channel made out of 1.25mm thick GI Sheet (52.5mm x 35mm) for placing of double skin insulated wall panels incl fixing arrangements	RM	130		
4	(c) Inner and outer flashing 0.50mm thick GI steel sheet at en joints of tow walls of 3.10m clear height for outer and inner joints. The flashing should have an over lap of atleast 100mm on both sides of walls and overlap of atleast 100mm on both sides of walls and fixed to the wall panel with help of self driven screws.	RM	30		
5	(d) Fabrication and supply of truss members as per drawing alongwith nut and bolts for fixing of purlins and base plate as under :- (i) Truss 6.10m span made of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS 4923 :1997 (ii) 02 Nos base plate welded to the truss on either side of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16 mm with nuts and with predrilled holes of appropriate sizes for truss. (iii) 08 Nos 16mm dia 50mm long heavy duty black bolts with hexagon head and nuts with GI washer with each truss.	Nos	8		

6	(e) Purlins of length 2.79m(measured centre to centre) made of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith 2 Nos cleats of MS sheet of size 66mm x150mm, 5mm thick continuously welded on both ends of the purlin duly drilled of 2 holes each for 12mm dia bolt for fixing of purlin with the truss. (inclusive of bolts reqd to be fixed)	Nos	77		
7	(f) Principal rafter of as per actual required span for slope of 1:4 as per drg made of rectangular hollow steel section of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith base plate of size 230mm x 230mm, 5mm thick for fixing the rafter on the column and 2 Nos cleats of MS sheet of size 66mm x150mm, 5mm thick continuously welded on other ends duly drilled of holes for fixing with 12mm dia heavy duty black bolts with hexagon head and nuts with GI washer with each rafter.	Nos	8		
8	(g) Main Column shall be of rectangular hollow steel sections of size 100mm x 50mm, 4mm wt not less than 8.59 Kg/RM conforming to IS: 4923: 1997 thick to support trusses fixed and shall be of height as reqd to achieve clear span of 3.2 between lower end of tie beam and FFL. Each column shall have base plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16mm 600mm long with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm conforming to IS: 4923: 1997 with predrilled holes of appropriate sizes for fixing with truss inclusive of 04 Nos 16mm dia 600mm long for fixing as foundation bolt and 04 Nos 16mm dia 50mm long with truss of heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of truss at bottom and top respectively.	Nos	16		
9	(h) Door column shall be of rectangular hollow steel sections of size 100mm x 50mm, 4mm thick to support tie tie runner fixed and shall be of length to provide clear height of requirement as above FFL (wt not less than 8.59 Kg/RM) upto tie runner . Each column shall have bottom plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16mm 600 mm long conforming to IS: 4923: 1997 with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with predrilled holes of appropriate sizes for fixing with tie beam/tie runner inclusive 04 Nos 16mm dia 600mm long for fixing as foundation bolt and 04 Nos 16mm dia 50mm long with truss of heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of tie runner at bottom and top respectively.	Nos	8		
10	(j) Verandah column shall be of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr thick to support extended principal rafter for verandah and shall be of length to provide slope of 1:4 as per drg above FFL (wt not less than 4.93 Kg/RM) . Each column shall have bottom plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with 4 holes for fixing foundation bolts of 16mm dia 600 mm long with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm thick with predrilled holes of appropriate sizes for fixing with truss inclusive of 04 No 16mm dia 600mm long for fixing as fdn bolt and 04 Nos 16mm dia 50mm long heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of truss at bottom and top respectively.	Nos	8		

11	(k) Extra column for PUF panel support shall be provided below gable end of rectangular hollow steel sections of size 100mm x 50mm, 4mm thick to support trusses fixed tie beam and shall be of length to provide clear height of 3.20m above FFL (wt not less than 8.59 Kg/RM) . Each column shall have bottom plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm conforming to IS: 4923: 1997 thick with 4 holes for fixing foundation bolts of 16mm 600 mm long with nuts and top sole plate of size 230 x 230x 8mm thick of wt not less than 62.80Kg/sqm with predrilled holes of appropriate sizes for fixing with truss alongwith 04 No 16mm dia 600mm long for fixing as fdn bolt and 04 Nos 16mm dia 50mm long heavy duty black bolts with hexagon head and nuts with GI washer will be provided with each column for fixing of truss at bottom and top respectively.	Nos	2		
12	(l) Tie runner will be provided column to column made of rectangular hollow steel sections of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith 2 Nos cleats of MS sheet of size 66mm x150mm, 5mm thick continuously welded on both ends duly drilled of 2 holes each of for 12mm dia bolt for fixing of tie runner with the main column.. necessary fixing arngs(for fixing between column to column at lintel height above window/door 2100mm above FFL.2 Coats of synthetic enamel paint (with colour matching to inner sheet of Puff wall) over a coat of red oxide shall be applied over tier runners Puff panels shall be fixed with tie runners with help of self tapping screws along the length in addn to fixing with columns. . Puff panels shall be fixed with tie runners with help of self tapping screws along the length in addn to fixing with colns. (Inclusive of screws and nut/bolt reqd for fixing)	Nos	14		
13	(m) Eaves connector 300mm long made of rectangular hollow steel section of size 66x33x3.6m , and weight should not be less than 4.93 Kg/Mtr conforming to IS: 4923: 1997 alongwith base plate of size 66mm x150x5mm for fixing with purlin/gable end.	Nos	30		
14	(n) Pre painted Zink coating GalvalumeRoof sheet 1070mm x 3650 mm,0.50mm thick, 550 MPa make : ISI marked JSW/BPSL/TATA.	Nos	21		
15	(n) Pre painted Zink coating GalvalumeRoof sheet 1070mm x 5180mm,0.50mm thick, 550 MPa make : ISI marked JSW/BPSL/TATA.	Nos	21		
16	(p) Pre coated Galvanized steel sheet (GI based) of 600mm x 2460 mm, 0.5mm thick confirming to AFTM-A653/ZIF 3312/IF227/AF1397 and of thick 0.50 mm for ridge profile Make LLOYDS/TATA/JINDAL/ASIAN ISI marked.	Nos	9		
17	(q) Sunshade made of will be of Pre-Painted galvalumealuminium zinc coating GI based plain steel sheet 0.5mm thick of choice colour conforming to IS-277, 2003 reinforced with angle iron frame 35 x 35 x 5mm and Flat Iron 35 x 3mm will be provided to all windows except in verandha. The minimum projection of sunshade shall be 450mm and 300mm wider than the opening. The sunshades shall have 20 degree downward slope.	Nos	4		
18	(r) Self driven power screw of 3mm in dia and 55mm long in built rubber washer and GI washer	Nos	800		
19	(s) Wooden flush door 30mm thick Flush door single leaf of size 915mm x 2080mm and fly proof door made out of as per drg fixed on steel frame as per specifications. Flush door shutter made out of solid core construction with particle board core and plywood face panels on both sides conforming to IS 2202- (Part I)- 1999 shall open inside and wire mesh shutter made out of 30mm thick well seasoned 2nd cl approved Hard Wood shall open outside with chowkat and all fitting as specified complete.	Nos	4		
20	(t) Aluminum sliding type window of size 1.2m x1.2m made of aluminum outer and inner frame section of size (63mmx38.1mmx1.8mm thick) with fly proof stainless steel wire mesh and aluminium grill of aperture 3" x 3" at out side with two track fixed to outer frame with screws and two Nos sliding aluminium panel frame of size (38.1mm x 12.7mm x 1.8mm thick) with properly fixed 4mm thick glass pane and proper locking arrangements all as per drawing specified.	Nos	8		

21	(u) Aluminium cooler opening of size 650mm x 650mm with Aluminium Frame 63mm x 38.1mm x 1.80mm thick hollow rectangular section . The frame of Shutter shall be made out of U Channel of size 64mm x 37mm x 1.1mm thick and fixed complete with hinges to frame. 63mm thick PUF Sheet(Matching to colour of wall) with locking arrangement shall be fixed with the Aluminium Frame with opening downward all as specified and approved	Nos	5		
22	(v) False ceiling fixing arrangement shall be provided for 7-8 mm thick Gypsum board PVC coated on one side and water proof coating on other side gypsum board false ceiling, fixed in hot dipped pre-coated aluminium section framework of size 600mm x 600mm made from GI 'L' section of size 30mmx 20mm x 1.25mm thick & 'T' sections of size 30mm x 35mm x 0.80mm conforming to IS: 277: 1992 with amdt 2, having min GSM of 120 gms, suspended from the roof trusses with the help of 4mm dia GI wire. Make : SAINT GOBAIN/DEXUNE/MODERN.	sqm	130		
<u>Building Material.</u>					
1	Second class Bricks of size 230mm x115mm x75mm with frog size 110 x 40 x 10-20mm having min compressive Str 75 Kg/Cm2 and conforming to IS 12894 of 2002.	Nos	16900		
2	Cement Bags PPC conforming to IS -1489 (Part-I) 1991 with amdt No 1 to 3 packed in HDPE Bag of 50 Kg each confirming to IS-11652/2000 (Make : Ambuja/Birla/Ultratech/ Shree ultra)	Bag	170		
3	Sand conforming to IS-383-1970. The sand shall be hard, dense, strong, durable, clear and free from veins, adherent coatings, disintegrated pieces, alkali, vegetable matters and other deleterious substances.	Cum	20.4		
4	Fine Sand	Cum	12.06		
5	Graded Stone Aggregate of size 40-63mm conforming to IS-383-1970	Cum	25		
6	Graded Stone Aggregate of size 40mm conforming to IS-383-1970	Cum	23.32		
7	Graded Stone Aggregate of size 20mm conforming to IS-383-1970	Cum	6.5		
<u>Hardware Material.</u>					
1	Thinner of Make : Shalimar/ Asian/Jenson and Nicholson/Berger/GoodlasNerolac	Ltr	1		
2	Water proofing compound packed in one Kg packet make Seeko/ICI/SAIL/TISCO/RINL ISI marked	Kgs	8		
4	Wood Primer (Make - Berger/Shalimar)	Ltr	2		
5	Red oxide (Zinc Chromate) Make : Shalimar/ Asian/Jenson and Nicholson/Berger/GoodlasNerolac	Ltr	3		
6	Synthetic Enamel Paint Make : Shalimar/ Asian/Jenson and Nicholson/Berger/GoodlasNerolac	Ltr	7		
7	Vitrified ceramic tiles of size 600mm x 600mm, 7 to 8mm thick Make:Johson/kajaria/Orient	Nos	450		
8	Cement base paint Make : Shalimar/ Asian/Jenson and Snowcem /Berger/GoodlasNerolac	Ltr	1.5		
9	Primer for preparing newly plastered surfaces before applying of cement base paint	Ltr	1		
10	OBD for plastered surfaces Make : Shalimar/ Asian/Jenson and Snowcem /Berger/GoodlasNerolac	Ltr	10		
11	Primer for preparing newly plastered surfaces before applying of Oil bound distemper	Ltr	5		
12	Putty for plastered surfaces of walls Make : Birla/JK	Kgs	2		
13	Fire Extinguisher 3 Kg capacity with mounting brackets. Make Minimax/Omax.	Nos	2		
<u>Electrical stores.</u>					
1	LED Tube light alongwith fixture 20w (4') Make Crompton Greaves/Bajaj/	Nos	6		

	Havells.				
2	Recess mounted LED Light fitting 36 w 2' x 2' SUM PANEL, 230 v ISI Marked Make : Surya/Philips/Havells.	Nos	8		
3	Ceiling fan 1200 mm sweep complete with electronic dimmer 450W Make Crompton Greaves /Usha/ Bajaj/Orient/Havells.	Nos	12		
4	Hook for hanging ceiling fan (cost Iron)	Nos	12		
5	Bulk head fitting complete with glass and CFL 11 Watt Make : Bajaj/Crompton/Havells	Nos	2		
6	Ceiling rose 2 to 3 terminal Make- Havells/Bajaj/Anchor	Nos	14		
7	Switch piano type 5 Amps Make- Havells/ Bajaj/Anchor.	Nos	32		
8	5 Pin 15 Amps switch socket combination with PVC mounting box Make: Havells/Bajaj/Anchor.	Nos	2		
9	5 Pin 5 Amps switch socket combination with PVC mounting box Make- Havells/Bajaj/Anchor.	Nos	16		
10	MCB DB SPN 12 way Make Havells/ L&T/Indokupp/ Standard/Asian.	Nos	1		
11	MCB DP 32Amps conforming to IS 8828-1996 Make Havells/ L&T/Indokupp/Standard/Anchor.	Nos	1		
12	Miniature circuit breaker (MCB) 6 Amp to 32 Amps (single pole) Make Havells/ L&T/Indokupp/ Standard/Anchor.	Nos	10		
13	PVC switch mounting box 6" x 8" Make- Havells/Bajaj/Anchor.	Nos	8		
14	Wire PVC insulated cable 1.5 sqmm multi stranded Copper conductor single core 1100V, grade conforming to IS 694/1990 a roll of 90m long of Make: Havells/Paragon/Finolex/Plaza, ISI marked	Roll	7		
15	Wire PVC insulated cable 2.5 sqmm multi stranded Copper conductor single core 1100V, grade conforming to IS 694/1990 a roll of 90m long of Make: Havells/Paragon/Finolex/Plaza, ISI marked	Roll	2		
16	Wire PVC insulated cable 10 sqmm copper conductor unarmoured under ground 1100V grade two core conforming to IS 694/1990 Make:Havells/Paragon/Finolex/Plaza, ISI marked	Roll	1		
17	PVC casing capping 20 mm size Make Polyplast / Beralia/Power/Shakti.	RM	80		
18	PVC casing capping 25 mm size Make Polyplast / Beralia/Power/Shakti, ISI marked	RM	40		
19	PVC Tee 20mm casing capping Make Polyplast/ Beralia/ Power/Shakti.	Nos	15		
20	PVC Tee 25mm casing capping Make Polyplast/ Beralia/ Power/Shakti.	Nos	5		
21	PVC Bend 20mm Casing Capping make Polyplast/ Beralia/ Power/Shakti.	Nos	10		
22	PVC Bend 25mm Casing Capping make Polyplast/ Beralia/Power/Shakti.	Nos	5		
23	PVC Junction box 3 way 20mm Make Polyplast/ Beralia/Power/Shakti.	Nos	20		
24	PVC Junction box 4way 20mm Make Polyplast/ Beralia/ Power/Shakti.	Nos	10		
25	PVC Junction box 3 way 25mm Make Polyplast/ Beralia/ Power/Shakti.	Nos	10		
26	PVC Junction box 4 way 25mm Make Polyplast/ Beralia /Power/Shakti.	Nos	10		
27	Tape insulation 10 mtr roll Make Steel grip/Anchor grip	Roll	10		
28	GI earthing plate 600x600x6mm thick with 10 mm dia, 25 mm long 02 Nos nut & bolts.	Nos	1		
29	Common Salt	Kgs	30		
30	Charcoal	Kgs	50		
31	GI wire 4mm (8 SWG)	Kgs	5		
32	CI cover 5mm thick (300 x 300mm size) hinged to CI frame	Nos	1		
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34	Rawl plug (Pkt of 100 Nos)	Pkt	10		
35	Al strip 25 x 3mm	Mtr	10		

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37	Screw Steel Full threaded 25mm (Pkt of 100 Nos)	Pkt	4		
38	Screw Steel Full threaded 32 mm (Pkt of 100 Nos)	Pkt	2		
39	Screw Steel Full threaded 40mm (Pkt of 100 Nos)	Pkt	2		
40	PVC box of size 4"x4" for mounting ceiling rose/ pendent holder.	Nos	28		
41	Flexible conduit 20mm dia.	RM	80		
42	Conduit clips (Pkt of 100 Nos).	Pkt	5		
43	Cooler stand 600mm x 600mm x 750mm made out of 25mm Square Pipe 2mm thick reqdht at site, with min two horizontal supports in between the frame. Where ever difference in height for Cooler opening & height of stand exists, the same shall be adjusted with necessary bk staging. Bk staging shall be painted with two coats of Cement Based paint over a coat of primer).	Nos	5		
44	Exhaust fan 300mm sweep with louvers (make Crompton/Bajaj) incl fixing arrangements with gable ends over ceiling level.	Nos	4		
45	MS distribution box 3 phase 32 Amp TPN with bus bar(Size 30 cmx45cmx20cm approx).	Nos	1		
46	GI Pipe 20mm dia 6' Long Light grade Make Jindal /TATA.	Nos	1		
47	PVC Conducit pipe 25 mm	Nos	2		
48	GI Pipe 50mm dia 6' Long medium grade Make Jindal /TATA.	Nos	1		
				Total	
				Grand total	
				Say Rs	

REFERENCE DETAILS**Reference 1**

(a)	Name of Company	
(b)	Address of the company	
(c)	Name and designation of the reference	
(d)	Contact details of reference	
	(i) LL Number (ii) Cell No (iii) E-mail ID	
(e)	Details of Supply of stores in last 3 years. (Ref No, Date of order and quantity)	

Reference 2

(a)	Name of Company	
(b)	Address of the company	
(c)	Name and designation of the reference	
(d)	Contact details of reference	
	(i) LL Number (ii) Cell No (iii) E-mail ID	
(e)	Details of Supply of stores in last 3 years. (Ref No, Date of order and quantity)	

Place :

Signature

Date :

Name and designation seal of firm / company

**TOTAL COST :SUPPLY OF STORE AND MATERAILS FOR CONSTRUCTION OF
CLASS ROOM AT APS MATHURA, UP**

1. Supply of store and materials for construction : Rs _____
of class rooms at APS Mathura (UP) (Shelter No 1)
2. Supply of store and materials for construction : Rs _____
of class rooms at APS Mathura (UP) (Shelter No 2)
- (As per tech specification at Annex III).
Total cost of Shelter 1 & 2 : Rs _____
- Taxes** : Rs _____
- Grand Total** : Rs _____
(Inclusive of Warranty etc).

Place :

Signature

Date :

Name and designation seal of firm / company