

Director General CRPF
Block No. 1 CGO Complex, New Delhi-110003
(Govt. of India/Ministry of Home Affairs)
(Phone / Fax- 011-24360155)
(E-Mail- digprov@crpf.gov.in)

No.U.II-98(Spec)/2018-19-Prov-(P.F.Huts)-14

Dated, the 25 March' 2019

To


The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPRD

Subject: QRs/Specification of "P.F. Huts with PUF Panel" for CRPF

Considering requirement of CRPF field formation, competent authority has directed to frame QRs/Specification of "**P.F. Huts with PUF Panel**" for CRPF and to say that the QRs/Specification has been finalized by Sub-Group of CAPFs and further approved by Competent Authority.

2. This has the approval of DG, CRPF vide E-Office No. 112 dated 20/03/2019 (empowered vide MHA letter F.No. 11012/02/2009-Fin-I-17 dated 02/01/2018).

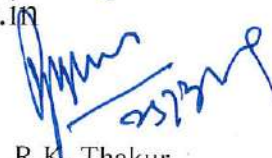
Encl: As above.


R.K. Thakur
DIG (Prov)

No.U.II-98(Spec)/2018-19-Prov-(P.F.Huts)-14
Copy forwarded to:-

Dated, the March' 2019

SO (IT), MHA, North Block-with request to upload the approved QRs/Specification of "**P.F. Huts with PUF Panel**" to MHA Website. For information and necessary action please on his e-mail ID soit@nic.in


R.K. Thakur
DIG (Prov)

BOARD PROCEEDING

Proceeding of : Sub Group of CAPFs.

Constituted vide : GOI/MHA OM No.IV-24011/12/2011-Prov-I dated 13/06/12 and GOI/MHA Order F.No.11012/02/2009-Fin-I-17 dated 02/01/2018.

Assembled at : Directorate General, CRPF, Block No.01, CGO Complex, Lodhi Road, New Delhi.

Assembled on : 29/01/2019.

Purpose : To finalize QRs/Specification of "P.F. Huts with PUF Panel" for CAPFs

COMPOSITION OF BOARD:-

Chairman : Smt. Anupam Kulshreshtha, IPS, IG(Prov) CRPF

Member : Sh. Narinder Paul, DIG(Ord), CRPF

Member : Sh. Rabish Kr. Singh, Comdt (Works), CRPF

Member : Lt. Col. Dinesh Singh, Assam Rifle

Member : Shri R.K. Jha, 2I/C Prov, CRPF

Member : Shri S.P. Rath, Asst. Comdt(Er),SSB

Member : Shri Bhupesh Joshi, AC(W), BSF

Member : Shri Anand Kumar Panwar, AC, NSG

Expert Representatives:-

Sh. M.K. Rajak, CEP HQ, BIS, New Delhi

In the light of GOI/MHA OM No.IV-24011/12/2011-Prov-I dated 13/06/2012 and GOI/MHA Order F.No.11012/02/2009-Fin-I-17 dated 02/01/2018, CAPFs Sub Group assembled at Directorate General, CRPF, Block No.01, CGO Complex, Lodhi Road, New Delhi for finalization of QRs/ Specification of "P.F. Huts with PUF Panel" for CAPFs.

2. The draft QRs/ Specifications of "P.F. Huts with PUF Panel" for CAPFs is framed by CAPFs Sub-Group and same was uploaded on CRPF and MHA website w.e.f. 20/09/2018 to 10/10/2018 for inviting expression of interest (EOI) from the interested manufactures/vendors dealing in subject items. In turn, no response has been received from any of the vendor/ manufacturer. BIS suggested some corrections in drawing/design part as per shown in literature part of draft QRs/Specification of item and same has been incorporated in the Draft QRs/Specification of "P.F. Huts with PUF Panel" for CAPFs.

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- Signature: Anupam, Date: 29/1/19, Position: NSG
- Signature: Narinder Paul, Date: 29/1/19, Position: CRPF
- Signature: Rabish Kr. Singh, Date: 29/1/19, Position: CRPF
- Signature: Lt. Col. Dinesh Singh, Date: 29/1/19, Position: Assam Rifle
- Signature: Shri R.K. Jha, Date: 29/1/19, Position: CRPF
- Signature: Shri S.P. Rath, Date: 29/1/19, Position: SSB
- Signature: Shri Bhupesh Joshi, Date: 29/1/19, Position: BSF
- Signature: Shri Anand Kumar Panwar, Date: 29/1/19, Position: NSG
- Signature: M.K. Rajak, Date: 29/1/19, Position: BIS
- Signature: Sh. Rabish Kr. Singh, Date: 29/1/19, Position: CRPF (works)

3. Having gone through carefully the draft QRs/Specifications of "P.F. Huts with PUF Panel" for CAPFs and after due deliberation by the CAPFs Sub-Group came to the conclusion that the draft QRs/ Specification of the item are acceptable and generic in nature and will promote fair and wider participation.

4. Accordingly, the CAPFs Sub Group recommends for submitting the QRs/ Specifications of "P.F. Huts with PUF Panel" to DG, CRPF for approval, as DG, CRPF being nodal agency for framing of QRs/Specifications of C&T(Genl) for CAPFs.

Member..... <i>Anand Kumar Panwar</i> 29.1.19 Anand Kumar Panwar, AC, NSG	Member..... <i>Bhupesh Joshi</i> 29.1.19 Bhupesh Joshi, AC(W), BSF
Member..... <i>S.P. Rath</i> 29.1.19 S.P. Rath, Asst. Comdt(Er), SSB	Member..... <i>R.K. Jha</i> 29.1.19 R.K. Jha, 2I/C Prov, CRPF
Member..... <i>Lt. Col. Dinesh Singh</i> 29.1.19 Lt. Col. Dinesh Singh, Assam Rifle	Member..... <i>Rabish Kr. Singh</i> 29.1.19 Rabish Kr. Singh, Comdt (Works), CRPF
Member..... <i>M.K. Rajak</i> 29.1.19 M.K. Rajak, CEP HQ, BIS, Delhi	Member..... <i>Narinder Paul</i> 29.1.19 Narinder Paul, DIG(Ord), CRPF
Chairman..... <i>Anupam Kulshreshtha</i> Anupam Kulshreshtha, IPS, IG(Prov), CRPF	

APPX - "D"
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TECHNICAL SPECIFICATIONS FOR SHELTER

1. DESCRIPTION OF WORK

Construction of Prefabricated Shelter using PUF Panels, Steel Structure, False Ceiling, Door & Aluminium windows at various locations complete in all respects as per the concept drawings attached including design, supply, installation, electrical wiring works, as per the general specifications as detailed below.

2. DESIGN PARAMETER

The Prefabricated Shelter will be designed for minimum life span of 25 years plain areas in 1:4 slope covering wind velocity of up to 47 metres/sec, Seismic Zone V & ambient temperature ranging from 0 to + 50 degree.

3. BUILDING SIZES

- A. Barrack 9.76 Mtr (32.00 Feet) X 5.50 Mtr (18.00 Feet) with **1.52 Mtr (5.00 Feet)**
- B. Barrack 19.52 Mtr (64.00 Feet) X 5.50 Mtr (18.00 Feet) with **1.52 Mtr (5.00 Feet)**
- C. Prefabricated Shelter clear height below false ceiling shall be 2.90 mtr. The shelter at eaves shall be **3.00 mtr** & centre height shall be **3.79 mtr**.

4. SHELTER WALLING

The wall panels shall be made up of 0.5mm thick(TMT)PPGI ribbed sheet on both sides with a layer of rigid CFC free polyurethane foam of density $40\text{kg} \pm 2\text{kg}/\text{cum}$ as insulation in between. The polyurethane foam shall be of latest IS. The thickness of PU foam layer shall be **49mm for having 50 mm thick PUF panel**. Outside colour of wall panel may be Grey, Olive, Green, or as per buyer requirement. The panels will be provided with tongue and groove joint and will be interlocked using cam lock systems. Gable ends will also be covered with same panels as in the main walls.

The wall panels exposed edges at bottom & top side shall be covered using bottom & top u track of size 53mm X 35mm X 0.5mm made out of PPGI Sheet & shall be secured to the wall panels using pop rivets. The U track at bottom shall be fixed on to the concrete plinth using expandable fasteners of 8mm diameter & 80 mm in length provided at a spacing of 450 mm c/c.

The PUF Panels shall be vertically joined together by tongue & groove arrangement all along the length. The wall panels shall be fixed to the steel frame structure on top & bottom using Nut/Bolts tightened through the steel frame cleats for wall strength & sturdiness. Wall Panels at Gable ends will also be covered with the same single panels without any horizontal joint.

The joints all around the Wall Panels shall be joined & covered by means of PPGI flashing of size 50x50x0.50mm fixed using pop rivets at a minimum distance of 200 mm on all exposed faces. All the wall joints shall be sealed with transparent/white colour silicon sealant.

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The PPGI Sheets shall be of minimum 240 MPA Steel Grade & shall have a Zinc coating of minimum 120 GSM as per IS 277/1992, 5-7 microns of epoxy primer on both sides of the sheet & polyester top coat of 18-20 microns on one side / outer side. The PPGI Sheets / PUF Panels shall have a protective guard film of minimum 20-25 microns to avoid scratches to finished panel during transportation.

5. FALSE CEILING

False Ceiling shall be provided in the living area only (Excluding Verandah) using **40 mm** thick PUF panels made up of **0.5mm thick PPGI** sheet with guard film having ribbing pattern for aesthetic appearance on both sides with a uniform layer of **39 mm** thick rigid CFC.

The False Ceiling Panels shall be fixed & supported on to the steel grid frame work consisting MS Painted L & T Sections. The False Ceiling Grid shall be fixed to the structural steel frame work of shelters using cleats & Nut/ Bolts. The Size of L angle will be 40x40x5mm & the size of T will be 65x65x6mm. The Joints all around the Wall Panels & False Ceiling shall be joined & covered by means of PPGI flashing of Size 50x50x0.60mm fixed using pop rivets at a minimum distance of 200 mm. All the false ceiling joints shall be sealed with transparent/white colour silicon sealant. The false ceiling panels will have tongue and groove arrangement and shall be interlocked using cam lock systems.

6. PUF SPECIFICATIONS

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

- All panels should have a tongue & groove profile on all joining edges with minimum projection 10mm high and 30mm wide for airtight sealing of joints.
- All Panels will be manufactured in single batch as per approved panel layout Drawings using the above materials.
- Original purchase voucher and test certificate will be submitted and the purchaser can carry out inspection of any one panel from the lot at manufacturer premises to ensure the chemical and physical properties.
- The colour inside and external wall panel will be as per buyer requirement of approved shade.

7. ROOFING

The Roof shall be provided in a two way slope of 1:4 ratio with PPGI Trapezoidal colour coated conforming IS 14246 Sheet of 0.5mm thick. The Roof shall have minimum projection of 300 mm from the eaves wall & will be flushed at Gable Wall. The Roof Sheets shall be fixed on to the structural steel frame work using 5x95mm self tapping self drilling screws with suitable EPDM Seal Fasteners / J Hooks & Nuts of 8mm diameter with bitumen & GI Limpet Washers complete up to the pitch of the Sheet. The Roof Sheeting Junction at centre will be covered with 0.50 mm thick PPGI Ridge cover of Size 205x205 mm fixed over the Roof Sheeting & on to the Structural Steel Frame Work using 95 mm self Tapping Self Drilling Screws with suitable Rubber Fasteners. The Roof will have a minimum projection of 300 mm all around the Eaves & Gable Walls. The PPGI

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Sheets shall be of minimum 240 MPA Steel grade & shall have a Zinc Coating of minimum 120 GSM as per IS 277/1992, 5-7 Microns of epoxy primer on both sides of the Sheet & Polyester top Coat of 18-20 microns on one side/outer side. The PPGI Sheets/PUF Panels shall have a protective guard film of minimum 20-25 microns to avoid scratches to finished panel during transportation. Provision for outlets of Pipes of Bukhari in Roof and False Ceiling in cold region as per requirement of the buyer.

8. FLASHING

It will be responsibility of the contractor to fix & cover all joints using proper & suitable Size PPGI Flashing In 0.50mm Thickness. The PPGI Sheets Shall Be Of Minimum 240 Mpa Steel grade & shall have a Zinc coating of minimum 120 gsm as per IS 277/1992, 5-7 Microns of Epoxy Primer on both sides of the Sheet & Polyester top coat of 18-20 microns on one side / outer side. The PPGI Sheets / PUF Panels shall have a protective guard film of minimum 20-25 microns to avoid scratches to finished panel during transportation.

9. DOORS (AS PER DRAWINGS)

Pressed Steel profile frame with PUF Panel Doors Shutters shall be provided in prefab structure as per the sizes given in the Drawing. Frame shall be made from PUF Insulated door 50 mm with 1.25 MS frame of size 2100x1000mm outer dimension. The Door Frame will be made up of suitable designed pressed Steel Profile section duly painted in approved Colour in 1.25 mm thickness Cr Steel. The Door Internal Shutter will be made up of Panel covered with Aluminium Lipping all around. Each Door shall be provided with ISI marked Aluminium fittings such as **1 no. 300mm AAIdrop Bolt**, 2 Nos D Shaped Handles of 150 mm, **1 Nos Tower Bolt of Size 200mm**, 1 Nos Tower Bolt of Size 100mm. The Door Shutter shall be fixed to the frame using 4 Nos MS BUTT Hinges (**100 mm each**).

10. WINDOWS & SUNSHADES (AS PER DRAWINGS)

Aluminium 2 way sliding windows with fixed mesh from outside & Aluminium Grills with all fittings shall be provided as per the Drawings. The window frame of size 1200x1200mm will be manufactured using suitable Standard Aluminium hollow Sections / Profile. The Window shall be provided with 3 mm thick clear Poly Carbonate Sheet fixed using EPDM Rubber Beading. The Window shall also be provided with Stainless Steel Mesh of 1.5mm Aperture & Standard Grills fixed from outside of Window using suitable size Aluminium Flat & Rivets. 08 nos Windows for 18x64 and 4 nos. Window for 18x32 is to be provided as per drawing.

11. SUNSHADE

Suitable Sunshades made out of 0.50mm PPGI Sheets will be provided to all external Windows and doors not covered under Verandah. The Minimum projection for the sunshades will be 450 mm and 300 mm wider than the width of the opening. It should be suitably fastened with the main structure.

12. CURTAIN ROD ARRANGEMENT

25 mm diameter mild steel powder colour coated fancy type drapery rod with fixing arrangements will be provided for all openings (Door and Windows). The drapery rod should be minimum 450mm longer than width of the opening.

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13. PEG SET

20 No's Aluminum twin peg Set / Coat Hook of 100 mm in size to be provided inside the shelter at an height of 1.8 mtr. fitted with Galvanized Screw.

14. STRUCTURAL STEEL FRAME WORK (AS PER DRAWING)

The Structural Steel frame work shall consist of RHS Sections conforming to IS 4923/1997. The Frame Work shall consist of Trusses, Purlins, and Column Etc. All the steel work shall be given 2 coats of Zinc Chromate Primer. The Steel work shall be painted with 2 coats of Synthetic Enamel Paint of approved shade & make. Main Shelter column of Size 96 X 48 X 3.2 mm IS 4923:1997 (RA 2013) provided at a distance as per drawing. The Column Bottom End Plate of Size (as per drawing) shall be fixed to the concrete floor using 4 No's Foundation Bolts of 12mm Dia & 300 mm long with suitable Washers & Nut & Bolts. The column shall also have top plate of size (as per drawing) for connection with Truss Plate. The Verandah Column are made using RHS of 66 X 33 X 2.9 mm.

The Trusses shall be made up using RHS section of **66 X 33 X 2.9 mm** at Top & Bottom Cord of truss and **50 X 25 X 1.8 mm** thick internal members. The Trusses shall be fixed on to the columns with connection plates of 6mm thick & tightened with the help of Nut & Bolts. Trusses to be provided at a distance of 2.44 m and shall be supported on Truss Columns.

Purlins made up of RHS of size 66 X 33 X 2.9 & shall be fixed between the trusses with suitable Cleats & Nuts & Bolts as per drawing attached.

Mosquito Wire provision shall also be provided. 3 Nos GI Wire of 5mm dia shall be provided at a standard height & tightened at the Gable Ends with the help of suitable Nut, Bolts & Washers.

The Steel Structure sections mentioned above are minimum Sizes to be used & indicative. Higher section sizes & thickness can be adopted. The Shelters will be designed for the Design Parameters & Drawings as indicated in the Specifications mentioned above.

15. WORK MAN SHIP

- (a) **Connection:** Welded connection will be provided unless otherwise specified in the Drawings. The welded connections will be conformed to IS 806-1968
- (b) **Fabrication:** The General Provisions in section 11 of IS 800 of 1984 will apply to all types of steel being used for fabrication.
- (c) **Various Fasteners and Fittings:** Fasteners And Fittings of mild Steel shall be supplied unless otherwise specified in and shall be fixed where required. Fastening means will be provided for the items to be fitted at the time of erection. The Fasteners supplied shall conform to relevant BIS Specification.
- (d) **Finishes:** All Steel work will be given two coats of Red Oxide Zinc Chromate Primer by the manufacturer in the factory. All the Steel items shall be painted using 2 coats of synthetic Enamel Paint of approved shade. All Paint Materials will be of Jenson & Nicholson/Berger/Asian make.

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16. CIVIL WORKS

Foundation, Flooring & Finishing Works - to be provided by Indentor / Consignee as per the Drawings

17. ELECTRICAL WIRING & POINTS (EXCLUDING FITTINGS)

The Electrical Wiring Points shall be provided within the Shelters Only. Provision for connecting to the main line shall be done by the client. All the wiring & fittings used shall conform to ISI Mark & shall be of good brand.

All Wiring used shall be conforming to IS 694. All conduits shall be round PVC 25 mm diameter medium grade conforming to IS 9537 Part 3. All Sockets / Switch Boxes shall be Modular Design. MCB, Distribution Boxes shall be ISI Marked of reputed make. Earthing shall conform to IS 3043. 2 Lightening Arrester per Building shall be provided as per Standard Specification.

- 1) Light Point Copper wiring using 1.5 Sq mm PVC Insulated Cables over surface using PVC 25 mm diameter medium grade conduits with PVC Modular Design Switch Boxes, Modular Switches, Sockets, PVC Lamp Holders / Ceiling Rose Etc. Complete.
- 2) Power Point Copper wiring using 4.0 Sq mm PVC insulated cables over surface using PVC 25 mm diameter medium grade conduits with PVC Modular Design Switch Boxes, Modular Switches, Sockets, Etc. Complete.
- 3) Supply & fixing of approved make powder coated Steel Sheet Distribution Box including Bus Bar, Neutral Bar, Earth Bar Complete in all respects as per IS 13032. The DB shall also have required MCB & isolator of ISI Marked as per approved make.

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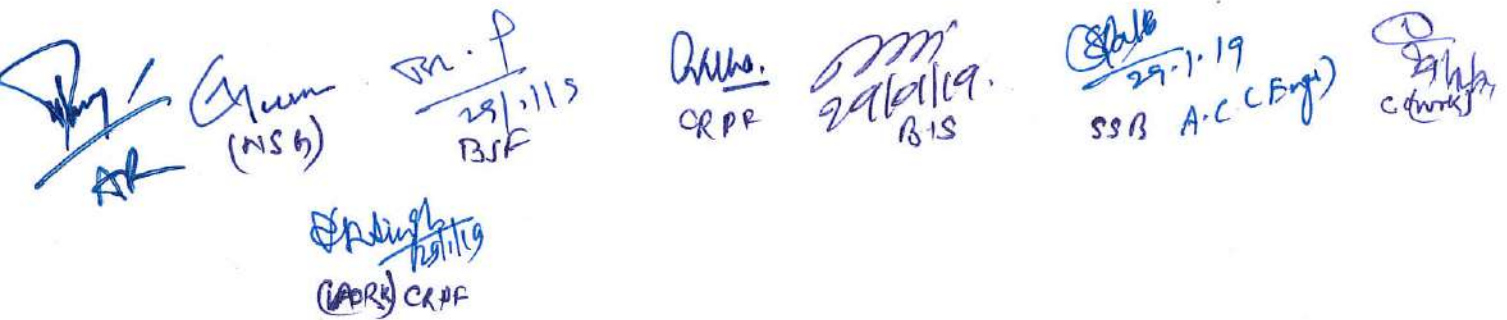
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S. No.	Description	Quantity	
		18x32	18x64
1	Fan Points With Hooks & Fan Regulators	4	8
2	Light Points With 1.5 Sq Mm Wire	12	20
3	Power Points With 4.0 Sq Mm Wire	4	8
4	5 Amp Socket	6	12
5	5 Amp On/Off Switch	22	40
6	15 Amp Socket	4	8
7	15 Amp On/Off Switch	4	8
8	25 Mm PVC Round Conduits Complete With Bends	40	80
9	32 Mm PVC Flat Conduits Complete With Cover	20	40
10	1.5 Sq Mm Copper Wire, 90 Mtr Bundles In 3 Colors	5	9
11	4.0 Sq Mm Copper Wire, 90 Mtr Bundles In 3 Colors	2	4
12	Main Modular Board – 4 Way	4	8
13	Main Modular Board – 6 Way	2	4
14	Main Modular Board – 8 Way	2	4
15	Single Pole Mcb – 16 Amp	6	12
16	Single Pole Mcb – 32 Amp	4	8
17	Single Pole + Neutral Mcb – 32 Amp	2	4
18	Three Pole + Neutral Mcb – 32 Amp	1	0
19	Three Pole + Neutral Mcb – 40 Amp	0	1
20	Suitable Size Distribution Box	1	2

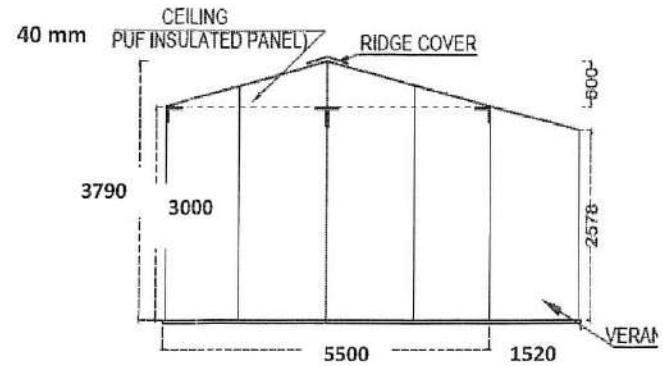
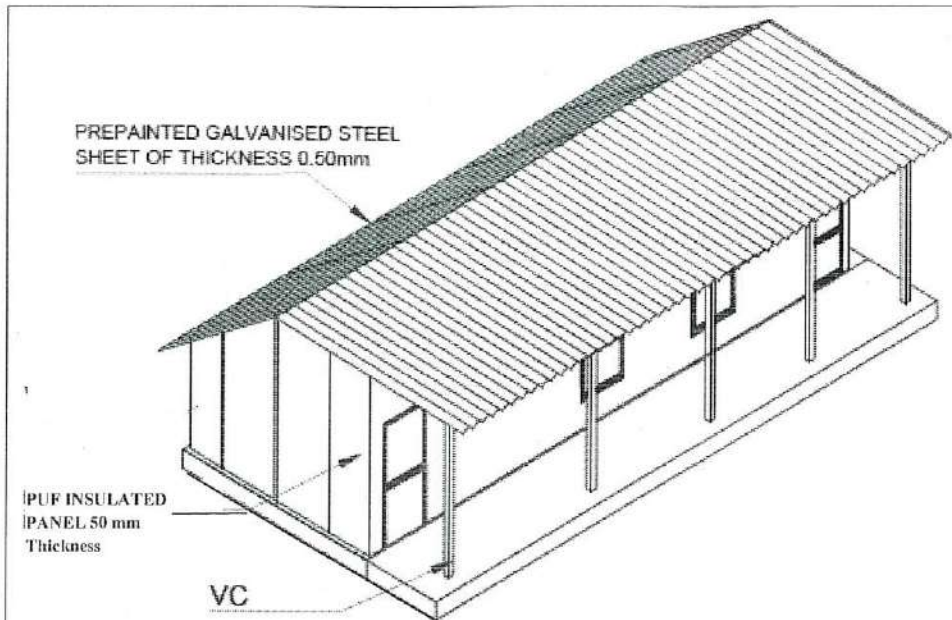


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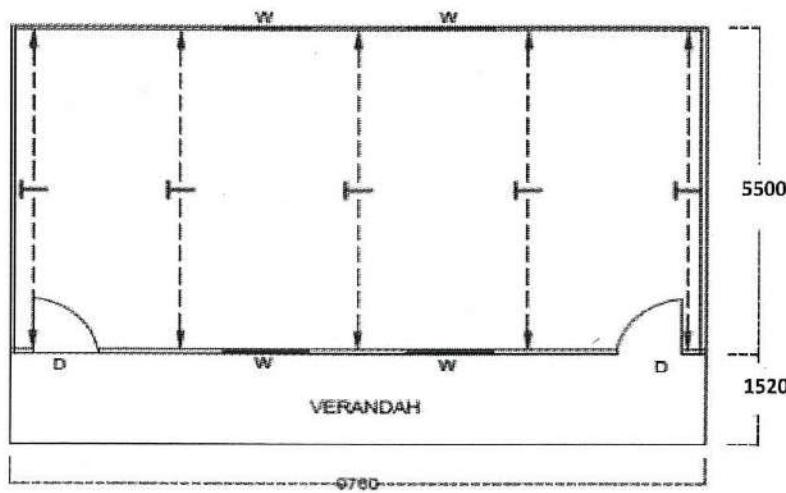
Approved / Not approved


 Md. Jawed Akhtar, IPS, ADG(H.Q), CRPF

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SIDE VIEW



SCHEDULE OF OPENING				
SNO	MARKED	DESCRIPTION	SIZE (mm)	NOS.
1	D	DOOR		2
2	W	WINDOW		4
3	T	TRUSS		6
5	VC	VERTICAL COLUMN		5

Model: PRE-FABRICATED HUTS
 Description:
 Size: 18'x32'
 With 5' Varendah

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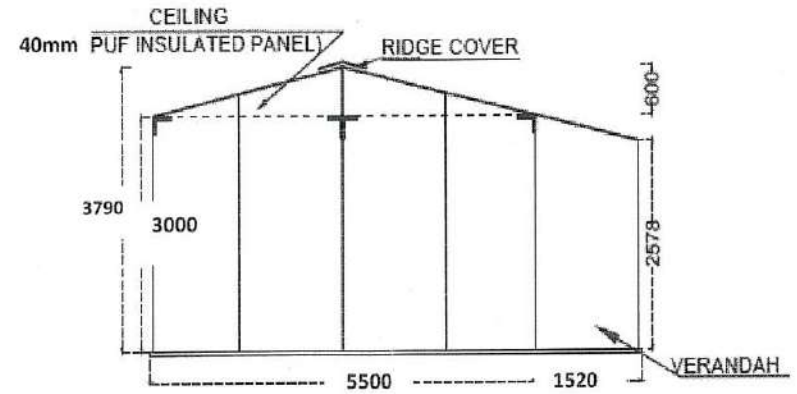
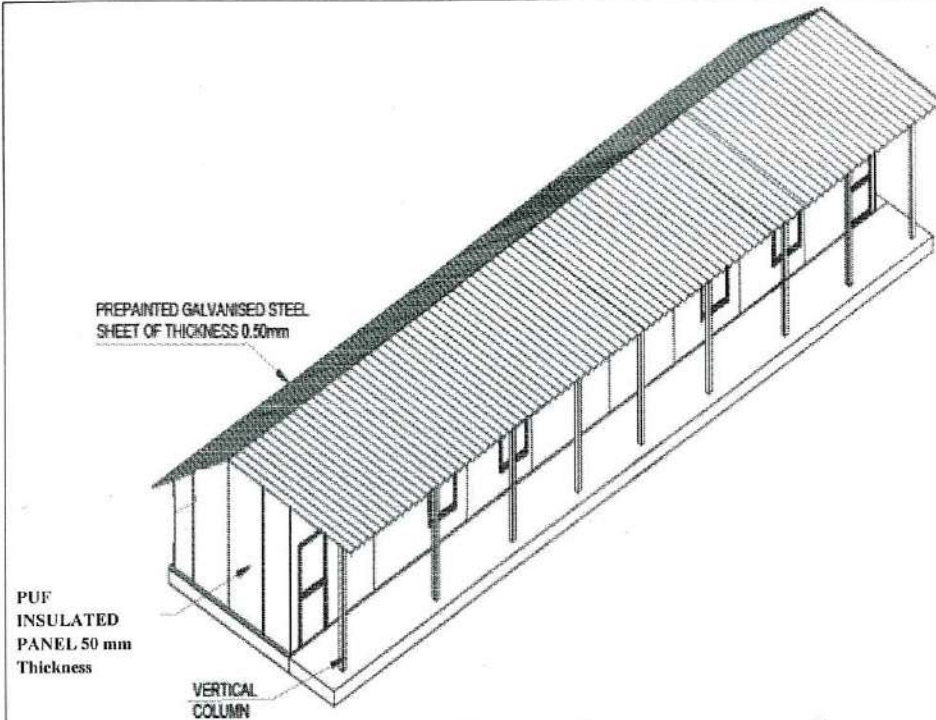
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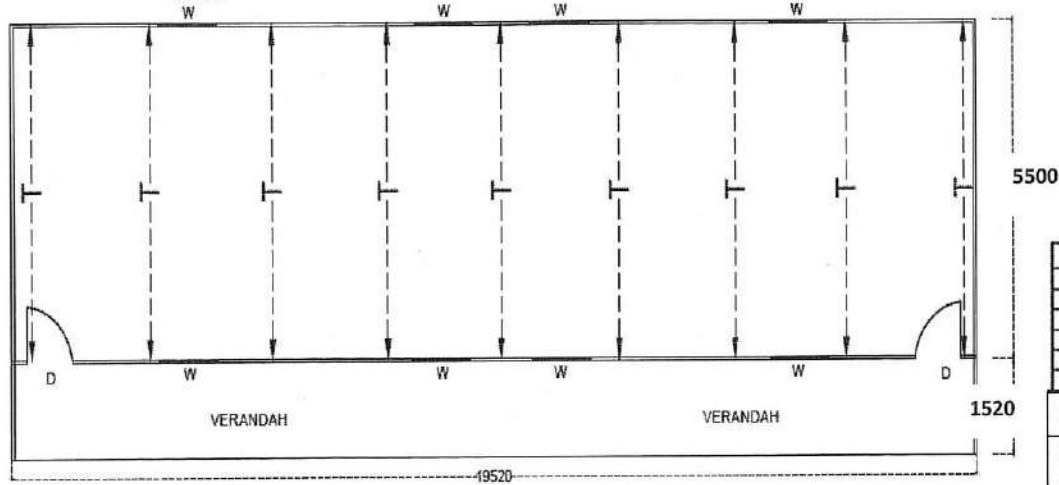
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SIDE VIEW



LAYOUT PLAN

SCHEDULE OF OPENING				
SNO	MARKED	DESCRIPTION	SIZE (mm)	NOS.
1	D	DOOR		2
2	W	WINDOW		4
3	T	TRUSS		9
4	VC	VERTICAL COLUMN		9

Model: PRE-FABRICATED HUTS

Description:

Size: 18'x64'

With 5' Varendah

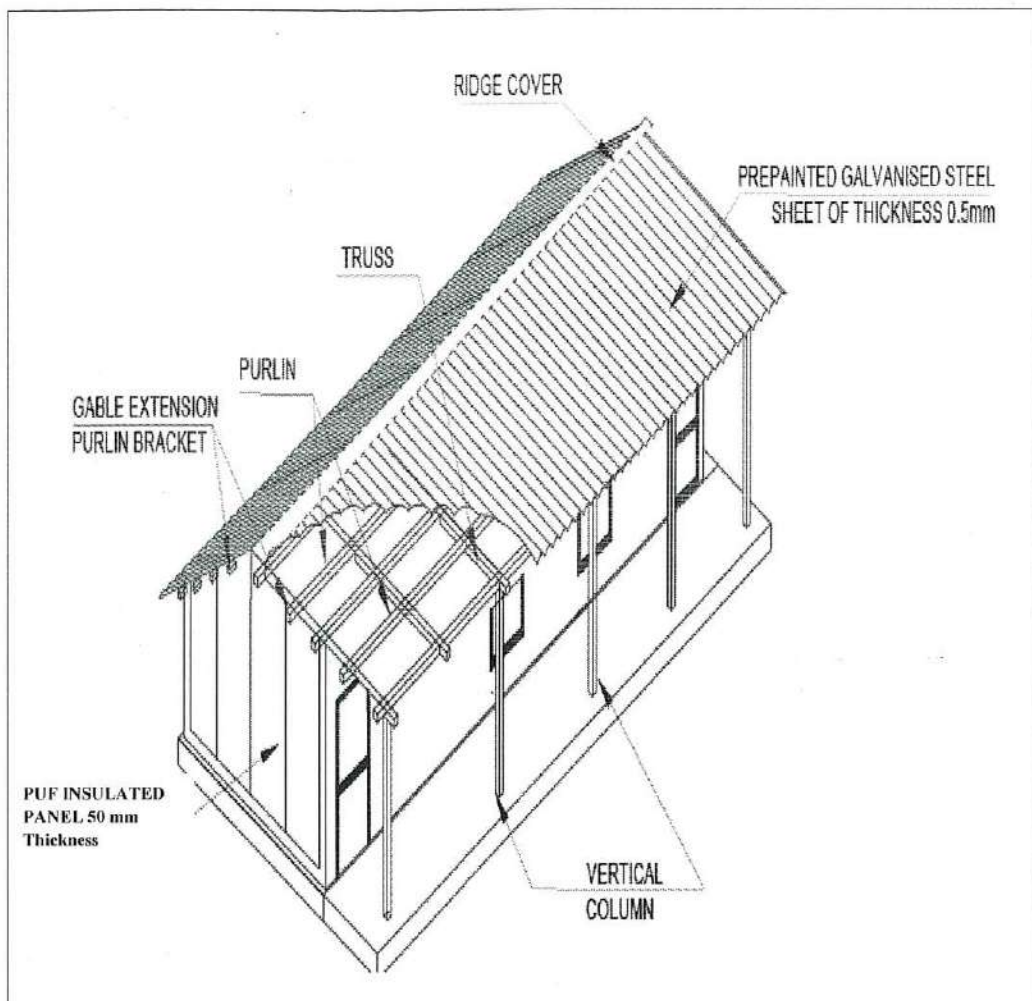
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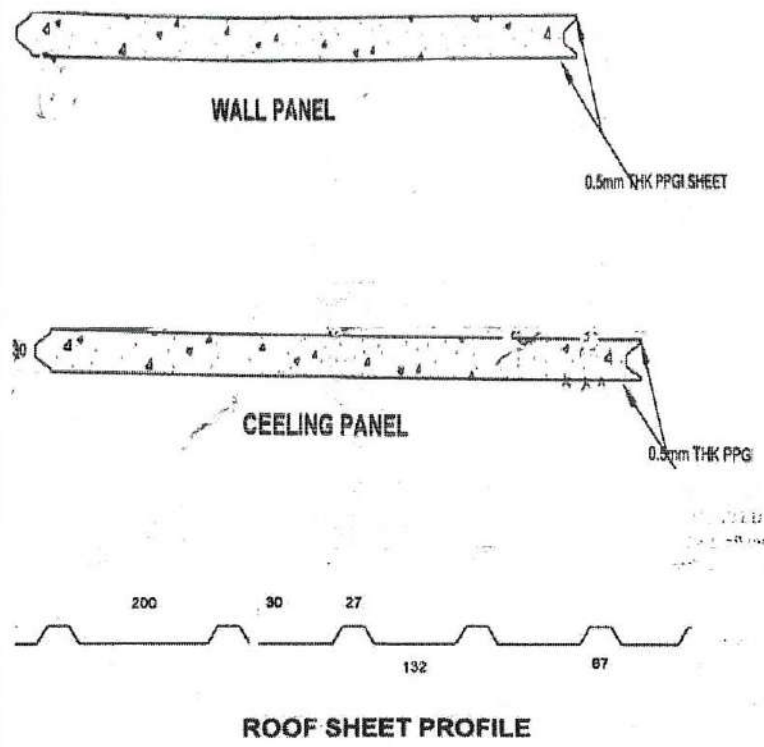
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ISOMETRIC VIEW



Model: P.F. Huts (Isometric View)
Description: General Assembly Drawing with Verandah

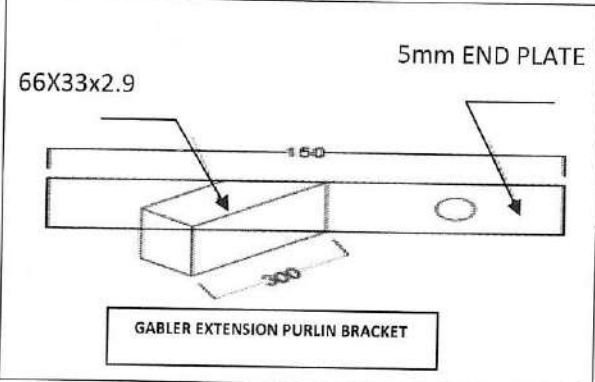
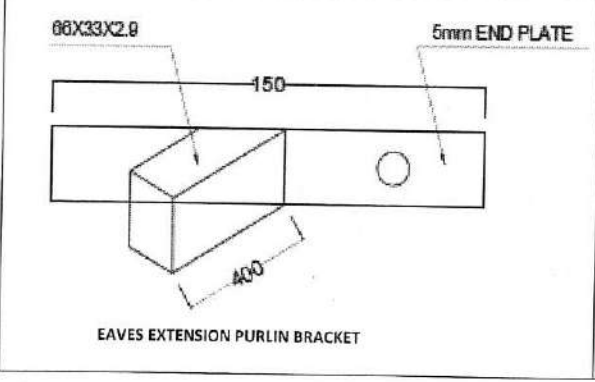
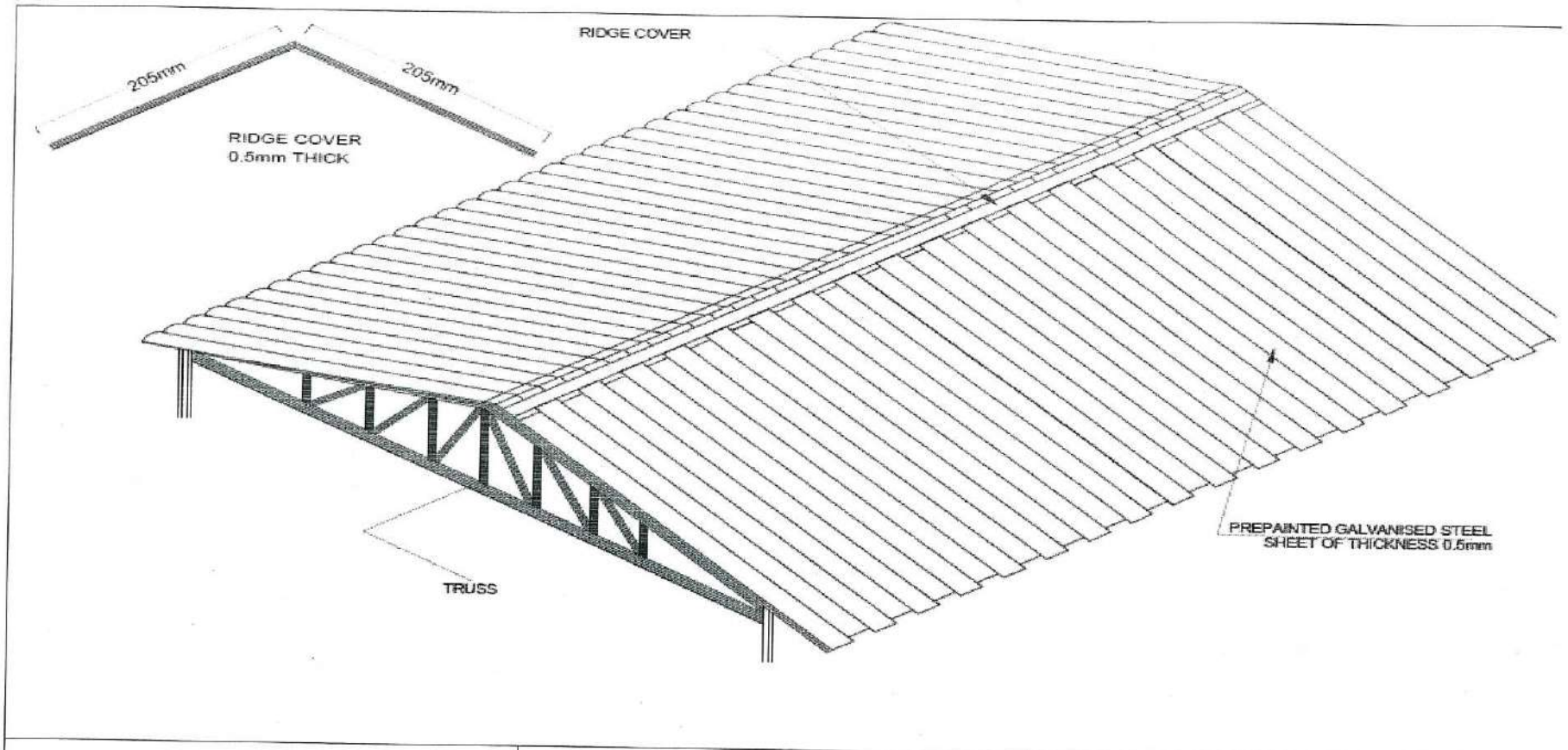
Chuan Bin of 29/1/19 BSE

Adina CRPF 29/01/19

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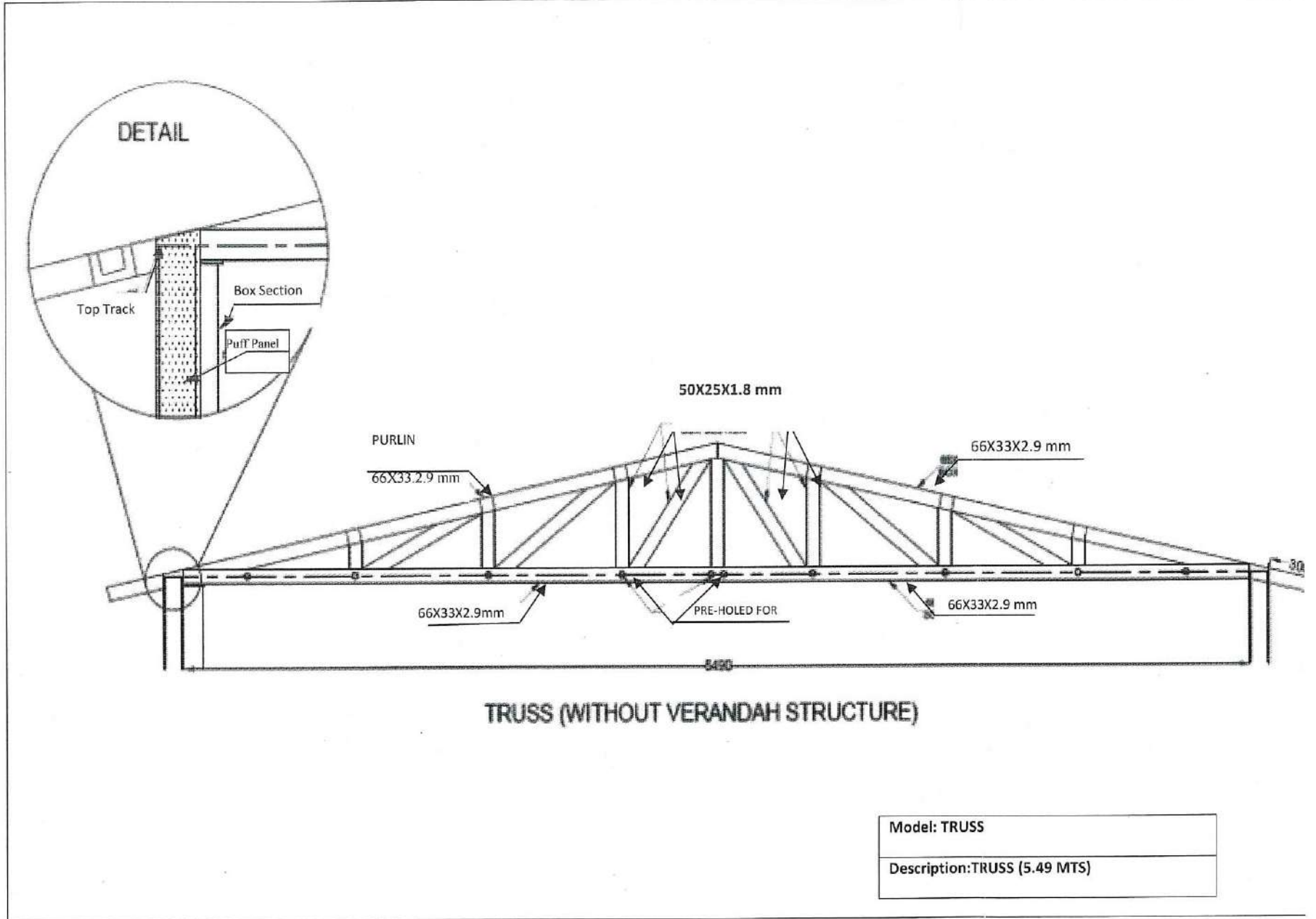
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Description:
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- CRPF
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- A.C.C. Engt
- 29/1/19
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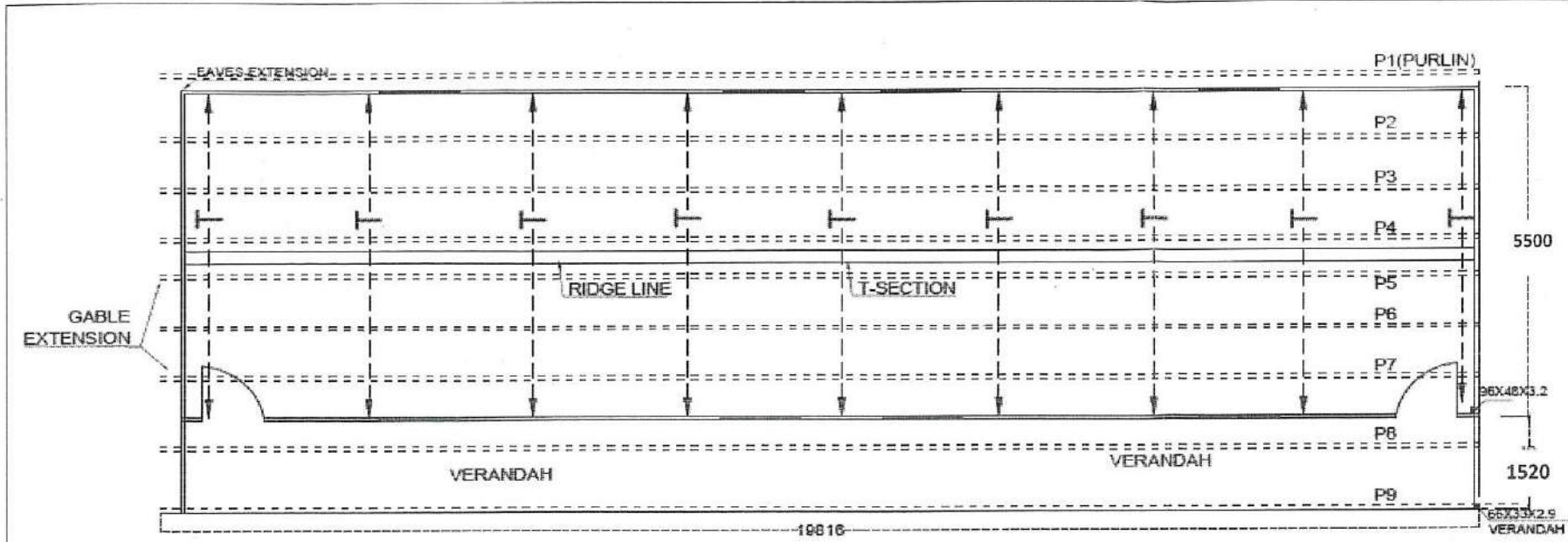
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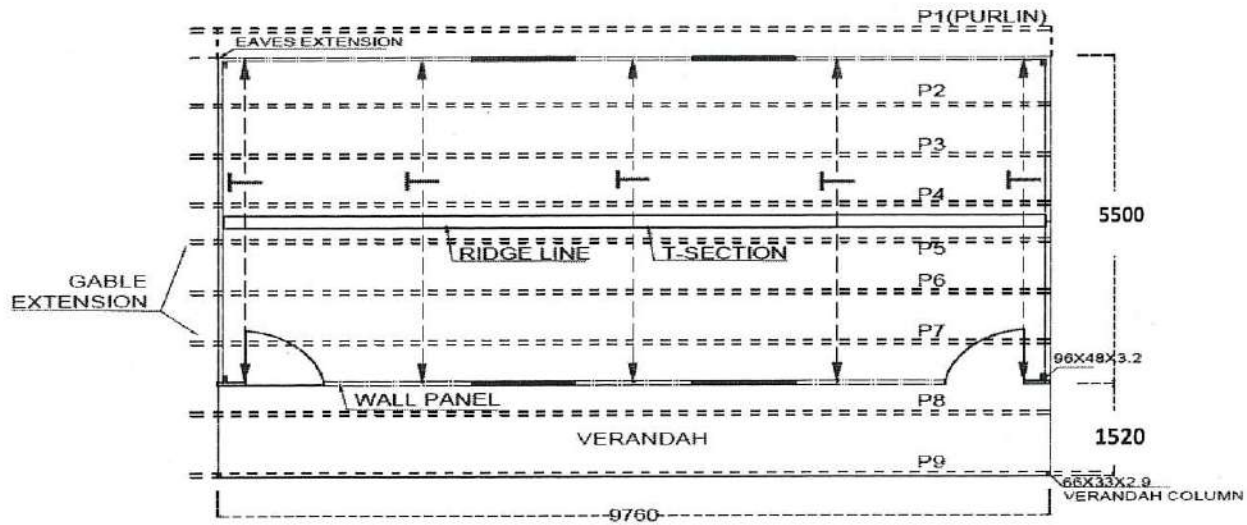
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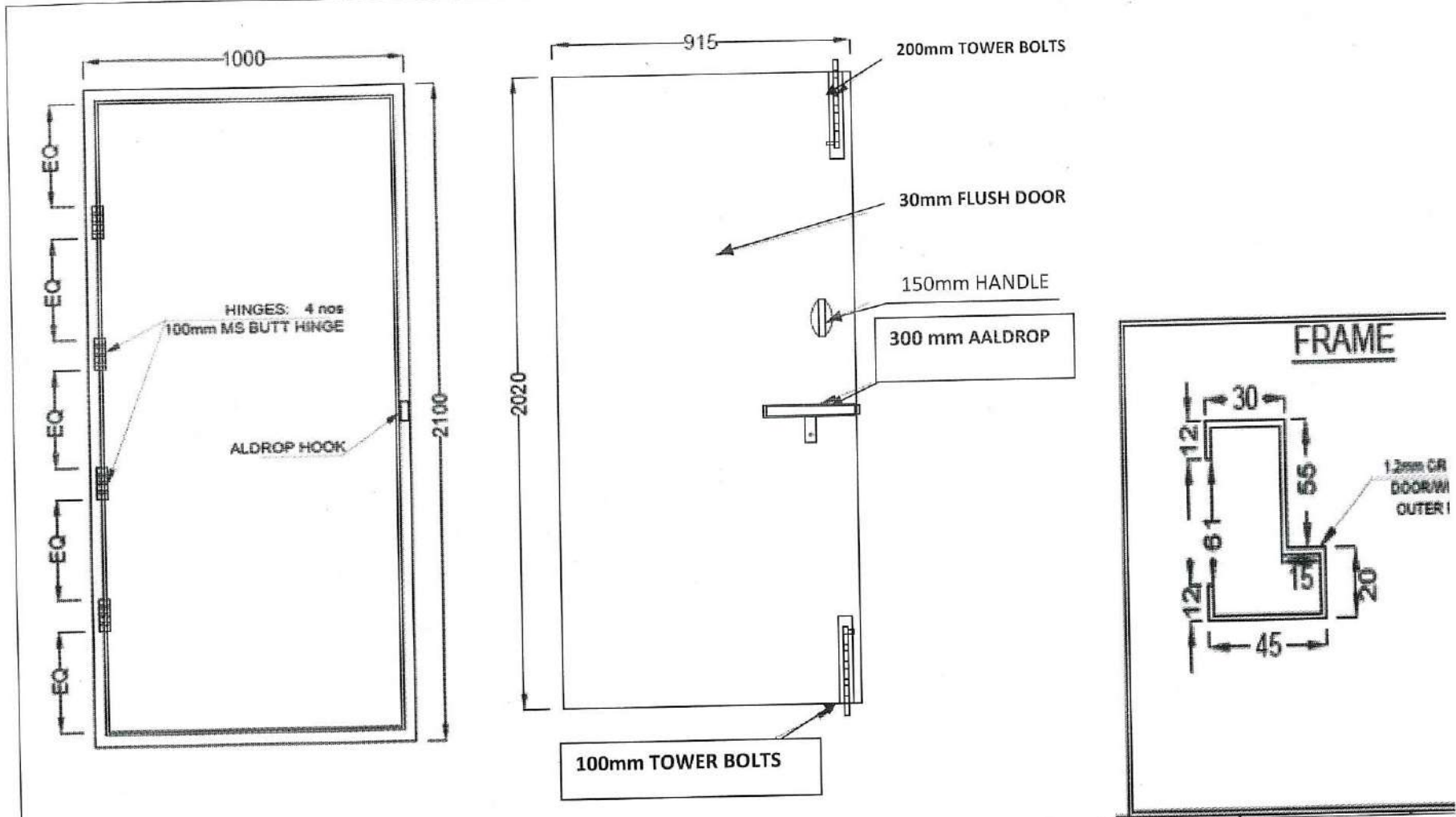
SPAN WITH VERANDAH



SPAN WITH VERANDAH

Model: PURLIN & TRUSS
Description:

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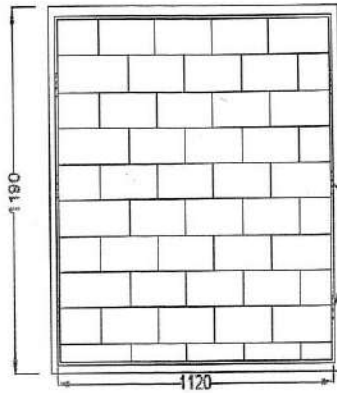
**PUF INSULATED DOOR
(50 mm THICK)**

Model:
Description: DOOR

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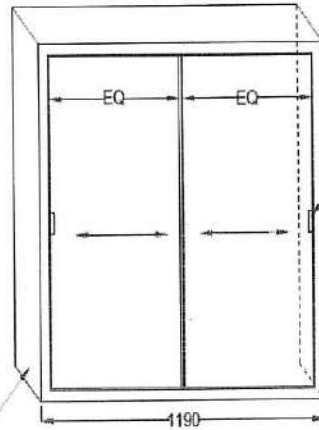
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- AR

WINDOW FRAME



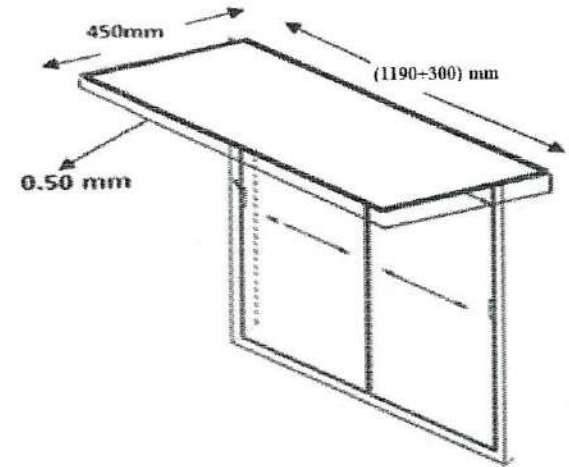
75mm MSBUTT HINGES
0nos EACH WINDOW FRAME

WINDOW SHUTTER

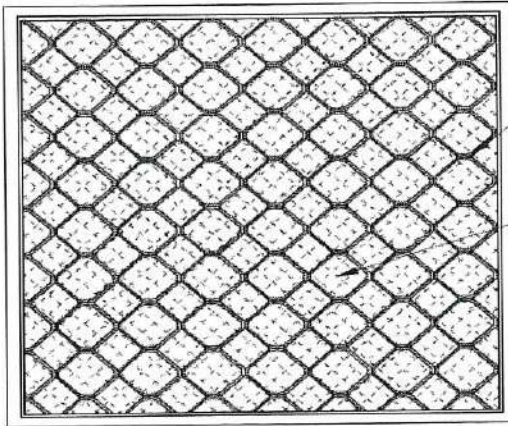


ALU. HANDLE 2nos
ON EACH SIDE

SUNSHADE

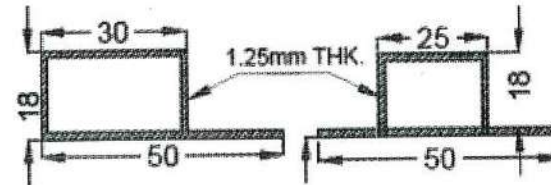


1190



ALUMINIUM GRILL

WIRE MESH
FOR MOSQUITOES



Model:

Description:
ALU WINDOW

Handwritten signature

Handwritten signature

Handwritten signature
CRPP

Handwritten signature

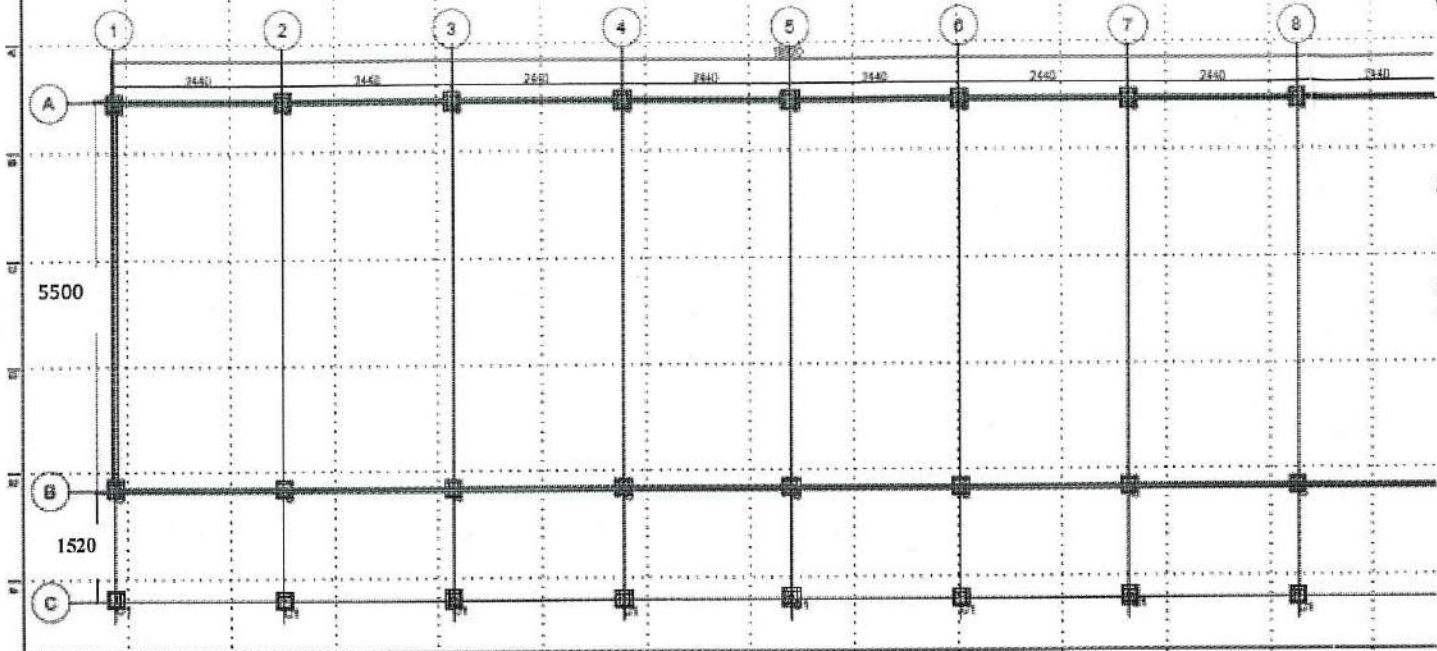
Handwritten signature
29/1/19
A.C. (Emp)

Handwritten signature
29/1/19

Handwritten signature
AR

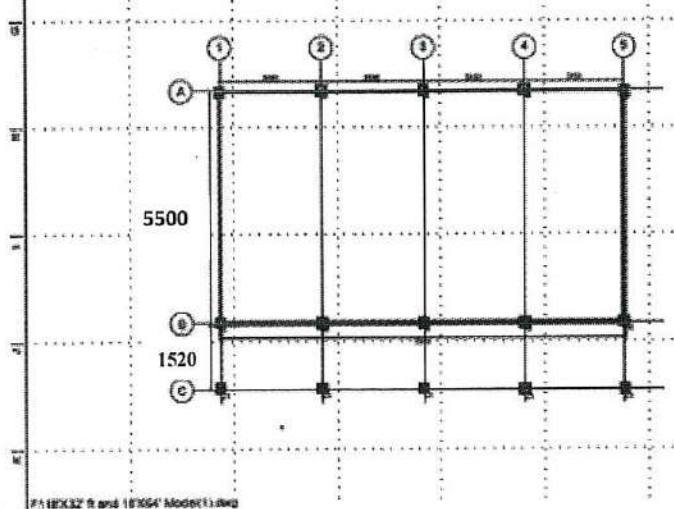
Abbreviation: AD-Architectural drawing | SC-Shop | DTC-Door | EBF-Elevator | LVC-Level | TS-Tender drawing | V-Vertical | W-Window | WD-Working drawing good for construction | WOP-Working drawing not good for construction

Design is done as per I 800:2007 and wind Zone or damage risk B



Sheet Title: Column Layout

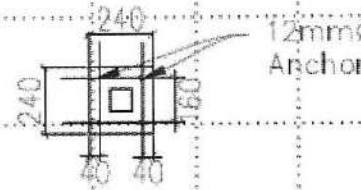
Description:
Size: 18'x64'
With 5' Varendah



All Dimensions are in mm.

C (Column) = 98X48X3.2

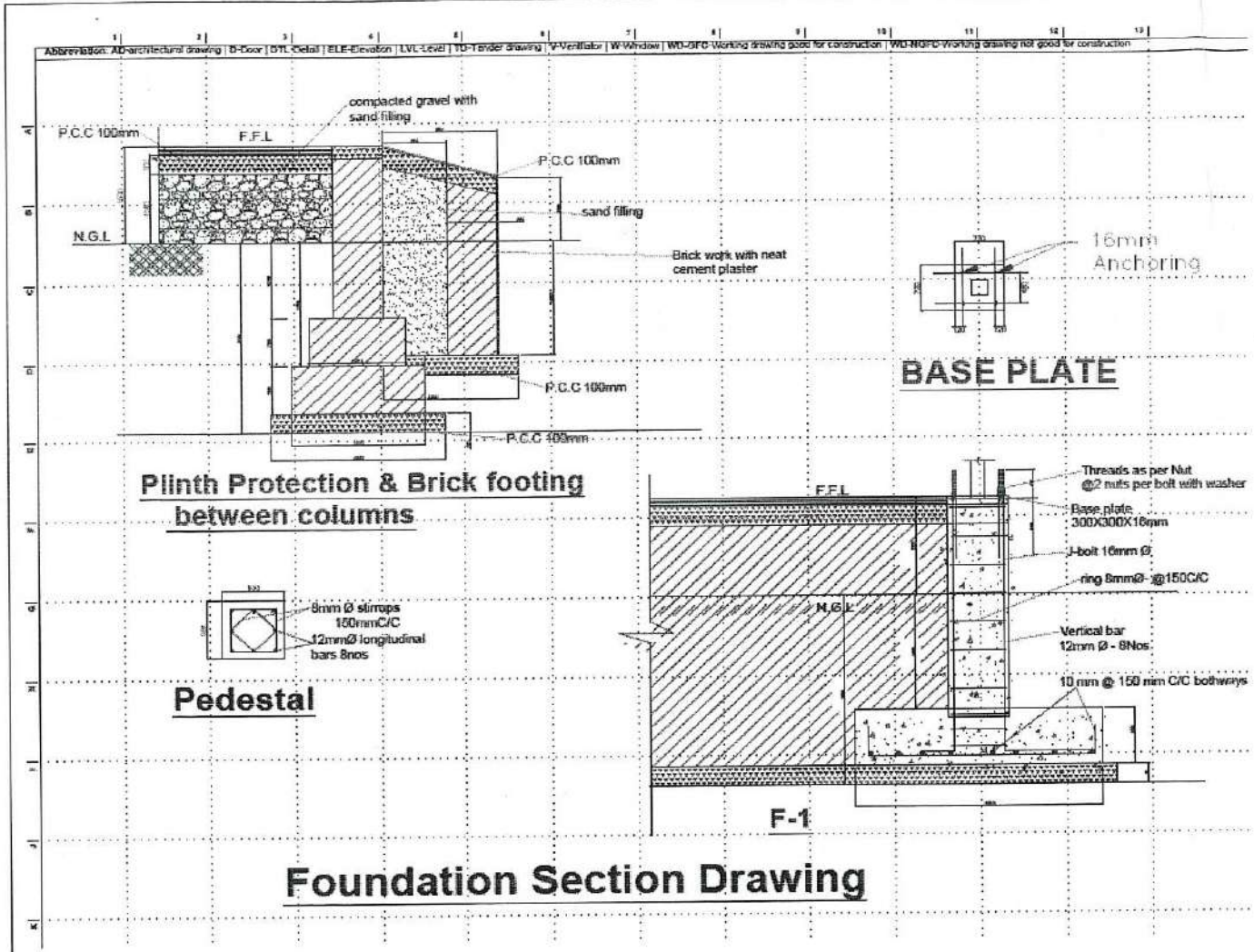
C1 (Column) = 66X33X2



BASE PLATE

P:\18'X64' B and 18'X64' Model\1.dwg

Column 98x48
 29/1/19
 CRP
 29/1/19
 29.1.19
 A.C.C. Engg
 29/1/19
 AR



Design is done as per IS Code 800:2007 and wind Zone moderate damage risk B

Sheet Title: Foundation Drawing

Description:
Size: 18'x64' & 18'x32'
With 5' Varendah

Handwritten signatures and dates:

DRF 29/11

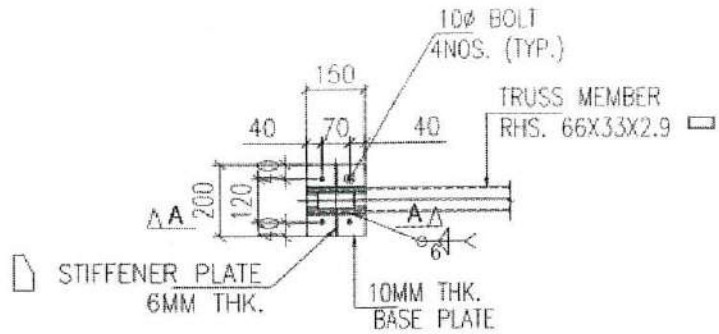
GRF

29/11/19

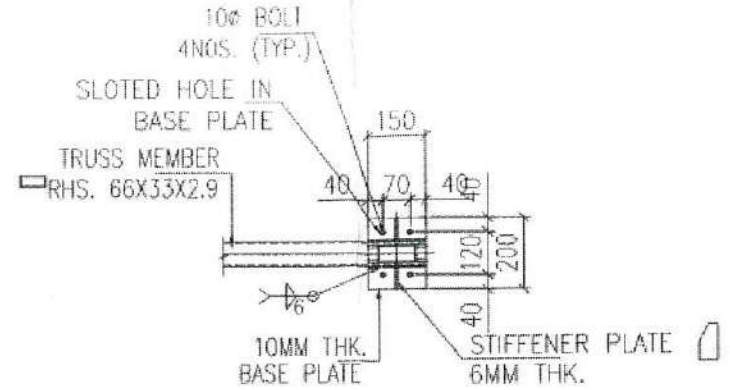
29.1.19

29/1/19

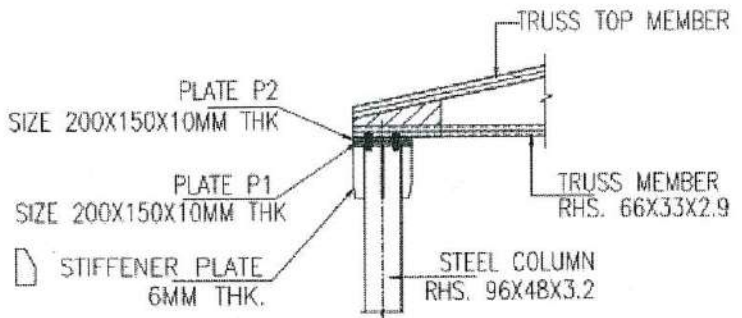
AK



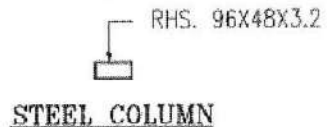
(TYP.) P1 & P2 BASE PLATE DETAIL
(FIXED HOLES)



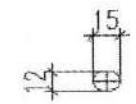
(TYP.) P3 & P4 BASE PLATE DETAIL
(SLOTTED HOLES)



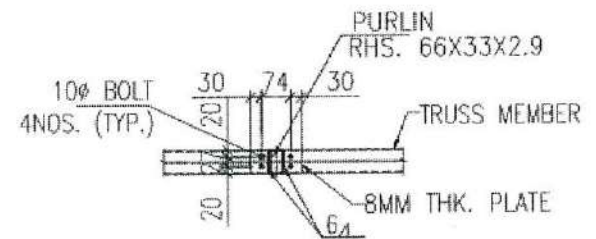
VIEW A-A



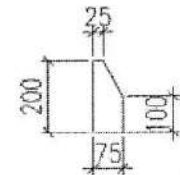
STEEL COLUMN



SLOTTED HOLES



PURLIN CONNECTION DETAIL



Connection Details

Yum
BIA
29/1
CRP
29/1/19
BIS
29.1.19
A-c-L Byp
29/1/19
AR