

# **TECHNICAL SPECIFICATION**

**Name of Work : SR to Prant Kachery at Rajpipla Ta.Nandod Dist. Narmada (Repairing of Roofing, Grill Color, Door Window Repairing Work)**

**SPECIFICATION INDEX**

<b>Sr. No.</b>	<b>ITEM DESCRIPTION</b>	<b>Applicable Specification</b>	<b>Specification Booklet Attached</b>
1	2	3	4
1	Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats architraves, holdfasts and other attachment etc. complete and stacking them within all lead and lift.(i) Not exceeding 3 Sq.M. in area.	As per separate sheet attached	As per separate sheet attached
2	Dismantling tiled of stone floors laid in mortar including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.	As per separate sheet attached	As per separate sheet attached
3	Dismantling mangalore of country tile roofing with battens boarding etc. including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.(ii) A.C. sheet roofing.	As per separate sheet attached	As per separate sheet attached
4	Providing 15mm thick cement plaster in single coat on Rough (Similar)side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)	As per separate sheet attached	As per separate sheet attached
5	Providing and fixing M.S. grills of required pattern to wooden frames of windows etc. with M.S. flats at required spacings and frame around, square or round bars with round headed bolts and nuts or by screws (A) Plain Grill.	As per separate sheet attached	As per separate sheet attached
6	Providing and fixing 35 mm thick shutters for Doors, windows and clerestory windows including Indian teak wood frames 10 cm x 7 cm. size including anodized aluminium fixtures and fastenings including primer coat of approved quality and two coats of oil painting etc, complete. (i) Fully Glazed.	As per separate sheet attached	As per separate sheet attached
7	Carrying out wall treatment for termite control including spraying with chemical solution in oil base including labour and material Using Chlorpyrifos 20 ECAs per IS 6313 part - II (1% concentration by mass) is recommended i.e one litre chemical emulsion diluted with 19 liter oil base. Total solution will be 20 liters inclusive of one liter chemical emulsion application at the rate of 7.5 litre chemical / Sqm of surface is recommended as per I.S.	As per separate sheet attached	As per separate sheet attached

**Name of Work : SR to Prant Kachery at Rajpipla Ta.Nandod Dist. Narmada (Repairing of Roofing, Grill Color, Door Window Repairing Work)**

**SPECIFICATION INDEX**

<b>Sr. No.</b>	<b>ITEM DESCRIPTION</b>	<b>Applicable Specification</b>	<b>Specification Booklet Attached</b>
8	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth/ Removing Old Colour/Apply Putty	As per separate sheet attached	As per separate sheet attached
9	P & L 24" x 24" vitrified 8 mm thick tile flooring over 20 mm (average) base of cement mortar 1:6 ( 1 cement: 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finised with flush pointing & cleaning the surface etc. complete for light shade (upto 10 ton)	As per separate sheet attached	As per separate sheet attached
10	Applying priming coat over new steel and other metel surface after and including preparing the surface by thoroughly cleaning, oil,grease, dirt and other foreign matter and scoured with brushes fine steel wood, scrapers and sand paper with ready mixed priming paint brushing red lead.	As per separate sheet attached	As per separate sheet attached
11	Providing and fixing G.I. corrugated steel sheet roofing of approved make, conforming to relevant IS specifications, including supplying, laying and fixing in position with necessary galvanized iron J or L hooks, bolts, nuts, washers, bitumen/EPDM washers, and including drilling holes, cutting to required size, providing overlaps (end and side laps), and fixing with proper slope, including all accessories such as ridges, hips, valleys, gutters, flashing pieces etc., complete in all respects.	As per separate sheet attached	As per separate sheet attached

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**SPECIFICATION INDEX**

<b>Sr. No.</b>	<b>ITEM DESCRIPTION</b>	<b>Applicable Specification</b>	<b>Specification Booklet Attached</b>
12	Providing and fixing standared extruded of alluminium section of size 63mm x 38.10mm x 1.2mm , @ Wt. 0.643Kg/mt with colour Powder Coated alluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation	As per separate sheet attached	As per separate sheet attached

Deputy Executive Engineer  
Rajpipla (R&B) sub Division  
Rajpipla

Executive Engineer  
Rajpipla (R&B) Division  
Rajpipla

## **ITEM WISE SPECIFICATION**

**Item No.1     Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats architraves, holdfasts and other attachment etc. complete and stacking them within all lead and lift.(i) Not exceeding 3 Sq.M. in area.**

### **1. Materials**

No new materials shall ordinarily be required for this item except such temporary supports, packing materials, ropes, wedges and protective coverings as may be necessary for safe dismantling and handling of reusable components.

### **2. Workmanship**

1. Dismantling shall be carried out carefully and systematically to avoid damage to adjoining masonry, plaster, concrete surfaces, flooring and structural members.
2. Shutters shall be removed first by disconnecting hinges, pivots and other fittings.
3. Frames, chowkhats, architraves and holdfasts shall then be loosened and removed carefully by cutting or extracting the fasteners as necessary.
4. Any temporary supports required during dismantling shall be provided by the contractor.
5. Reusable materials shall be separated from unserviceable materials immediately after dismantling.
6. Serviceable materials shall be cleaned and stacked neatly at the specified location.
7. Unserviceable materials, debris and rubbish arising from dismantling shall be removed and disposed of as directed by the Engineer-in-Charge.
8. Any damage caused to adjoining work due to careless dismantling shall be made good by the contractor at his own cost.

### **3. Stacking and Disposal**

1. Serviceable timber, steel sections, shutters, frames, fittings and fixtures shall be stacked separately in an orderly manner.
2. Materials shall be protected from damage during handling, transportation and stacking.
3. Disposal of unserviceable materials shall be carried out in accordance with the instructions of the Engineer-in-Charge.

### **4. Measurement**

1. Measurement shall be made in Numbers.
2. The area shall be measured based on the overall opening size of the door, window or ventilator dismantled.
3. Openings not exceeding 3.00 Sq.M. shall be measured under this item.

**Item No.2     Dismantling tiled of stone floors laid in mortar including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.**

### **1. Materials**

No new materials shall ordinarily be required for this item except temporary protective materials and tools necessary for safe dismantling and handling of recovered flooring materials.

### **2. Workmanship**

1. Dismantling shall be carried out carefully using suitable hand tools and equipment to minimize breakage and damage to reusable tiles or stones.

2. The flooring shall be removed systematically, including the mortar bedding attached to the flooring units where specified.
3. Care shall be taken to prevent damage to adjoining floors, walls, skirting, drains, embedded services and structural members.
4. Serviceable tiles/stones shall be cleaned of loose mortar, sorted according to size and type, and stacked neatly at locations directed by the Engineer-in-Charge.
5. Broken, damaged and unserviceable materials shall be collected separately and removed from the site.
6. The dismantled surface shall be left clean and free from loose debris.
7. Any damage caused to adjacent works due to negligence shall be made good by the contractor at no extra cost.

### 3. Stacking and Disposal

1. Serviceable tiles and stones recovered from dismantling shall be stacked neatly in approved stacks at designated locations.
2. Materials shall be protected against damage during handling and stacking.
3. Unserviceable materials, mortar debris and rubbish shall be removed and disposed of at approved dumping locations as directed by the Engineer-in-Charge.
4. The item shall include loading, unloading, conveying and handling of materials within all specified leads and lifts.

### 4. Mode of Measurement

Measurement shall be made in Square Metres (Sq.M.).

## **Item No.3     Dismantlings manglore of country tile roofing with battens boarding etc. including stacking of serviceable materilas and disposal of unserviceable materials with all lead and lift.(ii) A.C. sheet roofing.**

### 1. Materials

No new materials shall ordinarily be required except temporary supports, protective sheets, ropes, scaffolding and safety equipment necessary for carrying out the dismantling work safely and efficiently.

### 2. Workmanship

1. Dismantling shall be carried out carefully and systematically, commencing from the ridge and proceeding downwards.
2. A.C. sheets shall be removed by loosening and removing fixing bolts, hooks and fasteners without causing unnecessary breakage.
3. Battens, boarding and other supporting components shall be dismantled after removal of roofing sheets.
4. Adequate precautions shall be taken to avoid damage to adjacent structures and reusable materials.
5. Serviceable sheets and accessories shall be lowered carefully and not dropped from heights.
6. Recovered materials shall be cleaned, sorted and stacked separately according to type and condition.
7. Broken or damaged sheets, battens and other unserviceable materials shall be removed from the site and disposed of as directed by the Engineer-in-Charge.
8. The dismantled area shall be cleared of debris and left in a clean condition.

9. Necessary scaffolding, staging, ladders and safety arrangements shall be provided by the contractor.

### 3. Stacking and Disposal

1. Serviceable A.C. sheets, battens, boarding and fittings shall be stacked neatly at approved locations.
2. Materials shall be protected against damage during handling and stacking.
3. Unserviceable materials and debris shall be removed and disposed of at approved disposal locations.
4. Loading, unloading, conveying and handling within all leads and lifts shall be included in the item.

### 4. Mode of Measurement

Measurement shall be made in Square Metres (Sq.M.) of roof surface dismantled.

## **Item No.4 Providing 15mm thick cement plaster in single coat on Rough (Similar)side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)**

### 1.0. Materials

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

### 2.0. Workmanship

#### 2.1. Scaffolding:

Wooden bullies, bamboos, planks, trestles and other scaffolding shall be sound. These shall be properly examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.

#### 2.2. Preparation of back-ground :

2.2.1. The surface shall be cleaned of all dust, loose mortar droppings, traces of algae, efflorescence and other foreign matter by water or by brushing. Smooth surface shall be toughened by wire brushing if it is not hard and by hacking if it is hard. In case of concrete surface, if a chemical retarder has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left on the surface. Trimming of projections on brick/concrete surfaces where necessary shall be carried out to get an even surface.

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

2.2.3. The work shall not be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such area shall be moistened again.

2.2.4. For external plaster, the plastering operation shall be started from top floor and carried downwards. For internal plaster, the plastering operations may be started wherever the building frame and cladding work are ready and the temporary supports of the ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

### 2.3. Application of plaster:

2.3.1. The plaster about 15 x 15 cms. shall be first applied horizontally and vertically at not more than 2 metres intervals over the entire surface to serve as gauge. The surfaces of these gauges shall be truly in plane of the finished plastered surface. The mortar shall then be applied in uniform surface slightly more than the specified thickness, then brought to a true surface by working a wooden straight edge reaching across the gauges with small upward and sideways movements at a time. Finally, the surface shall be finished off true with a trowel or wooden float according as a smooth or a smooth or a sandy granular texture is required Excessive troweling or overworking the float shall be avoided. All corners, arrises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering, corners, arrises junctions etc. shall be carried out with proper templates to be size required.

2.3.2. Cement plaster shall be used within half an hour after addition of water. And mortar or plaster which is partially set shall be rejected and removed forthwith from the site.

2.3.3. in suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertically, when recommencing the plaster, the edges of the old work shall be scraped clean and wetted with cement putty before plaster is applied to the adjacent areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of the wall and nearer than 15 cm. to any corners or arrises. It shall not be closed on the body of features such as plaster bands and cornices not at the corners or arrises. Horizontal joints in plaster work shall not also occur on parapet tops and copings as these invariably lead to leakage. No portion of the surface shall be left out initially to be packed up later on.

2.3.4. Each coat shall be kept damp continuously till the next coat is applied or for a minimum period of 7 days. Moistening shall commence as soon as plaster is hardened sufficiently. Soaking of walls shall be avoided and only as much water as can be readily absorbed shall be used, excessive evaporation on the sunny or windward side of building in hot air or dry weather shall be prevented by hanging mattings or gunny bags on the outside of the plaster and keeping them wet.

### 3.0. Mode of measurements & payment

3.1. The rate shall include the cost of all materials, labour and scaffolding etc. involved in the operations described under workmanship.

3.2 All plastering shall be measured in square metres unless otherwise specified. Length breadth or height shall be measured correct to a centimeter.

3.3. Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 15 mm. at any point on this surface.

3.4. This item includes plastering up to floor two level.

3.5. The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height. Depth of cover of cornices if any shall be deducted.



3.6. Soffits of stairs shall be measured as plastering on ceilings, following soffits shall be measured separately.

3.7. For jambs, soffits, sills etc. for openings not exceeding 0.5 sq. mt each in area for ends of joints beams, posts, girders, steps etc. not exceeding 0.5 sq. mt each in area and for openings exceeding 0.5 sq. mt and not exceeding 3.00 sq. mt. in each area deductions and additions shall be made in the following manners.

(a) No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq. mt each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings, for finish to plaster around ends of joints, beams posts etc.

(b) Deduction for openings exceeding 0.5 sq. mt but not exceeding 3 sq.mt. each shall be made as follows and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings.

(i) When both faces of all wall are plastered with same plaster, deduction shall be made for one face only.

(ii) When two faces of wall are plastered with different types of plasters or if one face is plastered and the other pointed, deductions shall be made from the plaster or pointing on the side of frame for door, window etc. on which width of reveals is less than that on the other side but no deductions shall be made on the other side. Where width of reveals on both faces of all are equal, deductions of 50% of area of opening on each face shall be made from areas of plaster and / or pointing as the case may be.

3.8. For openings having door frames equal to or projecting beyond the thickness of wall, full deduction for opening shall be made from each plastered face of the wall.

3.9. In case of openings of area above 3 sq. mt. each, deduction shall be made for openings but jambs, soffits and sills shall be measured.

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

**Item No.5 Providing and fixing M.S. grills of required pattern to wooden frames of windows etc. with M.S. flats at required spacings and frame around, square or round bars with round headed bolts and nuts or by screws (A) Plain Grill.**

**1.0. Materials**

1.1. The structural steel shall conform to M-22.

**2.0. Workmanship**

2.1. The M.S. Grill shall be prepared as per the drawing or as directed for fixing to wooden frames of windows etc.

2.2. The grill shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be reverted or welded as shown in the plan or as directed. The grill so formed shall be fixed into the frames of the windows etc. before they are erected in position. The outside strip frame of the grill shall be housed to its full thickness into the recess cut into the frame of the windows etc. The grill shall be fixed to the frame with number of bolts and nuts or screws viz. bolt nut/screw per 30 cm. of the length of outer strip subject to minimum of 2 Nos. on each side of the frame or as indicated in the drawing or as directed.

2.3. The bolts and nuts or screws shall be counter sunk and shall be fixed with the top of their heads flush with the face of the frame strips.

3.0. Mode of measurements & payment

3.1. No payment shall be made for weight of screws, bolts nuts etc. only weight of grill shall be paid.

3.2. The rate shall be for a unit of one kg.

**Item No.6 Providing and fixing 35 mm thick shutters for Doors, windows and clerestory windows including Indian teak wood frames 10 cm x 7 cm. size including anodized aluminium fixtures and fastenings including primer coat of approved quality and two coats of oil painting etc, complete. (i) Fully Glazed.**

1. Materials

(a) Indian Teak Wood

- Teak wood shall be of first-class quality, well-seasoned, straight-grained, free from sapwood, knots, shakes, cracks, decay and other defects.
- Moisture content shall conform to relevant IS specifications.
- Timber shall be treated and finished as approved by the Engineer-in-Charge.

(b) Frames

- Frames shall be Indian teak wood of section 100 mm × 70 mm unless otherwise specified.
- Frames shall be accurately shaped, mortised, tenoned and fitted true to line, level and plumb.

(c) Shutters

- Shutters shall be 35 mm thick fully glazed type.
- Stiles, rails and glazing beads shall be of teak wood and of approved dimensions.
- All joints shall be mortise and tenon joints, properly glued and pinned.

(d) Glass

- Glass shall be clear sheet/float glass of approved quality and thickness as specified in the drawings or schedule.
- Glass shall be free from bubbles, waviness, scratches and other imperfections.

(e) Fixtures and Fastenings

- All fixtures and fastenings shall be anodized aluminium of approved make and quality.
- These shall include hinges, tower bolts, handles, stays, catches, screws and other necessary hardware.

(f) Paint

- One coat of approved wood primer.
- Two coats of approved oil paint of specified shade and brand.

2. Workmanship

1. Timber shall be sawn, planed and finished to the specified dimensions.
2. Frames shall be fixed true to line, level and plumb using approved holdfasts and fixing arrangements.
3. Shutters shall be fabricated accurately and fitted smoothly without distortion or warping.
4. Glass shall be fixed with teak wood glazing beads and approved putty or suitable sealing compound.

5. Fixtures and fastenings shall be fixed securely and shall operate smoothly.
6. All exposed timber surfaces shall be properly prepared before application of primer and paint.
7. One coat of wood primer shall be applied to all timber surfaces followed by two coats of approved oil paint after proper surface preparation.
8. Finished work shall be free from defects and shall operate satisfactorily.

### 3. Testing and Tolerances

- Shutters shall open and close freely without binding.
- Frames and shutters shall be square, true and properly aligned.
- Glazing shall be firmly fixed and watertight.

### 4. Mode of Measurement

Measurement shall be made in Square Metres (Sq.M.).

**Item No.7 Carrying out wall treatment for termite control including spraying with chemical solution in oil base including labour and material Using Chlorpyrifos 20 ECAs per IS 6313 part - II (1% concentration by mass) is recommended i.e one litre chemical emulsion diluted with 19 liter oil base. Total solution will be 20 liters inclusive of one liter chemical emulsion application at the rate of 7.5 litre chemical / Sqm of surface is recommended as per I.S.**

#### 1. Materials

##### (a) Chemical

- Chlorpyrifos 20 EC shall conform to IS 6313 (Part-II) and shall be obtained from approved manufacturers.
- The chemical shall be supplied in sealed containers bearing the manufacturer's label and batch details.

##### (b) Dilution

- A 1% concentration by mass shall be prepared by mixing 1 litre of Chlorpyrifos 20 EC with 19 litres of approved oil-base carrier, producing 20 litres of ready-to-use emulsion.
- Mixing shall be carried out thoroughly to ensure uniform concentration.

### 2. Surface Preparation

1. Wall surfaces shall be cleaned and made free from dust, loose particles, dirt, grease, vegetation and other foreign matter.
2. Cracks, crevices and termite galleries visible on the surface shall be opened and cleaned wherever necessary.
3. Treatment shall be carried out only after approval of the prepared surface by the Engineer-in-Charge.

### 3. Application

1. The chemical emulsion shall be applied uniformly by spraying using hand-operated or power-operated pressure sprayers.
2. Spraying shall ensure complete wetting of the wall surface and penetration into cracks, joints and vulnerable locations.
3. The chemical solution shall be applied at the rate of 7.5 litres of emulsion per square metre of wall surface or as specified in the relevant Indian Standard.

4. Treatment shall be carried out in a continuous manner to form an effective chemical barrier against termite attack.
5. Areas inaccessible to normal spraying shall be treated by injection or brushing as directed by the Engineer-in-Charge.
6. Care shall be taken to avoid contamination of water sources, food materials and occupied areas.

#### 4. Safety Precautions

1. Workers shall use protective clothing, gloves, masks and safety equipment during handling and application.
2. Chemical containers shall be handled, stored and disposed of in accordance with the manufacturer's recommendations and statutory regulations.
3. Spraying shall not be carried out during rain or adverse weather conditions.
4. Treated surfaces shall be protected from disturbance until the chemical has adequately penetrated and dried.

#### 5. Quality Control

1. The concentration of the chemical solution shall be checked before application.
2. Uniformity of spraying and coverage shall be ensured throughout the treated area.
3. The Engineer-in-Charge may verify consumption of chemical and area treated before acceptance.

#### 6. Mode of Measurement

Measurement shall be made in Square Metres (Sq.M.) of wall surface actually treated.

**Item No.8 Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth/ Removing Old Colour/Apply Putty**

##### 1.0. Materials

Water shall be conform to M-1. The plastic emulsion shall conform to I.S.: 5411-1969 (part-I).

##### 2.0. Workmanship

2.1. Scaffolding : Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white r-r colourwashed. A properly secured strong and well tied suspended platform (Zooia) may be used for white washing. Where ladders are used, pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the floors and walls. For white washing of ceilings, proper stage scaffolding shall be erected where necessary.

##### 2.2. Preparation of surface :

2.2.1. The surface shall be thoroughly cleaned of all dust, dirt, mortar droppings and other foreign matter before white wash is to be applied.

2.2.2. The surface spoiled by smoke soot shall be scrapped with steel wire brushes or steel scrapers or shall be rubbed with over-burnt surkhi or brick bats. The surface shall be then broomed to remove all dust, dirt and shall be washed with clean water.

2.2.3. Oil or grease spots shall be removed by suitable chemical and smooth surface shall be rubbed with wire brushes.

2.2.4. All unsound portion of the surface plaster shall be removed to full depth of plaster in rectangular patches and plastered again after raking the masonry joints properly. Such portion shall be wetted and allowed to dry.

They shall then be given one coat of white wash.

2.2.5. All unnecessary nails shall be removed, the holes, cracks, patches etc. shall be made good with material similar in composition to the surface to be prepared

### 2.3. Preparation of Mix :

This shall be done as per manufacture's instructions. The thinning of emulsion is to be done with water and not with turpentine. The quantity of thinner to be added shall be as per manufacturer instructions.

### 2.4. Application :

2.4.1. Before pouring into small containers for use, the paint shall be stirred thoroughly in its container. When applying also, the paint shall be continuously stirred in the smaller container, so that its consistency is kept uniform.

2.4.2. The paint shall be laid on evenly and smoothly by means of crossing and laying off the crossing and consist of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite direction two or three times and then finally brushing lightly in direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of mouldings, etc. shall be left on the work. The full process of crossing and laying off will constitute one coat.

2.4.3. The paint shall be applied with brush or rollers. For undecorated surfaces, the surface shall be treated with minimum two coats of cement water proofing paint. The second or subsequent coat shall not sufficiently hard to resist marking by brushing being used.

2.4.4. The surface on finishing shall present a flat velvety smooth finish. It shall be even and uniform in shade without patches, brush marks, paint drops etc.

### 2.5. Precautions:

(a) Old brushes if they are to be used with emulsion paints, shall be completely dried of turpentine or oil paint by washing in warm soap water. Brushes shall be quickly washed in water immediately after use and kept immersed in water during break periods to prevent the paint from hardening on the brush.

(b) In the preparation of wall for plastic emulsion painting, no oil base putty shall be used in filling cracks, holes etc.

(c) Splashes on floors etc. shall be cleaned out without delay as they will be difficult to remove after hardening.

(d) Washing of surfaces treated with emulsion paint shall not be done within 3 to 4 weeks of application.

### 3.0. Mode of measurements and payment

3.1. All the work shall be measured in the decimal system as under:

(a) Dimensions shall be measured to the nearest 0.01 m

(b) Area in individual item shall be worked out to the nearest 0.01 sq.m. ^ All the work shall be measured in sq. mt. Deductions for jambs, soffits, sills etc. for openings not exceeding 0.5 sq. mt. each in area, for ends of joists, posts, beams, girders, steps etc. not exceeding 0,5 sq mt. each in area and for openings exceeding 0.5 sq. mt. and not exceeding 3.0. sq. mt. each in area, deductions and additions shall be made as under.

3.2. No deductions shall be made for ends of joists, beams, posis, etc. and openings not exceeding 0.5 sq. mt. each. No addition shall be made for reveals, jambs, soffits, sills etc. of these openings not for finish around ends of joints, beams, posts etc.

3.3. No deductions for openings exceeding 0.5 sq.mt. but not exceeding 3 sq. mt. each shall be made as follows and no addition will be made for reveals, jambs, soffits etc, of these openings:

(a) When both the faces of walls are provided with finish, deduction shall be made for one face only.

(b) When each face of wall is provided with different finish, deduction shall be made for that side of frame for door, windows, etc, on which width of reveals is less than that of the other side. Where width of reveals on both faces of wall are equal, deduction of 50% of area of opening on each face shall be made from total area of finish

(c) When only one face of wall is treated and the other face is not treated, full deduction shall be made if the width of reveal on thr treated side is less than that on hte untreated side, but if the width of the reveal is equal or more than on the untreated side neither deductions nor additions to be made for reveals, jambs, soffits, sills etc.

3..4 In case of area of openings exceeding 3 sq, mt. each, deductions shall be made for openings but jambs, soffits, sills shall be measured.

3.5. No deductions shall be made for attachment such as casing, conducts, pipe, electric wiring and the like.

3.6. Corrugated surfaces shall be measured flat as fixed and not girth. The quantities so measured shall be increased by the following percentage and the resultant shall be included with the general areas:

(a) Corrugated steel sheets.....14%

(b) Corrugated AC. sheets..... 20%

(c) Semi corrugated A.C. Sheets.....10%

(d) Nainital pattern roof (Plain sheeting sheets).....10%

(e) Naintial pattern roof (with corrugated sheets).....25%

3.7. Cornices and other wall features, when they are not picked out in a different finish/colour shall be girthed and included in the general area.

3.8. The rate shall include the cost of all materials, labour, scaffolding, protective measures etc. involved in all the operations described above.

3.9. The rate shall be for a unit of One sq. metre.

**Item No.9      P & L 24" x 24" vitrified 8 mm thick tile flooring over 20 mm (average) base of cement mortar 1:6 ( 1 cement: 6 coarse sand) on new surface or fixing on existing**

**flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finished with flush pointing & cleaning the surface etc. complete for light shade (upto 10 ton)**

**1. Materials**

**(a) Vitrified Tiles**

- Tiles shall be first quality, machine-pressed vitrified tiles of approved make, colour, shade and pattern.
- Tile size shall be 600 mm × 600 mm and thickness shall be 8 mm unless otherwise specified.
- Tiles shall be free from cracks, chips, crazing, warping and manufacturing defects.
- Water absorption, abrasion resistance and dimensional tolerances shall conform to relevant IS specifications.

**(b) Cement**

- Cement shall conform to relevant IS specifications and shall be OPC/PPC as approved.

**(c) Sand**

- Sand shall be clean, coarse, hard and free from deleterious materials.

**(d) Adhesive**

- Tile adhesive shall be polymer-modified cement-based adhesive of approved make suitable for fixing vitrified tiles over existing flooring or prepared surfaces.

**(e) Pigments**

- Colour pigments used for joint filling shall be non-fading and of approved shade matching the tile colour.

**2. Surface Preparation**

**For New Flooring**

1. The base surface shall be cleaned of dust, dirt, loose materials and foreign matter.
2. Surface irregularities shall be corrected before laying the mortar bed.
3. The base shall be wetted adequately before laying mortar.

**For Existing Flooring**

1. Existing flooring shall be carefully dismantled where specified.
2. Debris and dismantled materials shall be removed from the site.
3. The surface shall be thoroughly cleaned and prepared for fixing with tile adhesive.
4. Loose portions and uneven surfaces shall be rectified before tile laying.

**3. Laying of Tiles**

1. Cement mortar of proportion 1:6 (1 cement : 6 coarse sand) shall be prepared and laid to an average thickness of 20 mm for new flooring.
2. Tiles shall be soaked only if recommended by the manufacturer and laid to the required line, level, slope and pattern.
3. Where laid over existing flooring, approved adhesive shall be applied as per manufacturer's recommendations.
4. Tiles shall be tapped gently with a rubber mallet to achieve full bedding and proper alignment.
5. Joints shall be kept uniform and straight throughout the work.

**4. Jointing and Finishing**

1. Tile joints shall be filled with coloured cement slurry matching the tile shade.
2. Excess slurry shall be cleaned immediately after joint filling.
3. Joints shall be neatly finished flush with the tile surface.

4. The flooring shall be cleaned thoroughly and protected until handing over.
5. Finished flooring shall be level, smooth, free from lipping and defects.

#### 5. Workmanship

1. Tiles shall be laid true to line, level and slope.
2. Cut tiles shall be neatly finished and used only at edges and corners.
3. Any cracked, damaged, hollow-sounding or defective tile shall be removed and replaced at the contractor's cost.
4. The finished surface shall be uniform in appearance and workmanship.

#### 6. Mode of Measurement

Measurement shall be made in Square Metres (Sq.M.) of finished flooring.

**Item No.10 Applying priming coat over new steel and other metal surface after and including preparing the surface by thoroughly cleaning, oil, grease, dirt and other foreign matter and scoured with brushes fine steel wood, scrapers and sand paper with ready mixed priming paint brushing red lead.**

##### 1. Materials:

- All type of material shall be used as per approved make list and confirming to relevant IS codes and approved by EIC/Architect.

##### 2. Workmanship:

- The whole work is to be completed as per design; sample material & any other requirement shall be as per instruction of EIC/Architect.

2.1. General : The materials required for work of painting work shall be obtained directly from approved manufactures or approved dealer and brought to the site in maker's drums, kegs. etc. with seal unbroken.

2.1.2. All materials not in actual use shall be kept properly protected, lids of containers shall be kept closed and surface of paint in open or partially open containers covered with a thin layer of turpentine to prevent formation of skin. The materials which have become state or flat due to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into small containers. While applying also, the paint shall be continuously stirred in smaller container. No left over paint shall be put back into stock tins. When not in use the containers shall be kept properly closed.

2.1.3. If for any reasons, things is necessary, the brand of thinner recommended by the manufacturer shall be used.

2.1.4. The surface to be painted shall be thoroughly cleaned and dusted. All rust, dirt and grease shall be thoroughly removed before painting is started. No painting on exterior or other exposed part of the work shall be carried out in wet, damp or otherwise unfavorable weather and all the surfaces shall be thoroughly dry before painting work is started.

##### 2.2. Application of paint :

2.2.1. Brushing operations are to be adjusted to the spreading capacity advised by the manufacture of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with



paint, brushing the surface hard for the first time over and then brushing alternately in opposite directions two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.

2.2.2. Each coat shall be allowed to dry completely and lightly rubbed with very fine grade of sand paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in shade and shall be got approved from Engineer-in-charge before next coat is started.

2.2.3. Each coat the last shall be lightly rubbed down with sand paper of fine pumice stone and cleaned of dust before the next coat is applied. No hairmakrs from the brush or clogging of paint puddles in the corners of panels, angles of mouldings etc. shall be left on the work.

2.2.4. Special care shall be taken while painting over boits, nuts, rivets, overlaps etc. Approved best quality brushes shall be used.

### 3. Measurements:

- The rate shall be consolidated for all above items.
- The rate shall include the cost of all materials, finishing, labour, etc. to complete the whole work satisfactorily as per instruction of EIC/Architect.
- No extra payment will be given for any of the reasons.
- The rate shall be for a unit of one square meter.

**Item No.11 Providing and fixing G.I. corrugated steel sheet roofing of approved make, conforming to relevant IS specifications, including supplying, laying and fixing in position with necessary galvanized iron J or L hooks, bolts, nuts, washers, bitumen/EPDM washers, and including drilling holes, cutting to required size, providing overlaps (end and side laps), and fixing with proper slope, including all accessories such as ridges, hips, valleys, gutters, flashing pieces etc., complete in all respects.**

#### 1. Materials

##### (a) G.I. Corrugated Sheets

- Sheets shall be manufactured from galvanized steel conforming to relevant IS specifications.
- Galvanization shall be uniform and free from defects such as peeling, cracks, rust spots or bare patches.
- Thickness, width and corrugation profile shall be as specified in the drawings or schedule of quantities.
- Sheets shall be straight, sound and free from warping or mechanical damage.

##### (b) Fasteners

- J-hooks, L-hooks, bolts, nuts and washers shall be galvanized and of approved quality.
- Bitumen washers or EPDM washers shall be provided to ensure watertight fixing.
- Fasteners shall conform to relevant IS specifications.

##### (c) Accessories

- Ridge pieces, hip pieces, valley gutters, flashing, apron flashing, barge boards, gutters and other accessories shall be of matching galvanized steel and approved profile.
- Accessories shall have the same protective coating as the roofing sheets.

#### 2. Workmanship

### Surface Preparation

1. Supporting framework shall be checked for alignment, level and structural adequacy before commencement of roofing work.
2. Any defects in the supporting structure shall be rectified prior to fixing the sheets.

### Laying and Fixing

1. Roofing sheets shall be laid true to line, level and slope as shown on drawings.
2. Sheets shall be fixed with the corrugations running in the direction of slope.
3. End laps and side laps shall be provided as specified or as recommended by the manufacturer.
4. Holes for fasteners shall be drilled and not punched where possible to avoid damage to galvanization.
5. Sheets shall be fixed using galvanized J-hooks or L-hooks with nuts, washers and bitumen/EPDM washers to ensure watertightness.
6. Fasteners shall be tightened adequately without causing deformation of sheets.
7. Proper alignment shall be maintained throughout the roof area.
8. Cutting of sheets shall be carried out neatly using approved tools.

### Fixing of Accessories

1. Ridge pieces, hips, valleys, flashing, gutters and other accessories shall be fixed securely and made watertight.
2. Junctions with walls, parapets and projections shall be properly flashed.
3. Gutters and valleys shall be laid to the required slope for effective drainage.

### 3. Quality Control

1. Roofing shall be free from leaks, distortions and visible defects.
2. Overlaps shall be uniform and properly secured.
3. All fasteners and accessories shall be firmly fixed.
4. Finished roofing shall present a neat and uniform appearance.

### 4. Protection and Safety

1. Sheets shall be handled carefully to avoid damage to galvanization.
2. Adequate safety measures, scaffolding and working platforms shall be provided during installation.
3. Damaged sheets or accessories shall not be incorporated into the work.

### 5. Mode of Measurement

Measurement shall be made in Square Metres (Sq.M.) of finished roof surface.

**Item No.12 Providing and fixing standard extruded of aluminium section of size 63mm x 38.10mm x 1.2mm , @ Wt. 0.643Kg/mt with colour Powder Coated aluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation**

#### 1. Materials

##### (a) Aluminium Sections

- Aluminium sections shall be standard extruded sections conforming to relevant IS specifications.
- Section size shall be 63 mm × 38.10 mm × 1.20 mm thick or as specified.
- Aluminium shall be free from cracks, twists, bends and surface defects.

##### (b) Powder Coating

- Sections shall be factory powder-coated in approved colour and shade.
- Coating shall be uniform, durable and resistant to weathering.

- Minimum coating thickness shall conform to relevant standards and manufacturer's specifications.

(c) Glass

- Glass shall be 5 mm thick frosted glass of approved quality.
- Glass shall be free from bubbles, scratches, cracks and other defects.

(d) Fixtures and Accessories

- All screws, cleats, brackets, glazing clips, rubber gaskets, neoprene beading, sealants and other accessories shall be of approved make and quality.
- Fasteners exposed to weather shall be stainless steel or corrosion-resistant.

## 2. Fabrication and Workmanship

1. Aluminium sections shall be accurately cut, fabricated and assembled to the required dimensions.
2. Corners shall be properly jointed using approved cleats, brackets or connectors.
3. The ventilator frame shall be fixed true to line, level and plumb.
4. Glass shall be securely fixed with approved glazing beads, rubber gaskets and sealants.
5. All joints shall be weatherproof and watertight.
6. The ventilator shall open and close smoothly where operable.
7. Damaged powder coating during installation shall be repaired to match the original finish.
8. The completed work shall be rigid, properly aligned and free from distortion.

## 3. Installation

1. The ventilator shall be fixed in the opening using approved anchor fasteners, screws and fixing arrangements.
2. Necessary packing, shims and sealants shall be provided to ensure proper alignment and weather tightness.
3. Gaps between frame and masonry/concrete surfaces shall be sealed with approved sealant.
4. Protective film, if any, shall be removed after completion of work.

## 4. Cleaning and Protection

1. Glass and aluminium surfaces shall be cleaned after installation.
2. The completed work shall be protected from damage until handing over.
3. Any damaged glass or aluminium sections shall be replaced at the contractor's expense.

## 5. Mode of Measurement

Measurement shall be made in Square Metres (Sq.M.) of finished ventilator area.