

coloured sheeting having a smooth outer surface which has the property of retro reflection over its entire surface. It shall be weather resistant and show colour fastness. It shall be new and unused and shall show no evidence of cracking, scaling, pitting, blistering, edge lifting or curling and shall have negligible shrinkage or expansion. A certificate of having tested the sheeting for these properties in an unprotected outdoor exposure facing the sun for two years and its having passed these tests shall be obtained from a reputed laboratory, by the manufacturer of the sheeting. The reflective sheeting shall be either of Engineering Grade material with enclosed lens or of High Intensity Grade with encapsulated lens. The type of the sheeting to be used would depend upon the type, functional hierarchy and importance of the road.

High intensity grade sheetings : This sheeting shall be of encapsulated lens type consisting of spherical glass lens, elements adhered to a synthetic resin and encapsulated by a flexible, transparent water-proof plastic having a smooth surface. The retro-reflective surface after cleaning with soap and water and in dry condition shall have the minimum co-efficient of retro-reflection determined in accordance with ASTM Standard E:810).

TABLE 100.1
ACCEPTABLE MINIMUM CO-EFFICIENT OF RETRO-REFLECTION FOR
HIGH INTENSITY GRADE SHEETING
[CANDEL AS PER LUX PER SQUARE METRE]

Observation (In degree)	Entrance angle (In degree)	White	Yellow	Orange	Green/ Red	Blue
0.2	-4	250	170	100	45	20
0.2	+ 30	150	100	60	25	11
0.5	- 4	95	62	30	15	7.5
0.5	+ 30	65	45	25	10	5.0

When totally wet, the sheeting shall not show less than 90 percent of the values of retro reflective indicated in Table 800-1. At the end of 7 years, the sheeting shall retain at least 75 percent of its original retro-reflectance.

- 1.3 Processed and applied in accordance with recommended procedures, the reflective material shall be weather resistant and, following cleaning, show no appreciable discolouration, cracking, blistering or dimensional change and shall not have less than 50 percent of the specified minimum reflective intensity values (Table 100.1) when subjected to accelerated weathering for 1000 hours, using type E or EH Weatherometer (AASHTO Designation M 268).

1.4 INSTALLATION:

The standard metal delineator shall be installed directly on road surface, after cleaning completely by removing all dust and other foreign materials from the surface of the road.

1.5 MEASUREMENT FOR PAYMENT :

The measurement of standard metal delineator shall be in numbers, these shall be measured in Nos.

1.6 RATE :

The Contract unit rate shall be payment in full for the cost of making standard metal delineator, including all materials, installing it at the site and incidentals to complete the work in accordance with the specifications.

Item No 55

Supplying and erecting LED Solar street lights with High power white LEDs wattage of 1 Watt and above assembled on single MCPCB efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed with 36 hours battery backup & MPPT 24V,7.5 A charge controller with 12 hours automatic switch on/off with wind speed resistance 44 m/s as per IEC 61215. (E) 36W,3000 lumens, IP-65, PV Module - 2x100W and 6 mtr poles complete erected.

> Material

a. Construction

The pole shall be 8'-0" in length to provide a solar blinkers mounted on a steel circular hollow pole of standard specification for diversion should fulfill road safety norms of constant output light and 40-50 flashes per minute minimum, even used in, 3 m high fitted with solar panel and light and fixed firmly in concrete foundation.

The pole shall be a hollow, truncated cone of suitable wall thickness and taper. The taper shall be regular from top to bottom (any section shall be circular).

The pole surface shall be smooth and uniform in texture and black in color. The pole color shall be added to the resin and transmitted throughout the pole and base to be one solid color.

The reinforcing glass shall be a commercial grade of "E" glass fibers in continuous filament and woven filaments, or a combination of same. The glass fibers shall be treated with a coupling agent compatible with the resin used.

The surfacing layer shall be a commercial grade of "C" glass with suitable coupling agent or may be an organic veil compatible with the resin used. The resin shall be thermosetting type.

The surface layer shall be high in resin content, at least 80% by weight, to assure long life without glass "blooming." The resin shall be a thermosetting-type and shall contain ultra-violet inhibitors and pigment throughout.

The surface may be painted with an ultra-violet resistant paint. However, the paint may not be a substitute for complete ultra-violet inhibition in the resin used, nor for the surfacing layer.

The poles shall be furnished with a hand hole and removable, lockable cover and seal. The hand hole shall be located in the decorative base of the pole and shall have minimum

dimensions of 3" at the top, 6 1/2" at the bottom and be 8" high. The cover shall have the same color and texture as the pole and be equipped with a vandal resistant fastener.

The pole shall be provided with either a galvanized steel or cast aluminum shoe which is permanently attached to the bottom of the pole. The shoe shall be adhesively bonded to the pole and shall also be mechanically locked to the pole in such a manner that it cannot come loose even if the adhesive bond fails. The shoe shall be slotted to accommodate four 5/8" anchor bolts on the circle variable minimum from 8" diameter to 12" diameter. The pole shall be supplied with 4 - 5/8" x 18" anchor bolts.

- b. The Fiberglass Reinforced Plastic pole shall be Main Street Lighting RTM-Series FF-802-BK, Shakespeare AP17-8FS011

- > Installation

The poles shall be placed on the diversion with sufficient care to preserve the exterior finish of the pole and the surface of the foundation. The pole shall be plumbed and tightened as shown on the drawings and indicated in the field by the engineer.

The luminaries shall be installed on the poles as shown on the drawings and indicated in the field by the engineer. Orientation and leveling of the units shall be so as to provide for uniform vertical appearance, maximum lighting efficiency and ease of maintenance as directed by the engineer.

- > Mode of Measurement

Unit rate includes the cost of materials, labour and tools and plant to complete the work.

The payment shall be made on Nos. basis for completed item.

- Item No 56** Providing and fixing 'W' type safety barrier using M.S. iron channel 150mm x 75mm x 5mm size erected at 2.0 Mt. center to center and providing 'W' shaped galvanised steel sheet guard rail 3mm thick for crash barrier in single row as per detailed drawing with fabrication and installation charges including providing foundation block of size 0.60 x 0.60 x 0.75 Mt. in C.C. 1:2:4 and oil painting two coats with one coat of red oxide etc complete.

810. METAL BEAM CRASH BARRIERS

810.1. General

- 810.1.1. This work shall consist of furnishing and erection of metal beam crash barrier of dimensions and at locations as shown on the drawing (s) or as directed by the Engineer.
- 810.1.2. Metal beam crash barrier shall generally be located on approaches to bridge structures, at locations where the embankment height is more than 3 metres and at horizontal curves and location as specified by Engineer in charge.

810.2. Materials

- 810.2.1. Metal beam rail shall be corrugated sheet steel beams of the class, type, section and thickness indicated on the plans. Railing posts shall be made of steel of the section, weight and length as shown on the plans. All complete steel rail elements, terminal sections, posts, bolts, nuts, hardware and other steel fittings shall be galvanized. All elements of the railing shall be free from abrasions, rough or sharp edges and shall not be kinked, twisted or bent.
- 810.2.2. Steel beam elements and terminal sections shall be galvanized (zinc coated, 0.55 kg per square metre, minimum single spot) unless otherwise specified. The galvanizing on all other steel parts shall conform to the relevant IS Specifications. All fittings (bolts, nuts, washers) shall conform to the IS : 1367 and IS : 1364. All galvanizing shall be done after fabrication.
- 810.2.3. Concrete for bedding and anchor assembly shall conform to section 1700 of these Specifications.
- ### 810.3. Construction Operations
- 810.3.1. The line and grade of railing shall be true to that shown on the plans. The railing shall be carefully adjusted prior to fixing in place, to ensure proper matching at abutting joints and correct alignment and camber throughout their length. Holes for field connections shall be drilled with the railing in place in the structure at proper grade and alignment.
- 810.3.2. Unless otherwise specified on the drawing, railing steel posts shall be given one shop coat of paint (primer) and three coats of paint on structural steel after erection, if the sections are not galvanised. Any part of assembly below ground shall be painted with three coats of red lead paint.
- 810.3.3. Splices and end connections shall be of the type and designs or shown on the plans and shall be of such strength as to develop full design strength of the rail elements.

810.4 Installation of Posts

- 810.4.1. Holes shall be dug or drilled to the depth indicated on the plans or posts may be driven by approved methods and equipment, provided these are erected in proper position and are free from distortion and burring or any other damage.

- 810.4.2. All post holes that are dug or drilled shall be of such size as will permit proper setting of the posts and allow sufficient room for back filling and tapping.
- 810.4.3. Holes shall be back filled with selected earth or stable materials in layers not exceeding 100 mm thickness and each layer shall be thoroughly tamped and rammed. When back filling and tamping are completed, the posts or anchors shall be held securely in place.
- 810.4.4. Post holes that are drilled in rock and holes for anchor posts shall be back filled with concrete.
- 810.4.5. Posts for metal beam guardrails on bridges shall be bolted to the structure as detailed on the plans. The anchor bolts shall be set to proper location and elevation with templates and carefully checked.

810.5. Erection

- 810.5.1. All guardrail anchors shall be set and attachments made and placed as indicated on the plans or as directed by the Engineer.
- 810.5.2. All bolts or clips used for fastening the guardrail or fittings to the posts shall be drawn up tightly. Each bolt shall have sufficient length to extend at least 6 mm through and beyond the full nut, except where such extensions might interfere with or endanger traffic in which case the bolts shall be cut off flush with the nut.
- 810.5.3. All railings shall be erected, drawn and adjusted so that a length of 3 metre. The railing barrier shall be erected true to line and grade.

810.6. Tolerance

The posts shall be vertical with a tolerance not exceeding 6 mm in a length of 3 metre. The railing barrier shall be erected true to line and grade.

810.7. Measurements for Payment

- 810.7.1. **Metal beam railing barriers will be measured by linear metre (RMT) of completed length as per plans and accepted in place. Terminals/anchors of various types shall be paid for by numbers.**

810.7.2. No measurement for payment shall be made for projections or anchors beyond the end posts except as noted above. Furnishing and placing anchor bolts and/or devices for guard rail posts on bridges shall be considered incidental to the construction and the costs thereof shall be included in the price for other items of construction.

810.7.3. No measurement for payment will be made for excavation or back filling performed in connection with this construction.

810.8. Rate

The Contract unit rate shall include full compensation for furnishing of labour, materials, tools, equipments and incidental costs necessary for doing all work involved in constructing the metal beam railing barrier complete in place in all respects as per these Specifications.

Item No 57

Sign board per Square Meter :- Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 1 meter x 1meter as per design of IRC-67-2012. Pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4 mtr long stand post (2 Nos.) of Iron Angle 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50x50x5mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting

The relevant specification of Item No. 33 shall be followed for the execution for the work is Sign board per Square Meter :- Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite panel) size 1 meter x 1meter as per design of 1RC-67-2012. Pre treated with phospheting process & acid etching coated with one coat of epoxy primer and two coats of best quality epoxy paint, reflectorised with High Intensity Prismatic Grade retro reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T. Specifications, 4 mtr long stand post (2 Nos.) of Iron Angle 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with best quality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 cms. for each leg including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 7 years for the retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.

The measurement will be taken in Nos. of sign boards fixed at site.

- Item No 58** **Excavation for foundation in sand, gravel, clay soft soils and murrum etc. including shoring, strutting dewatering as necessary and disposing of the excavated stuff as directed.(A) Depth upto 3.0 M. and lead upto 100m for 10 Cum**

The work shall be executed as per specification of Item No. 16 except for the item is work of Excavation for foundation in sand, gravel, clay soft soils and murrum etc. including shoring, strutting dewatering as necessary and disposing of the excavated stuff as directed. (A) Depth upto 3.0 M. and lead upto 100m for 10 cum.

Payment shall be made on Cubic Meter basis.

- Item No 59** **Providing and laying rubble pitching 22.5 cm thick including preparing the surface and providing pannel wall of cement concrete 1:2:4 at 3m c/c horizontally and vertically size 0.35mx0.35mincluding pitching pointing in cm 1:3 including curing incl cost of all material labour etc. complete.**

- 1.0 Rubble stone pitching
- 1.1 The work shall consist of covering the slopes of high banks, training works and road embankment with rubble, over a layer of murrum bedding with panel wall for pitching 3.0 x 3.0 mt. of cement concrete 1:2:4 including pointing on pitching in C.M. 1:3 as directed.
- 1.2. Rubble subject to marked deterioration by water or weather will not be accepted. The rubble shall be sound hard, durable and fairly regular in shape and its thickness in any one direction shall not be less than the thickness of pitching as specified in the item and thickness of the rubble at any place shall not be less by 15% of the thickness specified. The largest rubbles procurable shall be supplied on site. The sizes of spalls shall be minimum 25 mm and shall be suitable to fill the voids in the pitching. Thickness of the pitching shall be as specified in the pitching item. (G.C. No. SSR/ 2080 IB 547/28/C Dated 6th March 1982)
- 1.3. Before laying the pitching the sides of banks shall be trimmed to the required slopes and profiles put up by means of line and pegs at intervals of 3 meters of ensure regular straight work and uniform slope throughout. Depressions shall be filled and thoroughly compacted.
- 1.4. Murrum for bedding shall be laid over the prepared base and suitably compacted to a thickness 150 Quality of murrum will be as per its relevant specifications.
- 1.5. The rubble pitching shall commence in a trench below the toe of the slope. Rubble shall be placed by derrick or by hand to the required length, thickness and depth conforming to the drawings. Rubbles shall be set normal to the slope and placed so that the largest dimension is perpendicular to the face of the slop, unless such dimensions are greater than the specified thickness of pitching. The largest rubbles shall be placed in the bottom courses and use as headers for subsequent courses. When full depth of pitching can be formed with single rubble, the rubble shall be laid breaking joints and all interstices

between adjacent rubbles shall be filled in with spalls of the proper size and wedged in with hammers to ensure tight packing. Pitching shall be done in panels of 3.0 M x 3.0 M with a 45 cm. wide and 22.5 cm. deeper band all around.

2.00 Stone Masonry

2.1. Panel wall for pitching 3.0 x 3.0 mt. of cement concrete 1:2:4 or as per guidelines of Engineer in charge in case of irregular dimensions.

2.2 Necessary curing shall be carried out.

3.00 Cement pointing

3.1. For a surface which is to be subsequently jointed, the joints shall be squarely raked out to a depth of 15 mm. while the mortar is still green. The raked joints shall be well brushed to remove dust and loose particles and the surface shall be thoroughly washed with water, cleaned and wetted.

3.2 Cement and sand shall be mixed in proportions as specified in the hem. Cement and sand shall be proportioned by volume after making due allowance for bulking. The required quantity of water shall then be added and the mortar mixed to produce workable consistency.

3.3. The mixing shall be done intimately by hand mixing. The operation shall be carried out on a clean watertight platform and cement and sand shall be first mixed dry in the required proportion to obtain a uniform colour and then the mortar shall be mixed for at least two minutes after addition of water. In case of cement mortar, that has stiffened because of evaporation of water, the same shall be re-tempered by adding water as frequently as needed to restore the requisite consistency but this re-tempering shall be permitted only with thirty minutes from the time of addition of water at the time of initial mixing.

3.4. For pointing, the mortar shall be filled and pressed into the raked out joints before giving the required finish. The pointing shall then be finished to proper type given on the drawings. If type of pointing after the mortar has been filled and pressed into the joints and finished off level with the edge of the bricks, it shall while still green ruled along the centre with a half round tool of such width as may be specified by the Engineer-in-charge. The superfluous mortar shall then be cut off from the edges of the lines and the surface of masonry shall also be cleaned of all mortar.

3.5 Curing shall be started as soon as the mortar used for finishing has hardened sufficiently not to be damaged when watered. It shall be kept wet for a period of at least 7 days. During this period shall be suitably protected from all damages.

3.6. Stage scaffolding shall be approved for the work. This shall be independent of the structure.

3.7 **Payment shall be made on Cubic Meter basis of the finished work.**

3.8 The rate shall include the cost preparing the base, putting to the profiles, providing, laying and compacting the murrum bedding and rubble pitching of dry rubble, making panels of 3.00 x 3.00m of cement concrete 1:2:4 including pointing on pitching in C.M. 1:3 including curing, cost of all materials and labour as directed as per embankment slopes to specified thickness, lines curves, slopes and levels and all labour and material as well as tools and

plant required of the work.

Item No 60 Providing and laying in position C.C 1;2:4 water chute as directed including with all necessary excavation curing incl all material labour etc complete

The water chutes is to be constructed as per detail drawing. The water chutes shall be constructed to the line and grade. The dimension of water chutes is as per drawing.

The necessary excavation shall be carried out as per instruction and drawing. The excavation shall be carried out as per specification of Item No. 16 and for cement concrete work the specification of Item No. 19 shall be followed except that the grade of concrete shall be 1:2:4.

All the corner in the finished work shall be true sharp and clean. The entire work shall be carried out as per the instruction of Engineer-in-charge.

The water chutes shall be measure in Running meter. The rate of water chutes is includes with the cost of labour, materials, tools plants from work, required for doing the work.

The payment shall be made on Cum.

Item No 61 Providing and laying weep hole in abutment and return by using A.C./ P.V.C pipes of 100 mm diameter including laying in proper grade and jointing complete etc. as per detailed specification

The weep holes in the masonry and returns shall be provided of the A.C. / P.V.C. pipes of 100 mm dia. The pipe shall be fixed of suitable length & in full thickness of the masonry / concrete work. Necessary C.I. grating shall be provided on back side of abutment & returns on the inlet of opening of weep holes.

Materials the A.C. / P.V.C. pipes of 100mm dia.

The Asbestos cement pipe of diameters specified in description of the item shall conform to I.S. 1626-1900. The interior of pipe shall have a smooth finish, regular surface & regular internal diameter.

The tolerance in all dim. shall be as per IS 1926-Part-I 1980.

The grating shall be of C.I. 100 mm. dia. & per IRC specification.

The weep holes shall be provided 1 meter C/C shall be placed in staggered. After laying weep holes, it shall be clear of earth and other materials from its complete length.

The rate shall be paid on Number basis.

Item No 62 Providing and laying-filter media 600 mm thick directed at the back of abutments, returns and wing wall as per detailed specifications

1. Well graded pebbled or metal of 40 mm to 63 mm. size shall be used. The grading and tolerances of metal of pebbles shall be as under :-

Sr. No.	No. of Size Range	Sieve designation	Percent age by weight passing through the
1	63mm to 40mm	90 mm.	100-00
		63 mm.	85-100
		50 mm.	35-70
		40 mm.	00-15
		20 mm.	00-05

The size shall be 40 mm. to 63 mm. where in tolerance limit for over size shall be upto 15% and that for lower size should be upto 15% and below 20 mm. it shall be allowable upto 5%. The filter Materials shall be tightly placed to a thickness of not less than 600 mm. and provided over the entire surface behind abutments, wings or return walls to the full height.

2. Materials shall be first stacked in boxed of 2 m. 1.1/2 m. x 0.5 m. size on fairly level ground and measured.
3. **The measurement for payment shall be made on Sq.m. basis of Specified Thickness.**
4. The unit rate includes the cost of materials, scaffolding labour and tools to complete the work.

2504.2.2 Filter Medium

The material for the filter shall consist of coarse sand, gravel or stone. One or more layers of graded materials, to act as a filter medium, shall be provided underneath the pitching, to prevent loss of the embankment material and build up of uplift head on the pitching.

The gradation of the filter material shall satisfy the following requirements :

$$\frac{\text{D15 of filter}}{\text{D85 of Base Material}} < 5$$

$$4 > \frac{\text{D15 of Filter}}{\text{D15 of Base Material}} < 20$$

$$\frac{\text{D50 of filter Material}}{\text{D50 of Base Material}} < 25$$

Notes :

1. Filter design may not be required if embankment consists of CH or CL soils with liquid limit greater than 30, resistant to surface erosion. In this case, if a layer of material is used as bedding for pitching, it shall be well graded and its D 85 size shall be at least twice the maximum void size in pitching
2. In the foregoing, D15 means the size of that sieve which allows 15 percent by weight of the filter material to pass through it and similar is the meaning of D 50 and D 85 (15 being replaced with 50 and 85 respectively).
3. If more than one filter layer is required, the same requirement as above shall be followed for each layer. The finer filter shall be considered as base material for selection of coarser filter.
4. The filter shall be compacted to a firm condition. The thickness of filter is generally of the order of 200 mm to 300 mm. Where filter is provided in two layers, thickness of each layer shall be 600 mm.

Item No 63 Wall painting two coats with plastic emulsion paint of approved brand and manufacturer on wall surfaces to give an even shade including thoroughly brushing the surface to remove all dirt, dust, mortar drops and other foreign matter.

- 1.0. Materials
Water shall be conform M-1. The plastic emulsion paint shall conform to I.S.: 5411-1969 (Part-I).
- 2.0. Workmanship
The painting work shall be for subsequent coat of plastic emulsion paint of approved brand & manufactures on undecorated wall surfaces to give an even shade as directed.
- 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 or colour washed A properly secured strong and well tied suspended platform (Zoola) 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 : The undecorated surface to be distempered shall be thoroughly brushed from dust, dirt, grease, mortar dropping and other foreign matter and sand papered smooth. New plaster surface shall be allowed to dry for at least 2 months before applications of distemper.
- 2.2.1. All unnecessary nails shall be removed. Pitting in plaster shall be made good with plaster again with a fine grade sand paper and made smooth. A coat of distemper shall be applied over the patches. The surface shall be allowed to dry thoroughly before the regular coat of distemper is allowed. The surface affected by moulds, moss, fungi, algae lichens,

efflorescence etc. shall be treated in accordance with I.S; 2395 (Part 01) 1966. Before applying distempering, any unevenness shall be made good by applying putty made of plaster of paris mixed with water on entire surface including filling up the undulation and then sand papering the same after it is dry.

2.3. Preparation of Mix :

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

2.4. Application :

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

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

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

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

2.5. Precautions :

- (a) Old brushes if they are to be used with emulsion paints shall be completely dried of turpentine or oil paint by washing in warm soap water. Brushes shall be quickly washed in water immediately after use and kept immersed in water fusing break periods to prevent the paint from hardening on the brush.
- (b) In the preparation of wall for plastic emulsion painting, no oil base 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 or surfaces treated with emulsion paint shall not be done within 3 to 4 weeks of application.

2.6. Protective measures : The surface of doors, windows, floors, articles, of furniture etc. and such other parts of the building not to be white washed shall be protected from being splashed upon. Such surfaces shall be cleaned of white wash splashed if any.

3.0. Mode of measurements and payment

3.1. 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, posts, 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 the treated side is less than that on the 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 A.C. 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 Extra payment shall be done on ceiling and sloping roofs.
- 3.9. The rate shall include the cost of ail materials, labour, scaffolding, protective measures etc. involved in all the operations described above.

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

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