- 10.9.2 Setting Bed and Installation of Tile: Scratch coat (1:2 mix.) shall be at least 6 cm thick or core. Unile still plastic, the scratch coat shall be deeply scored or scratched. Plub or straightening up coat shall be applied if necessary to make an even and true surface at the proper distance from the face of tile.
 - (a) Floating method: The plumb coat or scratch coat shall be properly moistened before applying mortar setting bed (1:4 mix.). Mortar setting bed shall be applied only in such quantity as can be covered with this before the initial set of the mortar. After the mortar setting bed has been floated flush with the guide strip, a skim of neat portland cement shall be trowelled to the mortar setting bed, or to the back of each tile unit, immediately before the tiles are placed.
 - (b) Buttering method: The scratch coat shall be properly moistened prior to the installation. The scratch coat shall be spotted with small piece of tile mortared in place to indicate accurately the plane of the tile wall when finished, after that, each tile shall be buttered with the setting mortar (1:4 mix.) tamped in place and brought to a plumb and true surface flush with the spot and other tile. The back of each tile shall be covered with mortar to make the bed full and even.
- 10.9.3 As soon as the mortar setting bed has sufficiently hardened, the tile surfaces shall be well washed with clean water prior to grouting.

 The grout or mortar for pointing all tile shall be forced into the joints by trowelling, or some suitable method, and finished flush and true. All surplus grout or mortar shall be removed, before it has set or hardened, and the face of tile left clean.
- 10.9.4 Total Thickness of Wall Tile Finish: Total thickness of tiles and setting bed shall be 30 mm for glazed wall tiles and other kinds of tiles of not exceeding 1 cm thickness.

10.10 CLEANING:

10.10.1 Unless otherwise directed by the Supervisor, acid solutions shall not be used for cleaning all tile surfaces. Upon completion of

the work, all exposed surfaces of tiles shall be washed with soap powder, and water, applied with a scrubbing brush, and then rinsed thoroughly with clear water. Metal cleaning tools and brushes, or abrasive powders shall not be used.



SECTION 11

11.1 SCOPE OF WORK:

11.1.1 Extent: The work required under this section consists of all terrazzo cast in place, terrazzo block, terrazzo tile and related items necessary to complete the work indicated on drawings and described in specifications.

11.2 SHOP DRAWINGS:

- 11.2.1 Submit shop drawings to the Supervisor for approval of all items of the work. Obtain approval of drawings prior to proceeding with fabrication.
- 11.2.2 Shop drawings shall indicate the following: Type, classification, and procucer's name for variety of Marble chips; layout; elevations; sections; full size profiles of joints; large scale details; thicknesses; dimensions; finish and surface treatments; anchoring; joint compound; and all necessary connections to work of other trades.

11.3 SAMPLES:

- 11.3.1 Submit samples of the following materials or assemblies to the Supervisorfor approval. Approval must be obtained prior to delivery or fabrication.
 - (a) Terrazzo:
 - (1) Terrazzo tiles for floors and skirrings.
 - (2) Finished samples for terrazzo cast in place, not less than 20cm x 20cm.
 - (3) Finished samples for terrazzo blocks for stairs, lavatories and Make-up Rooms.

11.470 MATERIALS:

11.4.1 General Requirements:

- (a) Marble chips for terrazzo shall be the standard quarry products, of sizes, colors and kind as approved by the Supervisor.
- (b) Natural variations in color and markings that are character—
 istic of the quarry from which the stone obtained will be
 acceptable provided they do not in the opinion of the Super—
 visor, impair its strength or durability, or mar its appearance.

11.4.2 Terrazzo Block:

- (a) Precast terrazzo blocks for skirtings and for sills of toilet compartment and lavatory entrances, and other materials indicated on drawings shall be of sizes, thickness and design indicated.
- (b) Terrazzo blocks shall be manufactured by a compression and vibratory process in accurately constructed watertight moulds. After curing, exposed surfaces shall be ground with water by means of a No.80 carborundum stone, unless otherwise indicated by the Supervisor. Filling shall be carried out with a neat cement grout of the same color as the facing mix and this shall be worked into the surface with a wooden scraper to fill all voids and air holes. After a minimum period of 24 hours polishing shall be carried out with water by means of a No.140 carborundum stone.
- (c) Reinforce terrazzo blocks with wire mesh and steel pencil rods as required and necessary to prevent breakage.

11.4.3 Setting Materials:

- (a) Portland cement: See "CONCRETE WORK".
- (b) White portland cement: See "PLASTERING".
- (c) Sand: See "PLASTERING"

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11 5 NORTAR:

11.5.1 Secting Floors:

Barata Artis

(a) Mortar shall be mixed in proportion of Lipart cemant to 3-

11.5.2 Grouting Terrazzo block Joints:

(a) Mortar shall be 1-part white cement to 3-parts sand.

11.6 SETTING:

11.6.1 General:

- (a) Set precast terrazzo straight, level and plumb in solid bedding of cement mortar and with joints tightly fitted and filled flush with cement grout of approved color.
- (b) After setting and grouting, remove all surplus material from the face of the stone immediately.

11.7 CAST-IN-PLACE TERRAZZO:

- 11.7.1 Ceneral: Cast-in-place terrazzo used for floor finish shall be bonded onto concrete floor slab. It shall have total thickness of 50 mm in general. The standard topping thickness shall be 12 mm.
- 11.7.2 Plain Divider Strips: Fabricate strips from 3 mm thick clear sheet glass, 25 mm in height. Place strips to divide floors into square or rectangular sections not larger than 1.2 sq.m.
- 11.7.3 Edging Strips: Fabricate strips from half-hard brass or stainless steel, 6 mm thick and 15 mm in height with suitable anchorage features and continuous straight edges. Provide edging strips where terrazzo floor adjoin floors with resilient covering.

11.7.4 Preparation of Concrete Slabs: Before placing the underbed for cast-in-place bonded terrazzo floor, sweep slabs clean and remove any plaster, mortar, dirt, oil and other conditions that will interfere with bonding to the concrete slab. On the wet slab slush and broom with neat cement immediately ahead of placing underbed.

11.7.5 Underbed:

- (a) Mix: The underbed to receive terrazzo topping shall consist of 1 part portland cement and 4-parts sand; add water and throughly mix to proper consistency.
- (b) Placing underbed: The underbed shall be spread and screed to true, level or plumb surface, finishing not less than 9 mm back of finished face of skirtings and other vertical surfaces and not less than 12 mm below finished level for floors, except as indicated otherwise. Where terrazzo occurs over slabs having membraine waterproofing, wire mesh reinforcement with joints lapped and tied shall be laid before placing the underbed.
- 11.7.6 Placing Divider Strips: While the underbed is in a semi-plastic state, install divider strips. Set strips accurately and straight, at proper height and tight fitting joints at intersections. Set edging strips so that the resilient floors will finish flush with the adjoining terrazzo floor; where the joint occurs at door, locate strip under center of door.

11.7.7 Terrazzo Topping:

- (a) Mix: The topping mix shall be in proportion of 1 part of white portland cement to 3 parts of marble chips, add mineral color pigment when indicated by the Engineer.
- (b) Installation: Place topping after underbed has hardened sufficiently to withstand rolling, but not to exceed one day after placing. Saturate underbed with water, remove excess and then slush and broom surface with neat cement grout immediately ahead of topping mix; use same color of cement and pigment as required for matrix. Place terrazzo topping to thickness specified. Topping shall be uniform in composition and the same marble chips that appear on surface shall be used for entire thickness. Trowel and pack

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; base with proper form; roll floors with heavy roller until superfluous cement and water have been extracted. Hand trowel to an even surface, exposing the line of strips on a level with the topping.

- 11.7.8 Curing: Cure terrazzo topping by keeping it damp for a minimum of 5 days after placing. Curing methods shall consist of covering with non-staining reinforced kraft paper, plastic sheets, curing mats or sand; or by coating with a clean liquid curing compound as approved by the Engineer.
- 11.7.9 Surfacing: After curing, perform initial and final grinding with water and abrasive grit stones of proper size to obtain the finish specified; use No. 24 grit stones for initial grinding and No. 80 for final grinding. Do not reduce height over shelf of recessed edging strips below the height specified. Rub by hand all inaccessible places. After initial grinding or rubbing, grout surfaces with near portland cement paste of creamy consistency, filling all voids; use cement and coloring corresponding to topping, mix for grouting. Let grout remain on surfaces until final grinding, but not less than 2 days. Final grinding shall produce surface of same texture as approved samples. The finished surface shall match approved samples and showing approximately 70 percent of marble chips. Terrazzo shall be level or straight within a tolerance of 3 mm between divider strips, when tested with straight edge. Protect walls, floors and other work adjacent to terrazzo from grinding stones and from splashing while grinding is in progress.

11.8 CLEANING AND FINISHING:

11.8.1 After final grinding, throughly clean all terrazzo surfaces, using a neutral type cleaning solution in accordance with the manufacturer's directions. After surfaces are dry, wash and rinse and apply a coat of penetrating sealing solution. Upon completion, machine buff terrazzo surfaces and leave in clean finished condition.

12.1 GENERAL:

12.1.1 Scope of work:

This Section applies to the installation of finished metal articles or metal articles manufactured to order which are made primarily of iron, nonferrous metals (including light metals) or secondary products thereof, for purposes not specified in respect of other types of work, such as decoration, and damage and pilferage prevention.

12.1.2 Materials:

(a) Metal materials

All iron, nonferrous metals (including light metals) or secondary products thereof, whether finished or otherwise, shall conform to the Japan Industrial Standard, if applicable, and where there are no applicable JIS specifications, they shall be approved by the Supervisor, provided, however, that materials or finished products not specified in JIS may be used if they are in the opinion of the Supervisor, equivalent to those complying with the JIS requirements or acceptable.

- (b) Preparatory materials for installation
 - (1) Wood blocks, whether dovetailed or bars, shall be made of Japanese Cypress protected from decay. The decay protective treatment shall be carried out in accordance with the relevant provisions applicable to woodwork. If decay protective treatment is considered to be deleterious to the finishing of wood blocks, such treatment may be dispensed with subject to approval of the Supervisor.

 Temporary wood blocks shall be of Japanese cedar or pine.

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(2) Inserts, anchor bolts, anchor screws, sleeves or drive pins shall have the shapes and sizes adequate for their respective purposes, and samples of the same shall be submitted to the Supervisor for approval as to material, bearing capacity, etc. Preparatory materials to carry suspended loads shall be put to a bearing test using loads more than three times greater than the proposed permanent load, to determine the acceptability for practical use

12.1.3 Samples, etc.:

- (a) Samples of finished metal articles shall be submitted to Supervisor for approval as to materials, shape, size, color, finish, mechanism, etc.
- (b) For all articles other than finished metal articles, fullsize drawings shall be submitted to the Supervisor for approval as to the manufacturing process. Samples or models shall be submitted, if necessary.

12.1.4 Anticorrosive treatment:

- (a) For protection against corrosion steel products shall in principle be galvanized on the external surfaces and applied on the internal faces with anticorrosive paints (a coat at factory, a second coat on the site and final coat on the site).
- (b) If nonferrous metal articles are likely to be corroded through contacts with other materials, they shall be protected appropriately from corrosion as required.
- (c) If zinc coatings as for white gas pipes and damaged during preparation, they shall be repaired with high-concentration zinc dust anticorrosive paints.
- (d) If painted areas are damaged or exfoliated on the site, they shall be made good without delay. In case such damage or exfoliation occurs on galvanized surfaces, repairs shall be done with high-concentration zinc dust anticorrosive paints.

(e) Steel sheets to be galvanized shall conform to JIS G 3310 (cold rolled steel sheets).

12.1.5 Protection and Cleaning:

- (a) If metal articles are likely to be damaged or stained after installation, they shall be protected with paper, cloth, wood or other suitable means in accordance with instructions of the Supervisor.
- (b) After completion of the work the protective materials shall be removed and the protected hardware cleaned. The metals shall be waxed as necessary.

12.2 COMMON METHOD OF INSTALLATION:

12.2.1 General:

- (a) In the case of exceptionally heavy metalwork or metal articles to be installed for safety purposes, drawings showing the proposed method of installation shall be submitted to the Supervisor in advance for approval.
- (b) Before installing metal articles or preparatory materials in water-tight areas, reservoirs, lavatories, toilets, the perimeter of external walls shere drainage may be imperfect, or places for embedment under constant vibrations or percussions, drawings showing the proposed method of installation shall be submitted to the Supervisor for approval.
- (c) The method of installation shall be either prior installation or posterior installation, and unless otherwise specified, the latter shall be adopted.

12.2.2 Prior Installation:

(a) Before installing hardware, the correct position of installation shall be determined and temporary formwork, platforms, supports or other adequate falsework shall be provided in such manner as to prevent obstructing the formwork and other works.

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The hardware shall then be mounted on the falsework and adjusted for correct vertical or horizontal positions with spacers or wedges or other suitable means and shall be welded, bolted, or riveted, as the case may be, to steel frames or reinforcing bars using foot metals or metal fasteners.

(b) Concrete shall be placed in such manner as to prevent movement of the hardware installed.

12.2.3 Posterior Installation:

- (a) Correct positioning

 Before installation, the preparatory materials shall be positioned or spaced correctly in accordance with the drawings.
- (b) Mortar grouting

 Mortar to be grouted into the area around foot metals shall

 be prepared with cement and sand in a mix ratio by volume of

 1:3. It shall be grouted in such manner as to leave no

 void. The succeeding work shall not be commenced until after

 the mortar work has been inspected by the Supervisor.
- (c) Preparatory materials for Supervisor providing concrete base, etc.
 - (1) Wood block
 - (i) Wood blocks shall be either dovetailed or bars and shall have an adequate size to match the bottom surface of hardware. They shall be embedded in the concrete base to a depth of more than 50 mm.
 - (ii) For embedment in concrete, wood blocks shall be fitted to formwork. For embedment in hollow concrete blocks, the specified position shall be filled with concrete or mortar in such manner as to prevent interference with the installation of hardwork and after the concrete has set, the bar blocks shall be driven into the concrete securely.

- (iii) Temporary wood blocks shall be in inverted dovetail and fitted to formwork.
- Inserts shall be properly bolted to the inside face of concrete formwork and the hollow of the inserts shall be stuffed with cloth to prevent the ingress of cement paste.

(3) Anchor bolt

- concrete, a hole shall be bored in the formwork to insert the bolt and placing a temporary wood spacer having an adequate thickness on the face of the bolt it shall be tightened with a nut. The tip of the anchor bolt shall be bent to an angle of 90°. The embedded length of the bolt shall be determined according to the size and weight of the hardware to be installed. Anchorage shall be provided by welding the hardware directly or with a metal fastener to an adjacent reinforcing bar or fastening the hardware around the bar with two or three turns of 0.88 mm dia. wire (B.W.G.#20) in such manner as to form the specified angle with the concrete surface.
- (ii) Where an anchor bolt is to be embedded after placing concrete, a square formwork corresponding in diameter and length to the bolt shall be buried at the specified position in advance. After concrete has been placed, the formwork shall be removed and the anchor bolt shall be inserted into the hole left and the surrounding area shall be grouted with mortar. If a hole is bored in the concrete surface to insert an anchor bolt, the hole shall, as far as possible, be dovetailed and its position and size shall be approved by the Supervisor beforehand.

(4) Anchor screw and others

If hardware is to be fixed to the surface of stonework, concrete or brickwork with anchor screws, roll plugs or expansion bolts, the positions where these are to be embedded shall be clearly marked and holes shall be bored with a drill to the specified diameter and depth in such way as to form a right angle to the surface where the hardware is to be fixed. Anchor screws, roll plugs or expansion bolts shall then be inserted into the holes.

(5) Small, foot metals.

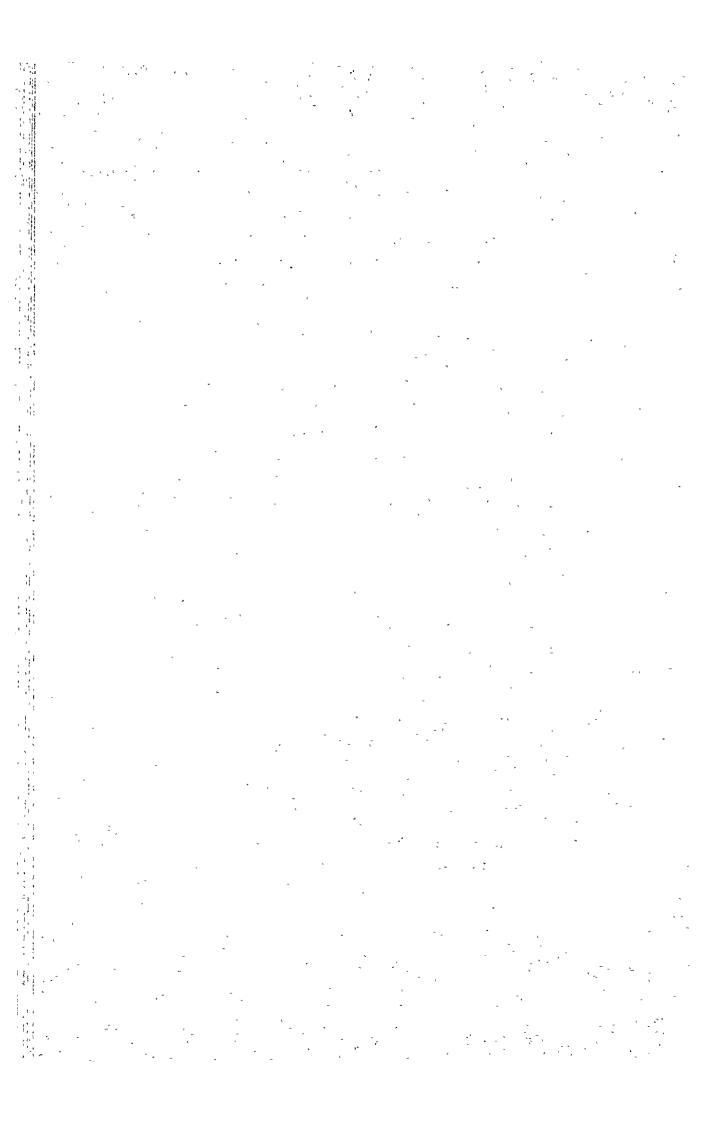
If small foot metals are to be buried in the surface of terrazzo blocks, brickwork and marble, suitable holes shall be bored to insert the metal fixtures and after insertion, the surrounding area shall be grouted with mortar in such way as to leave no void. Where an anchor bolt hole is too small to fill with mortar, it shall be grouted with molten led or sulphur to fix the bolt.

(6) Drive pin

If a small-diameter bolts or screw sleeves as a substitute for anchor bolts are to be shot with a gun into a concrete base for fixing hardware or preparatory materials, the gun shall be pointed correctly to the specified position. Where it is unavoidably necessary to shoot into the concrete base after plastering and painting have been finished, the finished surfaces shall be covered with adequate planks or other suitable materials before shooting to protect the surfaces from stains due to powder smokes.

(d) Preparatory materials for fitting to wood bases

If preparatory materials such as bolts and drive pins are to be fixed to wooden bases, they shall be fixed securely at the correct positions in the same manner as in paragraph c) above.



- (e) Installation of hardware
 - (1) The correct positions of installation shall be determined and marked in accordance with the drawings, and temporary wood blocks shall be removed, the bottom of holes cleaned and anchor bolts and other metal fittings adjusted for correct positions.
 - (2) The hardware shall be installed at the specified positions.

 Securely by means of spacers, wedges, supports, etc. and

 fixed in such manner as to match the preparatory materials

12.1 METAL COATING:

12.3.1 General:

- (a) Types of metal coating

 This subsection provides for galvanizing of hardware made primarily of iron and its secondary products.
- (b) In respect of matters which may not be governed in part by this Specification, prior consultations shall be held with Supervisor and his instructions shall be followed.
- (c) Submission of samples Samples of zinc coatings shall be submitted in advance to the Supervisor for approval as to coloring, luster and finish.
- If the Supervisor so requires, finished articles shall be inspected by authoritative research institutes or laboratories, or an inspection shall be made of the manufacturing processes at the factories concerned from time to time in the presence of the Supervisor.

12.3.2 Base metals:

(a) Base metals shall besides complying with the applicable special specifications, be suitable for protective coatings and free from any pinholes, cracks or wrinkles which may cause swells or exfoliations on the metal surfaces.

(b) Welded or soldered areas shall be suitable for receiving protective coatings.

12.3.3 Galvanizing:

- (a) Treatment of base metal before galvanizing
 - (1) Removal of oils and fats

 Base metals to be galvanized shall be immersed in a caustic soda solution for 90 seconds to remove oils and fats or paints and shall be washed thoroughly after withdrawal.
 - (2) Treatment with dilute sulphuric acid

 Base metals shall be immersed in a bath containing dilute
 sulphuric acid of nearly 15% at normal temperature for 12
 to 24 hours and they shall be washed thoroughly after withdrawal.
 - (3) Neutralization of acid

 Base metals shall be immersed in a bath containing caustic soda and soda cyanide for three to five hours to attain complete neutralization of any acid remaining in the metals. After withdrawing the metals from the bath, their surfaces shall be brushed and washed to facilitate bond between the zinc coating and the metal surfaces.
- (b) Electrolytically galvanized iron shall, in principle, undergo chromate treatment in accordance with Table 12.1.

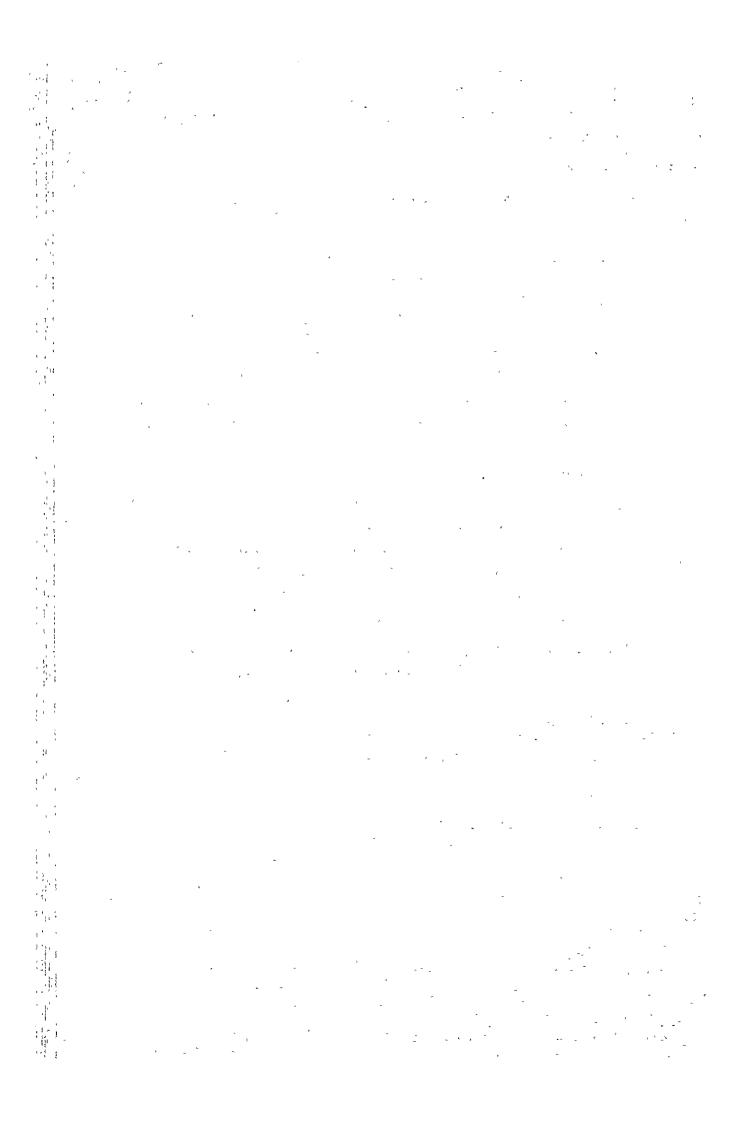


Table 12.1 Electro-galvanizing of Iron

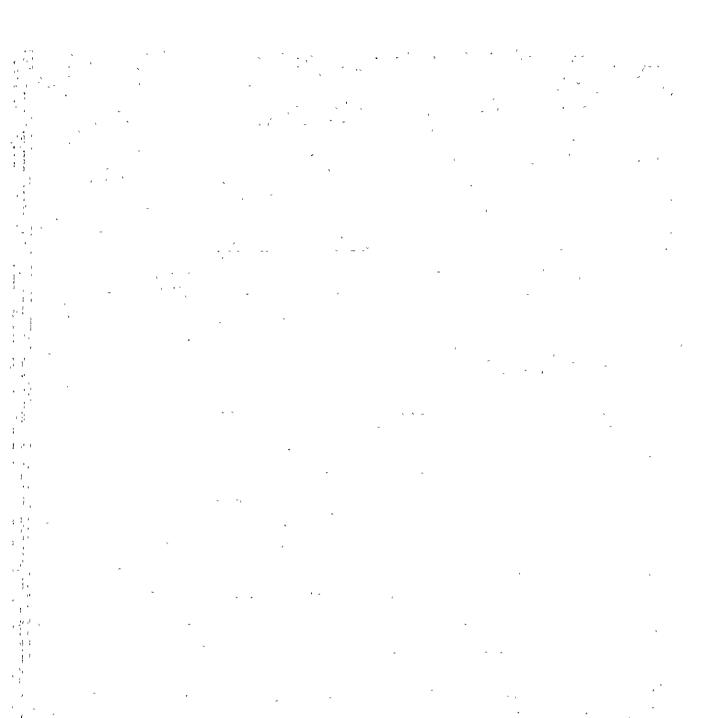
| Surface treatment | Galvanized | Treated with chrone after galvanizing |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------|
| External appearance | External surfaces should particles glued together swells, projections or exmetal at corners. | and be free from burns |
| Thickness (mm) | 0.013 and over | 0.013 and over |
| Salt Time within water which white corrosion should not occur | | 72 |

- (Note) 1. The zinc coating in the above table corresponds to Class 4 complying with JIS H 8610.
 - 2. Salt water spray tests should be conducted in compliance with JIS Z 2371 (Salt Coater Spray Test Method). Spraying time shall be eight (8) hours a day up to a total of 24 hours.

 Base metals shall be maintained at a temperature ranging from 15 to 37°C while they are not sprayed with salt water.
 - 3. Chromate treatment refers to the immersion of a base metal in a bath containing chromic acid and sulphuric acid.
 - (c) Galvanizing of iron by the hot-dipping process shall conform to Table 12.2.

Table 12.2 Galvanizing of Iron by Hot-dipping Process

| External appearance | External surfaces should consist of smooth fine particles glued together and be free from flaws or exposures of the base metal | |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------|--|
| Amount of bond | 244 and over: () () () | |
| Uniformity test | 4 times and over | |



- (Notes) 1; The bond test shall be conducted by either of the weight method and the antimony chloride method (3-point method) as specified by JIS A 0401 (Hot-dip
 - Galvanizing Test Method).

 The uniformity test shall be conducted by the method specified by JIS H 0401 (Hot-dip Galvanizing Test
- Galvanizing of metals other than iron shall comply with the

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the table below: Table 12.4.1

| Designation | Material, Shape and Size | Finish | Remarks |
|-------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Floor wiring pit | As specified on drawings. | Back of finish, flooring to be coated with anti-corrosive paints and OP | To be divided into lengths of about 600 mm and corresponding numbers to be inscribed on the back. |
| Riser wiring duct | width 30 | Internal surface to be coated with anticorrosive and insulating paints. External surface to be sprayed with lacquer enamel | Cover faced, screwed and fitted with facing washers. |

| Designation | Material, Shape and Size | Finish | Remarks |
|------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Handle of cover | Gunmetal 20 x 115 x 3.2 Fixed to steel base plate. | | Equivalent to products of Hori Shoren, Ltd. Handle to be fitted to every third cover. |
| Cailing access | Dia. 1.2; flashed; hinged; fitted with fasteners 600 x 600 | To be coated with anticorrosive paints and OP. | Airtight; panel to be filled inside with glass wool. |
| Speaker fittings | To be supplied | | To be fitted at positions shown on drawings. |
| Handrails | As specified. | External surfaces to be galvanized and finish given coat. Internal surfaces to be treated as indicated on drawings (except stainless steel, nonferrous metals and light metals). | Handrails to be welded to reinforcing bars. Handrails for rooftop use to be provided with expansion joints. |
| Lattices | As specified. | External surfaces to be galvanized and given finish coat. Internal surfaces to be treated as indicated on drawings (except stainless steel, nonferrous metals and light metals). | |
| Gratings | R.B19\$, L-50 x 6 As shown on drawings. | To be galvanized and given finish coat. | Foot metals to be welded to reinforcive bars or steel frame— work. |

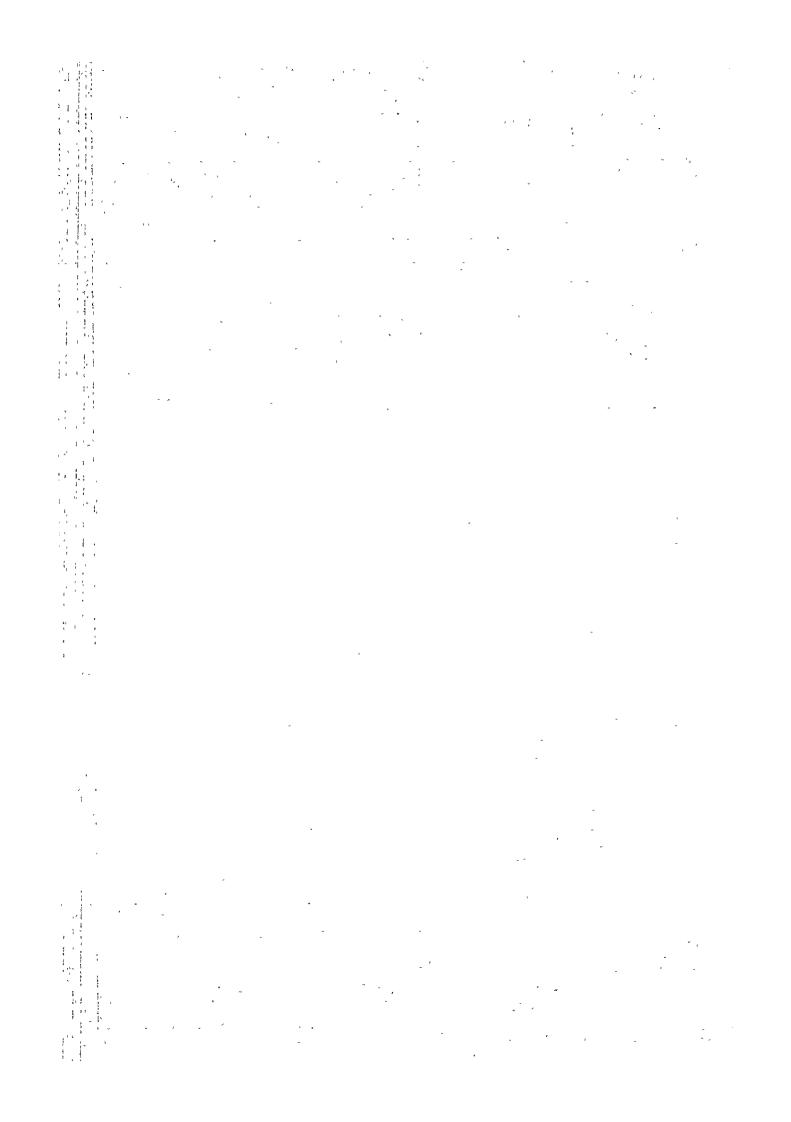
| Designation | Material, Shape | Finish. | Remarks |
|--------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Vertical trough (interior use) | White gas pipe Diameter as indi- cated on drawings. | | Antisweat cover- ing to be fastened around sections indi- cated. |
| Grip for vertical trough | F.B4,5 x 20 hinged | To be galvanized and given finish coat. | To be welded to reinforcing bars in structure. |
| Parapet ring | R:B:-19¢ inside dia. 100 F.B12 x 60 | To be galvanized and given finish coat. | Ring joints to be welded. |
| Steel frame stairway | Details as shown on drawing. | To be coated with anticorrosive paint and applied with finish coat. Stair plates to be galvanized and given finish coat. | |
| Doorwill | SUS-27 Thickness 2.0 | Hairline finish | |
| Suspension hook | As shown on drawing. | To be galvanized and given OP coat. | Before placing con- crete weld short hook- ed bar to structual reinforcing bars. |

12.4.2 Ready-made items of hardware shall be as specified in the table below. Table 12.4.2 Ready-made Metal Articles

| Designation | Material, Shape and Size | Finish | Remarks |
|---------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------|
| Crimb wire netting | #10 25 ram mesh 40 mm mesh #12 25 ram mesh | PVC sheathed (glasswool retainer) | JIS G 3553 |
| Welded wire nerting | Square mesh 3.2 d | | JIS. G. 3551 |
| Ceiling insert | As shown on drawing, or where not specified, of cast iron and for use with 9 \$\delta\$ suspension bolt | To be galvanized. | Where not specified, concrete to be placed at each 900. |
| Manhole lid. | Cast iron and watertight as shown on drawing | To be tarred | To be capable of carrying heavy loads; with antitheft chain. |

| Designation | Materials, Shape and Size | Finish | Remarks |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Drainegeway lid | Cast iron as shown on drawing. Edge protector L - 30 x 5 | To be carred. | To be capable of carrying heavy loads; with antitheft chain. |
| Floor dividing | Brass; width 6 mm; or hard aluminum | | Fitting base 50 mm; to be mortared within every 1 m. |
| Non-slip nosing | Stainless steel (containing vinyl) Hard aluminum (containing vinyl) As shown on drawing. | | Both adhesive and anchor to be used for fixing. |
| Lightweight steel base in wall | Lightweight shape steel and other details as shown on drawing: | To be given, anticorrosive coating | |
| Corner bead | PVC (general section) L - 50 x 4 (perimeter of stage) | To be galvanized and given OP coat | Fitting base 200; all external corners of plaster walls except window stiles to be beaded up to 2,100 above floor |
| Ceiling mold | Extruded aluminum | | For all joints of plastered concrete wall with ceiling. |
| Light gauge steel backing in ceiling | Suspension bolt 9 \(\text{@ 900} \) Ceiling joint support - 38 (a) 900 Board joint (a) 300 Bracing - 20(a) 2,000 | Anticorrosive coat to be given. | Bracing to be provided where required - 20 |
| Ceiling access | Hard aluminum 600 x 600 | Finishing materials to be provided. | Perimeter to be reinforced adequately. |

| Designation | Materials, Shape | Finish | Remarks |
|-----------------|----------------------|----------------------------------------|------------------------------------------------|
| Ceiling gangway | As shown on drawing. | To be galvanized and given OP coating. | provided at some |
| Joiner A. T. | As snown on drawing. | | |
| Vent | As shown on drawing | To be galvanized and given OP coating. | To be selected on examining samples. |
| Spacer support | Brass | Chrome coated | Screws and other fittings to be chrome coated. |



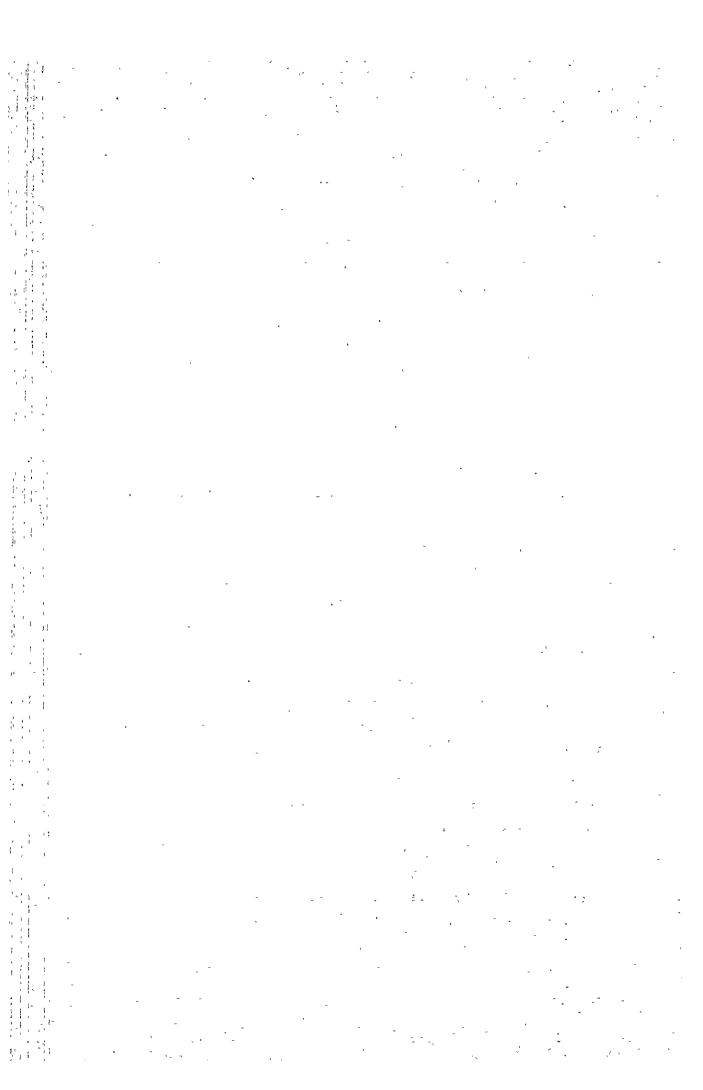
12 5 LIGHT METALS

77 5 1- Materials

Aluminum and its alloys for use in buildings shall have the proper ties suitable for the intended purposes.

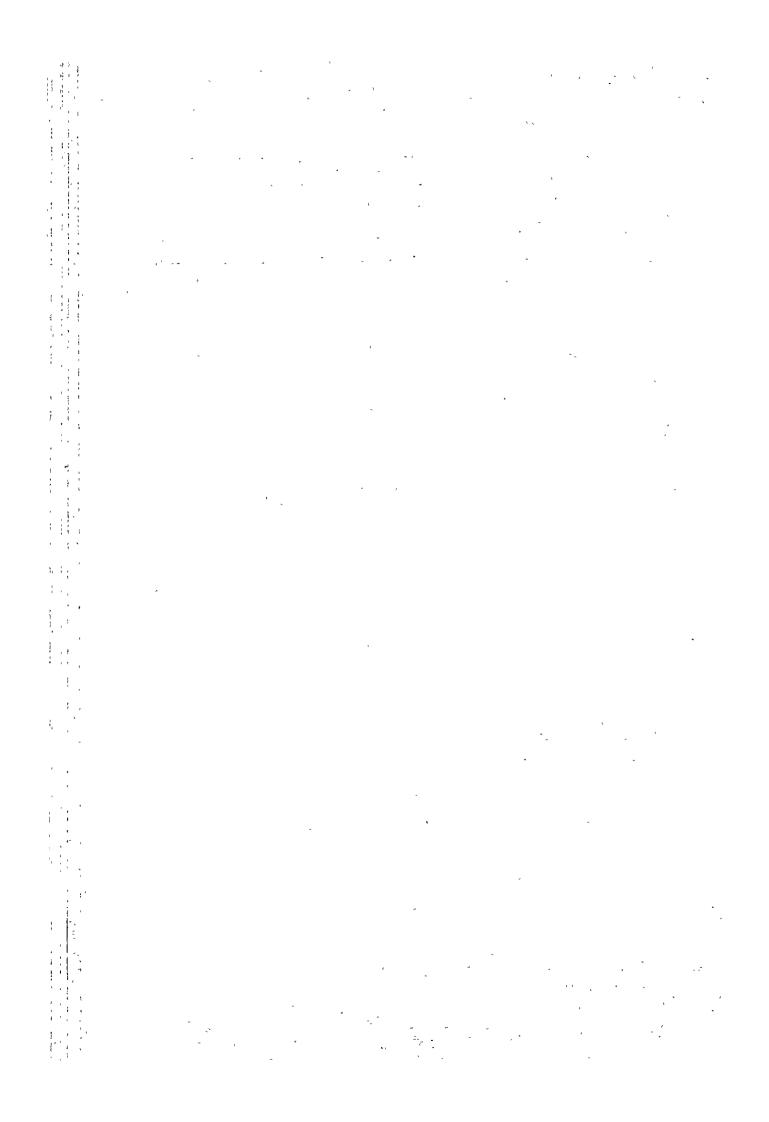
12.5.2 General:

- (a) Light metals to be used in buildings shall have adequate
- (b) The standard means of fabrication of light metal structure shall be riveting, bolting and screwing, but where watertightness must be provided, welding, hard soldering, adhesion and watertight painting shall be employed.
- (c) Rivers, bolts, screws, nails and washers for use with light metals shall be of light metals or specified materials. If it is unavoidably necessary to use rivets, bolts, screws, nails or washers of iron or brass, they shall be galvanized or chrome-coated before use.
- (d) Adequate arrangements shall be made to allow for expansion and contraction of light metals.
- (e) If light metals are to come into contact with iron, copper or brass, they shall be appropriately insulated to protect them against corrosion.
- (f) Every possible effort shall be made to avoid contacts between light metals and lime, mortar, concrete and other alkaline materials. If light metals are likely to be corroded by such alkaline materials, they shall be insulated suitably.
- (g) Light metals shall be protected with paper, vinyl films or other suitable means against adhesion of cement, mortar, lime or other alkaline materials. If they are contaminated with alkalinity, they shall be washed thoroughly with water without delay and dried well. Other metals which may come into contact with light metals shall be galvanized and coated with a zinc chromate paint or other more effective paints.



12.5.3 Working of light metals:

- (a) Working of light metals shall take place at a distance from the place where iron materials are prepared, in order to protect the light metals from iron powder.
- (b) Light metals shall be worked on wooden benches and every care shall be taken to protect them from damage, as for example, applying a pad of light metal, lead or hard wood to the base of a vice to prevent it from damaging the metals.
- (c) In cold-bending a light metal work, it shall be bent to a minimum inside radius greater than the thickness of the metal in such manner as to prevent the occurrence of breakage, snapping, deformation, wrinkles or cracks.



13.1 SCOPE OF WORK:

- 13.1.1 Extent: The work required under this section consists of all painting and finishing work and related items necessary to complete the work indicated on drawings and described in specifications.
- 13.1.2 Work not Included: The following items of work are included in other sections of this specification:
 - (a) Shop painting of miscellaneous iron and steel.
 - (b) Factory applied finishes.
 - (c) Caulking.
 - (d) Painting and finishing of machanical, electrical, and plumbing work.

13.2. SAMPLES AND COLORS:

- 13.2.1 The Contractor shall submit a set of color cards showing all color range of paints and shall make, under the direction of the Engineer, a schedule showing where the various colors shall be used. The Contractor shall then prepare 15cm x 30cm samples in duplicate of each color and finish on hardboard and/or metal plate at the project site as required until the colors and textures are satisfactory. These samples must be approved by the Engineer prior to delivery of paints to the site.
- 13.2.2 The Contractor shall submit for approval a list of all materials proposed for use.

Before proceeding with painting, the Contractor shall finish one complete room, space, or item of each color scheme required.

This shall include selected colors, finished texture, naterials, and workmanship. After approval, these sample rooms or items shall serve as a standard for similar work thoroughout the project.

13:3 MATERIALS

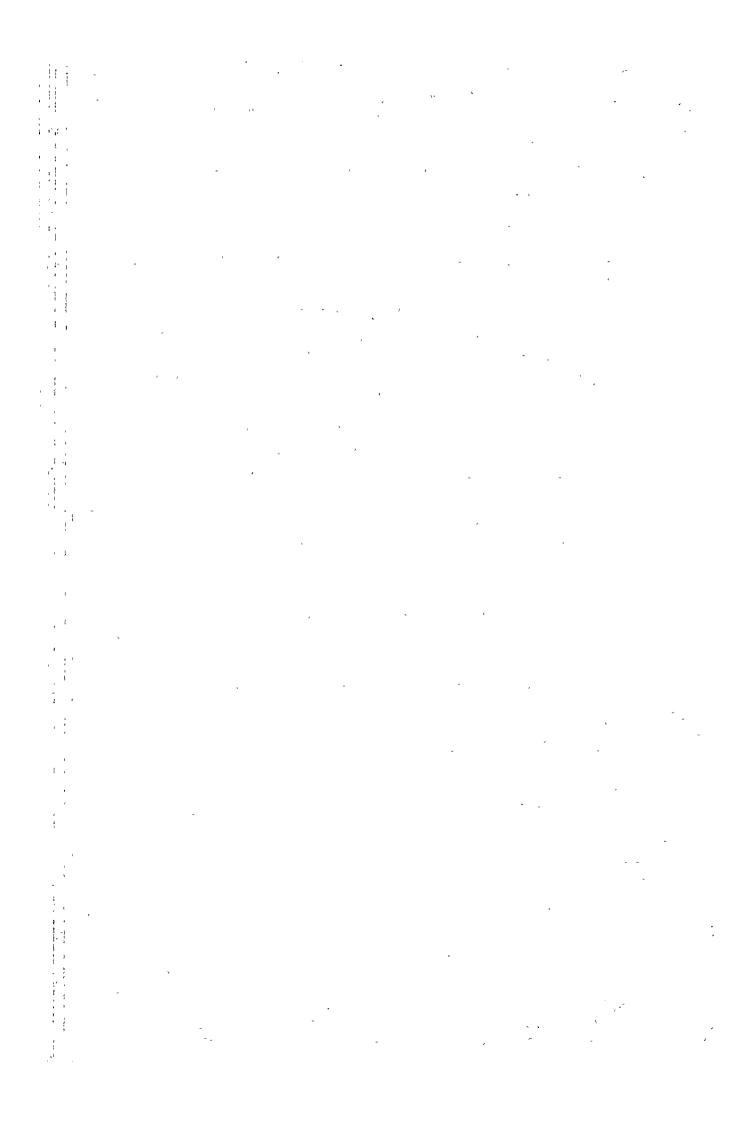
13.3.1 General Requirements:

- (a) Paint; varnish, stain, and fillers shall be of types and brands hereinafter specified under "Table of Materials".
- (b) Other painting materials required but not specifically described, such as turpentine, thinner, polishing compound, etc., shall be of highest quality and shall have identifying labels on containers.
- (c) All paint shall be delivered to the site in manufacturer's sealed container. Label shall give manufacturer's name, type of paint, color of paint, and instruction for reducing.

 No Materials other than types specified or approved shall be delivered to the project site.

Paint shall be well ground; shall not settle readily, cake, or thicken in the container; shall be broken up readily with a paddle to a smooth consistency; and shall have good working properties.

- (d) Storage of materials:
 - (1) Store all painting materials and equipment in an assigned area.
 - (2) Protect floor and wall surfaces against damage.
 - (3) Take necessary precautions to keep fire hazard to a minimum.
 - (4) Leave surfaces of storage space clean and in condition required for equivalent spaces in the project.
- 13.3.2 All painting materials shall be as shown in the following Table of Materials.



| JIS K 5516 K 5517 K 5518 Ditto | Super #60, or equal |
|-----------------------------------------|----------------------------------------------------|
| JIS K 5663-1 | or equal Shinto Envy Super #60, or equal |
| | Super #60, or equal |
| Ditto 🕚 | |
| ** * | Shinto Envy #60, or equal |
| JIS K 5582 | Shinto Envy #3000, or equal |
| Ditto | Shinto Envy #1000, or equal |
| JIS K 5531 | Shinto Lacquer Clear #300, or equal |
| JIS K 5633 | Shinto Wash L#20, or equal |
| JIS K 5625-1 | Shinto Cyanamide Derust, or equal |
| JIS K 5628-2 | Shinto Chrome Coat R, or equal |
| | Shinto Envy Hard Putty #210, or equal |
| . . | Shinto Emulsion Putty #100,-or_equal |
| | Shinto Envy Sealer #700, or equal |
| <u></u> | Shinto Latex Primer #1000, or equal |
| JIS K 5431 | Shinto Shellac Varnish, or equal |
| Co., Ltd. | |
| | JIS K 5531 JIS K 5633 JIS K 5625-1 JIS K 5628-2 |

13.4 GENERAL REQUIREMENTS:

- 13.4. Before starting any work, inspect all surfaces to be painted or
 - (a) All spaces shall be broom clean before painting is started
 - (b) All surfaces shall be dry.

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- (c) All surfaces shall be free of foreign matter before applying
- (d) New woodwork to receive clear finish shall be suitable to
- 13.4.2 No work shall be done under conditions which are unsuitable for the production of good results.
 - (a) Do not apply exterior paint in damp, rainy weather.
 - (b) Do not apply paint on surfaces in direct sun, so as to pre-
 - (c) Do not apply finishes in spaces where dust is being generated which would speck the finish.
- 13.4.3 Remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work, and similar items; or provide in place protection. Upon completion of each space, carefully replace all removed items. Use only skilled mechanics for removal, replacement and protection.
- 13.4.4 Remove doors to paint tops and bottoms.

13.5 PREPARATION OF SURFACES:

- (a) Surfaces shall be clean, dry, and adequately protected from
- (b) Surfaces shall be smooth, even, and true to plane.
- (c) Surfaces shall be free of any material which will adversely affect adhesion or appearance of applied coating

13.5.2 . Wood:

(a) Sandpaper to smooth and even surface, then vacuum off.

- (b) Apply shellac varnish to all knots, pitch, and resinous sap
- (c) After priming coat has dried, putty all hail holes, cracks,

13.5.3 Concrete, Cement Plaster:

(a) Fill all minor holes to produce uniform texture over the surface.

13.5.4 Ferrous Surfaces:

- (a) Remove dirt and grease with mineral spirits.
- (b) Remove rust, mill scale, and defective paint down to sound surface or bare metal, using scraper, sandpat or wire brush as necessary. Grind if necessary to remove shoulders at edge of sound paint to prevent flows from photographing through finish coats.
- (c) Touch up all spots and damaged shop coats with specified rust inhibitive primer.

13.6 COLORS

13.6.1 Colors shall match color control chip approved by the Engineer.

Color schedule will be made by the Engineer before commencement of the work. The Contractor shall prepare the color control chip according to the schedule and submit to the Engineer for approval.

13.7 SCHEDULE OF PAINTING:

(a) Ready Mixed Paint (Synthetic Resin, Long Oil Type) OP

(Ferrous Metal Surfaces)

Pretreatment Etching Primer 0.18 kg/sq.m
Under Coat Anticorrosive Paint, 0.11 kg/sq.m
(2 coats) Lead-Zinc Chromate or

Lead Cyanamide

Touch Up Ditto

Middle Coat, Ready Mixed Paint, 0.08 kg/sq-m

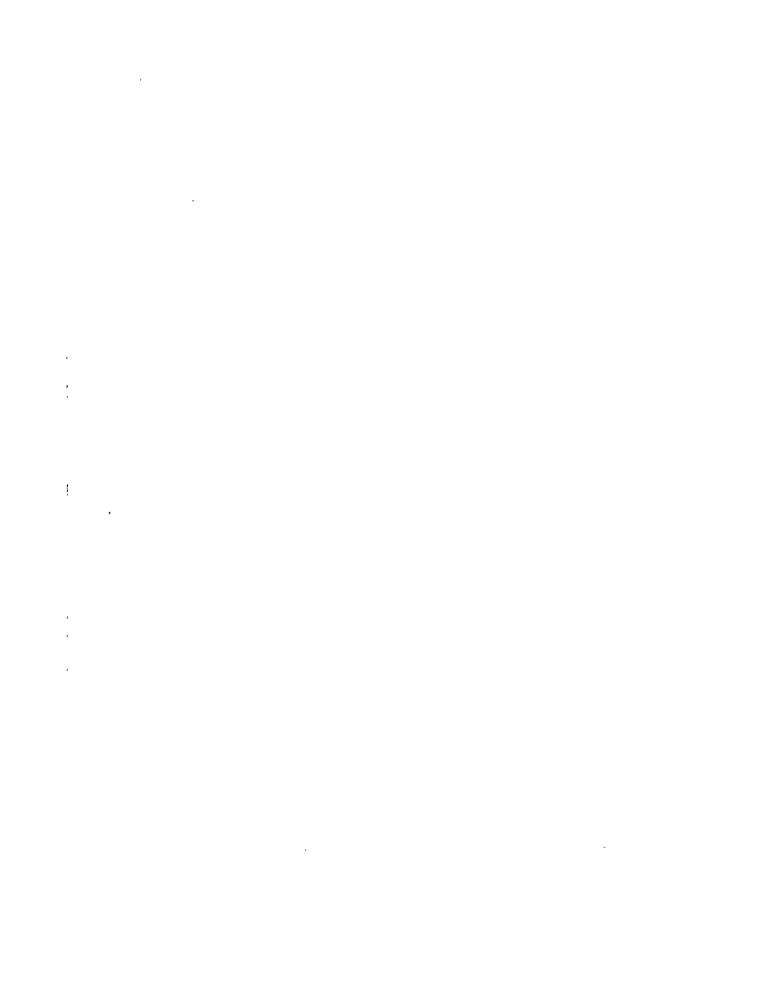
(Middle coat type)

Top Coat Ready Mixed Paint 0.08 kg/sq.m

Note: Etching primer is to be applied on zinc-coated sur-

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| (b) Ready Mixed Paint (Sy | nthetic Resin, Long Oll Type) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (Wooden surfaces) | |
| and the settle in a feet and a settle than the settle that the settle the settle that the settle th | Shellac Varnish |
| Under Coat | Ready Mixed Paint 0.09 kg/sq m |
| | (Under coat type, white) |
| | Pucty, Vinyl Resin |
| Purty Middle Coat | Ready Mixed Paint 0.08 kg/sq.m |
| | |
| Top Coat | Ditto 0.08 kg/sq.m |
| (c) Synthetic Resin Emuls | ion Paint |
| (Cement and Sand Plas | ter, Concrete, Asbestos Cement |
| Board/Sheet, etc.) | |
| Under Coat | Sealer, Enulsion 0.11 kg/sq.m |
| Pucty | Putty, Emulsion |
| Middle Coat | Synthetic Resin Emulsion 0.10 kg/sq.m |
| | Paint |
| Top Coat | Ditto 0.10 kg/sq-m |
| Note: For exterior s | surfaces and for indoor damp places paint |
| for exterior i | se shall be applied. |
| (d) Vinyl Chloride Resin | Enamel VE |
| (Cement and Sand Plas | |
| * * * * * * * * * * * * * * * * * * * * | |
| Sealer | Sealer, Vinyl Resin |
| Under Coat | 12 Object and a District On 12. boloom 2 |
| | Vinyl Chloride Resin 0.12 kg/sq.m |
| | Enamel |
| _ | Enamel Putty, Vinyl Putty |
| _ | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m |
| Middle Coat | Enamel Putty, Vinyl Putty Vinyl Chloride Resin Enamel |
| Middle Coat Top Coat | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m |
| Middle Coat Top Coat Note: For antiacid | Enamel Putty, Vinyl Putty Vinyl Chloride Resin Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with |
| Middle Coat Top Coat Note: For antiacid vinyl chlorid | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m |
| Middle Coat Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. 0.5 |
| Middle Coat Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chloride Resin Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with |
| Middle Coat Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. 0.5 |
| Middle Coat Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. 0.5 |
| Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. 0.5 |
| Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chlorida Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. Stain, Oil Type CL |
| Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chlorida Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. Stain, Oil Type CL |
| Middle Coat Top Coat Note: For antiacid vinyl chlorid (Wooden Surface) Stain (2 coats) (f) Lacquer Clear | Enamel Putty, Vinyl Putty Vinyl Chloride Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. Stain, Oil Type CL |
| Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chloride Resin |
| Top Coat Note: For antiacid vinyl chlorid (e) Stain | Enamel Putty, Vinyl Putty Vinyl Chlorida Resin 0.12 kg/sq.m Enamel Ditto 0.12 kg/sq.m purpose, top coat shall be replaced with e resin enamel of antiacid type. Stain, Oil Type CL |



iller San Tiller

Middle Coat Lacquer Sanding Sealer 0.12 kg/sq.m

Top: Coat Lacquer Clear Clear 0.15 kg/sq.m

(2 coats)

(Surfaces of Woodboard Cailing)

Under Coar Lacquer Wood Sealer 0.08 kg/sq:n

Filler Wood Filler

Top Coat Lacquer Clear 0.15 kg/sq.m

13.8 APPLICATION:

13.8.1 @ General:

- (a) Brush paint all work except as specifically scheduled or except as approved by the Engineer.
- (b) Each coat shall be brushed on well and worked out evenly to leave no brush marks or "holidays".
- (c) Each coat shall be flowed on smoothly and free from sags and runs:
- (d) Rate of application shall not exceed average rate of coverage recommended by paint manufacturer for the type of surface involved (less than ten percent allowance for losses, unless manufacturer's printed recommended specifications state that the recommended rate included normal expected losses):
 - (1) Minimum dry film thickness per coat shall not be less than thickness recommended by the paint manufacturer.
 - (2) Surface shall be free of skips in any coat, voids, pinholes, etc.
- (e) Packaged paint may be thinned immediately prior to application in accordance with the manufacturer's directions.
- (f) The Contractor shall apply additional coats of paint or finish as required to completely cover surfaces which are painted or finished to provide uniform color and appearance.
- (g) A whole wall shall be refinished rather than spot finishing where a portion of the finish has been damaged or is unsatisfactory.
- (h) Minimum drying time shall comply with that recommended by paint manufacturer. Each coat shall be thoroughly dry before application of succeeding coats.

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- (1) Sand between coars (with abrasive paper of No. partinent to
- (j) Make edges of paint adjoining other materials or colors sharp and clean; and without overlapping.
- (k) Apply primer on all work before glazing.

13.9 PROTECTION:

- 13.9.1 Protect work of other trades against damage, injury, or soiling from materials, tools, or utensils used.
- 13.9.2 Furniture and other movable objects, equipment, fittings, and accessories shall be moved, protected, and replaced upon completion of an area.
- 13.9.3 Use drop cloths, free of holes and of adequate size, to cover all finished work of others.

13.10 CLEANING UP:

13.10.1 The Contractor shall, upon completion, remove all paint where it has been splashed, or spattered on surfaces, including fixtures, glass, furniture, fittings, hardware, etc. It shall be removed without marring the surface finish of the item being cleaned.

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SECTION 14

14.1 SCOPE OF WORK:

14.1.1 Extent: The work required under this section consists of all interior furnishings and related items necessary to complete the work indicated on drawings and described in specifications.

14.2 SHOP DRAWINGS:

14.2.1 Submit shop drawings to the Supervisor for approval of all items of interior furnishing. Obtain approval of drawings prior to proceeding with fabrication.

14.3 SAMPLES:

- 14.3.1 Submit samples in duplicate of the following materials or assemblies to the Engineer for approval. Approval must be obtained prior to delivery or fabrication.
 - (a) Curtains and curtain rails including accessories.
 - (b) Vertical blinds including accessories.

14.4 MATERIALS AND WORKMANSHIP:

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14.4.1 General: When materials and workmanship specified in other section of this specification are applicable to works included in this section, the works shall conform to those specifications.

14.5 CURTAINS AND CURTAIN RAILS:

- 14.5.1 Curtains: The quality, color, pattern and accessories of curtain materials shall be determined by the Supervisor by samples to be submitted.
- 14.5.2 Curtains for shower spaces shall be of vinyl cloth of more than 0.2 mm thick or of waterproof treated cloth.
- 14.5.3 Curtain rails shall be of stainless steel or aluminum alloy fur-

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nished with runners and other necessary accessories; and shall be

14.5.5 Furnish wood curtain boxes at locations indicated on drawing as detailed.

14.6 CABINET WORK AND OTHER SIMILAR FURNISHINGS:

14.6.1 General Requirements:

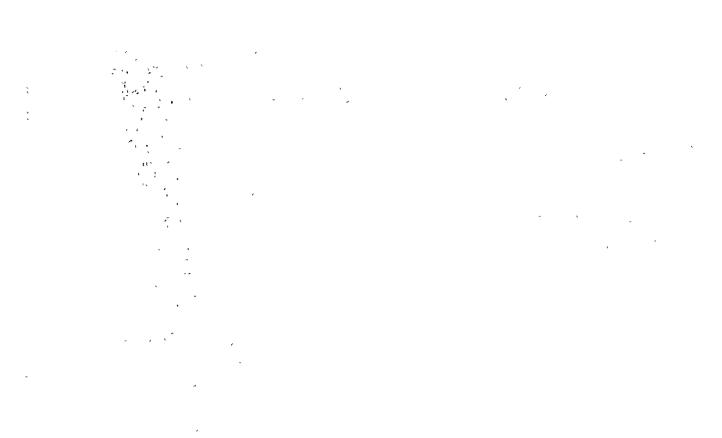
- (a) As to materials and workmanship, see joinery items in "CARPENTRY AND JOINERY".
- (b) Doors of them shall be provided with proper and adequate hardware including cabinet hinges, pulls, cabinet.spring/magnetic catches or latch and cabinet locks (if required).
- (c) The furnishings shall be steady and durable, and finished with paint indicated on drawings and as specified in "PAINTING".
- (d). Provide adequate anchore bolts or other fixing devices to install the cabinet work onto walls and on floors. Provide cleats or battens, and where indicated or required concrete block or concrete in situ shall be installed in masonry.
- (e) All the works shall be executed as shown on shop drawings approved by the Supervisor.
- 14.6.2 Cupboard/Wallcabinet: Capbuard/wallcabinet shall be provided where indicated on drawings. Provide hinged doors and shelfboards where indicated. Height of shelfboards shall be adjustable at two or three levels.

14.7 MAKE-UP TABLÉS:

- 14.7.1 Make-up tiles with marble counter tops shall be installed in Make-Up
 Rooms as shown on drawings.
- 14.7.2 Terrazzo block counter shall be reinforced with wire mesh and/or steel pencil rods properly.

14.8 MASH TABLES:

14.8.1 Wash tables with marble counter tops shall be installed in Make-Up



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Room, as shown on drawings.

14.8.2 Marble counter shall be reinforced with wire mesh and/or steel pencil rods properly, and provided with opening to receive wash basin by "PLUMBING".

14.9 SINKS:

- 14.9.1 Terrazzo sink with wood undercabinet shall be installed in the corner of the side stage as shown on drawings.
 - (a) Terrazzo sink shall be prefabricated by a compression and vibrately process in accurately constructed watertight mould. It shall be reinforced with wire meshes and steel pencil rods to prevent cracks and fractures.

14.10 RECEPTIONIST'S COUNTER:

The counter shall be of wooden base, as indicated by the drawing, with melamine-dressed ply-wood top board and with vinyl-leather pasted waincoting. Drawers and shelves shall be fitted inside the counter.

14.11 MIRROR:

14.11.1 Mirrors shall be installed at the places indicated on drawings.

Mirror plate shall be similar to "Hi-Mirror" manufactured by

Nihon Sheet Glass Co., Ltd. or products of Toto Kikei Co., Ltd.

Mirrors shall in principle be fixed securely to mortar finished

walls. The fixing shall be done by screwing the metal frames

or fittings to the wood bricks embedded in the wall or in such

a manner as may be approved by the Supervoir.

14.12 CARPET:

Carpets shall be jute carpets as manufactured locally. The apparent thickness of carpets shall be approximately 8 mm and colors, designs and quality shall be decided on submission of samples.

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14.13 ROOMNAME PLATES:

14.13.1 Provide and install roomname plates as indicated on drawings and as directed by the Supervisor. The plates shall be of plastic plate of 8 cm x 20 cm. Roomnames shall be painted on by enamel both in Bengalese and English under the directions of the Supervisor.

14.14 GAUZE LAYING WORK:

Refer to 15.

14.15 INSECT SCREEN:

Unless otherwise directed by Supervisor, the insect screen to be fitted shall be 16-mesh 0.19 mm dia. stainless steel wire nets.

14.16 MINERAL ACOUSTICAL TILE CEILING

- 14.16.1 Mineral acoustical tiles shall be bonded onto gypsum plaster boards screwed to wood furring of suspended ceiling system, with the adhesives approved by the manufacturer of the tiles and nails. As shown on tiles are available in two types: one having travertin surface and the other having ribbed surface.
- 14.16.2 Install acoustical tiles in a true and even plane, in a straight courses laid out symmetrically about centre lines of ceiling.
- 14.16.3 Ceiling access and openings with frames for lighting fixtures shall be installed as shown on shop drawings.

14:17 WOOD CEMENT PANELS:

Wood cement panels complying with JIS A 5417 shall be provided for heat insulation and sound absorption.

Reinforced bars arranged at the rate of five per panel (500 x 3,000) and they shall be fixed

securely as indicated on drawings.

Wood cement panels for use in other places shall have a thickness of 25 mm and be driven into concrete bases where these are provided. When the panels are to be used in the base of brick wall, they shall be fixed in accordance with drawings.

14.18 DRILLING IN CIELING

- (a) This archit ectural practice which is also adapted in the interior finishing of studio. ... in modern times.
- (b) Drilling of holes for installation of electrical appliance, fixtures for air-conditioning system, and other fixtures in ceiling shall be included in the ceiling beam work.

As illustrated in the figure, cut shall be made properly at specified position and reinforcing members for ceiling strips and supports shall be securely attached.

Installation of fixture shall be inspected by the supervisor.

SECTION 15

STUDIO' INTERIOR FINISH.

15.1 SCOPE OF STUDIO INTERIOR FINISH:

15.1.1 Audience Participating Studio:

- . Audience participating studio
- . Announce booth
- . Control room
- . Sound rock

15.1.2 Studio:

- . Continuity studio
- . News studio
- . Medium studio
- . Medium large studio
- . Control room
- . Master control room
- . Sound rock

15.2 OUTLINE OF STUDIOS:

15.2.1 Studios are the rooms provided for the purpose of production and broadcasting of radio programs with acoustic design made with care exercised as for sound insulation treatment, sound absorption treatment and treatment of opposed faces in order not to allow occurrence of noxious acoustic phenomena.

15.2.2 Audience Participating Studio:

- (a) The floor of the audience seats shall be finished with terrazzo blocks, and the passages shall be covered with carpets. The floor of the stage shall be finished with wood.
- (b) The walls shall be made of bricks and covered with mortar, and then sound absorbing materials shall be mounted to them with distribution made in accordance with the drawing.
- (c) Noise control fittings designed and manufactured with care exercised in the sound insulation performance shall be used for all of the entrance/exit doors and peep windows,

and they shall be installed with care exercised not to allow sound leakage from areas, around fitting frames.

15.2.3 Studio:

- (a) All of floor, walls and ceiling shall be of floating system, and vibration isolating rubber mounts shall be used at all places where they contact slabs and walls.
- (b) The places which are particularly effective for sound insulation shall be worked with particularly care so as not to allow any clearance to remain, and caulking shall be applied as required.
- (c) With medium studio and medium large studio, all of floors, walls and ceilings shall be in contact with slabs and walls through vibration isolating rubber mounts. With other studios, floors only shall be in contact with slabs and walls through vibration isolating rubber mounts.
- (d) All of noise control doors of studios shall be mounted to interior finish of floating system.

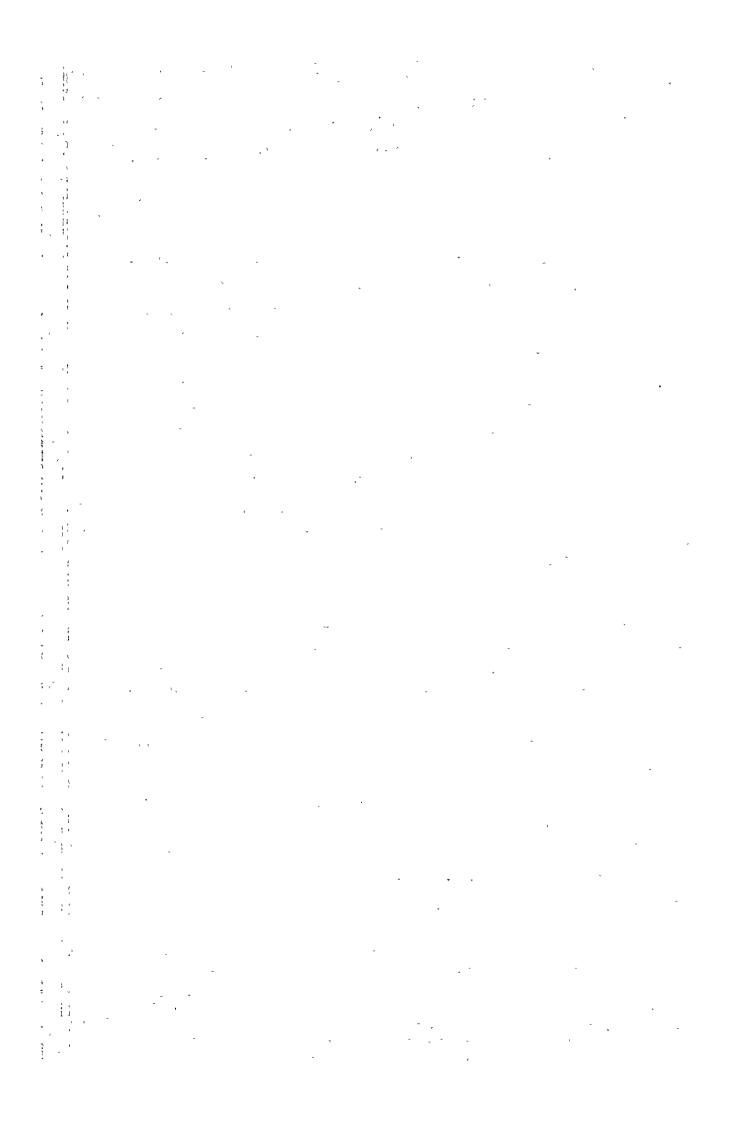
15.3 GENERAL:

15.3.1 Materials:

All materials and products to be used in this work, shall be used with samples submitted out of those which conform to JIS (Japanese Industrial Standards) or JAS (Japanese Agricultural Standards) or those which conform to company standards of specified manufacturers and with approvals obtained from the staff in charge.

15.3.2 Method of Work:

- (a) The points which require particular consideration in execution of works are as follows.
- (b) The work shall be executed in accordance with the applicable work specification described earlier unless otherwise specified.



15:3.3 Curing:

Through curing shall be made for drying finish materials and so forth with suitable equipment such as ventilating equipment and dehumidifiers provided for ventilation and dehumidification during the work because no studio has an opening that allows direct contact with fresh air.

15.3.4 | Safety:

Particular care shall be exercised with safety and health of workers engaged in this work.

15.4 BURYING OF LIGHTING FIXTURE, PANELS, ETC.

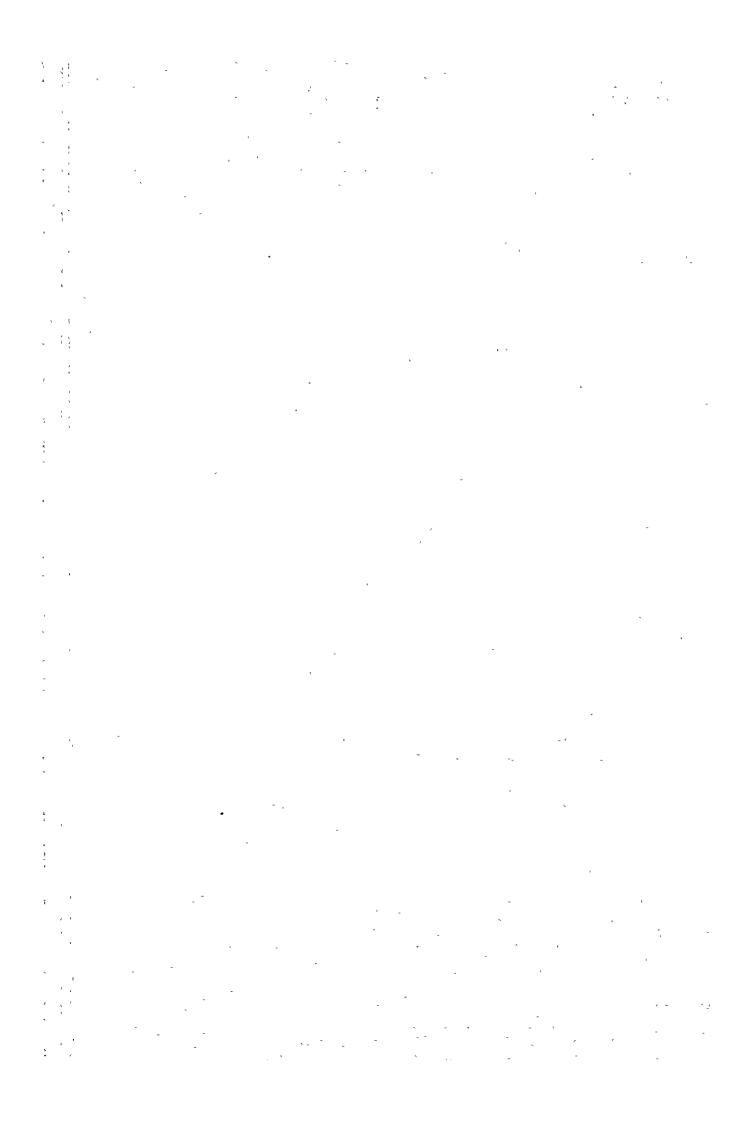
If the sound insulation layers (partex, veneered chip board) are damaged at the time of mounting of any equipment buried in floating system, sound insulation layers using same materials shall be provided on the back side of the subject portion, and the matching portions (protruded corners and indented corners) shall be carefully finished with caulking.

15.5 BURIAL OF ANCHOR BOLTS:

At the occasion of burial of mounting anchor bolts and so forth, care should be exercised so as not to allow any of them to penetrate through the slab or wall. In addition, the surrounding areas shall be completely filled up after completion of burial.

15.6 PLACING OF CONCRETE:

Honeycombs produced on the concrete surfaces produced around studios cause obstruction to sound insulation. Therefore, placing of concrete shall be made carefully in the manner that does not allow honeycombs to be produced. If honeycombs are produced, they shall be removed and the subject spaces shall be filled with stiff-consistency mortar with pressure applied to it. If any unfilled hole or any other working defect occurs it shall be completely filled with mortar in the same manner. In placing of concrete, placing joints shall not be provided in studio portions. Furthermore, rain gutters and water supply and drainage pipes shall not be exposed inside of reinforced



concrete slabs and walls of studios.

15.7 BRICK LAYING:

- 15.7.1 Laid bricks require the sound insulation performance that corresponds to that of concrete slabs and walls. Therefore, bricks of correct form shall be used, joint mortar shall be thoroughly filled with particular care exercised not to allow presence of voids at peripheral ends and top and bottom ends. Supports or equivalent shall not be provided from slabs or walls for brick laying.
- 15.7.2 No matter whether brick laying is made inside or outside of a studio, the surface shall be covered with mortar finished with trowel regardless of presence or absence of the finish. The mortar thickness shall be 20 mm without fail.

15.8 PLASTER WORK:

Specification of mortar thickness is made because of requirement from the standpoint of sound insulation, heat insulation and/or fire protection. Therefore, plaster work shall be carefully executed so as never allow shortage in thickness, cracking and exfoliation of mortar.

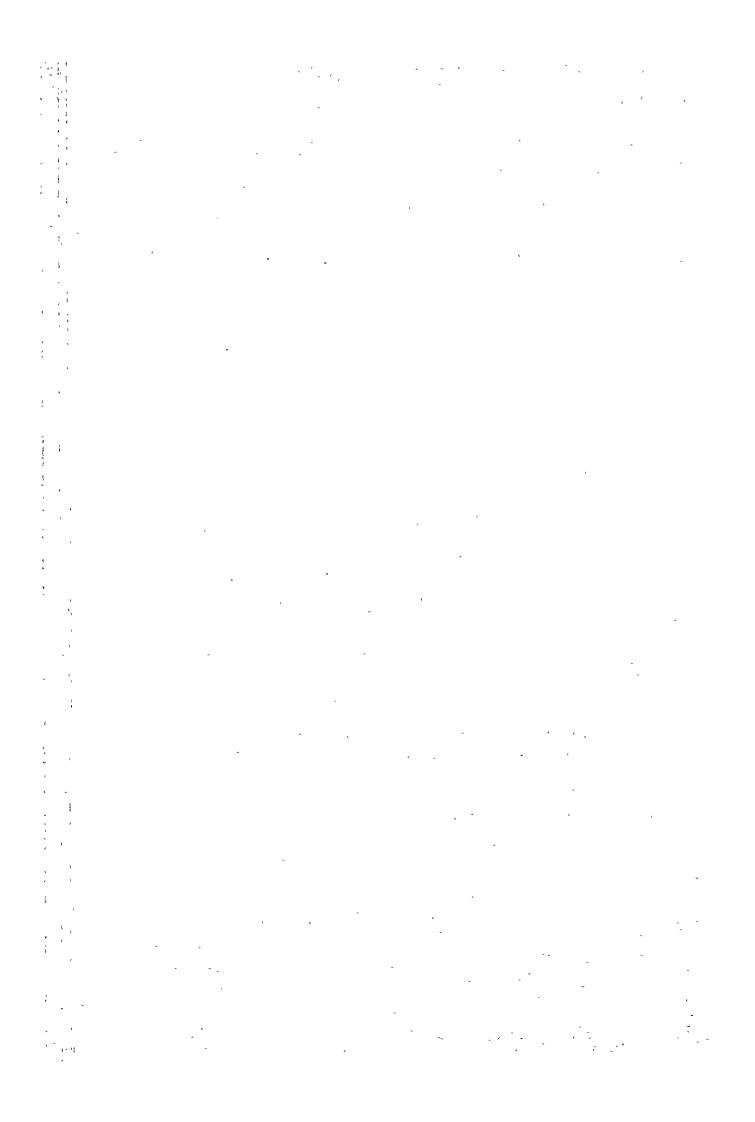
15.9 WOOD WORK:

The wood to be used for interior finish shall be correct dry wood of the form and size specified in drawings. The backing surfaces for finish materials shall be finished with planers, and the moisture content shall be 15 % at maximum.

Brought in wood shall be stored under suitable ventilation and shall be positively protected from wind and rain.

15.10 GLASS WORK:

- 15.10.1 Polished plate glasses of thicknesses specified in drawings shall be used. They shall be fitted with cutting and shaping correctly made with dimensions of fitting parts of H rubber strips thoroughly taken into account.
- 15.10.2 Fitting of glasses shall be made with the time when studios and so forth have been thoroughly dried. The glass surfaces



shall be thoroughly cleaned using anti-fog agent in advance.

15.10.3 Each H rubber strip shall be fitted in such a position that the body joint is located at the upper center and the wedge rubber joint is located at the bottom center with care exercised so that these joints are not stretched. The wedge side shall be determined based on the drawing or in accordance with the instructions given by the staff in charge.

Straightening and shaping shall be made to H rubber strips by immersion in warm water or other suitable means prior to fitting work.

15.11 NOISE CONTROL DOORS:

- 15.11.1 Each noise control door of a studio shall provide the following performance.
 - (a) A type 500 Hz transmission loss 37 dB
 - (b) C type 500 Hz transmission loss 32 dB
 - (c) D type 500 Hz transmission loss 27 dB

The above specified values are standard or target values.

15.11.2 All of sound control doors shall be provided with glass windows as shown, except for A type doors. Each one of these wondows shall be provided with dual glasses of 6 mm thick and 8 mm thick fitted using H rubber strips.

15.12 VINYL FLOORING SHEETS

15.12.1 Materials:

- (a) Those which conform to company standards of the specified manufacturers shall be used, and the colors to be used shall be approved by the staff in charge.
- (b) Thickness, dimensions and other particulars shall conform to the drawings.
- (c) Incombustible adhesives of plastic resin type shall be selected as adhesives out of those which are either manufactured or specified by manufacturers of vinyl flooring

sheets, and an approval from the staff in charge shall be obtained before use.

15.12.2 Working:

- (a) The backing shall be finished in correspondence to the section of general interior finish work (plastic type tiles, vinyl type tiles) given earlier.
- (b) The materials shall be temporarily laid on the floor, the materials shall be fully extended and the materials shall then be adhered to the backing surfaces after equally applying adhesive to the backing surfaces.

15.13 GLASS WOOL BOARDS FOR SOUND ABSORPTION:

15.13.1 Materials:

- (a) The materials to be used shall be what were manufactured by specified manufacturers and what conform to the provisions of JIS A 6306 (1967) No. 2-24K. Samples shall be submitted and an approval shall be obtained from the staff in charge before use.
- (b) The thickness shall be 50 mm.

15.13.2 Method of Work:

- (a) In the case where glass wool boards for sound absorption are laid on top the sound insulation layer on the ceiling, they shall be cut in correct form and size as matched with the size of furring strips, and shall be laid in such a manner that no gaps are left unlaid.
- (b) In the case where they are laid on top of slab surfaces of floating floors, they shall be used in fixed lengths with the portions of vibration isolating rubber mount seats only cut away, and they shall be carefully laid over the entire slab surfaces.
- (c) The method of work in other cases shall correspond to the section of general interior finish work (glass wool heat insulation boards) given earlier.

15.14 VIBRATION ISOLATING RUBBER MOUNTS

15.14.1 Material

- (a) Vibration isolating rubber mounts which are manufactured out of a material mainly composed of polychloriprene which conforms to JIS K 6386 (1962) and which conform to JIS K 6385 (1962) shall be used.
- (b) Rubber hardness, form, size and other particulars shall conform to the drawings. Care should be exercised not to make errors in the places of use based on the instructions given in the drawings.
- (c) The bolt length shall be around 125 mm if rubber mounts are mounted to wood frameworks. In other cases, bolts of standard lengths specified by rubber mount manufacturers shall be used. The bolts should never be cut or connected by welding.
- (d) The manufacturer shall be Showa Electric Wire & Cable Co., Ltd. or equivalent.

15.15 INSULATORS:

- 15.15.1 The places specified in drawings out of fitting frames, casings, etc. shall be covered with polychloropyrene, and latex sponge shall be used with approval obtained from the staff in charge.
- 15.15.2 The wall through portions of wiring ducts in floating system shall be provided with rubber joints as shown in drawings, and the duct interior shall be filled with glass wool in accordance with the instructions to be given by the staff in charge.

15.16 PARTEX, VENEERED CHIP BOARD FOR SOUND INSULATION LAYERS:

15.16.1 Materials

The materials shall correspond to the specification for general interior finish work given earlier.

15.16.2 Method Work:

(a) The materials shall be used in fixed lengths if possible

without cutting, and shall be laid in two layers.

- (b) Joints shall be of butting, and joints of different layers shall not be overlapped in either direction.
- (c) Flat head galvanized hails shall be used. The nail length shall be around 2.5 times of the driving thickness.
- (d) The nail intervals shall be around 400 mm for the first layer and around 200 mm for the second layer.
- (e) The places where height differences are involved, bolt holes, areas around pipes and ducts shall be filled with caulking compound under pressure using a caulking gun in accordance with drawings, and caulking compound shall then be carefully pushed in without irregularity using a trowel. The material grade of the caulking compound shall conform to the specification for miscellaneous works (caulking) to be given later.

15.17 SOUND ABSORBERS AND DIFFUSERS:

Detail drawings shall be drawn up based on the drawings, and mounting work shall be executed solidly to good appearance in correspondence to the applicable work specification.

15.18 BRACKETS FOR MOUNTING SPEAKER BOXES:

Brackets for mounting monitor speakers shall be attached to backings for furring strips in accordance with drawings. These brackets shall be rigidly attached in correct positions in accordance with instructions to be given by the staff in charge. The suspension bolts for mounting boxes shall be of vibration isolating suspension.

SECTION 16 MISCELLANEOUS WORK

16.1 <u>SEALING</u>:

16.1.1 Scope of Work:

This paragraph shall apply to the filling for connection and joint of component parts and the padding for glass by use of irregular-form elastic sealing material (hereinafter referred to as sealing material) and oilness coking material.

A general term for sealing material and oilness coking material shall be called 'material for sealing'.

16.1.2 Material:

- (a). Sealing material shall be specified as follows.
 - (1) Material shall be the product to be supplied from the specially designated factory as specified in the following Table 16:1.2.
 - (2) Material shall indicate its compliance with the performance condition requisited by JIS A5757 (performance character by uses of sealing material for building construction), being accompanied by the official test record issued from the authorized laboratory.

Table 16.1.2 Standard and Durability of Sealing Naterial

| Material | Standard | Durability | |
|------------------------------|--------------------------------------------------------------------|------------------------|--|
| Silicone sealing material | | | |
| Polysulfide sealing | JIS A5754 (Polysulfide sealing material for building construction) | lst class | |
| Urethane sealing material | | 1st class 2nd class | |
| Water acryl sealing | | 2nd class | |

(3) Base and hardening agent for the binary system sealing material shall be of such compounding as designated by the factory.

(4) Auxiliary material:

- (i) Primer shall be the product of the main material production factory and shall be suited for the adherent (the paint if used for coating).
- (ii) Back-up material shall be made of either synthetic resin or synthetic rubber to be in no contact with sealing material. It shall be shaped suitably for the place of use and sized 2 mm wider than the width of joint.
- (iii) Bond breaker shall be either polyethylene tape or polyethylene-applied paper tape.
- (b) Oilness coking material shall be of such standard as may satisfy the requirement set forth by JIS A5751 (oilness coking material for building construction).

16.1.3 Storage:

- (a) Material shall be sealed tightly in the place protected from direct sun-beam or rain, being kept away from the place of high temperature and humidity.
 The storage time at the job site shall be restrained to possible minimum.
- (b) Primer and solvent shall be handled with serious caution against fire.

16.1.4 Material Classification and Joint Size:

Classification and kind of sealing material shall be as specified in Table 16.1.4 and classification versus joint size shall be as specified in the special provision.

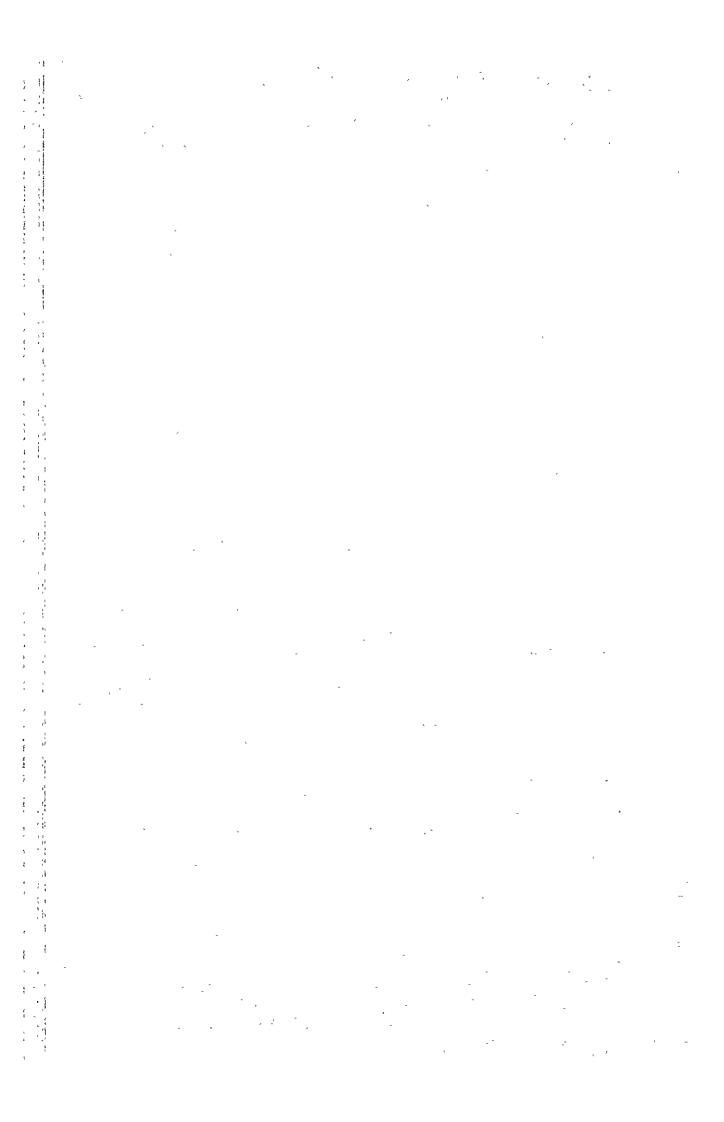


Table 16.1.4 Classification and Kind of Sealing Material

| Classification | , |
|----------------|-----------------------------------------------------------------------------------------|
| Grade A | Silicone sealing material (Unified system) |
| Grade B | Silicone sealing material (Binary system) |
| Grade C | Urethane sealing material (Binary system) Water acryl sealing material (Binary system) |
| Grade D | Oilness coking material |

16.1.5 Joint Shape and Bed Treatment:

- (a) Each joint shall be of proper width, neither excessively broaden nor extremely narrowed, without any uneveness.
- (b) Joint bed shall be fully dried up and carefully cleared of oilness, dust particles, adhered mortar, paint and metal rust.
- (c) If joint depth is deeper than the corresponding depth of sealing material, back-up material shall be first filled to the required depth.
- (d) If joint depth is exactly same as required for urethane sealing materials of Grades A, B and C to be used, bond breaker shall be used at joint bottom.

16.1.6 Filling Method:

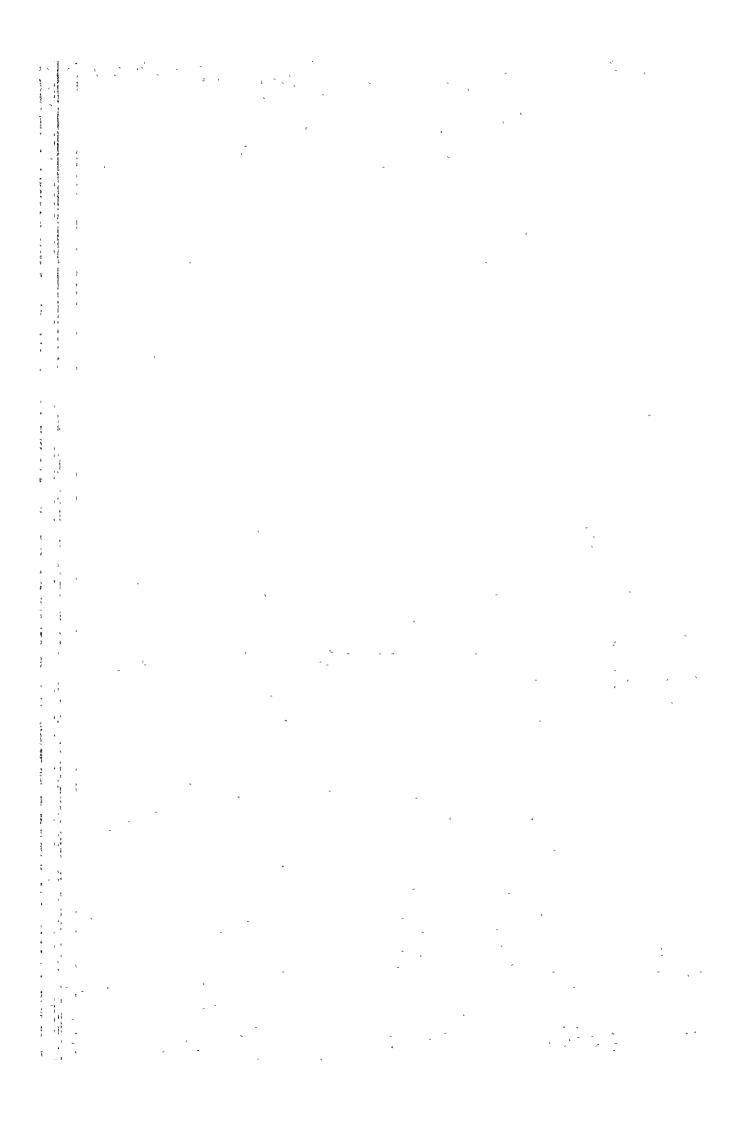
- (a) Each joint shall be filled up normally prior to finish of spraying. If the joint is filled after finish of spraying, filled material shall be fully cured by use of tape or the like so as to prevent overfilling out of the joint.
- (b) Work shall be suspended if dew is anticipated from rainfall or humidity.

(c) Filling

(1) General matters

(i) The coking gun nozzle for filling shall be slightly undersized from the width of joint. It shall be pressurized for complete filling of naterial into every corner of the joint.

- (ii) Filled material shall be fully pressed down by use of a trowel. Filled surface shall be finished evenly and smoothly for tight contact at its bottom with joint bed.
- (iii) Each joint shall be covered with the curing tape, if and when necessary, and the tape shall be removed immediately after being pressed with a trowelling.
- (iv) If material is adhered to any other parts than the joint to be filled, such adherence shall be removed instantly.
- (2) Special provisions for sealing material
 - (i) Besides those sub-items specified in the foregoing Item (1), the following provisions shall apply to the filling method.
 - (ii) Prior to material filling, primer shall apply to each joint after such treatment for joint bed as specified in 16.1.5 (b), (c) and (d). However, no primer shall apply to either back-up material or bond breaker.
 - (iii) Filling shall start immediately after setting to touch for 30 to 60 minutes of primer.
 - (iv) In either case where any refuse or dust particles may be adhered to the primer-coated surface or the situation may not permit the filling work to be performed on the same scheduled day, primer shall apply again to the joint after re-cleaning of the said portion.
 - (v) Sealing material of binary system shall be used for filling after full kneading, at such compounding ratio as designated by the factory, in appropriate quantity to be required for the time of filling.
 - (vi) In the case where temperature of the adherent may fall below 5°C or rise above 50°C at the time of



shall be suspended. If the work has to continue for inevitable reason, wooden panels or sheet covers shall be provided for heat insulation or break.

16.1.7, Curing:

- (a) Final finish over the filled surface shall be done after hardening of the surface fill.
- (b) Curing shall be provided, if and when necessary, in the case where dust adherence, soilage or hurt may be anticipated.

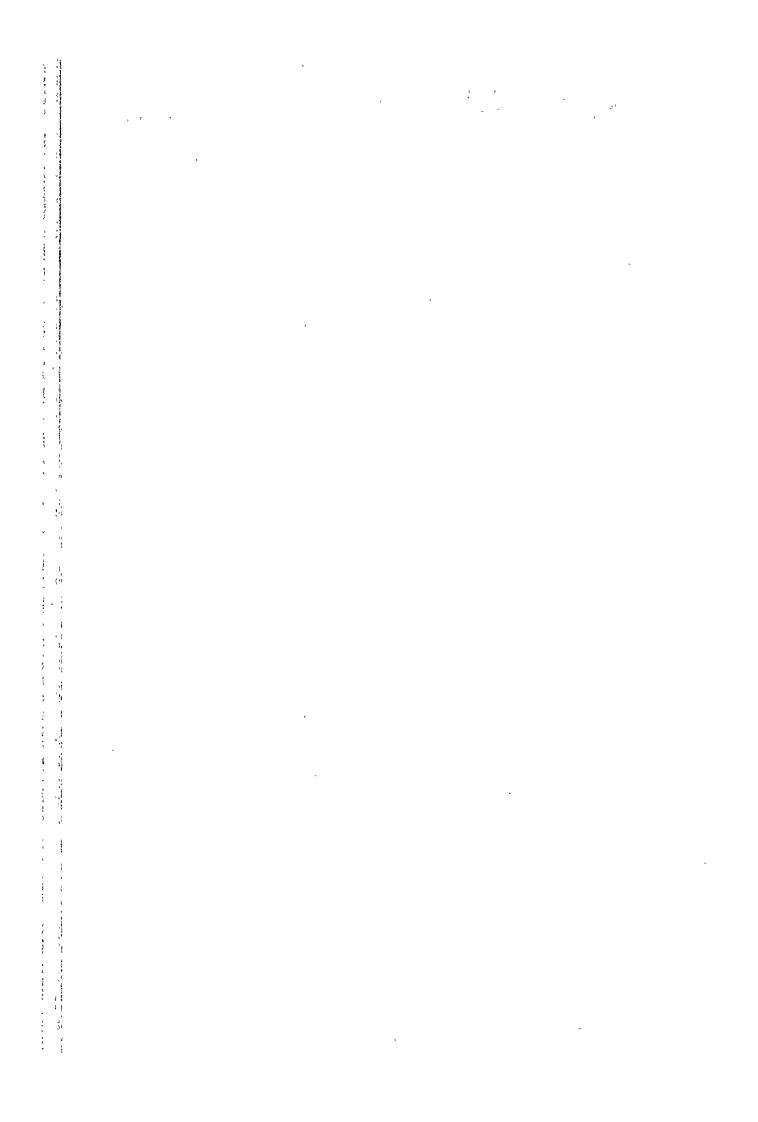
16.2 CORNER BEAD, NON-SLIP AND OTHERS:

16.2.1 Corner Bead:

Material for corner bead shall be of vinyl chloride, whose sample shall be presented. Corner bead shall be provided to the height of 1.8 m or so from the floor level. Netallic adapter leg shall be sized at about 25 mm and spaced at about 300 mm each from the end to be held down.

16.2.2 Non-slip for Stairway:

- (a) Kind, type and size of non-slip shall be as shown in the drawing.
- (b) Fitting method
 - (1) In the case where foot metal may be embedded into concrete, such metal shall be fitted rigidly at a space of about 300 mm each from both ends to be held down.
 - (2) In the case where the adhesion method may be used, metal shall be fitted with adhesives of epoxy resin after thorough cleaning of the dried foundation.



16.2.3 Conduit Pipe:

(a) Conduit pipe and other accessories shall be as specified in Table 16.2.6(a) and their material shall be as designated in the special provisions.

Table 16.2.6(a) Conduit Pipe and Other Accessories

| Material . | Standard | Quality and Others | | |
|------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------|--|--|
| Steel pipe | JIS G3442 (Galvanized sheet iron pipe for water supply) | | | |
| Drain pipe joint | JIS B2303 (Screw-type drain pipe joint) standard | Galvanized | | |
| Hard vinyl chloride pipe | JIS K6741 (Hard vinyl chloride pipe) standard | VP (pipe) Not to be used indoors. | | |
| Drain-use hard vinyl chloride pipe joint | JIS K6739 (Drain-use vinyl chloride pipe) standard | | | |
| eaves-gutter | JIS G3442 (Galvanized sheet iron pipe for water supply) | Gutter and its adhesives to be supplied from same manufacturing factory. | | |
| Galvanized iron sheet | JIS G3312 (Colored) JIS G3302 (Non-colored) | , | | |
| Fastening copper wire for gutter | - | 1.2 mm diameter | | |

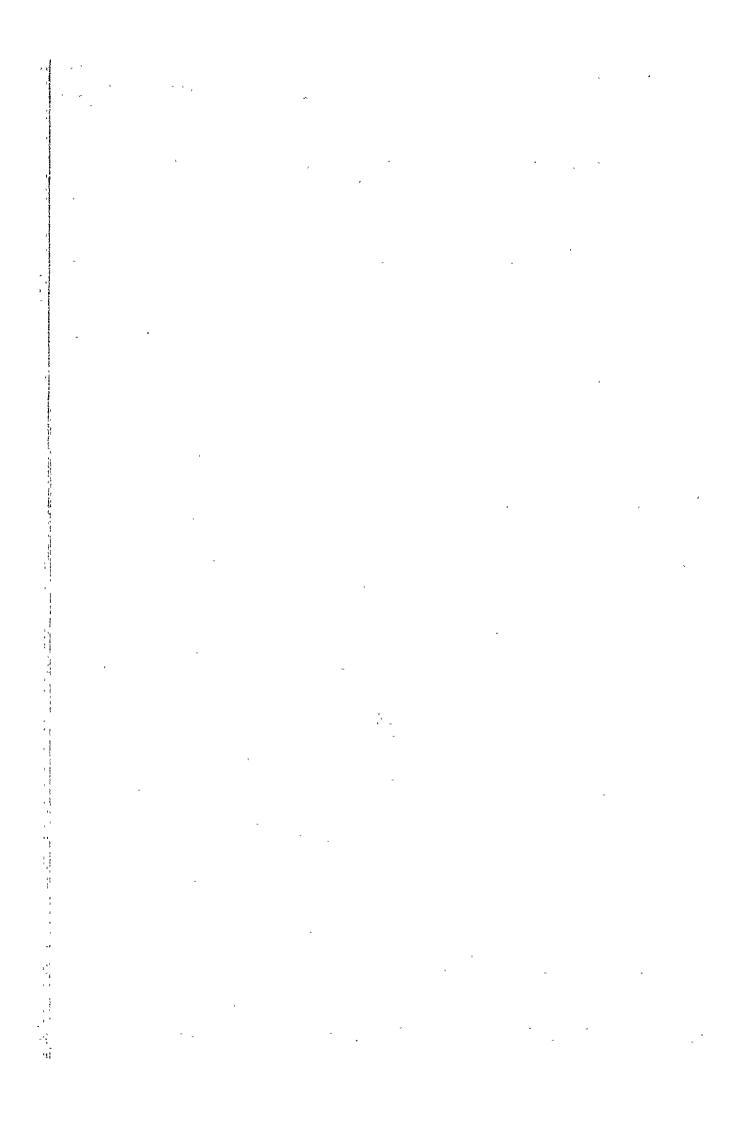


Table 16.2.3(b) Bracket for Gutter

| Pipe & Gutter | Vertical pip | be | | |
|-------------------|---------------------------------------------------|--------------------------------------------------------------|--|--|
| Diameter (mm) | 100 and below | Exceeding 100 Larger than and includ- ing 25x4.5 | | |
| Bracket size (mm) | Larger than and including 25x2.8 (on market sale) | | | |

Table 16.2.3(c) Required Space between Gutter Brackets

| -Pipe or Gutter | Steel Pipe |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Vertical Pipe |
| Space | To be spaced at about 2m. However, the bracket shall be fitted into each individual floor slab if the pipe is installed indoors and the floor slab is at normal height. |

16.2.7 Method for Installation of Gutter Supporting Bracket:

- (a) The bracket for vertical conduit support shall normally be of such type that the ring-shaped iron of hinge type shall be fastened to the foot iron by use of 2 small bolts.
- (b) The bracket for vertical conduit support shall be embedded to the depth of 60 mm of the reinforced concrete structure by splitting and folding the foot iron. It shall be either welded or bolted to the steel-fabricated structure.

• •

- (c) In the case where the bracket for eaves gutter support may be affixed directly to the corrugated asbestos roof slate, it shall be fastened up with 2 small bolts through the liner and washer.
- (d) The bracket for eaves gutter support shall be affixed to the wooden structure by driving two nails into the side face of the rafter or directly nailed into the rafter.
- (e) The eaves gutter shall be fastened tightly to the gutter bracket by use of copper wire.

16.2.5 Method for Installation of Steel Conduit Pipe:

(a) The joint shall be of drain pipe joint. However, for the pipe with a diameter exceeding 80 mm it may be of weld joint, if so required under the inevitable circumstance, by approval of the site supervisor.

The thread and weld portions after jointing of pipe shall be coated with paint for rust prevention.

- (b) Anti-sweat covering
 - (1) Anti-sweat covering shall be provided as specified in the special provisions. However, if not specifying provided, it shall be provided, as specified in Table 17.2.6(d), for wherever deemed necessary.
 - (2) The insulating tube shall be 20 mm in thickness for the diemeter of less than 150 mm and 30 mm for the diameter larger than that, as set forth by JIS A9511 (Form polystyrene insulating material).
 - (3) Adhesive tape shall be as specified in JIS Z1525 (Vinyl adhesive tape).

Table 16.2.5(d) Anti-sweat Covering for Steel Conduit Pipe

| , J | Place of Conduit Laying | Y 25 20 | Covering | Material | and Work | Sequenc | e] : [] |
|-----|-------------------------|---------|-----------|----------|----------|---------|-----------|
| | Outdoor exposure | No cove | ering but | coating | only. | | |

- (c) In the case where the conduit pipe may go through the concrete or brick wall, the gap to be created around the pipe to the wall shall be filled with morrar.
- (d) Two metal fittings of 6 mm in thickness shall be provided to hold up the pipe.

16.2. 6 Method for Installation of Hard Vinyl Chloride Gutter:

The method shall be as instructed by the manufacturing factory.

