

SECTION G - ROOFING WORKS

1. General

- 1.1 Unless otherwise stated, the pitch and laps for each type of roof covering shall be strictly in accordance with the manufacturer's instructions.
- 1.2 Unless otherwise approved, all roof covering accessories such as eaves piece, hips, ridges and valley pieces, shall be of the same material as the general covering.

2. Interlocking Concrete Tiles

- 2.1 Interlocking concrete tiles shall be of approved type and colour and shall conform to MS 797. The tiles shall be free from all defects.
- 2.2 Interlocking concrete tiles shall be laid on timber or steel battens approved for roofing at spacings and tightly screwed as recommended by the manufacturer.
- 2.3 Tiling fillers consisting of 1:3 cement mortar as specified under SECTION E: BRICKWORKS, shall be provided at the feet of the rafters.
- 2.4 Verges, ridges, hips and valley tiles shall be provided and laid to bond with the general tiling in accordance with the manufacturer's instructions.

3. Clay Tiles

- 3.1 Unless otherwise stated in the Drawings, clay tiles shall be of Marseilles pattern conforming to BS 402. The tiles shall be 400mm to 425mm in length by 225mm to 263mm in width and shall be free from cracks, chips and warps.
- 3.2 Clay tiles shall be laid on timber or steel battens approved for roofing at spacings and tightly screwed as recommended by the manufacturer.
- 3.3 Ridge capping, hip and valley tiles shall be provided to match the general tiling and these shall be bedded in matching 1:3 coloured cement mortar.

4. Corrugated Aluminium Roofing Sheets

- 4.1 Where aluminium roofing sheets are to be used, unless otherwise stated, they shall be of the type, gauge and finish as shown in the Drawings and to be fixed strictly in accordance with the manufacturer's instructions.

5. Concrete Flat Roofs

- 5.1 Concrete flat roofs shall be as specified under SECTION D: CONCRETE WORK.

6. Galvanized Steel Prepainted Steel Roofing and Wall Cladding

- 6.1 Where metal roof decks or wall claddings are to be used, unless otherwise stated, they shall be of prepainted hot-dipped zinc-coated roof decking of standard nominal thickness, width and length prior to corrugation and shall comply with JKR Standard No.2-95(BN) JKR 20709-0347-95.
- 6.2 Surfaces of galvanized steel roof decking or wall cladding shall be uniformly produced by coating and baking durable synthetic resin paint over either one or both surfaces of hot-

dipped zinc-coated steel sheets and coils using cold rolled steel sheet base metal as specified in JKR Standard No.2-95(BN) JKR 20709-0347-95. Where quality is guaranteed for one side only, the reverse side shall be coloured beige.

- 6.3 All fixing accessories shall be rust-resistant and of suitable design and construction as recommended by the manufacturer for the roofing system and shall conform to every aspect of JKR Standard No.2-95(BN)JKR 20709-0347-95 or other equivalent standards as approved by the S.O.. All connectors such as fasteners and screws shall be of the self drilling type either concealed or screwed fixing, complete with preassembled neoprene bonded washers. For non self drilling fasteners, holes through the sheets must be drilled and not punched.
- 6.4 Identification, storage and packaging of galvanized steel roof decking or wall cladding shall be strictly in accordance with the manufacturer's instruction and comply with JKR Standard requirements.
- 6.5 All roof decking sheets, capping, flashing etc. or wall cladding shall be new, clean, regular, straight and true to shape with sharp defined profiles, free from cracks, chips, bends and defects detrimental to practical use or from other surface imperfections.
- 6.6 On arrival at the Site, the sheets should be lifted from the transport carrier by a crane and properly stacked clear of the ground, ready to be lifted up to the roof structure for laying. Where sheets are to be manually lifted, care should be taken not to drag the sheets to avoid scraping away the surface coating. The sheets shall arrive just-in-time for installation. Where storage is necessary, stack heights shall be kept to a minimum and the sheets shall be stacked in a sloping position. Sheets shall be stacked off a dry firm ground, under cover by tarpaulin or polythene sheets but ventilated and away from building operations. Should the stacked sheets become wet, they shall be immediately dried to prevent staining and degradation of the surface coatings.
- 6.7 If it is necessary to cut sheets, care should be taken to ensure that sheets are cleanly and squarely cut using preferably a power driven saw or electric nipper. If power tools are not available, fine-toothed sheet metal saws or hand shears could be used.
- 6.8 The Contractor shall be responsible for the absolute watertightness of the roof and must ensure that the method of installation, fixing and fastening decking sheets, caps, flashings etc. including acoustical, insulation and expansion joints, whenever required shall conform strictly to the manufacturer's instructions.
- 6.9 The completed portions of the roof should be clear of all metallic particles such as blind rivet shanks, screw, nuts, nails, etc. and dirty foot prints should be wiped off to avoid early deterioration/corrosion and discolouration. Damages to the coating shall be repaired with touch-up paint as recommended by the manufacturer and approved by the S.O.

7. Heat Insulation

7.1 General

Heat Insulation System shall comply with MS1020. Samples of the insulation material shall be submitted to the S.O. for approval before they are used and subsequent delivery shall be up to the standard of samples approved.

7.2 Reflective Insulation

7.2.1 Reflective insulation material may be used on its own with all types of roofs except with metal decking roof. Where roof is of metal decking, the reflective insulation material shall be laminated on rockwool or fibreglass quilt.

7.2.2 The insulation material shall be installed strictly in accordance with the manufacturer's instruction. A uniform air space of 20mm between the roof covering and the insulation material shall be provided to ensure the effectiveness of the reflective surface. All punctures shall be effectively sealed with similar reflective material to prevent air leakage and moisture transfer. The reflective surface shall be free from any thin film of oil, plastic or lacquer coatings. All dust and/or moisture, if any, shall be thoroughly cleaned prior to installation. Printings and/or trademarks shall be limited to a maximum of 5% of the total reflective areas. The insulation shall be fitted closely around electrical outlet boxes, plumbing etc., and taped securely to eliminate gaps or voids through which air or water vapour might pass into the cooler space.

7.3 Fibreglass Quilt Insulation

7.3.1 Unless otherwise shown in the Drawings, fibreglass insulation quilts shall be 50mm thick with a nominal weight of 9.6kg per cubic metre. It shall have a thermal conductivity of 0.032-0.035 Kcal /mh degree centigrade at normal building temperature.

7.3.2 Where a fibreglass insulation quilt is to be used, it shall be laid over 13mm chicken wire mesh unless otherwise specified.

7.4 Rockwool Insulation

7.4.1 Unless otherwise shown in the Drawings, rockwool insulation shall be 50mm thick of sheet size 1200mm x 600mm with a nominal weight of 60kg/m³, a maximum service temperature of 350oC and thermal conductivity of 0.29 Kcal/mh degree centigrade at 20oC.

7.4.2 Where rockwool is to be used, it shall be fixed in accordance with the manufacturer's instruction and to the approval of the S.O.