

1.0 ROOFING**1.1 UPVC MULTILAYER ROOFING**

The roofing sheet shall be produced from Unplasticized Poly Vinyl Chloride (UPVC). The roof covering shall be Multilayer UPVC sheets approved by Public Works Department of Malaysia (J.K.R).It shall be "ECO Roofing" UPVC Multilayer roofing or equivalent. Unless otherwise stated, the UPVC Multilayer roofing sheet shall comply with the following:

1.1.1 Materials

- 1.1.1.1 The roofing sheet shall be produced from Unplasticized Poly Vinyl Chloride (UPVC). The roofing sheets shall be Multilayer UPVC sheets of any selected colour not less than 2.00mm thick.
- 1.1.1.2 The sheets shall be in continuous lengths and with continuous shouldered edges to interlock over sides of adjacent decks when it is necessary to use more than one sheet to provide full length coverage, end laps between sheets shall be minimum of 300mm for roofs. Side lap fastenings shall not be more than 242mm centers.
- 1.1.1.3 The UPVC Multilayer roofing sheets shall be with tensile strength of minimum 33.47 Mpa conforming to ASTM D1308.
- 1.1.1.4 The UPVC Multilayer roofing sheets shall be free from twist or buckle. The coating shall be homogenous clean and the surface of the sheets shall be free from obvious surface contamination and defects.
- 1.1.1.5 The roof sheets shall be produced at chemical resistance test with minimum 25% sulphuric acid at 23°C for 24 hours with no change in accordance to ASTM D1308.
- 1.1.1.6 The flexural strength of minimum 61.44 (Mpa) and mass per unit area shall be 3.8kg/m² shall be in accordance to ATSM D1308.
- 1.1.1.7 The roofing sheet shall comply to fire test result class "D TWO Y" (D2Y) as per clause 11.5 of BS 476 : part 7 : 1997.
- 1.1.1.8 Laying and fixing of roofing sheet shall be strictly in accordance with the manufacturer's instructions and to the approval of the Architect. The decking shall be fixed in true alignment and to a minimum pitch of 5°.
- 1.1.1.9 All end laps shall be weather-sealed with approved sealer between overlaps and shall be strictly in accordance with the manufacturer's instruction and Architect's approval.
- 1.1.2.0 The UPVC multilayer roofing sheet shall have a warranty period of ten (10) years against deformation, corrosion and manufacturing defects.
- 1.1.2.1 The contractor shall submit shop drawings for S.O's approval prior to commencement of installation works.

1.2 UPVC MULTILAYER ROOFING SHEET PROFILES

1.2.1 ROOF

Unless otherwise specified or shown in the Drawing, the UPVC multilayer sheet profile shall be of a concealed fixing system as approved by the S.O. The roofing sheet shall have the following minimum requirement.

Profile ECO H42 – 5 Wave Trapezium

- *Thickness* = 2.00 mm
- *Cover width* = 966 mm
- *Actual width* = 1066 mm
- *Rib height* = 42 mm
- *Purlin spacing* = 1200 mm
- *Coating* = Homogeneous
- *Length* = Cut to any length

Profile ECO S27 – 7 Wave Step (Roof Tile Design)

- *Thickness* = 2.00 mm
- *Cover width* = 960 mm
- *Actual width* = 1040mm
- *Rib height* = 27 mm
- *Purlin spacing* = 500 mm
- *Coating* = Homogeneous
- *Length* = Cut to any length

1.2.2 WALL

Unless otherwise specified or shown in the Drawing, the UPVC multilayer sheet profile shall be of a concealed fixing system as approved by the S.O. The wall sheet shall have the following minimum requirement.

Profile ECO H27 – 6 Wave Trapezium

- *Thickness* = 2.00 mm
- *Cover width* = 1050 mm
- *Actual width* = 1130 mm
- *Rib height* = 27 mm
- *Purlin spacing* = 800 mm
- *Coating* = Homogeneous
- *Length* = Cut to any length

1.2.3 HOARDING

Unless otherwise specified or shown in the Drawing, the UPVC multilayer sheet profile shall be of a concealed fixing system as approved by the S.O. The hoarding sheet shall have the following minimum requirement.

Profile ECO H27 – 6 Wave Trapezium

- *Thickness* = 1.50 mm (No warranty)
- *Cover width* = 1050 mm
- *Actual width* = 1130 mm
- *Rib height* = 27 mm
- *Purlin spacing* = 1200 mm
- *Coating* = Homogeneous
- *Length* = Cut to any length

1.3 FIXING

Installation procedures shall conform to the recommendation of the manufacturer. The roofing sheets shall be installed and fixed according to the following method:

- Pierced fixing using approved fasteners compatible with the roofing sheet.
- Fasteners type shall be “Dukat” or equivalent Galvanized (G.I) Class 2 screws self-drilling type with bonded washer – **Recommended for land side.**
- Fasteners type shall be “Dukat” or equivalent Galvanized (G.I) class 4 screws self-drilling type with bonded washer – **Recommended for sea side.**

1.4 SEALANTS & ADHESIVES

Only neutral cure silicone sealant type “SIKA” or equivalent shall be used during the Installation of roofing sheet.

