

## GRG - Glass Reinforced Gypsum

### Specification

The (item) is to be made of hand-laminated (not cast) glass reinforced gypsum, combined with continuous strand monofilament glass fibre, thoroughly wetted out and trimmed all edges at green stage, the feed water having been polymer-modified and treated with super-plasticizer and fungicide. Units shall be cured for 12 hours at a constant thermostatically controlled temperature of 30°C, and should have a finished weight not exceeding 7 KG/m<sup>2</sup> and a nominal thickness of 5 mm.

### 1. PHYSICAL CHARACTERISTICS

#### 1.1 Water Penetration

The material shall be suitable for all internal application, and shall not absorb moisture which may be present through excessive humidity.

The material should not be used externally in locations where it is likely to be rained on but may be used externally if it is under the cover of a canopy and painted with exterior grade paint.

#### 1.2 Fire Propagation - BS476: Part 5 and Part 6: 1968 as amended by AMD 549 July 1970

The material so tested shall be designated P (i.e. to achieve Class 0) and have a final fire propagation index of 0.9, with intermediate indices:

$i_1$  0.69       $i_2$  0.06       $i_3$  0.12

The material so tested shall produce no smoke.

Surface Spread of Flame - The material shall be tested in accordance with BS476. Part 7; 1971, and shall be classified Class 1.

Non-Combustibility - The material shall be tested in accordance with BS476. Part 4; 1970, and shall be classified NON-COMBUSTIBLE.

#### 1.3 Chemical Resistance

The material will not be required to be exposed to liquid chemicals or deliquescent crystals.

#### 1.4 Thermal Insulation

The material shall have a thermal conductivity (K) value of not greater than 0.375 W/m deg. C.

#### 1.5 Density

The material shall incorporate a surface gel-coat and have a density of 1660 kg/m<sup>3</sup>.

1.6 **Expansion**

The material shall have a thermal coefficient of expansion not exceeding  $14.94 \times 10^{-6}/\text{deg. C}$ .

1.7 **Structural Characteristics**

The material shall have an ultimate tensile strength of not less than

		8.27N/mm <sup>2</sup> .
Bending Strength	LOP	11.4 N/mm <sup>2</sup>
	MOR	29.8 N/mm <sup>2</sup>
	Young's Modulus	1.61 x 10 <sup>5</sup>

Impact Strength measured by IZOD method 19.09 kg.cm/cm<sup>2</sup>

Pull Out Force of T section 38 x 32 mm T Bar 367 kg/50cm  
T section laminated over at ends 552 kg/50cm

1.8 **Anti-Static**

The material shall hold negligible static charges in order to minimise dust attraction.

1.9 **Ultra Violet**

The material shall not be affected by ultra-violet light.

1.10 **Asbestos**

The material shall contain no asbestos.

1.11 **Fungoid Attack**

The material shall not sustain fungoid growth under normal conditions.

**2. MATERIAL**

2.1 **Plaster**

High quality hard alpha-hemihydrate casting plaster with a low expansion coefficient.

2.2 **Glass Fibre**

Glass fibre tissue to be used as a first layer to produce a smooth finish and continuous strand mat laid down in multiple layers to provide thickness/strength of laminate.

2.3 **Polymer**

Patent polymers to achieve improved tensile strength and reduce the permeability of the plaster.

2.4 **Water**

Clean water, fit for drinking and used in such proportion as to ensure maximum workability and optimum water/plaster ratio.

#### 2.5 **Mould Release Agents**

Proprietary mould release agents/waxes applied to the moulds between each production. The agents/waxes shall not have any adverse effect upon the surface of the component.

### 3. **WORKMANSHIP**

#### 3.1 **Design Mix**

All components shall be manufactured to a consistent mix, with all constituent materials accurately gauged, batched or weighed.

#### 3.2 **Curing**

All components shall be cured for 12 hours in a dehumidifying oven at a constant thermostatically controlled temperature of 30°C and moisture extraction rate to maintain a relative humidity of 30%.

#### 3.3 **Quality Control**

All components shall be individually inspected, and any surface blemishes rectified accordingly.

#### 3.4 **Painting**

GRG is normally painted. Panels with filled joints or joined to plasterboard should be sealed with Gyproc Drywall Sealer and then painted with a mist coat and two full coats of vinyl matt emulsion.

### 4. **PERFORMANCE**

Each component shall, within the following limits, be true in shape and free from cup and bow.

#### 4.1 **Squareness**

The component, where rectangular, shall be tested for squareness by measuring the diagonals. The difference between the two measurements shall not exceed 0.5% of the length of the diagonal.

#### 4.2 **Flatness**

The deviation from the horizontal plane shall not exceed  $\pm 2$ mm in 1 metre length.

#### 4.3 **Dimensional Tolerance**

The dimensional accuracy of any component shall be within  $\pm 2$ mm per metre length.