

## **GLASS-FIBER REINFORCED GYPSUM (GERG)**

### **PART 1- GENERAL**

#### **1.01 SUMMARY**

**A. Related sections:**

1. Division 5, Metal Stud Framing
2. Division 7, Sealants
3. Division 9, Drywall
4. Division 9, Painting

#### **1.02 REFERENCES**

**A. Standards of the following as referenced:**

1. British Standards (BS) and American Society for Testing and Materials (ASTM)

#### **1.03 DEFINITIONS**

**A. Terms:**

1. GFRG – Glass-Fiber Reinforced Gypsum

#### **1.04 SUBMITTALS**

**A. Product Data:**

1. Manufacturer's literature
2. Material Safety Data Sheets for raw materials used to produce GFRG

**B. Shop drawings:**

1. Detailing GFRG members; include locations, sizes and shapes of members, proposed jointing arrangements, details of attachments, suspension systems, and items pertinent to the GFRG members.
2. Where applicable, show reflected ceiling plan and sections.
3. Include plans at not less than 1:25, details at not less than 1:4 scale
4. Include manufacturer's recommendations for storage, handling, installation, and patching/finishing of GFRG members.

C. Samples:

1. 150mm x 150mm flat samples depicting material thickness and surface finish to be supplied.

CI. Quality control submittals:

1. Test reports:

- a. Test data from an approved independent testing laboratory establishing compliance with specification requirements.
- b. Tests to be performed by an independent testing agency employed by the manufacturer of the finished product under his own trade name. Include the following:
  - 1) Flexural strength
  - 2) Impact resistance
  - 3) Hardness
  - 4) Coefficient of linear thermal expansion
  - 5) Humidified deflection
  - 6) Flammability
  - 7) Compressive strength
  - 8) Density

2. Certificates:

- a. Manufacturer's certification that all GFRG pieces contain at least 5% by weight of glass fiber reinforcement.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Obtain GFRG from a manufacturer who will, upon request, send a qualified technical representative to the project site for the purpose of advising the installer of procedures and precautions for materials used.
2. Obtain GFRG from a manufacturer who will certify the materials have been tested and proven satisfactory for the intended use.
3. Obtain GFRG from a manufacturer with five years verifiable and successful experience producing material for projects of similar size and scope.

4. GFRG must be manufactured in the United States.

B. Installer's Qualifications:

1. Firm must provide evidence of three years verifiable evidence installing the specified work.
2. Installer must be acceptable to the manufacturer.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver GFRG members in packaging/crating required to minimize damage in transit.
- B. Upon receipt of each GFRG shipment, unpack a random sampling of each profile to verify GFRG's compliance with FABRICATION Article. Repackage the material and do not unpack until immediately prior to installation.
- C. Store per the manufacturer's written instruction.

1.07 SEQUENCING AND SCHEDULING

- A. Coordinate the delivery and installation of GFRG members with work specified in other sections.
- B. Do not proceed with the installation of GFRG members until conditions are acceptable.

1.08 WARRANTY

- A. The GFRG manufacturer and installing contractor shall jointly warrant the GFRG members to be free from defects in materials and workmanship for one year from the date of installation.
- B. The warranty shall be based on installation methods in accordance with the manufacturer's recommendations and instructions.

**PART 2- PRODUCTS**

2.01 MANUFACTURERS

- A. Acceptable manufacturer:  
Yeung's Fiberglass Co.  
Unit B, 22/FL., CNT Tower,  
338 Hennessy Road, Wanchai, Hong Kong.  
Tel : (852) 8222 8882  
Contact : Ir Dr. Herbert Yeung

- B. Any other manufacturer seeking approval must submit acceptable test data, product literature, samples, and certificates (per section 1.04) at least 14 days prior to the originally scheduled bid date.
- C. All Glass Reinforced Gypsum (GRG) Panel / Cladding wall shall be designed, supplied and installed by a Specialist Contractors in the “Supply and Installation of Glass (or Fibre) Reinforced Plastic Units” category of the list of approved Suppliers of Materials and Specialist Contractors for Public Works of HKSAR Government. The Panel / Cladding manufacturer shall obtain and fulfil ISO 9001 : 2015 (Quality Management System) for the scope of “Design, Supply and Install of GRC Products for Architectural, Civil, Construction and Decoration Application, with Provision of Associated Connection and Structural Element Design”, and ISO 14001 : 2015 (Environmental Management System) which shall also fully comply with health and safety standard in Hong Kong. Valid ISO ACI certificates should be submitted for proof of the standards.
- D. Characteristic
1. Tensile Strength  
ASTM test method D638-14  
Strength : 16.2 MPa Min.
  2. Barcol Hardness  
ASTM test method D2583-13a –  
Value : 50 or above
  3. Coefficient of Linear Thermal Expansion  
ASTM test method D696  
0.0000108 in/in degrees Farenheit, maximum
  4. Water Absorption  
BS EN 520 : 2004 + A1:2009  
Max. 10.3%

5. Compressive Strength

ASTM test method C170 21.4 MPa Min  
when dry and 4.65 MPa Min when wet

6. Flammability

ASTM test method E84  
Class A Passes

2.02 ACCESSORIES

- A. Fasteners, embeds, and framing as detailed in the approved shop drawings.
- B. Fasteners to be non-corrosive, non-bleeding.
- C. Adhesive to be silicone based.

2.03 FABRICATION

- A. Fabricate GFRG members to profiles, shapes, and configurations detailed on approved shop drawings using manufacturer's standard processes.
- B. Tolerances as stated on manufacturer's approved shop drawings.
- C. Finished surfaces to have a smooth finish suitable for priming

**PART 3- EXECUTION**

3.01 INSTALLATION, JOINT FINISHING AND PRIMING

- A. Install fabrications in accordance with manufacturer's instructions and approved shop drawings.
- B. Additional installation services:  
Manufacturer has approved, experienced turn-key installation services available for First Class GFRG through our third party network of installers.  
  
Installer must have a minimum of 10 years experience installing architectural exterior products with a proven track record of success and references for installing projects with similar scope and materials.
- C. The installer will contract with the owner and/or contractor directly.
- D. Installation services may not be available in all areas. Please consult with First Class Building Products regarding this value added service.

- E. A second option for installation assistance is available through our architectural consulting service.
- F. Installation consultants must have a minimum of 10 years experience installing architectural exterior products with a proven track record of success and references for installing projects with similar scope and materials. Scale and scope of installation consulting services will be determined between the project owner and/or contractor and the consultant directly.
- G. Comply with the manufacturer's written storage, handling, installation, and patching/finishing instructions as well as the approved shop drawings.
- H. Finish the indicated joints at piece intersections such that joints are neither visible nor perceptible.
- I. Priming
1. All GFRG material should be primed with a primer recommended for gypsum board or gypsum plaster.
  2. More than one coat of primer may be required.
  3. Sanding after each coat of primer may be required.
  4. If the GFRG material is to be installed in an area subject to "critical lighting", the entire surface of the material may need to be skim coated.
  5. If the GFRG material is to receive a semi-gloss paint, the entire surface of the material may need to be skim coated.

END OF SECTION

