Introduction

GRC Masters is a pioneer of GRC, GRP, GRG & Steel technology products in Qatar with a wide range of top-notch clientele base in the State of Qatar. Over a period of one decade in the country, GRC Masters had spread its wings in almost whole range of products in its area of operations and have achieved a world class culture of work environment with State-of-the-Art facilities, technology, equipment and dynamic team of well-trained professionals and management. The impeccable standards of the company made it obtain international certifications of quality like ISO 9001:2015.

Presently, we are catering the Qatar market with following scope of works and activities:-

1. **Glass Reinforced Concrete (GRC)**: Internal & External Decorations, Columns, decorative Cladding, Baluster, cornices, Gazebos, Landscape Features, etc.
2. **Glass Reinforced Plastic (GRP)**: Internal & External Decoration, Door Enclosure, Columns, Cladding, Screen, Landscape Features, Deck, boats, automobiles, baths, hot tubs, GRP Panel water tank and water tank lining etc.
3. **Glass Reinforced Gypsum (GRG)**: Internal Decorations, Columns, Architectural Claddings, Screen, Domes etc.
4. **Steel**: All types of fabrication and erection with MS & SS Steel and we are specialized in GI Doors, Lovers, shades etc.

In addition to GRC, GRP & GRG technology products and services, GRC Masters accomplishes your dream of highly specialized monuments, sculpture & artificial rock features etc. Some of the most attractive pieces of our achievements are illustrated in our testimonials.

GRC Masters has the credit of having an excellent team of highly qualified and well-experienced architects and craftsman who can handle any sophisticated structures using advanced GRC technology to enhance the beauty and outlook of the buildings with a constant focus on customer satisfaction & cost efficiency. Effective planning of manpower and material resources to avoid unreasonable delays in the execution of projects is a key to our success.

Our team of professionals always strictly adhere to the standards and norms of our industry to ensure that the assignments are accomplished with the standards and excellence since we, at GRC Masters believe that beauty & perfection should go hand in hand with quality & safety. Perhaps, this belief makes GRC Masters a unique option to choose from among other companies mushroomed in this Industry.

As a part of our efforts to take part in the development process of Qatar through its Vision 2030, we are implementing diversified methods of expansion in our multi-faceted factories throughout the country catering to the diversified needs of customers.
Message from Chairman’s Desk

GRC Masters has the honor of being a pioneer firm in GRC/GRP/GRG products under the flagship of Petromech Group of Companies.

Our group is involved in multi dimensional activates varying from supplies of chemical, trading, I.T. sector, technical services, transportation etc. apart from this also being involved in construction activities. All our group companies has significantly contributed in the development of Qatar and share the vision of the state for 2030.

Petromech Group remains committed to being an integral part of Qatar’s ambitious development plans, launching an exciting range of new projects that will enhance our commitment to serve better and place ourselves as a company of world-class credentials and testimonies.

Our group companies honor and respect our valuable HUMAN RESOURCE ASSETS to form a strong dedicated team which is our key to success.

GRC Masters has attained prominence as a leader in the field of GRC products through competence, perfection and timely delivery with highest quality standards and recognized safety performance. Our company has a good tradition of serving our valued customers to their complete satisfaction through efficient management and excellent workmanship, which we continue to develop with our unending efforts.

With our State-of-Art technologies and well-equipped factories and high ranking professionals, we continuously strive for innovation and enhanced efficiency.

Delivering excellent services with a wide range of products, GRC Masters is the preferred choice of many clients for its reliability and commitment to quality and aesthetic nature of its products. Looking forward to decades ahead we reiterate our pledge to remain committed to excellence, keep abreast of changes and innovations, adopt better management and construction techniques and successfully overcome all challenges before us.
Quality Policy

As a recognition for outstanding achievements in multi-faceted roles GRC received ISO 9001:2015 and OHSAS 18001:2007 certificates.

GRC Masters is always committed to operate its business and deliver its diversified products and services conforming to the highest international standards as applicable to each product and service. In course of our operation of business, we received many quality certifications, among them are ISO 9001:2015 and OHSAS 18001:2007. Our quality policy is well-supported by a progressive management style, commitment and effective implementation that inspire the quality culture throughout the company.

A continuous evaluation and improvement procedures are adopted by the management to the Quality Management System by establishing, documenting, maintaining and reviewing quality objectives for all aspects of the company. These procedures are inevitable for safeguarding the effective and efficient operation of the company catering to the requirements and satisfaction of our customers.

Compliance to quality standards is the culture of GRC Masters starting from its MD who takes policy decisions that enable the correct actions to be implemented throughout the company and reviewed its continuing suitability.

GRC Quality Policy, with the full support of Senior Management together with Quality Assurance Procedures, ensures that each and every activity is controlled and carried out in a manner encompassing the achievement of the required service levels and obligations effectively.

All personnel are aware of the management’s commitment to quality policy and are inspired to demonstrate their own support to the system through active and continuous participation.

Our priority is utmost care and satisfaction of our customers through unsurpassed quality.
Health & Safety Policy

Ensure the education, interest and awareness training of new employees in safe working methods before the assumption of duty. We ensure that the organization is a safe place and the environment, facilities, equipment and substances are subject to safe systems of work to prevent risks to health or safety.

Promote personal responsibility and effort on the part of everyone to avoid and prevent health hazards and injuries to themselves and to others who may be affected by their acts or omissions and to cooperate with the organization to comply with its duties, requirements and statutory obligations.

Ensure the use of defensive driving techniques by car drivers and machinery operators. Ensure that safety is a line management responsibility and monitor effectiveness of safety policy.

Displace and publicize this statement and review it at least bi-annually.

Environmental Policy

GRC Masters is committed to implement Environmental practices within its business operations at all levels while providing quality products to its customers through continual improvement in environment conditions and prevention of pollution in all areas of work within Environmental Management System. GRC Masters is committed to protect the environment and promote sustainability within the areas we work and provide the highest possible quality standards and services to all our customers. Our processes are thoroughly reviewed and improved to optimize our performance in this regard.

The guiding principle to implement the Environmental Policy will be:

Compliance to applicable legal and other requirements.

Identification, implementation and monitoring of all legal and other requirements related to Trading.

Training and Awareness on Environmental Issues

Provide relevant training and awareness to employees as well as other quarters of society to improve environmental and industrial awareness at all levels of work.

Continual Improvement in EMS

Introduce and effectively implement a system of continual improvement in the company by establishing SMART environmental objective and targets in all function and areas of work at GRC Masters ensure suitability and continuity of EMS.
GRC Masters has evolved to be one of the frontline factories in the state of Qatar. Its state of art production facilities are spread over an area of 60,000 square feet in New Industrial Area, Doha which is fully equipped with joinery required for Moulding Area apart from separate production areas for GRC, GRP, GRG and steel section along with designated areas for surface preparation, coating, storage etc. And for better management of the affairs of the factory. GRC Masters is strictly following Ergonomics techniques to acquire maximum output from the available human resources.

GRC Masters opted to keep its administration block operated from within the factory premises in the facilities with area of 1,800 square feet.

Company activities area further rejuvenated by the cordial and better work environment that with ensure to our employees. As a part of this excellent accommodation facilities with an area of 21,000 square feet for over 300 employees have been constructed to accommodate our human resources with separate gymnasium and club room for the welfare of the workers.

GRC Masters fully respects its valuable human resources which is probably the secret of our workforce being so enthusiastic. In GRC Masters, employees at all levels can share their views & suggestions with the management for overall betterment of the company which is a key to our success since our human resources feels attached to the company hence, actively and sincerely take part in overall successes of the company.

GRC Masters believes in self – dependency to deliver quality products within stipulated time. That is one of the major reasons as to why GRC Masters has fully equipped itself with well experienced Craftsmen. Carpenters, Sculptors and steel fabrication division in order to minimize the possibilities of being dependent on outsourced agencies, which normally adversely effects the quality and time schedules.

As a part of our teamwork we maintain a constructive interaction between worksites, site offices and head office which results in timely delivery of the projects with utmost perfection. This ultimately results in saving of unwanted expenditure for our clients.
Production & Storage
Our contribution to the growth and development in Qatar

GRC Masters, since its inception, has been actively playing a pivotal role in multi-level development projects in the State of Qatar towards contributing to the state’s national development policy through Vision 2030 as envisaged by the wise leadership of this nation.

GRC Masters is proud of its accomplishments in the construction of a range of iconic projects in the State of Qatar which illustrate a significant development in the architectural spheres of the state’s built environment, and a close correlation between GRC and design beauty. By completing these successful projects, we have demonstrated our skillful ability and expertise in using the distinctive properties of glass fiber to achieve client satisfaction and we have succeeded in integrating excellence and aesthetics within construction requirement.

We have the honour of accomplishing diversified projects ranging from villas, parks, commercial and residential complexes, malls, landscapes, national monuments to high rise towers and government institutions are a few to name among the prestigious projects we have undertaken.
**GLASS FIBER REINFORCED CONCRETE (GFRC / GRC)**

**SUMMARY**

GRC Masters offer quality assured products made to highest grade and standard according to top architectural norms. In addition, these pieces of artworks reduce loadings on building leading to significant savings in superstructure and foundations.

We enhance the total utility of GFRC/GRC materials which the most ambitious designs can be created for any type of architecture at your choice. It can be molded to form contemporary innovative designs and even replicate traditional historic features. GFR/GRC can be painted, faced with fine aggregate, colored or simply left with a natural white or grey, smooth or texture finished.

We undertake an environment friendly landscape enhancement scheme in the making of wonderful landscape features such as Gazebo, artificial rock formations, garden benches, pergola etc. The versatility in our design and craftsmanship enable us to use the GFRC/GRC in different ways in the construction of both interior and exterior decorations. In all cases our Glass Fiber Reinforced Concrete products gives a long-lasting and crack-free performance with maximum durability and decorative finish.

**PRODUCT DESCRIPTION**

Glass Fiber Reinforced Concrete (GFR/GRC) is a designation used to refer to a broad category of cementitious products manufactured using Portland cement, silica sand, aggregate, alkali resistant glass fiber and admixtures in different proportions to meet different performance and aesthetic requirements. In architectural applications, GFR/GRC is most commonly associated with the large decorative panels used on building facades and cladding. These large heavy panels require a structural steel panel frame to be bonded to the inside of the molded GFR/GRC composite material for support, which is also used to attach the GFR/GRC panel to the building structure. Cranes are typically used in the installation of these GFR/GRC parts.

MASTERS ® GFRC however is used in applications where the attributes of a molded GFR/GRC product are desired for use on smaller panels and parts that do NOT require a steel panel frame support system. In these applications, GFR/GRC is lighter, quicker and easier to install and more cost effective than conventional. Typically, The cross sectional profile of a part can add strength in and of itself. This can marginally increase the overall part dimensions that can be made. For example, parts with curved or stepped profiles are stronger than parts with flat profiles and parts totaling 15 sq meter surface area can be made.

GFR/GRC uses white cement and color pigments to provide uniform color consistency throughout the material thickness – not just the face mix. Some variation in color between parts will occur consistent with that of natural stone. Some typical architectural applications of GFRC-L include low rise exterior facade veneer panels and decorative elements such as cornices; pediments, window and door frames; columns, friezes; and interior elements where a hard non-combustible impact resistant material is desired.

Most molded parts are secured to the building structural framing and substrate with concealed fasteners. Parts are supplied with pre-made corners to minimize field cutting. Most items are custom made to project design requirements and specifications. MASTERS will work with Architects and Designers to develop a practical plan for the parts and assemblies they envision through 3D modeling and/or scaled or full size mock-ups. Detailed shop drawings and material samples are prepared for approval prior to manufacture. MASTERS has provided GFRC parts for numerous world class architectural buildings around the globe.

**PRODUCT SPECIFICATION**

**Applicable Standards:**

- ASTM International (ASTM)
  - ASTM C497 - Standard Test Method for Flexural Properties of Thin-Section Glass Fiber Reinforced Concrete
  - ASTM C1229 - Standard Test Method for Determination of Glass Fiber Content in Glass Fiber Reinforced Concrete (GFRC) (Wash-Out Test)
  - ASTM C 946 - Standard Test Method for Dry and Wet Bulk Density, Water Absorption, and Apparent Pore Size of Thin Sections of Glass-Fiber Reinforced Concrete
  - ASTM C1230 - Standard Test Method for Performing Tension Tests on Glass Fiber Reinforced Concrete (GFRC) Bonding Pads
  - ASTM C912/C912M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
## Mechanical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>DE value</th>
<th>As per PCI</th>
<th>As per GRCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexural Strength</td>
<td>16-21 Mpa</td>
<td>≥13.79 MPa</td>
<td>≥18 MPa</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>7.2 Mpa</td>
<td>≥6.8 MPa</td>
<td>7.2 MPa</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>50 Mpa</td>
<td>≥48.27 MPa</td>
<td>≥50 MPa</td>
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<tr>
<td>Coefficient of Linear Thermal Expansion</td>
<td>20 μm/m oC</td>
<td>12 μin/in oF</td>
<td>10-20 μm/m oC</td>
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<tr>
<td>Thermal Conductivity</td>
<td>0.6 W/M° C</td>
<td>2.8 μm/m oC</td>
<td>3-5 Btu inch/hour/foot°F</td>
</tr>
<tr>
<td>Water absorption</td>
<td>≤1.1%</td>
<td>0.5 to 1 W/m° C</td>
<td></td>
</tr>
<tr>
<td>Tension on Bonding Pads (maximum pull out force)</td>
<td>4 KN</td>
<td>8-16%</td>
<td>5-11%</td>
</tr>
</tbody>
</table>

## Tolerance:

- **Dimensional (all directions):** ± 3 mm (for less than 3 M panel)
- **Overall Thickness:** 0.10 ~ 6MM
- **Variation from square:** ±3MM FOR 1800 MM and total ±6MM
- **Bowing, out of plane:** ≤L/240

**NOTE:** MASTERS: GFRC tolerance for fabrication and erection are complying with PCI manual - 128 & 130

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### Physical and Mechanical Properties

GFRC composite panel made with white Portland cement, silica sand, aggregate, and alkali resistant glass fiber with a high Zirconia content — minimum 16%. The composite consists of a ⅛" face mix without glass fiber, and ½" backing mix with the glass fiber interspersed throughout it.

- **Matrix:** Portland cement, sand, fiber and polymer
- **Color:** Seattle Sand, Boise Buff Custom color matching available
- **Finish/ Texture:** Smooth/or as per texture finish requirement
- **Bulk Density:** 2100 kg/m³
- **Dry Density:** 1800 kg/m³
- **Weight:** 20-42 kg/m²
- **Shell thickness:** 13 mm minimum or as approved design
- **Edge thickness:** 25 mm nominal or as approved design
- **Glass fiber:** 4% - 6 %
- **Max. length moldings:** As per approved design and drawing
- **Max. size veneer panels:** As per approved design and drawing
- **Max. size molded panels:** As per approved design and drawing

*Typical weights — parts with deep surface relief etc. may have higher weights — submit drawings for a more accurate estimate.
SUMMARY
We also offer wide range of Glass Fiber Reinforced Plastic technology based decoration and modern industrial works. We are designer and manufacturer of Glass Fiber Reinforced Plastic (GFRP/GRP) products. Our unique method of detailing in manufacturing and installation make our client always satisfied.

GFRP/GRP is an immensely versatile material which combines lightweight with inherent strength to provide a weather-resistant finish, with a variety of surface texture and an unlimited colour range.

In spite of wide acceptance of GFRP/GRP works, GRC Masters introduces some special areas of decoration works on the basis of this technology, we are specialized in providing the services to all the architectural spheres such as interior or exterior decorative elements, domes, claddings, columns, verify counters, pergolas, garden furniture, fences, garden light poles, ladders, etc.

GRC Masters WLL is the most reliable firm in carrying out all types of decorative works on the basis of the GFRP/GRP technologies and we assure the uncompromised quality and best services.

PRODUCT DESCRIPTION
MASTERS GRP is a glass fiber reinforced plastic composite that is lightweight, high strength, corrosion resistant, and durable. This fiber glass suitable for use in a broad range of architectural applications. It can be produced in virtually any shape and with smooth, textured or patterned surfaces providing architects with abundant design flexibility. MASTERS GRP is commonly supplied Unfinished for on-site painting, but can be supplied pre-finished with paint or integral cast in color, depending on the application.

MASTERS GRP is a glass fiber reinforced plastic used to make architectural elements. It is a catalyzed thermoset plastic composite that is durable, chemical resistant and has excellent weathering, flexural and tensile physical properties. This makes it a versatile material that provides cost effective solutions for the construction of buildings, particularly with respect to exterior applications. It is also a lightweight material, weighing approximately 10 kg/m² (for nominal thickness) or depends on the design of the product design, which reduces transportation, handling and installation costs.

The standard GRP surface consists of a UV stabilized Isophthalic polyester Gelcoat which is provided in a white color for field finishing. The back-up laminate consists of layers of glass fiber and polyester resin.

When GFRP/GRP is molded into shapes, the geometry of the shape imparts physical properties to the parts, such as strength and stiffness. For example, the design profiles of GFRP/GRP parts that include recesses, projections, grooves, curves or ornamentation, become stronger. The nominal shell thickness of parts is 5mm. However, areas of parts that have flat regions are cast thicker by encapsulating core materials into the laminate that provide added strength and stiffness.

GRP offers some unique advantages for Architects and Designers in providing the capability to make large parts in any shape and size that would otherwise require more costly support structures and increased installation costs (as compared to other materials such as precast concrete). The boat building industry has taken this to extremes where single piece boat hulls have been fabricated in excess of 150’ in length (over 45m). But it is of course more practical in most building applications to utilize much more modest sized components in consideration of the initial mold costs, shipping, handling, and installation methods to optimize project costs.

In most cases, GFRP/GRP molded parts are secured to the building structural framing and substrate with concealed fasteners. Joints between parts should be minimized and advantageously positioned in consideration of part size and design, overall appearance, and installation. GRP parts are typically supplied with pre-made corners to minimize field mitering.

Some typical architectural applications of GFRP/GRP include facade panels, columns, cornices, pediments, storefront entries, cupolas and other decorative elements such as friezes and signage. GRP is also used in interior or exterior applications, where a high impact resistant and lightweight material is desired. Molds GFRP/GRP products can replicate many common materials such as slate, cast iron, and wood grained surfaces to name just a few.
Most items are custom made to project design requirements and specifications. MASTERS uses 3D CNC technology to machine precision patterns from which molds are produced to make the required parts. In situations involving complicated design elements or projects, MASTERS will work with Architects and Designers to create a practical plan for the parts and assemblies they envision through 3D modeling and/or scaled or full size mock-ups. Detailed shop drawings and material samples are prepared for approval prior to manufacture.

**PRODUCT SPECIFICATION**

**Applicable Standards**

ASTM International (ASTM)

- E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics
- D638 - Standard Test Method for Tensile Properties of Plastics
- D2963 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impresor
- D690 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics
- D570 - Standard Test Method for Water-Absorption of Plastics
- D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

**PHYSICAL AND MECHANICAL PROPERTIES**

GFRP/GRP is a fiberglass reinforced polyester resin plastic composite with a nominal thickness of 4.5 mm. It has 30 to 40% glass fiber content (by weight) in the form of multiple layers of E-glass fiber mat.

<table>
<thead>
<tr>
<th>Matrix:</th>
<th>ISO Polyester Resin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>White, ready for field paint is standard. Custom colored Gelcoat matching available</td>
</tr>
<tr>
<td>Texture:</td>
<td>Smooth is standard. Molded textures available</td>
</tr>
<tr>
<td>Density:</td>
<td>1640 kg/m³</td>
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<tr>
<td>Weight:</td>
<td>8-10 kg/m²* (or depends on the design)</td>
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<tr>
<td>Shell Thickness:</td>
<td>4.5* mm nominal (or depends on the design)</td>
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<tr>
<td>Embedment:</td>
<td>Core mat or other reinforcement as profile, shape or design requires</td>
</tr>
<tr>
<td>Glass Fiber:</td>
<td>35-40% typical</td>
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<tr>
<td>Reveals/setbacks:</td>
<td>3º draft minimum</td>
</tr>
<tr>
<td>Max. length moldings:</td>
<td>As per approved design</td>
</tr>
<tr>
<td>Max. size molded panels:</td>
<td>As per approved design</td>
</tr>
</tbody>
</table>

* Typical weights – parts with deep surface relief, etc. may weigh more. Submit drawings for a more accurate estimate.
To cater the requirement of our corporate clients, we are also producing GRP ENCLOSURES to be used as distribution panels for electric supplies, support services and building maintenance services which are very important in multi-faceted aspects of modern life. We have a separate well-equipped workshop to achieve international production standards relating to this product and its demand is increasing gradually from our satisfied customers.

**PRODUCT DESCRIPTION**

GRP ENCLOSURE is manufactured in glass fiber reinforced polyester material. It is more suitable for out-door application with Fire-retardant, self-extinguishing, Weather-proof and antistatic properties. There Major application is to protect LV and MV Electrical distribution panels arranged in the Enclosure. These enclosures are available in both Double door and Single door options and are primarily used for Front & Controlled access to distribution circuits. GRC Masters has the facility & capacity to produce Custom – sized enclosures to satisfy the requirements of the Client. These enclosures are Low cost and Less maintenance products and are extremely durable.

**PRODUCT DETAILS**

- **Mechanical properties**
  - Flexural Strength: 200-210 Mpa
  - Modulus of Elasticity: 10-11 Gpa
  - Tensile Strength: 110-120 Mpa
  - Compressive strength: 190 Mpa
  - Impact Resistance: 60 J/m
  - Barcol Hardness: 45-45
  - Heat Deflection: ≥ 105 °C
  - Coefficient of Linear Thermal Expansion: 15 x 10^-6 in/in/°C
  - Water Absorption: 0.07 %

- **Dimension stability of the product**
  - Dimensional (all directions): ± 3mm in 3m
  - Thickness: ± 1.5 mm
  - Variation from square: ± 3mm in 3m
  - Bowing, out of plane: ± 3mm/300mm

**GLASS FIBER REINFORCED POLYESTER**
Please Note: All Dimensions are External and do not take Account of Back board or other internal items. Please Check your Sizes carefully before placing order or contact our office for more information.

If the Required Sizes are not in the List Kindly contact our office for Customize sizes, Custom size are also available on request.

Locations of studs can vary on the basis of client requirements.

PRODUCT SPECIFICATION

<table>
<thead>
<tr>
<th>TILE VALUES</th>
<th>UNIT</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>120±20 MPA</td>
<td>ASTM D638</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>200±20 MPA</td>
<td>A AS ASTM D 790</td>
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<tr>
<td>Tensile Module</td>
<td>9 ±1 GPA</td>
<td>ASTM D638</td>
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<tr>
<td>Impact Strength</td>
<td>IK8=5 joule</td>
<td>BS EN 62262-22002</td>
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<tr>
<td>Thermal Conductivity</td>
<td>0.2 W/mK</td>
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<tr>
<td>Water Absorption</td>
<td>0.07 %</td>
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<tr>
<td>Corrosion Resistant</td>
<td>SS 304 &amp; SS 316 L Accessories</td>
<td>Grade</td>
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<tr>
<td>Hardness (Barcol 934-1)</td>
<td>40±5</td>
<td>ASTM D 2583</td>
</tr>
<tr>
<td>Coefficient of thermal Expansion</td>
<td>26±10με</td>
<td>m/ºC</td>
</tr>
<tr>
<td>Glass Content</td>
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<td>%weight</td>
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<tr>
<td>External Finish</td>
<td>Semi-gloss UV Resistant</td>
<td></td>
</tr>
<tr>
<td>Internal Finish</td>
<td>Smooth flow coat finish</td>
<td></td>
</tr>
</tbody>
</table>

Special Features:

1. Water and dust protection as standard IP 55 and IP 65 also available on request
2. High Impact Resistance: IK 08
3. Fire Retardant and Self Extinguishing: ASTM E 84 Class C
4. Non-corrosive Accessories: SS 304 / SS 316L
5. Protective layer of 600-800 micron gel coat against weathering by exposure to visible light, ultraviolet radiation and humidity
6. Excellent weather resistance

Locations of studs can vary on the basis of client requirements.

Standard Sizes:

**Floor Standing Encloser**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Product Code</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
<th>Texture/Colour</th>
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<tbody>
<tr>
<td>1</td>
<td>GRP/FSE-557716</td>
<td>1520</td>
<td>415</td>
<td>1610</td>
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<tr>
<td>2</td>
<td>GRP/FSE-557715</td>
<td>750</td>
<td>320</td>
<td>1250</td>
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<tr>
<td>3</td>
<td>GRP/FSE-557714</td>
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<td>1000</td>
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<tr>
<td>4</td>
<td>GRP/FSE-557717</td>
<td>500</td>
<td>320</td>
<td>150</td>
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**Floor Standing Encloser**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Product Code</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
<th>Texture/Colour</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>310</td>
<td>415</td>
<td>160</td>
<td>Smooth/Gray</td>
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<tr>
<td>2</td>
<td>GRP/FSE-557717</td>
<td>308</td>
<td>255</td>
<td>160</td>
<td>Smooth/Gray</td>
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<tr>
<td>3</td>
<td>GRP/FSE-557716</td>
<td>430</td>
<td>330</td>
<td>200</td>
<td>Smooth/Gray</td>
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<tr>
<td>4</td>
<td>GRP/FSE-557721</td>
<td>647</td>
<td>436</td>
<td>250</td>
<td>Smooth/Gray</td>
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</tbody>
</table>
Customization:
- Machining and cut-outs
- Special dimensions
- Accessory installation
- Special finishes: painted and micro-beaded
- Production accordingly to your specifications.

The high quality of the standard finish enables very easy maintenance while avoiding contamination. The hygienic feet made from 316L stainless steel, 100 mm and 200 mm high, make it easier to clean under the enclosures.

PRODUCT SPECIFICATION:

<table>
<thead>
<tr>
<th>TITLE</th>
<th>VALUES</th>
<th>UNIT</th>
<th>REMARK</th>
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<tbody>
<tr>
<td>Tensile Strength</td>
<td>120±20</td>
<td>MPA</td>
<td>ASTM D638</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>200±20</td>
<td>MPA</td>
<td>AS/ASTM D 790</td>
</tr>
<tr>
<td>Tensile Modulus</td>
<td>9 ±1</td>
<td>GPA</td>
<td>ASTM D 638</td>
</tr>
<tr>
<td>Impact Strength</td>
<td>5J</td>
<td>Joule</td>
<td>BS EN 62262-22002</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
<td>0.2</td>
<td>W/mk</td>
<td>ASTM D 256</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>0.07%</td>
<td>%</td>
<td>ASTM D 570</td>
</tr>
<tr>
<td>Corrosion Resistant SS 304L</td>
<td>SS 304L &amp; SS 316 L Accessories</td>
<td>Grade</td>
<td>ASTM D 256</td>
</tr>
<tr>
<td>Hardness (Barcol 934-1)</td>
<td>40±5</td>
<td></td>
<td>ASTM D 256</td>
</tr>
<tr>
<td>Coefficient of thermal</td>
<td>24 x 10⁻⁵</td>
<td>m/ºC</td>
<td></td>
</tr>
<tr>
<td>Expansion</td>
<td>0±5%</td>
<td>%weight</td>
<td></td>
</tr>
<tr>
<td>Glass Content</td>
<td>35±5%</td>
<td>%weight</td>
<td></td>
</tr>
<tr>
<td>External Finish</td>
<td>Paint Semi-glass UV Resistant</td>
<td>Grade</td>
<td></td>
</tr>
<tr>
<td>Internal finish</td>
<td>Smooth flow coat finish</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FASTENERS AND ACCESSORIES DETAILS

Heavy duty Handle Lock
Black Powder Coated

Internal Lock Hatch
Stainless Steel Grade 316 with Black Coating end

Hinges
Stainless steel Hinges Grade 316

Manual Wind Stay
Stainless steel Grade 316

Rubber Type Beading
Black Rubber

Ventilator

Mounting Plate
Galvanized Iron with Powder coated

Lifting Hook
Stainless steel Grade 316 Galvanized Iron

MASTERS STEEL ENCLOSURES

These enclosures have been specially designed for the chemical, oil and food and beverage industries, among others, which are particularly demanding in terms of hygiene and resistance to corrosion. High resistance to corrosion (304L and 314L, stainless steels provide the best solutions for applications in extremely demanding environments. Micro-beaded or painted finish(on request).
PRODUCT DESCRIPTION

Glass Fiber Reinforced Gypsum (GFRG) is a white gypsum cement material that is molded into architectural elements used for interior applications. GFRG parts generally weigh approximately 2 lbs/ft² (10 kg/m²) and are typically finished with paint. Alpha gypsum is a specialty material, referred to as an industrial plaster, and should not be confused with the gypsum material used in the drywall (gypsum wallboard) industry. Where once traditional plaster or plaster castings were used, GFRG is now specified because of its lightweight, superior strength, and ease of installation.

GFRG composites have enhanced physical properties compared to drywall or plaster, such as hardness and flexural strength. In addition, GFRG parts often incorporate embedment’s of steel or wood for added strength and to provide a means for attachment and suspension. As a result, complex architectural shapes can be assembled faster and less expensively than conventional field construction methods. In addition, GFRG parts are made with a much higher degree of precision than can be expected with conventional field constructed methods which generally results in GFRG providing a better “finished product.” Furthermore, less support framing is needed with GFRG than the traditional drywall or plaster alternatives. From an environmental aspect, GFRG is a lighter, stronger and more durable alternative that dramatically reduces the use of raw materials and the environmental impacts associated with their acquisition and transportation.

GFRG is commonly used to make decorative ceiling coffers, domes and vaults; columns, capitals and bases; wall cladding; plasters and pediments; moldings and light coves; brackets and corbels; complicated geometric shapes, sculpted panels and many other decorative elements. All of the aforementioned items can be molded into virtually any design, shape or scale yielding fine surface detail, textures and patterns.

Ceiling elements are usually suspended. Most other parts are face fastened with screws through “built-in” reinforcement, countersunk and filled. Moldings can be supplied with factory molded corners or they can be cut on site and mitered. For a monolithic finish, parts are made with tapered edges, and joints are taped in the same manner as gypsum wallboard. Parts are then primed and painted. The use of glossy paints for finishing is not recommended.

Most items are custom made to project design requirements and specifications. MASTERS uses 5-axis CNC technology to machine precision patterns from which molds are produced to make the required parts. In situations involving complex design elements or projects, MASTERS will work with Architects and Designers.
to develop a practical plan for the parts and assemblies they envision through 3D modeling and/or scaled or full size mock-ups. Detailed shop drawings and material samples are prepared for approval prior to manufacture. MASTERS has provided GRG parts for numerous world class architectural buildings around the globe.

PRODUCT SPECIFICATION

Applicable Standards
A list of primary standards. Refer to the following standards for other applicable secondary standards.

ASTM International [ASTM]
• C1381-2008 Standard for Molded Glass Fiber Reinforced Gypsum Parts
• C1467-2006 Standard for the Installation of Molded Glass Fiber Reinforced Gypsum Parts
• C1355-2006 Standard for Glass Fiber Reinforced Gypsum Composites

International Standards Organization [ISO]
• ISO 1192:2010 Reaction to fire tests of products - Non combustibility Test
• ISO 1716:2010 Reaction to fire tests for products - Determination of the gross heat of combustion (calorific value)

European Standards [EN]
• EN 13501-1 - Fire classification of construction products and building elements - Classification using test data from reaction to fire tests
• EN 13501-1 - Fire classification of construction products and building elements - Classification using test data from reaction to fire tests

International Maritime Organization [IMO]
• FTP Code (IMO resolution MSC 61/67)

PHYSICAL AND MECHANICAL PROPERTIES

MASTERS uses alpha gypsum materials that are mined and processed in the USA from some of the world’s purest deposits (over 99% purity of CaSO4•2H2O). The mined gypsum is calcined under pressure and treated to ensure proper aging characteristics. In addition, it is precision ground to ensure optimum particle size. Throughout this process, the material is subjected to strict inspections and testing to guarantee its high level of quality. Our prominent gypsum suppliers certify the raw materials are in compliance with the ASTM C1355 Standard.

Matrix: Alpha Gypsum Cement
Color: Standard unfinished, white to off-white. Factory applied finishes available
Texture: Standard smooth. Custom molded in textures available
Density: 120-160 lbs/ft³ [197-256 kg/m³]
Weight: 1½ -2 lbs/ft² [7-10 kg/m²]*
Shell thickness: 3/16” [5 mm] nominal
Edge thickness: 3/4” [19mm] typical
Embedments: Galvanized steel or wood (if required)
Glass Fiber: 5% typical
Max. length moldings: 12’ [3.6m]
Max. size molded panels: 40 ft² [3.7m²]

* Typical weights – parts with deep surface relief, etc. may weigh more. Submit drawings for a more accurate estimate.

LEED Information
Any parts needing to contribute to LEED MR credits must be indicated as such at the time of ordering – additional costs may apply.

MR Credit 4: Recycled Content
GRG parts can be supplied with a minimum of 10% recycled content. The actual amount varies depending on the individual part design and type of reinforcement used.
Projects in the Pearl Qatar

One of the most advanced, well-designed and engineered monument in Qatar, Pearl Qatar is considered to be an everlasting icon in Qatar. It is home to a number of captivating environs and offers luxurious living to a host of refined tastes.

It is a self-sustaining real estate development that includes all the amenities and lifestyle privileges any resident or guest could ask for. Distributed across architecturally distinct precincts, The Pearl Qatar offers apartments, villas, townhouses, diverse leisure and entertainment facilities, award-winning marinas, renowned restaurants, high-end shopping outlets and beautiful serene beaches.

GRC Masters is proud to be a contributor to the Pearl Qatar’s distinct environs and facilities through our diversified GFRC/GRC and GFRP/GRP installation in the community.

We had the honor of installing our products and rendering our services in various locations and precincts of Pearl Qatar such as Madeena Central, Interior and Exteriors, Towers, villas, shopping malls, valley feature, cinema etc.

Here are some locations in the Pearl Qatar where we had a chance to showcase our expertise:

<table>
<thead>
<tr>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madeena Central</td>
<td></td>
</tr>
<tr>
<td>Interior and Exteriors</td>
<td></td>
</tr>
<tr>
<td>Towers</td>
<td></td>
</tr>
<tr>
<td>Villas</td>
<td></td>
</tr>
<tr>
<td>Shopping Malls</td>
<td></td>
</tr>
<tr>
<td>Valley Feature</td>
<td></td>
</tr>
<tr>
<td>Cinema</td>
<td></td>
</tr>
</tbody>
</table>

ASTM C1355 and ISO Test Results

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexural Strength</td>
<td>4700 psi (32 MPa)</td>
</tr>
<tr>
<td>Ultimate Strength</td>
<td>1875 psi (13 MPa)</td>
</tr>
<tr>
<td>Flame Spread</td>
<td>0</td>
</tr>
<tr>
<td>Smoke Development</td>
<td>0</td>
</tr>
<tr>
<td>Behavior at 750°C</td>
<td>Pass</td>
</tr>
<tr>
<td>Coefficient of Linear</td>
<td>5.6 x 10^-11 in/in°F</td>
</tr>
<tr>
<td>Thermal Expansion</td>
<td>19.9 x 10^-6 mm/mm°C</td>
</tr>
<tr>
<td>Humidified Deflection</td>
<td>1.8” (3 mm)</td>
</tr>
<tr>
<td>Nail Pull Resistance</td>
<td>176 lb (792 N)</td>
</tr>
<tr>
<td>Impact Resistance</td>
<td>6.5 KJ/cm² (8.8 J)</td>
</tr>
<tr>
<td>Barcol Hardness</td>
<td>60</td>
</tr>
<tr>
<td>Rockwell Hardness</td>
<td>72 M scale</td>
</tr>
<tr>
<td>ISO Reaction to Fire Tests Mass Loss</td>
<td>20%</td>
</tr>
<tr>
<td>Temperature Difference</td>
<td>7°F [4°C]</td>
</tr>
<tr>
<td>Duration of Ignition &gt; 5 sec</td>
<td>0</td>
</tr>
<tr>
<td>Gross Heat of Combustion</td>
<td>300 Btu/lb [0.7 MJ/kg]</td>
</tr>
<tr>
<td>Shell Thickness</td>
<td>± 1/16” [1.5mm]</td>
</tr>
<tr>
<td>Dimensional Tollerances</td>
<td>± 1/8” [3mm]</td>
</tr>
<tr>
<td>Parts 8’ to 14’</td>
<td>± 3/16” [5mm]</td>
</tr>
<tr>
<td>Warpage or Bowing</td>
<td>± 1/16”/ft [1.5mm /300mm]</td>
</tr>
</tbody>
</table>

Classifications and Approvals

In addition to the ASTM and ISO Testing, MASTERS GRG is classified as "A1" in accordance to the European Standard EN 13501-1. This standard provides the reaction to fire classification procedures for all construction products, including products incorporated within building elements. A1 is the highest classification possible. Class A1 products will not contribute in any stage of the fire including the fully developed fire.

MASTERS GRG is approved for use on Cruise ships with Module "B" and "F" Certificates of Approval in accordance with the International Maritime Organization (IMO) and Marine Equipment Directive (MED) regulations.

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Here are some locations in the Pearl Qatar where we had a chance to showcase our expertise:
Projects in Lusail City - Presentation Center, Qatar Rails - Various Location, Qatar University, Doha Port - Various Locations

Been a specialist in all aspects of GRC, GRP&GRG works, we have been able to produce in excellent quality GRC cladding panels, both in plain and decorative finishes; GRP decorative elements especially for hardscape features such as pergolas; GRG decorative elements for mosques and the Metro Rail.

As a result we have had the privilege of working in various prestigious projects such as lusail city, qatar rail, qatar university and doha port.
Towers

Towers and sky scrapers are contemporary wonders of the modern architecture world. As a part of the urban planning and development, towers and high rise buildings are mushrooming in many metropolitans of the Gulf countries and Qatar is no exception. We have amazing models, decorations, domes and many artistic works suited to different types of towers. Our works in various towers in Qatar are illustrated in the following pages for your kind review.
The Project of Palaces, Villas, Shopping Malls & Mosques

Our Expertise in GFRC/GRC, GFRP/GRP and GFRG/GRG Ceiling Works specialized jobs are clearly reflected in many contemporary and traditional palaces, villas, shopping malls & mosques of vivid types in different areas of Qatar. An aesthetic and spectacular embodiment of the latest ideas of our company can be viewed in these palaces the following pages are self-explanatory.
Traditional Decorations

We have a wide range of GFRC/GRC, GFRP/GRP and GFRG/GRG decorations suitable for a variety of traditional installations, institutions and monuments. Traditional decorations are, nowadays, widely used to decorate and make the mosques, monuments, public event palaces, museums and other cultural palaces more attractive and aesthetic. It is the artistic nature and colors that make the traditional decorations different and beautiful. Concerted effort of talented artists and skilled workers make it vivacious. With all the specialties GRC Masters is making substantial advancement in the field, our artisans design various models of traditional decorations. We offer our services to our customers in designing and creating models in accordance with their tastes and requirements. Please see in the following pages some of our traditional decorations designed and installed in different locations of Qatar. Prominent among them are the arches and other decorations of sheikh mohammed bin abdul wahab masjid, Oriental Restaurant in Doha City and some traditional villas in different area of Qatar.
Monuments, Sculptures and Gardens

Monuments and sculptures are the fabulous edifices enunciating the cultural supremacy built at public places, educational institutions, colleges, universities, round-about, promenades, amusement parks etc. These are used for city beautification worldwide and as a medium of educating the modern society about the cultural heritage.

GRC Masters has grown to be the premier company in Qatar in this field. The workforces of GRC Masters comprise engineers and skilled workers in handicrafts, architecture and calligraphy. We reconstruct the life-filled models of monuments, historical events and personalities, antiques, institutions, forts, cities etc. By setting up these monuments and sculptures what is being shown is not only the beautification of the city, but the closeness to the cultural heritage as well.

The contemporary style garden has become very popular nowadays due to increase of modern housing with small gardens as well as the cultural shift towards contemporary designs. We offer something different for the garden. We specialize in garden antique, fine reproduction and works of art for the garden. We are here to create a stunning feature and new dimension in your garden or home.

Our garden decoration models resemple to the original. It gives a special feast to the eyes. Diverse models and designs that compliment the gardens and are accomplished by our creative theme makers and artists in various locations suited to your budget.

Pictures of monuments, sculptures and gardens we have designed and set up at different locations are given in the following pages.
Steel Projects

In addition to GRC, GRP and GRG Products and service, we are also specialized in steel based products in multi-faceted aspects of modern life. We have well-equipped workshop and factory catering to international production standards to respond to the increasing requirement of our valued customers. We are specialized in structural steel, Sculpture G.I. Doors, Louvers, Shades etc.

The following pages will explain our achievements in the steel sector.