

**PRODUCT DATA SHEET**

**LEED® info**  
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**Trade Name**

QuarryCast®

**Common Name**

Interior Molded Stone

**Manufacturer**

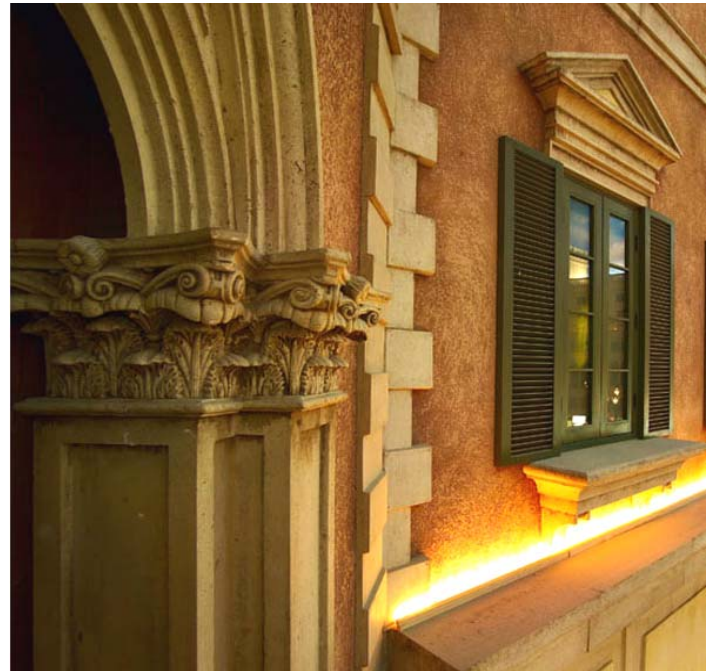
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**Summary**

QuarryCast® is a factory-molded gypsum based composite material resembling natural stone that is used to make architectural elements for interior use. It has a textured surface resembling limestone and is available in a variety of standard colors, but can also be custom formulated to meet a discriminating client's unique requirements. QuarryCast® can be molded into limitless shapes but is also available in relatively thin veneer panels that can be used separately or in combination with most molded shapes and parts. QuarryCast® provides a distinctive appearance similar to that of natural stone, but the weight and installation costs will be appreciably less.

**Detailed Description**

QuarryCast® molded stone elements are manufactured with integral color pigments, so the color of the material extends below the surface. Natural aggregates and minerals are incorporated into a matrix of alpha gypsum cement and glass fiber reinforcement. This provides the molded stone elements with added strength and flexibility in addition to an enhanced aesthetic appearance. QuarryCast® molded stone parts often incorporate embedments of steel or wood for added strength and to provide a means for attachment, suspension and stiffening. As



Columns, Arches, Quoins & Pediments Venetian Resort

a result, complex architectural shapes can be made with QuarryCast® from Formglas® molds that otherwise would not be practical to construct with natural stone. In most cases, QuarryCast® requires no heavy equipment for installation, uses less support framing, is quicker to install, and less expensive than the traditional alternatives.

Some typical interior applications of QuarryCast® include: decorative wall facades and arches; columns, capitals and bases; retail store fronts and displays using veneer panels; pilasters and pediments; moldings and light coves; brackets, corbels and quoins; ceiling coffers, domes and vaults; complex 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 intricate surface detail, textures, patterns and choice of color. Texture and color variations will occur within and between parts consistent with that of natural stone materials.

Ceiling elements such as domes and vaults are usually suspended. Most other molded 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.

Most items are custom made to project design requirements and specifications. Formglas 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, Formglas will work with Architects and Designers to develop a practical plan for parts and assemblies they envision through 3D modeling and/or scaled or full size mock-ups. Detailed shop drawings are prepared for approval prior to manufacture. Formglas has provided QuarryCast® parts for numerous world class buildings around the globe.

### Technical Data

#### APPLICABLE STANDARDS

##### ASTM International (ASTM)

- E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ##### International Standards Organization (ISO)
- ISO 1182 Reaction to fire tests of products - Non combustibility Test
  - ISO 1716 Reaction to fire tests for products -- Determination of the gross heat of combustion (calorific value)
- ##### International Maritime Organization (IMO)

- FTP Code (IMO resolution MSC 61/67)

#### Physical and Mechanical Properties

Formglas uses alpha gypsum cement 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 colors and color matching available
Texture:	Standard textures and texture matching available

Factory Finish:	Clear non-gloss sealer
Density:	100 lb/ft <sup>3</sup> [1600 kg/m <sup>3</sup> ]
Weight:	
Veneer panels:	2-2.5 lbs/ft. <sup>2</sup> [10 -12 kg/m <sup>2</sup> ]*
Molded parts:	3-5 lbs/ft. <sup>2</sup> [14 -24kg/m <sup>2</sup> ]*
Veneer thickness:	5/16" [8 mm] nominal
Shell thickness:	5/16" [8 mm] nominal
Edge thickness:	¾-1¼" [19-32mm] typical
Embedments:	Galvanized steel or wood (if required)
Glass Fiber:	5% typical
Max. length moldings	4' [1.2m]
Max. size veneer panels	48" x 36" [1200 x 900mm]
Max. size molded panels	40 ft <sup>2</sup> [3.7m <sup>2</sup> ]

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

### ASTM and ISO TEST RESULTS

Flame Spread:	0
Smoke Development:	5
Behavior at 750°C:	Pass
ISO Reaction to Fire Tests	
Mass Loss:	20%
Temperature Difference:	2.7°F [1.5°C]
Duration of Ignition > 5 sec:	0
Gross Heat of Combustion:	258 Btu/lb. [0.6 MJ/kg]

### Tolerances

Veneer Thickness:	± 1/16" [1.5mm]
Dimensional (all directions):	± 1/16" [1.5mm]
Bowing, out of plane	3/32"/ft. [2.5mm / 300mm]
Molded Part Thickness:	-1/16 to + 3/16" [-1.5 to +5mm]
Dimensional (all directions):	± 3/16" [5mm]
Bowing, out of plane	3/32"/ft. [2.5mm / 300mm]

### 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

QuarryCast® 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. For more information, visit the [LEED® link](#) on the formglas.com website.

## **Classifications and Approvals**

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In addition to ASTM and ISO Testing, QuarryCast® has been tested at the Centre Scientifique et Technique du Bâtiment (CSTB) in France and is classified “M0”. This classification refers to building materials that are non-combustible. QuarryCast® has also been tested by SINTEF, which is the largest independent research organization in Scandinavia and classified as a non-combustible material, in accordance to the IMO A.472 standard. QuarryCast® has also been tested in Germany to DIN EN ISO 1182.

QuarryCast® 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.

## **Delivery, Storage and Handling**

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QuarryCast® parts shall be transported and handled in a manner that avoids excessive stresses or damage. Packaging or components showing signs of damage should be marked as such on freight documents, inspected immediately, and claimed for any damage due to shipping with the freight carrier. Advise the carrier and Formglas immediately of any damage. QuarryCast® parts shall be kept clean and stored on a dry surface and not stacked or leaned on each other to prevent distortion, warping, and other physical damage. Use clean gloves as required to ensure oils, adhesive and other contaminants are not transferred onto the pre-finished surface.

## **Preparatory Work**

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Do not deliver or install QuarryCast® parts until the building is enclosed and weatherproof, wet work is complete, and the HVAC system maintains temperature and humidity at normal occupancy levels. Acclimatize QuarryCast® parts for a minimum of 48 hours to the ambient temperature and humidity levels of spaces in which they are to be installed. It is the Installing contractor’s responsibility to order the correct material quantities (including a waste allowance) and verify the field dimensions and conditions for inclusion into the shop drawings.

**Site Conditions:** The site must be reviewed for compliance with Formglas’ requirements relating to environmental conditions, installation tolerances and any other conditions that may affect the installation and performance of QuarryCast® parts. Any unsatisfactory conditions are to be corrected prior to installation. Field measurements are to be taken to verify the dimensions, including those not shown on the drawings, and provide specific details of any changes for inclusion into the manufacturer's shop drawings prior to Formglas commencing the manufacture of QuarryCast® parts. Formglas will produce parts in accordance to the approved shop drawings only, and is NOT responsible for any deviations between the site conditions and the approved drawings.

**Substrates:** The substrates to accept QuarryCast® parts shall be surfaced with drywall or plywood that is installed straight and true within 1/8” in 8 linear ft. (3mm in 2500mm). The substrate shall be free of obstructions and interference that prevents the correct positioning and attachment of the QuarryCast® parts. Metal framing members shall be of the proper size and design for the intended use and shall be sufficient to properly support the installed QuarryCast® parts.

## **Installation**

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**General:** Install QuarryCast® parts as indicated on the approved shop drawings, instructions and the contract documents. The installing contractor is to supply and install all brackets, and shims for the installation and proper alignment of the QuarryCast® parts with adjacent parts and materials. Part thicknesses may vary. Allow for shim spaces between the QuarryCast® and the substrate. Attach the molded stone parts to substrates and framing with screws, bolts or other fasteners as shown on the shop drawings. Additional bracing, fastening points etc. not shown on the drawings, may be required to ensure a proper installation. Where QuarryCast® parts are suspended, use all the suspension points indicated on the shop drawings as a minimum requirement, and use additional support(s) as required. Columns, large parts and moldings etc. are to be face fastened with countersunk screws. After, the screw holes are to be filled with Formglas supplied patching compound.

QuarryCast® Veneer panels are adhered to surfaces - use a Formglas recommended brand adhesive only (e.g. PL400). See Installation Instructions for more complete details.

**Cutting:** When QuarryCast® parts require cutting, use the most suitable cutting method listed below. If circumstances allow, cut parts outdoors or in a well ventilated area. Always wear goggles and a respirator (or dust mask).

- A miter or table saw with a diamond or “abrasive” cutting blades (e.g. 12”/305mm Makita A.01345). Carbide blades with 80+ teeth work well but dull quicker.
- For irregular cuts use a reciprocating saw, such as a jig saw, with tungsten carbide blades (e.g. Milwaukee 48-00-1420).
- For small cutting operations a mini grinder with a 4” (100mm) diamond blade can be used.

**Edge Finishing after Cutting:** For moldings, columns, and other molded components, lightly sand cut edges with a sanding block or mini sander with #40 - #80 grit sanding sheets or discs. For veneer panels, use a sanding block with #40 - #80 grit sandpaper to produce a 45° bevel to match the edges supplied direct from the factory.

**Attachment:** For moldings, columns and other molded components, face fasten with screws. Pre-drill with carbide bits and countersink holes approx. 1/8” [3mm] below the surface along the embedded reinforcement and secure with #8 or similar screws on 16” [400mm] o.c. Refer to the shop drawings for specific details and the location of the reinforcement materials. Screw holes are to be filled afterward with Formglas supplied patching compound. Use joint spacers to maintain a uniform joint spacing of 1/8” [3mm]. For veneer panels, apply walnut sized dabs of a Formglas recommended adhesive (e.g. PL400) on the panel back approx. 9” [225mm] o.c. and slide into position. Keep adhesive back from panel edges to prevent the adhesive from being squeezed onto visible surfaces (remove any adhesive immediately from the face of QuarryCast® parts). To hold the panels in position until the adhesive sets, use a brad nailer with T-head nails (plywood is the preferred substrate for this purpose).

### Joint Treatments:

For Dry Joints:

- Butt the QuarryCast® parts and leave the joints dry.

For Caulked Joints:

- Formglas does not supply caulk for joints but can recommend a brand and color of caulk for use with specific QuarryCast® colors.
- Use spacers to maintain a uniform gap of approx. 1/8” [3mm] and apply masking tape on each side of the joint. Do not use wide joints.
- Avoid smearing caulk beyond the joint - remove any excess immediately with flexible scraper.
- Veneer panels may have dry joints, open joints with accents strips (e.g. metal or laminate), or caulked joints.
- Caulk between QuarryCast® and different materials.
- Do NOT attempt a monolithic look - joints can not be hidden.

### Hole Filling and Patching:

- Hole Filling: Finger fill screw holes with matching QuarryCast® patching compound avoiding smearing it beyond the hole. Remove excess compound immediately with a flexible scraper. The compound will blend in after 24 hours.
- Cracks or Chips: Treat as screw holes (above).
- Minor Scratches and Gouges: Due to the QuarryCast® texture, minor damage usually does not detract from the general appearance.

**Always use patching compound sparingly**

**Avoid smearing compound beyond the holes**

**Always remove excess compound immediately**

**Note: Refer to the QuarryCast® Installation Instructions for more complete details.**

### Cleaning and Maintenance

- QuarryCast® has a factory applied clear acrylic sealer to reduce staining and make cleaning easier.
- Clean QuarryCast® parts with a water/soap solution and rinse with clean water and a sponge.
- Excessive dirt, pencil and rubber marks etc. can usually be removed with a multi-purpose spray cleaner such as “Spray Nine®” and wiping after with a damp cloth. Do not use powdered cleansers.

**Applications**

To view photos of Formglas® QuarryCast® applications, or to contact a local Formglas representative, visit [www.formglas.com](http://www.formglas.com)



Sculpted Columns, Dome & Moldings Atlantis, The Palm, Dubai



Columns, Entranceways, Moldings Fallsview Casino, Niagara



Veneer Panels and Moldings Gap Stores, Worldwide



Decorative Wall Panels Wynn Casino and Spa, Las Vegas

## Samples Available

Below are twelve color samples Formglas offers as our standard QuarryCast® colors and texture. We maintain an inventory of these, and samples can be requested by email to either your local Formglas representative, or directly to [samples@formglas.com](mailto:samples@formglas.com).

Formglas is able to **custom formulate** QuarryCast® material to match an array of colors, textures or finishes. Please contact your local sales representative to learn more or discuss custom requirements for a specific project.

**Formglas QuarryCast®**

Color: Seattle Sand  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 SS QC



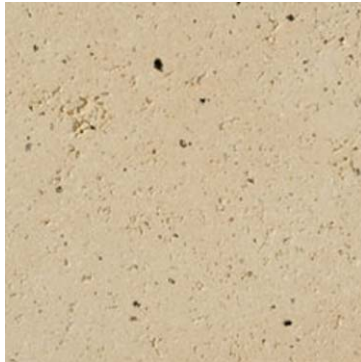
**Formglas QuarryCast®**

Color: Galveston Grey  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 GG QC



**Formglas QuarryCast®**

Color: Boise Buff  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 BB QC



**Formglas QuarryCast®**

Color: Princeton Pink  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 PP QC



**Formglas QuarryCast®**

Color: Kyoto Coffee  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 KC QC



**Formglas QuarryCast®**

Color: Canyon Clay  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 CC QC



Please note that colors shown on your display or printer output may NOT be an accurate representation of the actual product.

**Formglas QuarryCast®**

Color: Mohave  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 M QC



**Formglas QuarryCast®**

Color: Grey 004-A  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 G4 QC



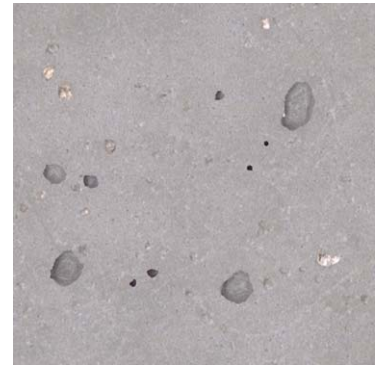
**Formglas QuarryCast®**

Color: Mogul Mauve  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 MM QC



**Formglas QuarryCast®**

Color: Concrete Grey  
Texture: ST.CA.INT  
Sample Size: 8" x 10"  
Sample Code: FP0810 ST.CA.INT



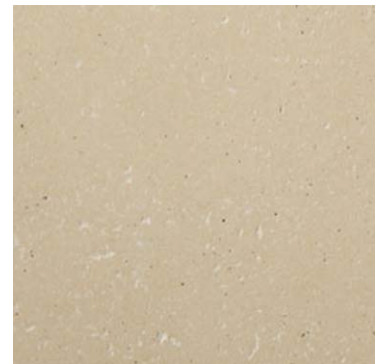
**Formglas QuarryCast®**

Color: Cordovan  
Texture: STD  
Sample Size: 8" x 10"  
Sample Code: FP0810 C QC



**Formglas QuarryCast®**

Color: Beach Beige  
Texture: SP  
Sample Size: 8" x 10"  
Sample Code: FP0810 SP.NC-1QC



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