

Product
Data
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Architectural Specialty Solutions

Interiors + Exteriors

Formglas[®]

PRODUCT DATA SHEET

INTERIOR FINISHED CARPENTRY

Architectural Elements made of Cold Cast Metal
MasterFormat® 06 20 23

MetalCast® by **Formglas®**

For Interiors

Trade Name
Formglas® MetalCast®



Common Names
Cold Cast Metal
GFRG with a Metallic Finish

Manufacturer
Formglas Products Ltd.
181 Regina Road
Vaughan, Ontario, Canada L4L 8M3
T: 1.866.635.8030 F: 416.635.6588
Web: formglas.com Email: info@formglas.com



COPPER BRICK-PATTERNED VENEER PANELS

CREDIT SUISSE, FLORIDA

Summary

MetalCast® is a proprietary cold-cast metal material made with real metal powders incorporated into a glass fiber reinforced gypsum composite. This metal composite is cast into shapes, without the application of heat, by placing the material into molds in a hand lay-up process. After removal from the molds, parts are buffed and coated with a protective coating to reduce oxidation, and protect the burnished and/or patina finish. The bronze, copper, brass, and nickel silver metal elements are for interior use only and are custom manufactured into virtually any shape with precise detail. MetalCast® is a premium product but is usually more economical than using conventional metal castings.

Detailed Description

MetalCast® elements are typically used to provide rich decorative embellishments for interior applications. MetalCast® is used to make complete architectural elements, but also frequently used as trim, inlays and appliques to enhance other materials. The molded parts have a shell thickness of approximately 1/4" ⇔ 6 mm and weigh 2.5 to 4 lbs/ft.² ⇔ 12 to 20 kgs/m².

MetalCast® parts often incorporate embedments of steel or wood to add strength and provide a means for attachment, suspension and stiffening. As a result, complex architectural shapes can be made with MetalCast® which would be otherwise impractical or cost prohibitive to produce with conventional metal castings. In most instances, MetalCast® elements require less support framing for their installation and offer a more economical solution than conventional metal castings.

Typical architectural applications of MetalCast® include: moldings, trim and light coves; pediments and pilasters; capitals; appliques, plaques and inlays; decorative frames and displays; and other decorative elements. Ideally, components are reserved for installations at or higher than 3 ft ⇔ 900 mm AFF to reduce the potential for scuffs or scratches which cannot be easily repaired. All of the aforementioned items can be molded into shapes yielding fine surface detail, textures, patterns and choice of metal finishes. Shade and brightness variations will occur within and between parts. MetalCast® should not be used where it is subjected to mechanical abuse, water or high levels of humidity.

MetalCast® molded parts are to be installed with concealed fasteners and/or adhesive wherever possible. Parts other than veneer panels are made with embedded reinforcement for attachment purposes. Moldings are typically supplied with factory-molded corners.

Most MetalCast® items are custom-made to meet 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 the 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. MetalCast® interior elements have been used in numerous world class buildings around the globe.

Technical Data

Refer to the following standards:

ASTM International (ASTM)

- E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

International Standards Organization (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

The metal powders used in MetalCast® are highly refined and also used in powder metallurgy parts production. The alpha gypsum cement materials used as the matrix are mined and processed in the USA from some of the world's purest deposits. Our prominent gypsum suppliers certify the raw materials are in compliance with the ASTM Standard C1355.

Matrix:	Metal and Gypsum Cement
Finish:	Bronze, Copper, Brass, Nickel Silver
Surface:	Polished, custom-molded textures available.
Factory Finish:	Clear non-gloss lacquer
Density:	120 lbs/ft. ³ ⇔ 1920 kg/m ³
Weight: Veneer panels: Molded parts:	2.5-3 lbs/ft ² ⇔ 12-15 kg/m ² * 2.5-4 lbs/ft ² ⇔ 12-20 kg/ m ² *
Veneer thickness:	1/4" ⇔ 6 mm nominal**
Shell thickness:	1/4" ⇔ 6 mm nominal**
Edge thickness:	3/4-1 1/4" ⇔ 19-32 mm typical
Embedments:	Galvanized steel or wood (if required)
Glass Fiber:	5% typical
Max. length moldings:	4' ⇔ 1.2 m
Max. size veneer panels:	48" x 36" ⇔ 1200 x 900 mm
Max. size molded parts:	20 ft ² ⇔ 1.8 m ²

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

** Subject to manufacturing tolerances. Weight and measurement conversions may be rounded.

ASTM Standard and ISO Test Results

Flame Spread:	0
Smoke Development:	≤10
Behavior at 750°C:	Pass
ISO Reaction to Fire Tests Temperature Difference: Duration of Ignition > 5 sec:	2.7°F ⇔ 1.5°C 0
Gross Heat of Combustion:	378 Btu/lb ⇔ 0.9 MJ/kg

Manufacturing Tolerances

Veneer Thickness:	± 1/16" ⇔ 1.5 mm
Dimensional (all directions):	± 1/16" ⇔ 1.5 mm
Bowing, out of plane	3/32"/ft ⇔ 2.5 mm/300 mm
Molded Part Thickness:	-1/16 to + 3/16" ⇔ -1.5 to +5 mm
Dimensional (all directions):	± 3/16" ⇔ 5 mm
Bowing, out of plane	1/8"/ft ⇔ 3 mm / 300 mm

LEED®



Formglas® products contribute toward LEED® credits, and have been used in LEED® projects worldwide. Since Formglas® products are usually custom-made to project specifications, their contribution to credits may vary. Contact Formglas® with specific details of your project and to clarify the version of LEED® rating system applicable.

Other Classifications and Approvals

In addition to ASTM and ISO testing, MetalCast® 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. MetalCast® has also been tested to the German Standard DIN 4102-1 and classified as an A2 non-combustible material.

MetalCast® is approved for use on marine vessels 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

MetalCast® parts shall be transported and handled in a manner that avoids damage or excessive stress. 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® of any damage immediately. MetalCast® parts shall be protected from rain, snow, sunlight, excessive weather conditions, high levels of humidity, and job site damage. To prevent distortion, warping, and other physical damage, MetalCast® parts shall be kept clean and stored on a dry surface, in a dry area, and not stacked or leaned on each other. Parts should be handled with clean gloves to ensure that oils, adhesive, and other contaminants are not transferred onto the parts. **Failure to observe delivery, storage and handling instructions may result in irreparable damage to parts.**

■ Preparatory Work

Do not deliver or install MetalCast® 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 MetalCast® 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:

Review the site conditions for compliance with Formglas' requirements relating to environmental conditions, installation tolerances and any other conditions that may affect the installation and performance of MetalCast® 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 Formglas® shop drawings prior to it commencing the manufacture of custom molds and MetalCast® parts. Formglas® will produce parts in accordance with the approved shop drawings only, and is NOT responsible for any deviations between the site conditions and the approved drawings.

Substrates:

In the case of flat veneer surface cladding solutions only, the substrates to accept MetalCast® parts shall be surfaced with drywall or plywood (preferred) that is installed straight and true within 1/8" in 8 linear ft. ⇔ 3 mm in 2500 mm. This is not required for columns, cornices, friezes or other such applications. The substrate shall be free of obstructions and

interference that prevents the correct positioning and attachment of the MetalCast® 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 MetalCast® parts.

■ Installer Safety

Installers are to wear appropriate personal protection equipment when handling or installing Formglas® materials. This should include eye protection, gloves and dust masks. Please adhere to local regulations and rules established at the job site. Before handling and installing Formglas® materials, installers are responsible for reviewing SDS information which is readily available at www.formglas.com, or included with the crate(s) used to ship Formglas® materials, or by calling Formglas® at 1.866.635.8030.

■ Installation

General:

Install MetalCast® 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 as required for the installation and proper alignment of the MetalCast® parts with adjacent parts and materials. Part thicknesses may vary. Allow for shim spaces between the MetalCast® parts and the substrate. Attach the parts to substrates and framing with concealed fasteners wherever possible, 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 MetalCast® parts are suspended, use all the suspension points indicated on the shop drawings or on the back of MetalCast® parts as a minimum requirement, and use additional support(s) if required. Where MetalCast® veneer panels are adhered to surfaces - use a Formglas® recommended brand adhesive only (PL® Premium®) marketed under Loctite® and LePage® brand names.

MetalCast® is not as impact or scratch resistant as stainless steel and is therefore not suitable for baseboards or other areas subject to wear or abuse.

Cutting:

If field conditions require MetalCast® components to be cut, please contact Formglas® to discuss special considerations and instructions.

Attachment:

For moldings, columns, other parts, wherever possible, MetalCast® is to be installed with concealed fastening methods. If face fastening is necessary, plan in advance to use MetalCast® matching screw covers. Pre-drill countersunk holes evenly spaced apart and secure with #8 or similar screws along embedded reinforcement. Refer to the shop drawings for specific details and the location of the reinforcement materials.

Where possible, position screw holes to be inconspicuous. Use a Formglas® recommended construction adhesive (PL® Premium®) to minimize the number of face fasteners.

For veneer panels, apply walnut-sized dabs of adhesive on the panel back approx. 9" \approx 225 mm o.c. and slide into position. Keep adhesive back from panel edges to prevent oozing onto visible surfaces. A hot-melt adhesive can be used **in conjunction** with construction adhesive to provide a quick bond. Apply a few spots of quick-set hot-melt adhesive near the corners, or where required, just before installation and press panel into place. Use joint spacers between parts to maintain a uniform joint spacing of 1/16" \approx 1.5 mm.

Adhesive:

Use a Formglas® recommended brand adhesive (PL® Premium®) marketed under Loctite® and LePage® brand names to prevent the possibility of bleed-through. Take precautions to keep the adhesive off the face of the MetalCast® parts. Refer to the installation Instructions.

Joint Treatments:

For Caulked Joints:

- Joints are to be 1/16" \approx 1.5 mm wide and caulked. Exact caulk matches are not available. Formglas® does not supply caulk but can recommend a specific type and color.
- Do NOT attempt a monolithic look - joints cannot be hidden.
- Caulk between MetalCast® and different materials.

Cleaning and Maintenance

- MetalCast® has a factory-applied clear coat to reduce oxidation.
- Surface dirt, fingerprints and water stains can be removed with a clean, damp, soft cloth and gently wiped dry.
- Do not use any type of household or solvent based cleaners or abrasives. USE MILD SOAP AND WATER ONLY.
- Similar to actual bronze or brass castings etc., superficial scratches on the protective lacquer will not detract from the overall appearance, but severe damage cannot be repaired.
- Field polishing is not possible because of the lacquer coating required to reduce oxidation.

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

Applications

To view photos of Formglas® MetalCast® applications, or to contact a local Formglas® representative, visit www.formglas.com.



CLOSE-UP OF COLUMN WITH QUARRYCAST® MOSAIC TILE INLAYS CONESTOGA MALL, WATERLOO

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MetalCast® by **Formglas®**

For Interiors



CEILING BEAMS AND COLUMNS

ONE FREEDOM SQUARE, RESTON



SCULPTED COLUMNS AND CAPITALS

ATLANTIS, DUBAI



CEILING BEAMS AND BRACKETS

CORPORATE LOBBY, WASHINGTON



DECORATIVE GRILLES

PRIVATE THEATRE BY TK THEATERS



PILASTERS, MOLDINGS, TRIM

BOMBAY COMPANY, USA

Samples Available

The beauty of MetalCast® is realized when Formglas® is called upon, for custom applications, to mold custom textures into the parts it manufactures. Please note that Formglas® is not able to formulate MetalCast® to match any others colors. Formglas® maintains an inventory of five standard samples to demonstrate this material. To request a sample, contact samples@formglas.com or your local Formglas® representative to discuss your specific project requirements.

Please note that images and their color(s) are for general reference and may not be accurately rendered on screen or in print.



MetalCast®
 Color: Bronze
 Surface: Polished
 Pattern: Decorative Trim
 Sample Size: 5 ½" x 6 ½"
 Sample Code: 98135



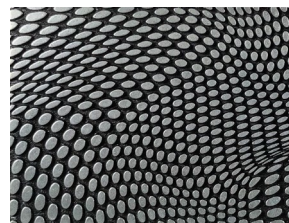
MetalCast®
 Color: Copper
 Surface: Polished
 Pattern: Decorative Trim
 Sample Size: 5 ½" x 6 ½"
 Sample Code: 98136



MetalCast®
 Color: Brass
 Surface: Polished
 Pattern: Decorative Trim
 Sample Size: 5 ½" x 6 ½"
 Sample Code: 98137



MetalCast®
 Color: Nickel Silver
 Surface: Polished
 Pattern: Decorative Trim
 Sample Size: 5 ½" x 6 ½"
 Sample Code: 98138



MetalCast®
 Color: Nickel Silver
 Surface: Polished
 Pattern: 3D Pattern
 Sample Size: 3" x 6 ¾"
 Sample Code: 98185

Project: Conestoga Mall, Waterloo | Design: Pellow & Associates Inc. | Material: MetalCast®



MetalCast®

Project: DFS at JFK Airport T1, NYC | Design: TranSystems | Material: MetalCast®



Shaping Possibilities™

formglas.com

North America Toll Free
+1.866.635.8030

International
+1.416.635.8030

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