
PART 1 - GENERAL**1.01 SUMMARY:**

- .01 Provide special glassfiber reinforced gypsum (GRG) shapes in accordance with the requirements of the contract documents.
- .02 The installing contractor shall be responsible for verifying that all required blocking is provided and installed in the correct locations for GRG component's proper installation.

1.02 WORK INCLUDED:

- .01 Supply of GRG units.
- .02 Erection / Installation.
- .03 Joint treatment.
- .04 Supply and installation of backup supports, shims, labor and materials, etc.

1.03 RELATED WORK SPECIFIED ELSEWHERE:

- .01 Gypsum wallboard and joint treatment.
- .02 Metal framing and support systems.
- .03 Rough carpentry.
- .04 Lath and gypsum plaster
- .05 Finishes: Paint manufacturer shall recommend paint suitable for GRG surfaces.
- .06 Wall coverings

1.04 RELATED DOCUMENTS:

- .01 Glass Reinforced Gypsum - A Guide (Published by CISCA – Ceiling & Interior Systems Construction Association).
- .02 Recommended Specification: Levels of Gypsum Board Finish. See 3.03.14

1.05 QUALITY ASSURANCE:

- .01 Materials and work shall conform to the latest edition of reference specifications specified herein and to applicable codes and requirements of local authorities having jurisdiction.

1.06 QUALIFICATION:

- .01 The manufacturer of glassfiber reinforced gypsum work shall submit evidence of satisfactory projects it has achieved over the last 10 years.
- .02 The installer of the work specified herein shall be approved by the manufacturer of the specified material.
- .03 The installer of the work, with more than 5 years experience in the installation of glassfiber reinforced gypsum units, shall carry out the installation efficiently and cooperate fully with other trades.

1.07 CERTIFICATION/REFERENCES:

- .01 Submit manufacturer's product data, including copies of fire test reports.
- .02 Except as otherwise additionally indicated on the drawings or specified herein, the standards referred to below, shall apply to work under this section.
 - .1 ASTM A 370 Nail Pull Resistance
 - .2 ASTM C 11 Terminology
 - .3 ASTM C 472 Physical Testing of Gypsum
 - .4 ASTM C 473 Humidified Deflection
 - .5 ASTM C 473 Nail Pull Resistance
 - .6 ASTM C 947 Flexural Strength
 - .7 ASTM C 1355 Standard Specifications for GRG Composites
 - .8 ASTM D 256 Impact Resistance
 - .9 ASTM D 578 Specification of Glass Fibre Strands
 - .10 ASTM D 638 Ultimate Tensile Strength
 - .11 ASTM D 638 Young's Modulus
 - .12 ASTM D 638 Compressive Strength
 - .13 ASTM D 696 Coefficient of Linear Thermal Expansion
 - .14 ASTM D 790 Modulus of Elasticity in Flexural
 - .15 ASTM D 2583 Barcol Hardness
 - .16 ASTM E 84 Fuel Contribution
 - .17 ASTM E 84 Flame Spread Index,
 - .18 ASTM E 84 Smoke Developed Index
 - .19 ASTM E 136 Behaviour in Vertical Tube Furnace

1.08 DESCRIPTION OF WORK:

- .01 This specification is intended to outline the general requirements of the DecoForm (GRG) units as they pertain to the overall design of the project. The manufacturer's recommendations shall not govern the work in this section.
- .02 The installing contractor shall perform all work in this section, including installation, taping and patching and will assume responsibility for coordinating installation with gypsum wallboard work and associated trades.

1.09 DESIGN CRITERIA:

- .01 Unless stated on DecoForm drawings, fabrication tolerances are as indicated below.
 - .1 Dimensional - all directions (0' - 10') ± 1/8" (3.2mm)
 - .2 Dimensional - all directions (10' -20') ± 3/16" (4.8mm)
 - .3 Straightness along an edge or surface ± 1/8"/linear ft.
 - .4 All reveals, setbacks or returns 5° draft
 - .5 All corners 1/16" - 1/8" radius

1.10 SAMPLES:

- .01 Submit duplicate min. 6" x 6" glassfiber reinforced gypsum samples.

1.11 SHOP DRAWINGS:

- .01 Submit for approval, shop drawings of units which show sections, details, joint treatment and the relation of the GRG units to adjoining components.

1.12 SCHEDULING:

- .01 Special scheduling for site coordination must be specified at time of bidding.

1.13 DELIVERY, STORAGE AND HANDLING:

- .01 Units shall be handled and transported per manufacturer's recommendation, in a manner so as not to create damage or excessive stresses.
- .02 GRG units shall be stored level on a clean dry surface in an area protected from weather, moisture and damage. The units shall not be stacked or leaned unless instructed otherwise by the manufacturer.
- .03 Environmental Limitations: Do not deliver or install glassfiber reinforced gypsum components until building is enclosed, wet-work is complete and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.14 WARRANTY:

- .01 The manufacturer warrants that the delivered material supplied will conform to sample and to specifications and will be free from defects in workmanship or material under normal use and conditions for a period of One year from date of shipment. Should defects, attributable to the manufacturer, appear within one year of the date of shipment, the manufacturer has the option of replacing or repairing the defective material.
- .02 Limitations: The aforementioned general warranty is exclusive. All other warranties whether expressed or implied or arising by operation of law, usage of trade, course of dealings or otherwise, are excluded. The only warranties are those expressed above. The manufacturer shall not be liable for any penalty or for any loss or damages associated with the removal or installation of its product or claims of third parties against the Purchaser.

PART 2 - PRODUCTS**2.01 MANUFACTURER:**

DecoForm Inc.
49 Sheffield
Toronto, Ontario
CANADA M6M 3E5
Phone: (416) 745-4970
FAX: (416) 745-6636
E-mail: sales@decoform.com website: www.decoform.com

2.02 MATERIALS:

- .01 Glassfiber reinforced gypsum (GRG) fabrication: ASTM C 1355/C 1355M.
- .02 Gypsum: high density, free of asbestos and resins.
- .03 Water: potable
- .04 Glassfiber: continuous filament or random glassfiber mat.
- .05 Anchors and fasteners: Type 304 stainless steel where exposed; hot dip galvanized steel where unexposed.
- .06 Form stripping agent: colorless mineral oil, free of kerosene and must be compatible with and for application of sealant and applied finishes.
- .07 Units will be suitably reinforced with additional materials as required.

2.03 PHYSICAL PROPERTIES:

- | | | |
|---------------------------------|---------------|---|
| .01 Glass content | | 5 - 6% by weight |
| .02 Density | | 103 - 112 lb./cu. ft. |
| .03 Shell Thickness | | 3/16" nominal (1/8" minimum) |
| .04 Flame Spread Index | (ASTM E 84) | 0 (Class 1) (Class A) |
| .05 Fuel Contribution | (ASTM E 84) | 0 (Class 1) (Class A) |
| .06 Smoke Developed Index | (ASTM E 84) | 0 (5, water vapor) |
| .07 Compressive Strength | (ASTM C 472) | 11,289 phi (77.83 Mpa) (average) |
| .08 Flexural Strength (M.O.R.) | (ASTM C 947) | 3,084 psi (21.27 MPa) (mean value) |
| .09 Flexural Strength (P.E.L.) | (ASTM C 947) | 2,857 psi (19.70 MPa) (mean value) |
| .10 Ultimate Tensile Strength | (ASTM D 638) | 1,220 psi (8.41 MPa) (mean value) |
| .11 Compressive Strength | (ASTM D 638) | 5,790 psi (39.9 Mpa) (mean value) |
| .12 Impact Resistance | (ASTM D 256) | 7.88 ft.lb./in. (mean value) |
| .13 Barcol Hardness | (ASTM D 2583) | 75 avg. |
| .14 Consistency | | 25 - 30 c.c. |
| .15 Specific Heat | | 0.253 Btu/lb./°F |
| .16 Dielectric Strength | | same as air w/dry, conductive w/wet |
| .17 Coef. of Thermal Expansion | (ASTM D 696) | $(7.3 \times 10^{-6} \text{ in/in/}^\circ\text{F}) 13.1 \times 10^{-6} \text{ mm/}^\circ\text{C}$ |
| .18 Nail Pull (wood embedment) | (ASTM C 473) | 480 lbf. (min.) |
| .19 Nail Pull (metal embedment) | (ASTM A 370) | 590 lbf. (min.) |
| .20 Behaviour at 750EC | (ASTM E 136) | Passed |
| .21 Humidified Deflection | (ASTM C 473) | 3 mm. mid-point defl. (mean value) |
| .22 Young's Modulus | (ASTM D 638) | 2.08×10^6 (14,300 Mpa) |
| .23 Weight | | 1.7 lb/sq. ft. |

PART 3 - EXECUTION**3.01 EXAMINATION:**

- .01 Prior to the manufacture of components, the installer shall check all pertinent site dimensions and conditions against the manufacturer's drawings and relay discrepancies to the manufacturer for inclusion in the drawings.
- .02 Prior to installation, the installer shall compare job site dimensions and conditions against the Architect's drawings and shall report any discrepancies to the General Contractor and the Architect. Work shall not proceed until discrepancies are corrected.
- .03 Prior to installation, the installer shall examine pertinent job-site conditions to insure proper arrangement and fit of the work. Start of work implies acceptance of job-site conditions.
- .04 All surfaces or framing structures shall be plumb and true as required.

3.02 PREPARATION:

- .01 Examine the contract drawings and specifications in order to ensure the completeness of the work required under this section.
- .02 Verify measurements and dimensions at the job-site and cooperate in the coordination and scheduling of the work of this section with the work of related trades, with particular attention given to the installation of support items installed in drywall, so as not to delay job progress.

3.03 ERECTION:

- .01 Install work as indicated on drawings, as specified herein and in accordance with approved shop drawings and manufacturer's recommendations.
- .02 Provide all support framing/reinforcing/support brackets required for work of this section and to ensure solid and secure installation.
- .03 Provide temporary supports to maintain position as units are being installed. Use concealed shims where required for alignment.
- .04 Pre-drill fastener holes in GRG components. Clean fastener holes to remove dirt and oil.
- .05 Attach GRG components to framing and substrate with steel drill screws. Do not use pneumatic staple guns. Countersink screw heads below adjoining finished surface.
- .06 Fasten not less than 5/16" from edge or end.
- .07 Cover screw heads with joint compound to produce, smooth, flush and level surfaces.

3.03 ERECTION (Cont'd)

- .08 Immediately prior to installing each unit, "butter" the back of each unit with plaster as necessary. Press units tightly against backing and ensure that all voids between the back of each unit and the backing are completely filled. Immediately remove all excess plaster from affected surfaces.
- .09 GRG units shall be handled with care and lifted with appropriate equipment.
- .10 GRG units shall be installed true and plumb, shimmed where necessary.
- .11 Butt joints may be cemented together using "Liquid Nail" or equivalent.
- .12 Tape, float and sand joints where indicated and control joints shall be provided where required as specified under the gypsum drywall section of the specifications and as described in the U.S.G. Gypsum Construction Handbook, current edition.
- .13 Expansion joints shall be installed at a minimum of every 35 linear feet.
- .14 Reference the publication: "RECOMMENDED SPECIFICATION: LEVELS OF GYPSUM BOARD FINISH" which is endorsed by AWCI, PAINTING AND DECORATING CONTRACTORS OF AMERICA, GYPSUM ASSOCIATION and CISCA. Among other items this publication addresses such applications as:
 - critical lighting
 - joint photographing / telegraphing
 - primer / sealer
 - skim coat
 - spotting

3.04 TOLERANCES - ERECTED UNITS

- | | | |
|-----|---|--------------------|
| .01 | Face width of joint | ± 1/8" / (3.2 mm.) |
| .02 | Variation from plumb (in any dist. of 20' max.) | ± 1/8" / (3.2 mm.) |
| .03 | Variation from level (in any dist. of 20' max.) | ± 1/8" / (3.2 mm.) |
| .04 | Max. differential between adjacent units in erected position (non-cumulative) | ± 1/8" / (3.2 mm) |

3.05 PATCHING AND CLEANING:

- .01 Repair any defects found after the work of all trades has been completed, regardless of how, or whom, the damage was caused. Patching shall match the original work.
- .02 Patch all countersunk fasteners and damages to match unit's texture, finished flush with face of unit.

3.06 FINISHING:

- .01 DecoForm GRG requires site prime and paint. References shall be made to the painting/texturing section of the specifications listed in the project documents by the Architect.
- .02 The painting contractor shall comply with ASTM C-840 specifications, specifically with regard to sealing.

Decoform**Material Safety Data Sheet**

Section 1
Product and Company Information

PRODUCT NAME: **Glassfiber Reinforced Gypsum (GRG)**

PRODUCT USE: Architectural Decorations

MANUFACTURER: DecoForm Inc.
49 Sheffield Street
Toronto, ON
Canada M6M 3E5
Tel.: 416-745-4970
Fax: 416-745-6636

Section 2
Composition Information on Ingredients

CHEMICAL NAMES	WT%	TLV (mg/m ³)	PEL (mg/m ³)	CAS NUMBER
Glassfiber Mat	6	10	15	65997-17-3
Plaster of Paris	93 - 94	10	15	26499-65-0
Crystalline Silica	<1	0.05	0.1	14808-60-7

Section 3
Hazard Identification

EMERGENCY OVERVIEW

This product is not expected to produce any unusual hazards during normal use. Exposure to high dust levels may irritate the skin, eyes, nose, throat or upper respiratory tract. When mixed with water, this material hardens and becomes very hot – sometimes very quickly. DO NOT attempt to make a cast enclosing any part of the body using this material.

Section 4 First Aid Measures

FIRST AID PROCEDURES

Eyes: Flush thoroughly with water. If irritation persists, consult a physician.

Skin: Wash with mild soap and water. Commercially available hand lotion may be used to treat dry skin areas. If irritation persists consult a physician.

Inhalation: Remove to fresh air. Other measures are usually not necessary, however if conditions warrant consult a physician.

Ingestion: This product is not intended to be ingested or eaten. If gastric disturbance occurs, call a physician.

Section 5 Fire Fighting Measures

General Fire Hazards:	Not expected to burn
Unusual Fire & Explosion Hazards:	None
Hazardous Combustion Products:	
Plaster of Paris:	Above 1450° C – decomposes to calcium oxide (CaO) and sulfur dioxide (SO ₂)
Glass mat:	Primary decomposition products include hydrocarbons and water. Due to the low polyester content, the material should self extinguish when the heat source is removed.

Section 6 Accidental Release Measures

CONTAINMENT:

No special precautions.

CLEAN-UP:

Use normal clean up procedures.

DISPOSAL:

Follow local, state, provincial and federal regulations when disposing industrial waste. Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Section 7
Handling and Storage

HANDLING:

Avoid dust contact with eyes. Wear appropriate eye protection against dust. Avoid breathing dust. Wear appropriate respiratory protection against dust in poorly ventilated areas. Use good safety and industrial hygiene practices.

STORAGE:

Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities.

Dew point conditions or other conditions causing the presence of liquid will harden this material during storage.

Section 8

The information contained herein is believed to be true and accurate but is not warranted To be, whether originating with DecoForm or not. Customers are advised to confirm that information is current, applicable and suitable to the circumstances.

DecoForm Inc. will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.

Preparation Date: July 10, 2006 Issue: 1 Replaces Issue: Original

MANUFACTURER CERTIFICATION FOR LEED CREDIT

I, the manufacturer of _____ as specified in Master Specification Section Number _____

Do herein certify that:

1. The materials were manufactured at our plant in Toronto, Ontario, Canada.
2. The materials were extracted or harvested at the United States Gypsum Company (USG) in Norman, OK.
3. The manufactured product contains 0% Post Consumer recycled materials and 5% Pre Consumer recycled materials.
4. Product data submitted under separate cover.

DecoForm contributes to greener construction management by:

1. Using a single mould to **produce many** parts and **retooling** allows moulds to be **reused** for more than one project.
2. **Minimizing construction waste** with our pre-molded easy to install products.
3. Our glassfiber reinforced gypsum and cement (similar to concrete) can be **reused** as filler in many construction products.

Manufacturer: DecoForm Inc.

Certification by: _____

Date: _____

Name: Wally Omran

Title: President



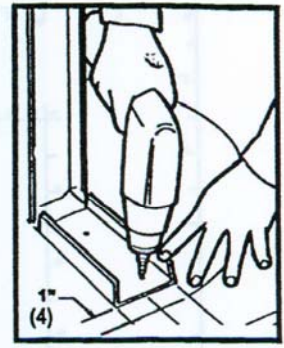
(1) Locate the center-line of the structural column and scribe a line on the floor on both sides which extend further than the dia. of the column cover.



(2) Use a plumb bob or laser to transfer center line onto ceiling.



(3) Prepare a template with a cutout representing the outside diameter of the column cover and scribe a line on the floor and ceiling.

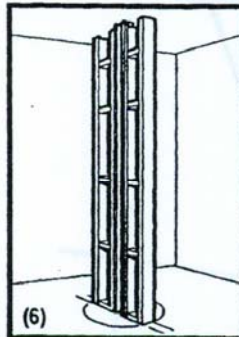


(4) Fasten framing to structural column on center-line and plumb.

Fasten framing on center-line 1" from circle scribed on floor.



(5) Locate and scribe center-line of structural column. Cut and install studs to structural column.



(6) Cut and install cross-bracing @ 24" centers.

Ensure that vertical framing does not bow and that skeleton is solid and plumb.

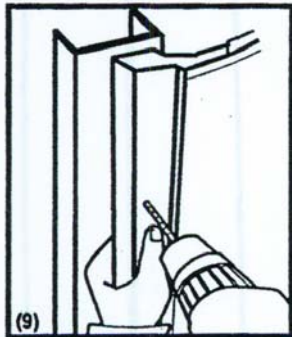


(7) Locate first column cover half and position over scribed circular line on floor. Shim at floor if necessary.

For ease of installation it is recommended that column covers penetrate the ceiling whenever possible.



(8) Place the half column cover with the outside diameter at the center-line.



(9) Drill pilot holes in center of flange on 16" centers starting at 5" from either end.

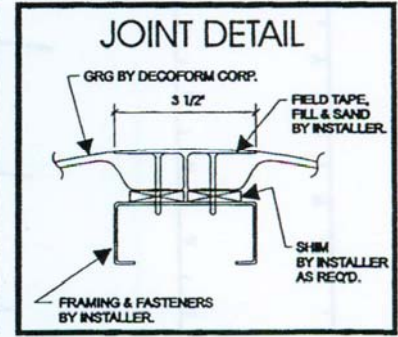


(10) Locate mating half column cover and position around skeleton against vertical stud. Shim at base to match first column cover half.



(11) Ensure fit and fasten through column and into stud on 16" centers. Tape and float joints.

Sand smooth, prime and paint as required.



Decoform Inc.
Decoform
Molded Architectural Products

90 Milvan Drive
Toronto, Ontario M9L 1Z6

PH: (416) 745-4970
FAX: 416 745-6636
E-mail: sales@decoform.com
www.decoform.com

Printed in Canada
Cat. #D1028

IN ADDITION TO GRG COLUMN COVERS DECOFORM MANUFACTURES UNLIMITED MOLDED ARCHITECTURAL PRODUCTS INCLUDING:

domes	niches
vaults	brackets
cornice	frieze
fascia	rosettes
soffit	piasters
medallions	moldings
pediments	wall surfaces
bulkheads	chair rails
sills	base boards

Our range of materials includes:

- GRG (Glassfiber Reinforced Gypsum)
- GRC (Glassfiber Reinforced Cement)
- FRP (Fiber Reinforced Polyester)

Decoform