

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 co-operate 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') $\pm 1/8"$ (3.2mm)
 - .2 Dimensional - all directions (10' -20') $\pm 3/16"$ (4.8mm)
 - .3 Straightness along an edge or surface $\pm 1/8"$ /linear ft.
 - .4 All reveals, setbacks or returns 5E 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.
 90 Milvan Drive
 Toronto, Ontario
 CANADA M9L 1Z6
 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, random glassfiber mat, or chopped strand fiber.
- .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:

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|--|---|
| .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 psi (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./EF |
| .16 Dielectric Strength | same as air w/dry, conductive w/wet |
| .17 Coef. of Thermal Expansion (ASTM D 696) | $(7.3 \times 10^{-6} \text{ in/in/EF}) 13.1 \times 10^{-6} \text{ mm/EC}$ |
| .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

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|---|--------------------|
| .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.