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CORINTHIAN COLUMN CAPITAL ORNATE COMPONENTS MAY BE MANUFACTURED UTILIZING ANY OF THE MATERIALS OFFERED BY DECOFORM.











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COMMANY ARTS CENTER Mission ANYS LANS ARCHITECT

CARD STATEMENTS

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A GUIDE TO MATERIAL SELECTION

DECOFORM MANUFACTURES QUALITY, MOLOFO, INTERIOR AND EXTERIOR ARCHITECTURAL COMPONENTS. PROJECTS PROUBING PEPETITIVE OR MODILLAR BRANCE ARE DELLE CANODATES DECOROREM PRODUCTS ARE USED REMAINING STORE

> COLUMN COVERS LIGHT COVES CELLING COFFEES DOMES PEDIMENTS NUCHES ROSETTES

CAPITALS AND BASES LIGHT BEFLECTORS MOLDINGS FIREPLACE SUPPOUND

DRAMATIC SAVINGS IN SITE I ABOR CAN OFTEN BE REALIZED AND SUBPRETRUCTURE BEQUIDEMENTS DECUCED AS THE RESULT OF THE USE OF PRE-MOLDED SHAPES.

DECOFORM OFFERS PRODUCTS IN FOUR DIFFERENT MATERIALS

GRG (GLASSFIRER REINFORCED GYPSUM) (SPEC. SECTION 09540) GRC (GLASSFIBER REINFORCED CEMENT) (SPEC. SECTION 03500) FOR (FIREBOLASS REINFORCED BOLYESTER) (SPEC SECTION OFFICE) CASSELT (MOLDED STONE) (SPEC. SECTION 06200)

- . In THE PRODUCT TO BE USED INSIDE OR OUTSIDE? GRG & CASSELT ARE FOR INTERIOR USE ONLY. GRC & FRR ARE FOR USE INSIDE OR OUTSIDE
- . IS THE PRODUCT TO BE SITE PAINTED OR IS IT TO BE PRE-FINISHED? GRG & GRC REQUIRE SITE FINISHING (USUALLY PRIME & FINISH PAINT). FRP CAN BE SUPPLIED PRE-FINISHED OR PAINT READY (OFFENDING ON CASSEL" IS PRE-FINISHED AND SEALED.
- BUDGET CONSIDERATIONS GRG IS THE LEAST EVERYSINE BROOMET FOLLOWED BY CRC FRB AND CASSELTH DESPECTIVELY (ASSUMING THE SAME SHAPE AND SCOPE).
- (4) - FIRE CODE COMPLETENTION ALL FOUR DECOFORM PRODUCTS/MATERIALS ARE AVAILABLE TO SUIT A CLASS & OFRIGNATION, HOWEVER, FOR SOME EXTERIOR APPLICATIONS WHERE THICKER (±3/8") MATERIAL THICKNESS IS REQUIRED, A CLASS 2 VERSION OF FRP IS AVAILABLE (SERIES #200).

DECOFORM OFFERS COMPLETE SPECIFICATION AND DESIGN ASSISTANCE.

DECOFORM MANUFACTURES PRE-MOLDED COMPONENTS IN SEVERAL DIFFERENT MATERIALS.





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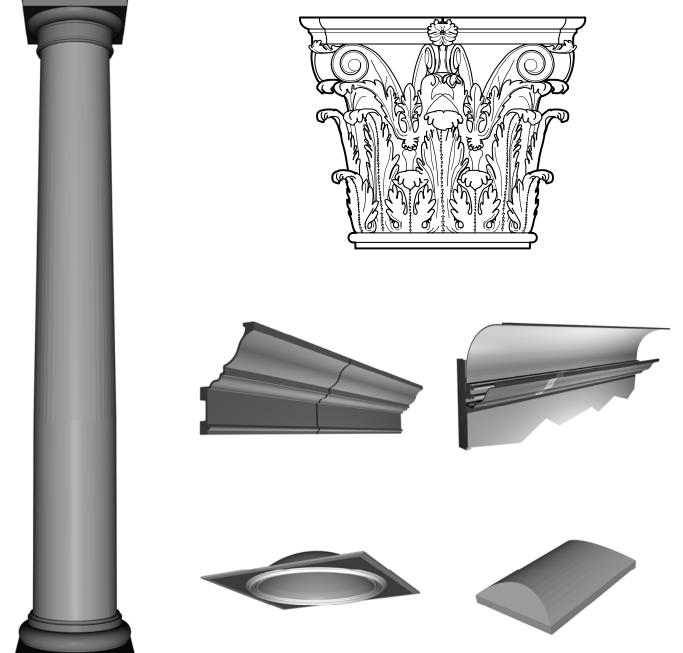
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DecoForm Architect Inc.

General Information

The parts represented in this catalog reflect only some of the tooling maintained by DecoForm to offer competitive prices and faster delivery.

A unique part number identifies each item. This number should be used when requesting more details than provided in this catalog. This information is available by phone, fax or email.

Only tooling is kept in stock (not parts). DecoForm manufactures parts only after receiving a purchase order. Confirming your delivery requirement as early as possible is therefore important.

DecoForm can create virtually any shape or size. If this catalog does not offer profiles to meet your needs, give us the details and we will be pleased to submit a quotation.

DecoForm manufactures a wide range of molded, architectural components made of materials including GRG, GRC and FRP. We also offer the pre-finished product SandScape[™] for exterior or interior applications. Specifications for all our products are available from DecoForm web site and DecoForm representatives or by contacting DecoForm directly.



DecoForm Architect Inc. 26 Ashwarren Road Toronto, ON, Canada M3J 1Z5

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Index

SECTION 1

1-A.1 & 1-A.2	
1-B.1 TO 1-B.4	
1-C	
1-D	
1-E	
1-F.1 & 1-F.2	

SECTION 2

2-A	
2-B.1 TO 2-B.7	
2-C.1 TO 2-C.4	

SECTION 3

3-A	
3-B	

SECTION 4

4-A				 	 	 • • •	•••		•••	•••		•••	•••	•••	•••	•••	
4-B.1	TO 4	Ι-Β .	3		 	 •••		•••	•••		•••						

SECTION 5

5-A TO 5-A.2	
5-B.1 & 5-B.2	

SECTION 6

6-A &	6-A.1			•			• •			•		•	•			• •			•	• •		
6-B				•	• •	•		•	•		•			• •			• •				•	

SECTION 7

7-A	
7-B	

APPENDIX A A

COLUMN COVERS

Classical Column Proportions Typical Installation Plain Column Covers Tapered Column Covers Octagonal Column Covers Fluted Column Covers

CAPITALS AND BASES

Assembly Options Capitals & Bases Corinthian, Temple of the Winds, Scamozzi and Ionic Capitals

COVES (REFLECTORS)

Typical Installation GRG Coves

LIGHT COVES

Typical Installation Light Coves

MOLDINGS

Typical Installation Moldings

DOMES

Domes and Trim Options Domes

DIFFUSERS

Pyramid Diffusers Dome Diffusers

A Guide to Material Selection

Classical Column Proportions

In addition to other styles, DecoForm supplies Column Covers which conform to five ornamental styles: **Tuscan**, **Doric**, **Ionic**, **Scamozzi** and **Corinthian**.

Within each order, the dimensions of the capital, column height and base, are proportional to shaft diameter at the base.

Classical authorities cite nominal variations in classical proportions. The following chart can be used for guidence purposes only to establish overall column heights at varying column diameters.

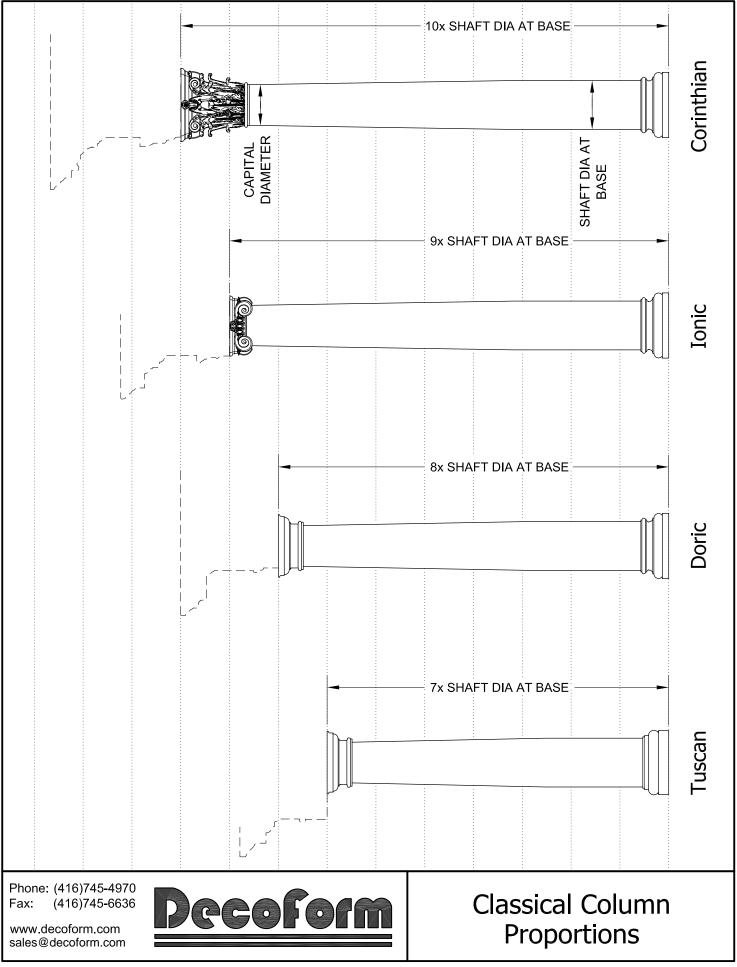
COLUMN BASE DIAMETER	CAPITAL DIAMETER	OVE	RALL COLUN	4N HEIGHT	(FT.)
INCHES	INCHES (NOM.)	TUSCAN	DORIC	IONIC	CORINTHIAN
12	10	7	8	9	10
14	12	8.17	9.34	10.5	11.66
16	14	9.33	10.66	12	13.34
18	15	10.5	12	13.5	15
20	17	11.67	13.34	15	16.67
22	19	12.83	14.66	16.5	18.32
24	21	14	16	18	20

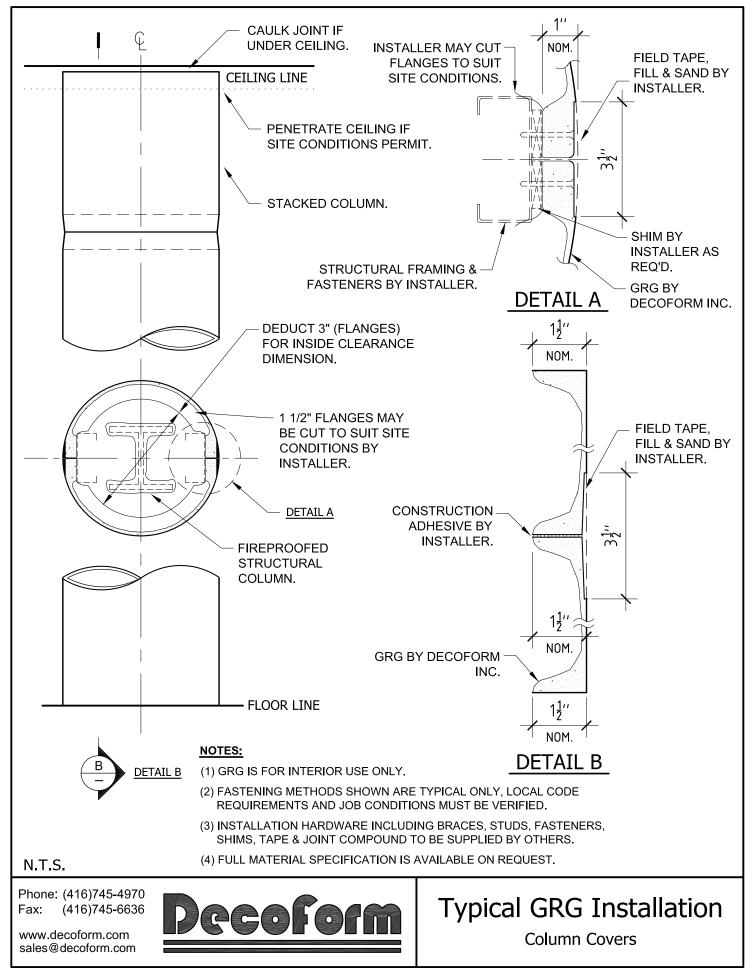
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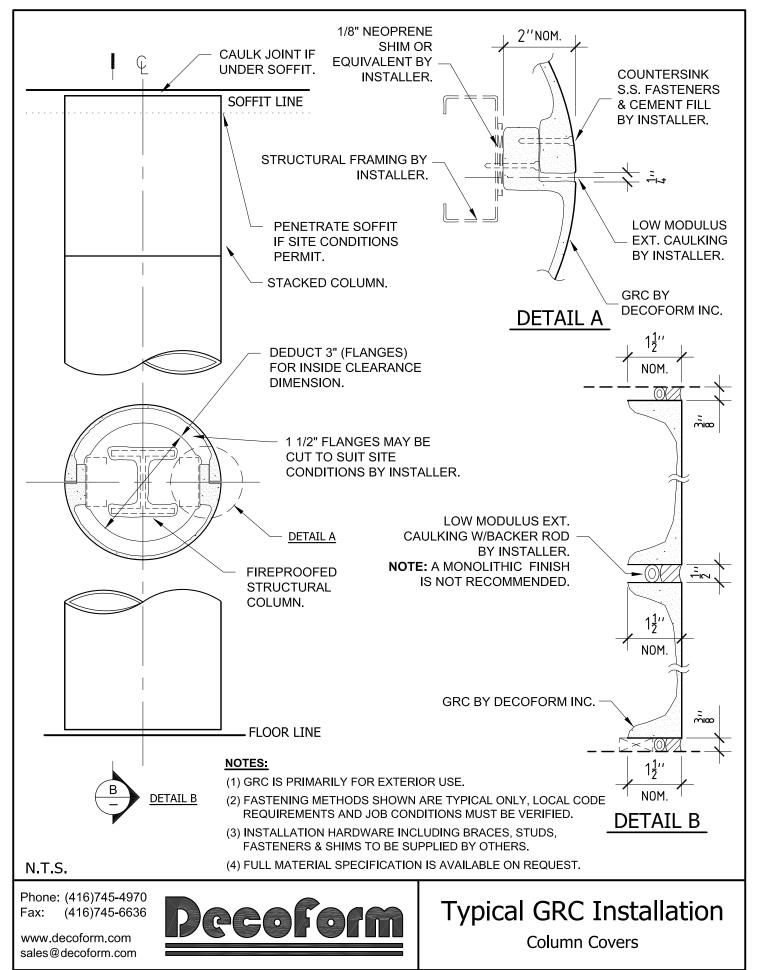
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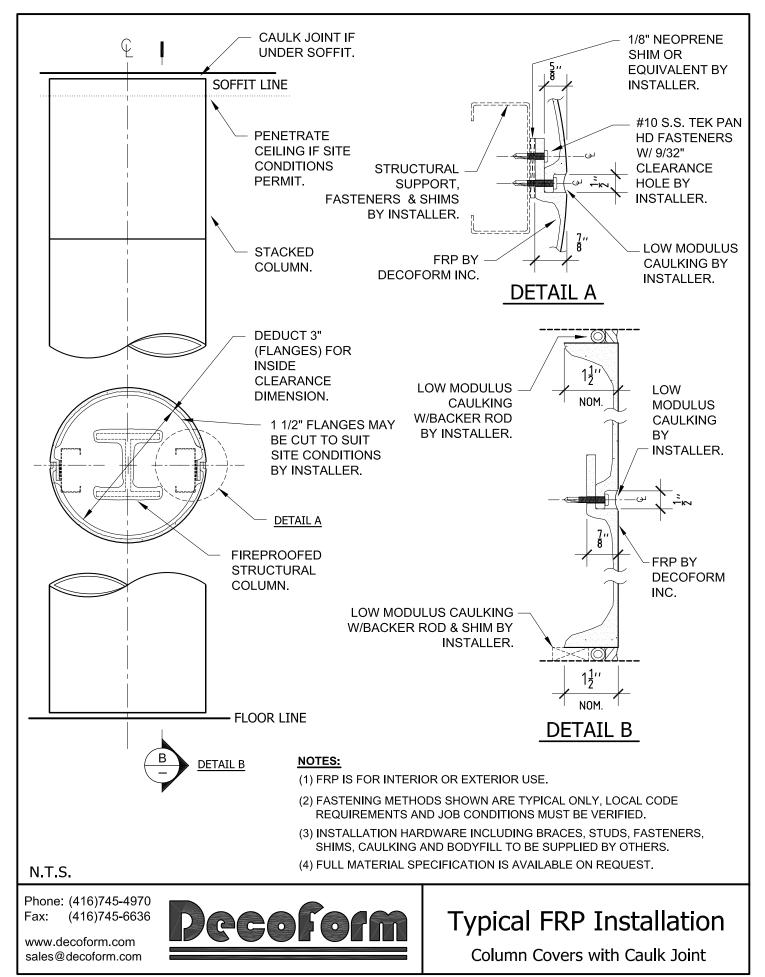


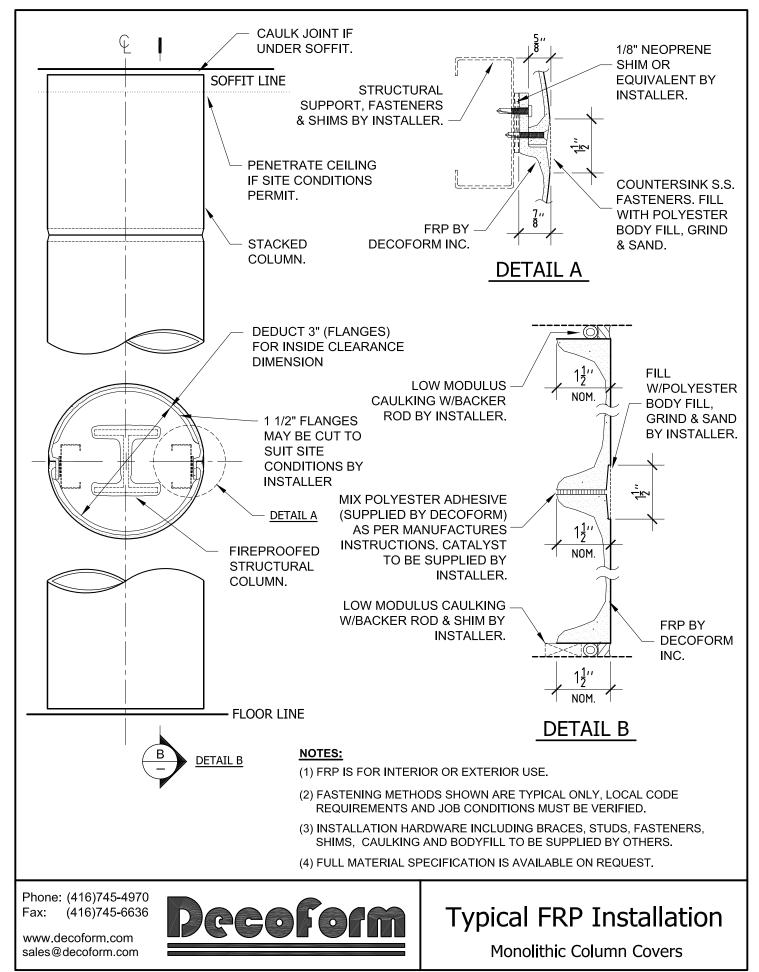
Classical Column Proportions

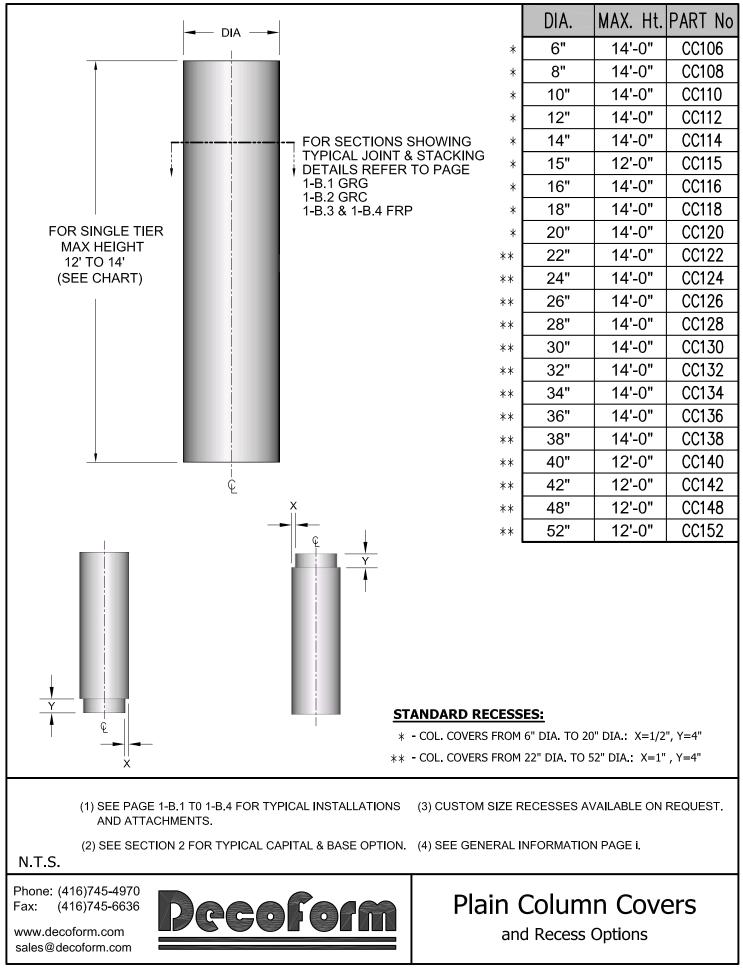


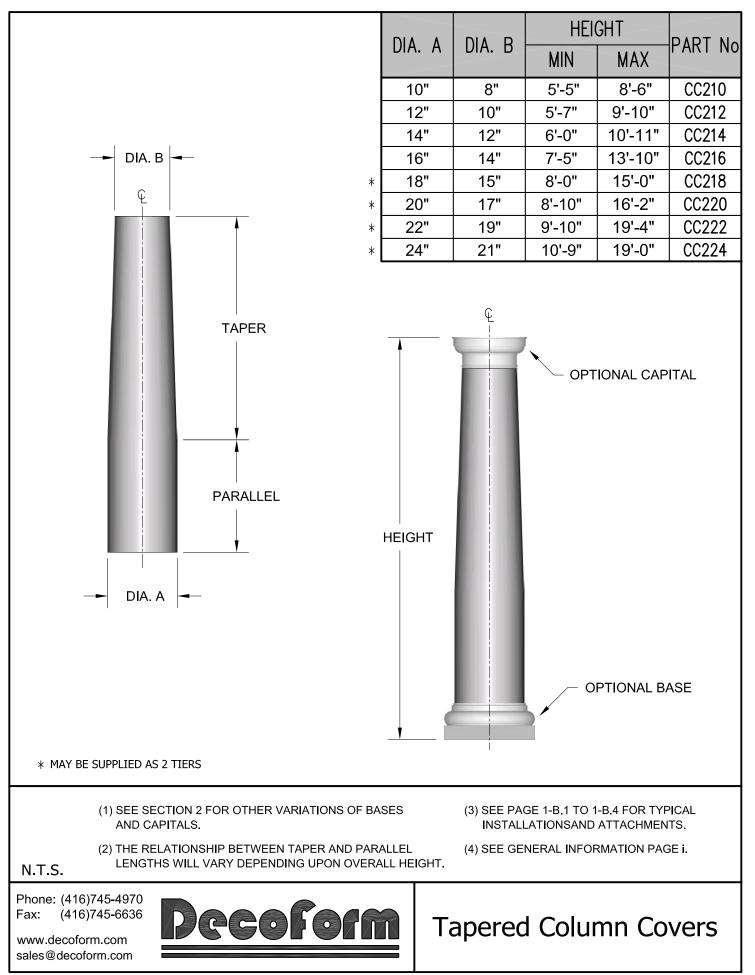


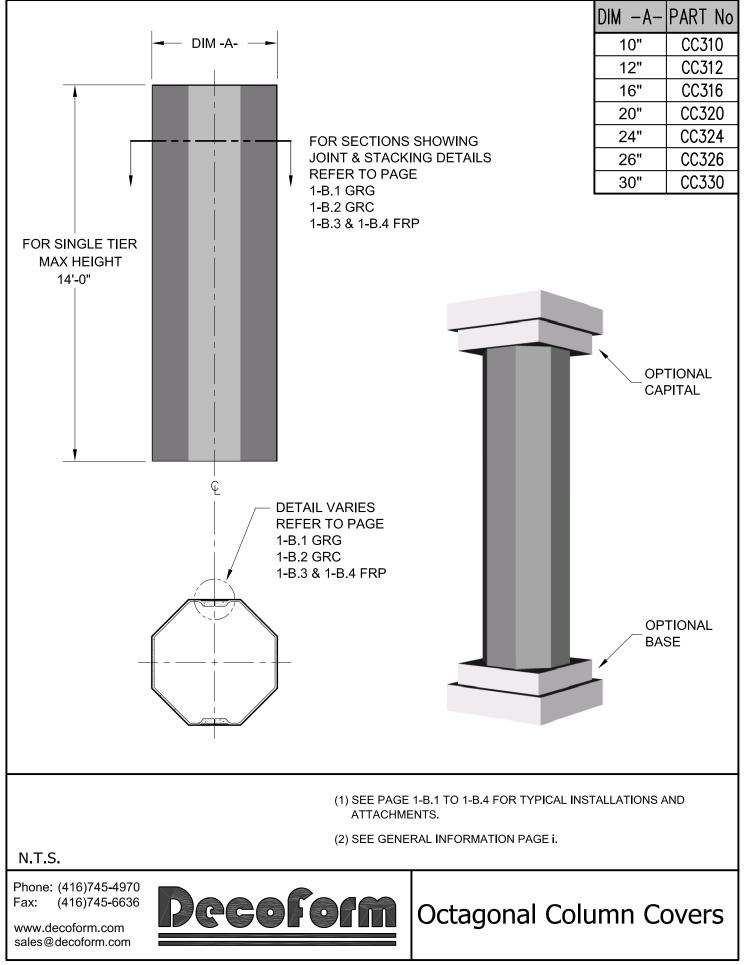


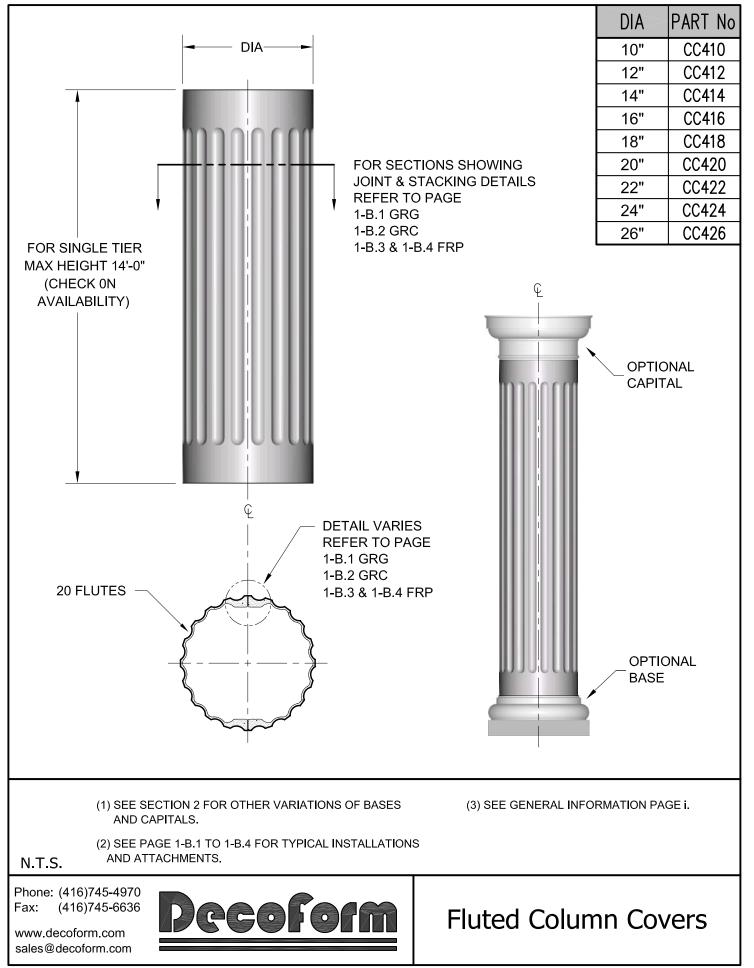


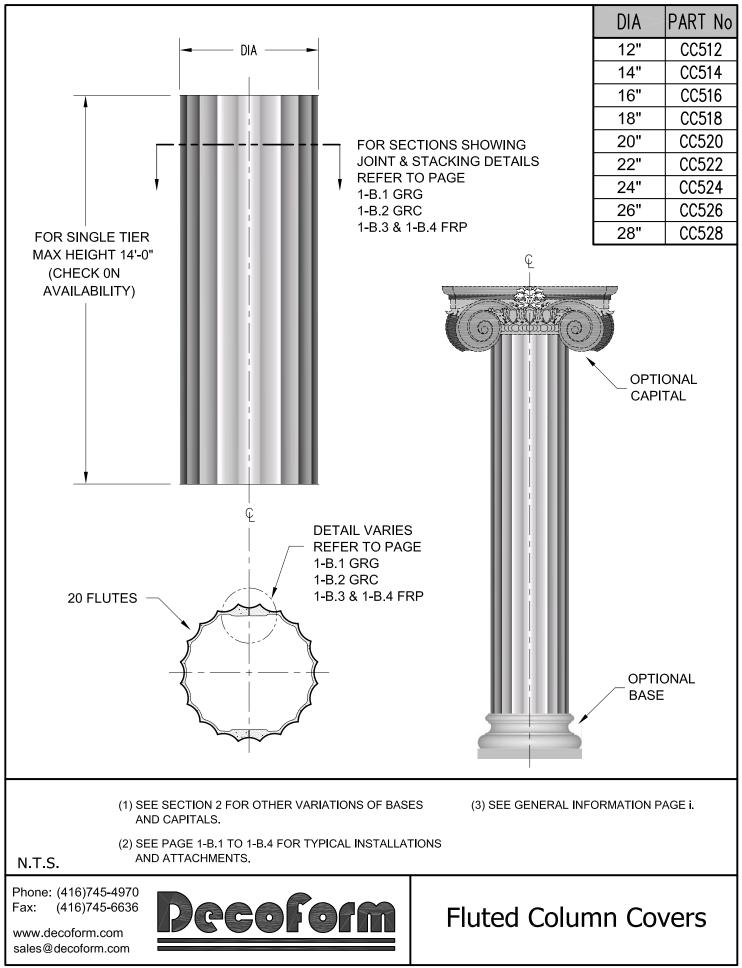


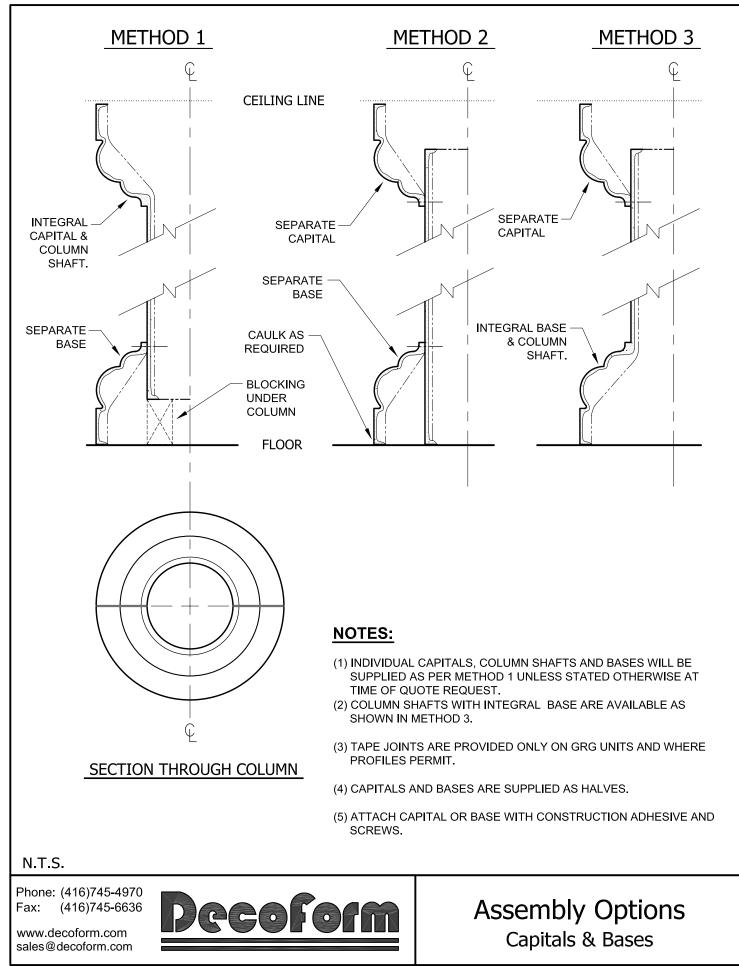












	COL DIA	HEIGHT	DIM-A-	PART No
	6 "	4 3⁄4"	9 ³ ⁄4"	CB0106
	8 "	5 <u>3</u> %"	12 1⁄4"	CB0108
	10"	6 <u>3</u> %"	15 ¼"	CB0110
	12"	7 3⁄8"	17 3⁄4"	CB0112
- DIM-A-	14"	8 ³ ⁄8"	20 1⁄4"	CB0114
(SQUARE)	16"	9 3 %"	23"	CB0116
	18"	10 3⁄8"	25 ½"	CB0118
	20"	11 3⁄8"	28"	CB0120
HEIGHT	22"	12 3⁄8"	30 ½"	CB0122
	24"	13 3⁄8"	33 ¼"	CB0124
	26"	14 3⁄8"	35 ³ ⁄4"	CB0126
	28"	15 3⁄8"	38"	CB0128
	30"	16 <u></u> 3%"	40 3⁄4"	CB0130
	32"	17 <u>3</u> %"	43 ¼"	CB0132
COL. DIA.	34"	18 <u></u> 3%"	46"	CB0134
	36"	19 <u></u> 3%"	49 <u></u> %"	CB0136
	COL DIA	HEIGHT	DIM-B-	PART No
— DIM-B-	8 "	5 3 ⁄8"	12 ¹ ⁄4"	CB0208
(DIAMETER)	10"	6 ³ ⁄8"	151⁄4"	CB0210
	12"	7 3⁄8"	173⁄4"	CB0212
	14"	8 3/8"	201⁄4"	CB0214
	16"	9 3/8"	23"	CB0216
HEIGHT	18"	10¾" 11¾"	25½" 28"	CB0218
	20"	123/8"	28 30½"	CB0220 CB0222
	24"	13 ³ / ₈ "	33 ¹ ⁄ ₄ "	CB0222
	24	143/8"	35 ³ ⁄ ₄ "	CB0224
	28"	153/8"	38"	CB0228
COL. DIA.	30"	163/8"	40 ³ ⁄ ₄ "	CB0230
	32"	173/8"	431⁄4"	CB0232
	EE SECTION 1 F EE GENERAL IN			ECTIONS.
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DIM-A-	COL DIA	HEIGHT	DIM-A-	PART No
(DIAMETER)	8"	33⁄4"	10 ³ ⁄8"	CB0308
	10"	5½"	15 ¹ ⁄2"	CB0310
	12"	5 ³ ⁄4"	18 ¹ ⁄4"	CB0312
HEIGHT	14"	6 ³ ⁄4"	21"	CB0314
	16"	7 ³ ⁄4"	233⁄4"	CB0316
	18"	8 ³ ⁄4"	26½"	CB0318
	20"	9 ³ ⁄4"	29½"	CB0320
COL. DIA.	22"	10¾"	32 3⁄ 4"	CB0322
	24"	11 ³ ⁄4"	35½"	CB0324
	COL DIA	HEIGHT	DIM-B-	PART No
	8"	4 ³ ⁄8"	11 ¹ ⁄ ₈ "	CB0408
	10"	5 ³ ⁄8"	13½"	CB0410
	12"	6 ³ ⁄8"	16 ¹ ⁄8"	CB0412
	14"	7 ³ ⁄8"	185⁄ ₈ "	CB0414
	16"	8 ³ ⁄8"	21 ¹ ⁄8"	CB0416
	18"	9 ³ ⁄8"	233⁄4"	CB0418
	20"	10 ³ ⁄8"	26¼"	CB0420
неіднт 🖉 🔪	22"	11 ³ ⁄8"	28 ³ ⁄4"	CB0422
	24"	12 ³ ⁄8"	31 ³ ⁄8"	CB0424
	26"	13 ³ ⁄8"	337⁄8"	CB0426
	28"	14 ³ ⁄8"	36½"	CB0428
	30"	15 ³ ⁄8"	39"	CB0430
	32"	16 ³ ⁄8"	41 ¹ ⁄ ₂ "	CB0432
	36"	18 ³ ⁄8"	46½"	CB0436
	40"	20½"	52"	CB0440
	42"	21 ³ ⁄8"	52 ³ ⁄4"	CB0442
	EE SECTION 1 FO			CTIONS.

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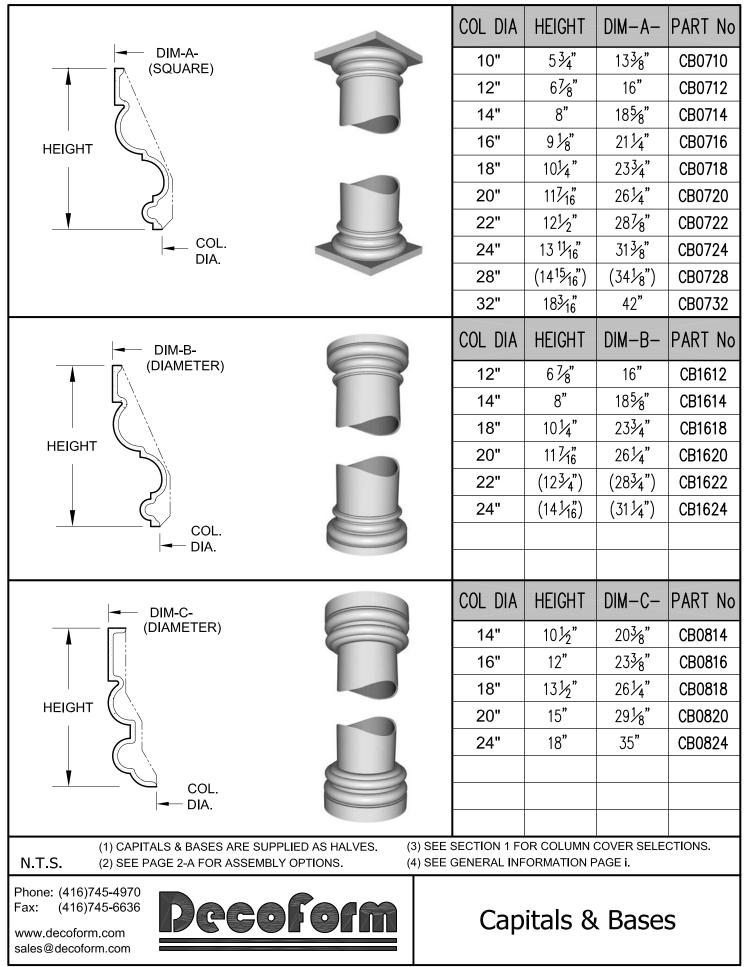
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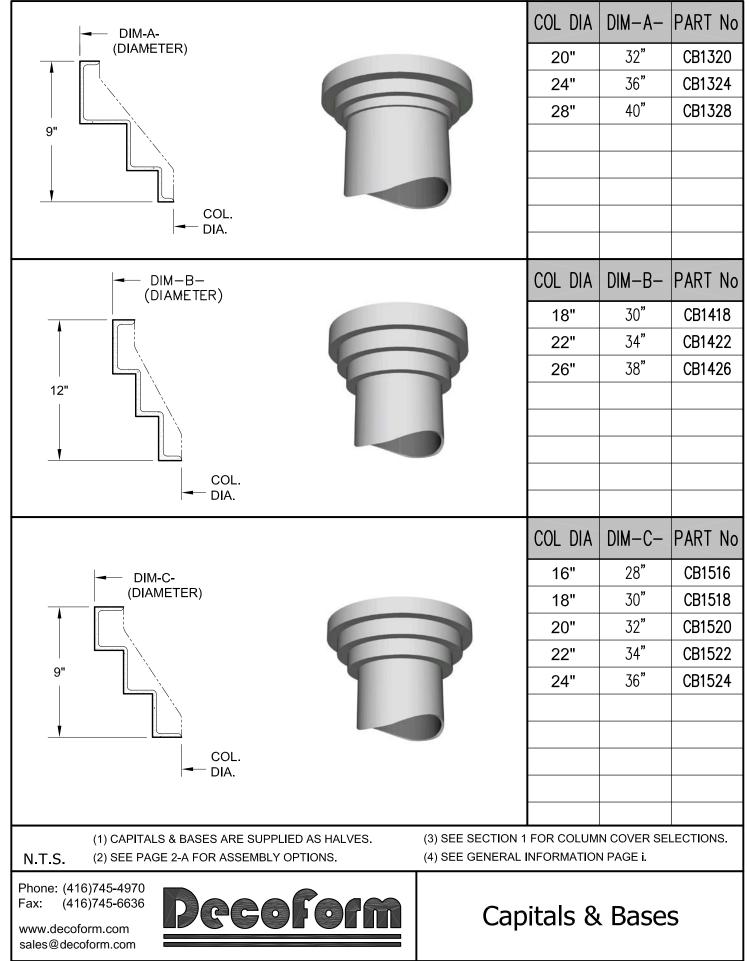
Capitals & Bases

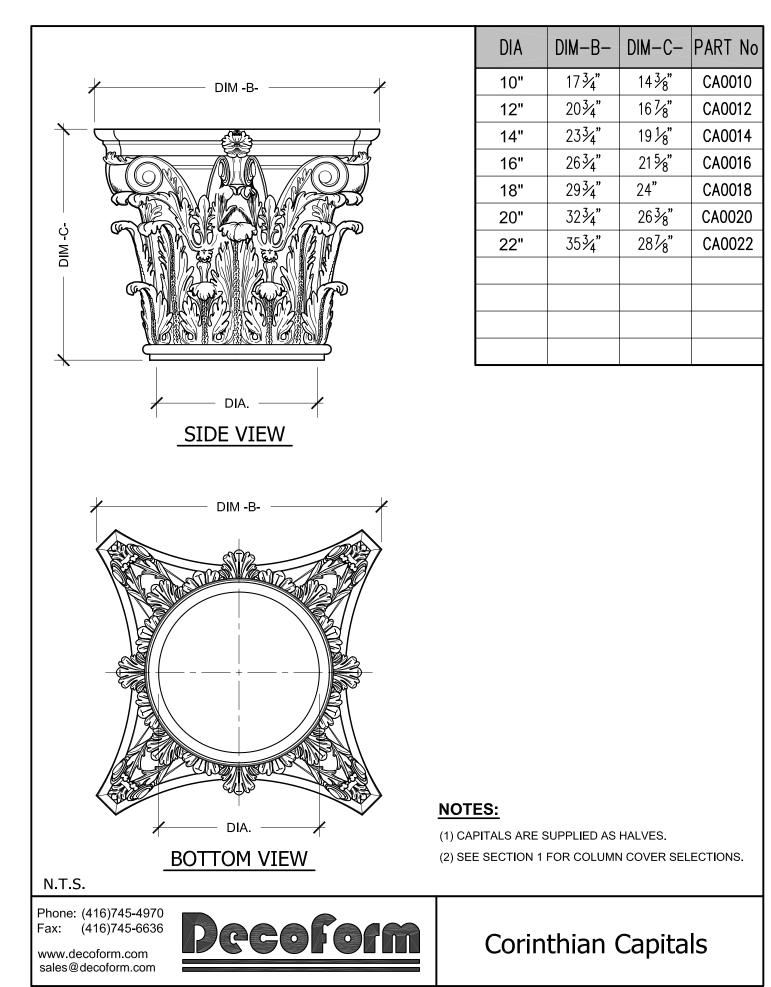
DIM-A-	COL DIA	HEIGHT	DIM-A-	PART No
(SQUARE)	8"	4 ³ ⁄8"	11 ³ ⁄4"	CB0508
	10"	5 ³ ⁄8"	141⁄4"	CB0510
	12"	6 ³ ⁄8"	16 ³ ⁄4"	CB0512
	14"	7 ³ ⁄8"	191⁄2"	CB0514
HEIGHT	16"	8 ³ ⁄8"	213⁄4"	CB0516
	18"	9 ³ ⁄8"	241⁄4"	CB0518
	20"	10 ³ ⁄8"	27"	CB0520
e e	22"	11 ³ ⁄8"	29½"	CB0522
	24"	12 ³ ⁄8"	31 ³ ⁄4"	CB0524
	26"	13 ³ ⁄8"	34½"	CB0526
COL. DIA.	30"	15 ³ ⁄8"	39½"	CB0530
	32"	16 ³ ⁄8"	42"	CB0532
	COL DIA	HEIGHT	DIM-B-	PART No
	10"	5 ³ ⁄8"	13 ¹ ⁄2"	CB0610
DIM-B- (DIAMETER)	12"	6 ³ ⁄8"	16 ¹ ⁄8"	CB0612
	14"	7 ³ ⁄8"	18 ⁵ ⁄8"	CB0614
	16"	8 ³ ⁄8"	21 ¹ ⁄8"	CB0616
	18"	9 ³ ⁄8"	23 ³ ⁄4"	CB0618
	20"	10 ³ ⁄8"	26¼"	CB0620
HEIGHT	22"	11 ³ ⁄8"	28 ³ ⁄4"	CB0622
	24"	12 ³ ⁄8"	31 ³ ⁄8"	CB0624
COL. DIA.				
(1) CAPITALS & BASES ARE SUPPLIED AS HALVES. (3) SEE	SECTION 1 F	OR COLUMN	COVER SELE	ECTIONS.
N.T.S. (2) SEE PAGE 2-A FOR ASSEMBLY OPTIONS. (4) SEE	GENERAL IN	FORMATION	PAGE I.	
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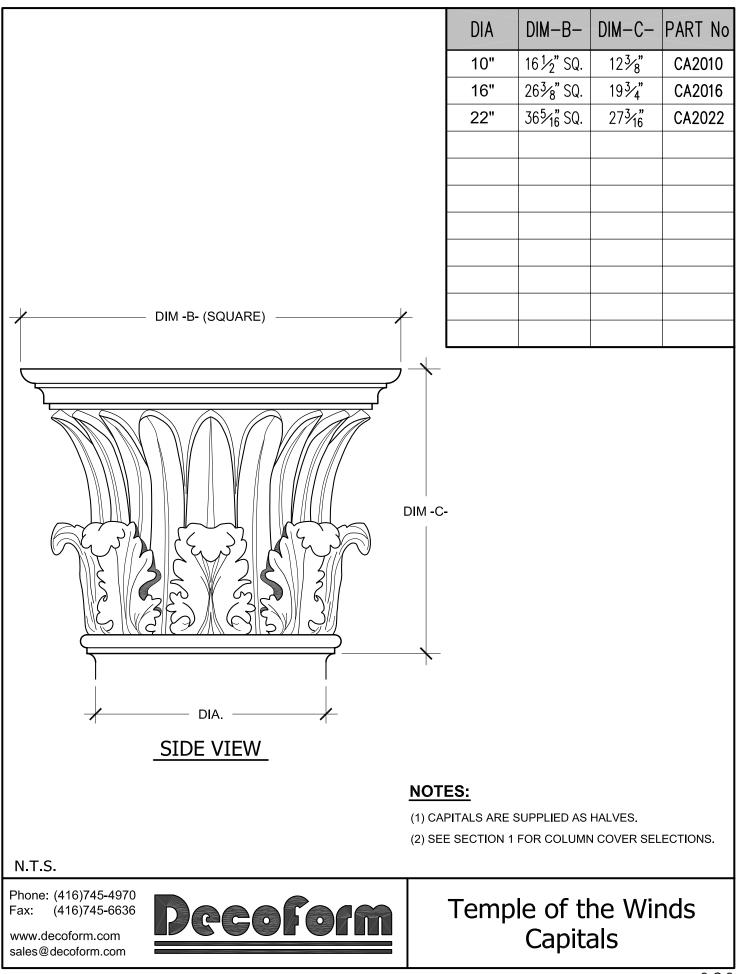


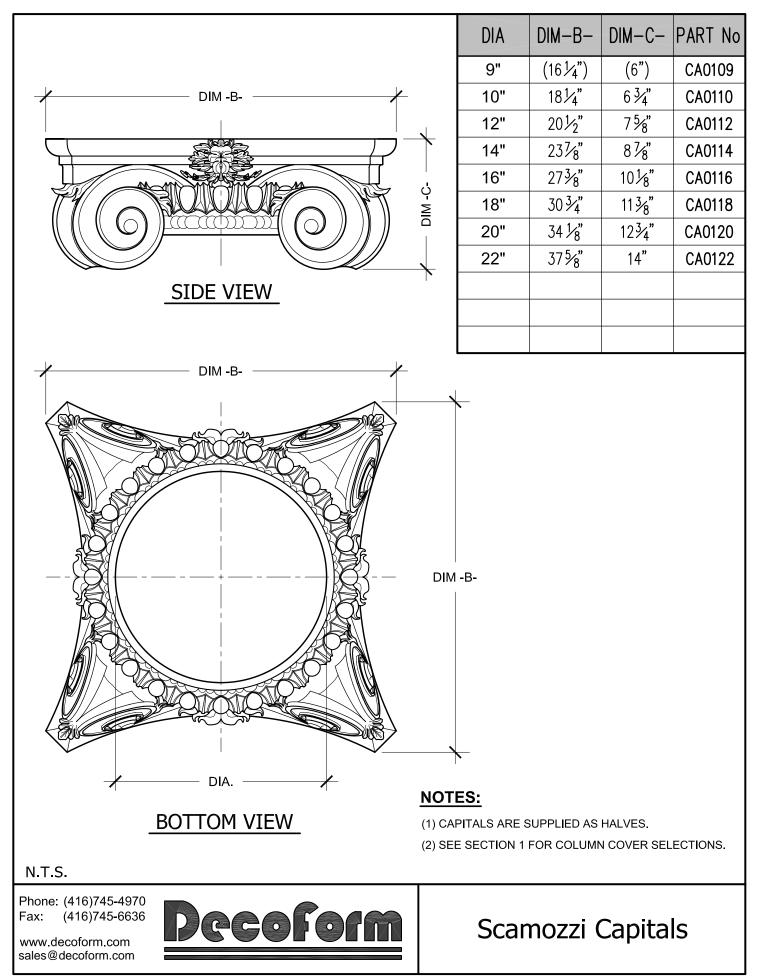
	COL DIA	HEIGHT	DIM-A-	PART No
	12"	5½"	17 3⁄ 4"	CB0912
	14"	6"	20 ³ ⁄4"	CB0914
	16"	6 ³ ⁄4"	231⁄2"	CB0916
	20"	8½"	291⁄4"	CB0920
HEIGHT	24"	101⁄4"	35"	CB0924
COL. DIA.				
	COL DIA	HEIGHT	DIM-B-	PART No
	12"	9"	17½"	CB1012
	14"	10½"	20 ³ ⁄8"	CB1014
→ DIM-B-	16"	12"	23 ³ ⁄8"	CB1016
(SQUARE)	18"	13½"	26¼"	CB1018
	20"	15"	29½"	CB1020
HEIGHT	24"	18"	35"	CB1024
COL. DIA.				
	SEE SECTION 1 F SEE GENERAL IN			CTIONS.
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	COL DIA	HEIGHT	DIM-A-	PART No
	12"	5 ³ ⁄4"	181⁄4"	CB1112
DIM-A- (SQUARE)	14"	6 ³ ⁄4"	21"	CB1114
	16"	7 ³ ⁄4"	23 3⁄4 "	CB1116
	18"	8 ³ ⁄4"	26½"	CB1118
	20"	9 ³ ⁄4"	29½"	CB1120
HEIGHT	22"	10 ³ ⁄4"	32 3∕4"	CB1122
	24"	11 ³ ⁄4"	35½"	CB1124
COL. DIA.				
	COL DIA	HEIGHT	DIM-B-	PART No
	16"	8 ³ ⁄4"	22"	CB1216
	20"	8 ³ ⁄4"	26"	CB1220
— DIM-B-	24"	8 ³ ⁄4"	30"	CB1224
(SQUARE)	30"	15½"	41 1/4"	CB1230
HEIGHT				
COL. DIA.				
	3) SEE SECTION 1 4) SEE GENERAL I			LECTIONS.
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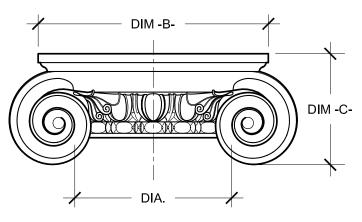




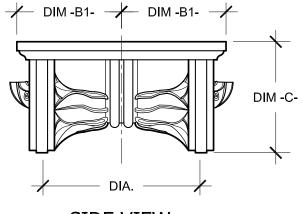




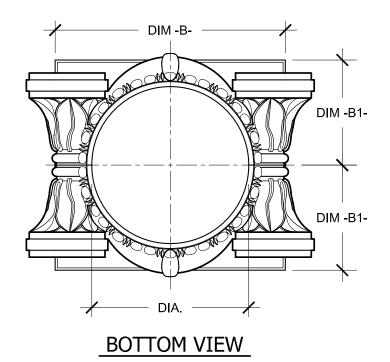
DIA	DIM-B-	DIM-B1-	DIM-C-	PART No
14"	19½"	8¼"	8"	CA3014
24"	36"	16"	14½"	CA3024
26"	(36")	(16¼")	(17½")	CA3026



FRONT VIEW



SIDE VIEW



NOTES:

- (1) CAPITALS ARE SUPPLIED AS HALVES.
- (2) SEE SECTION 1 FOR COLUMN COVER SELECTIONS.

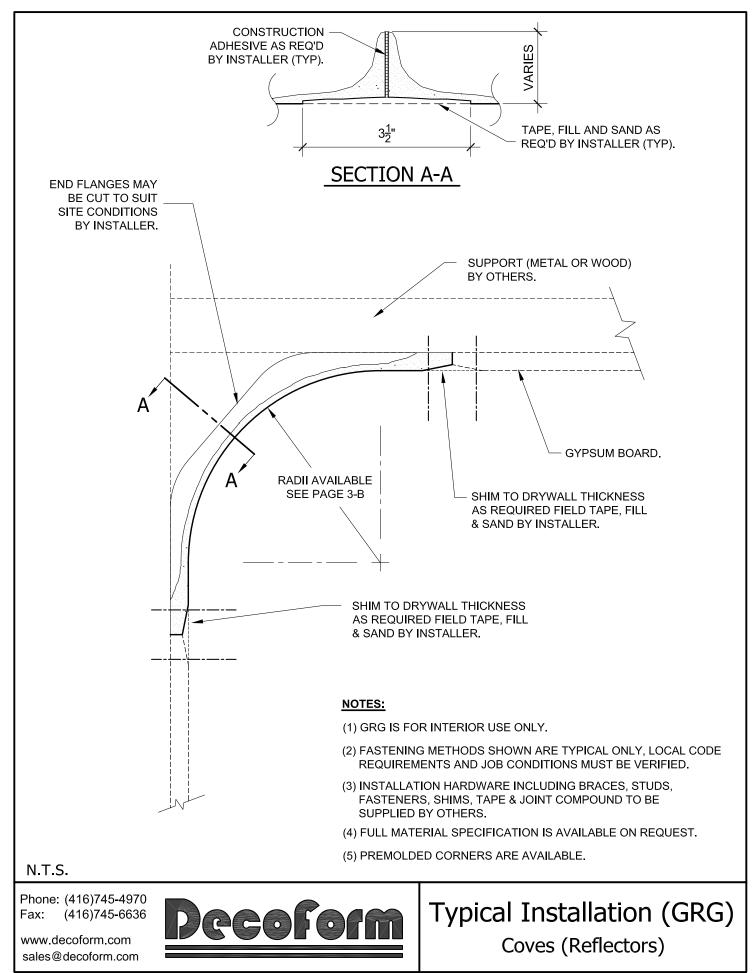
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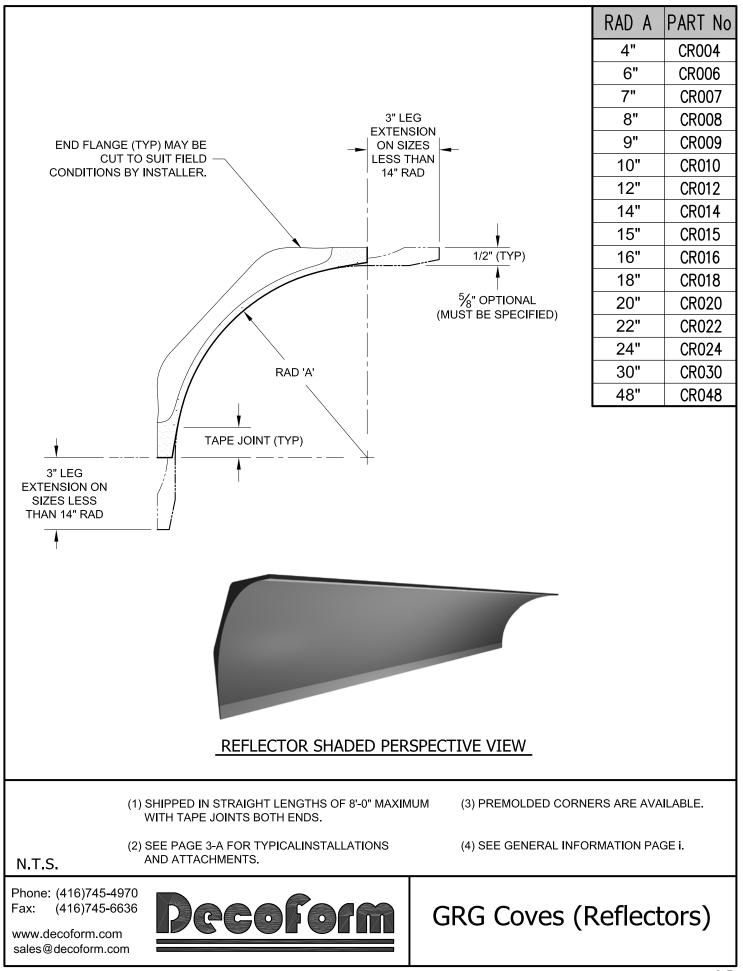
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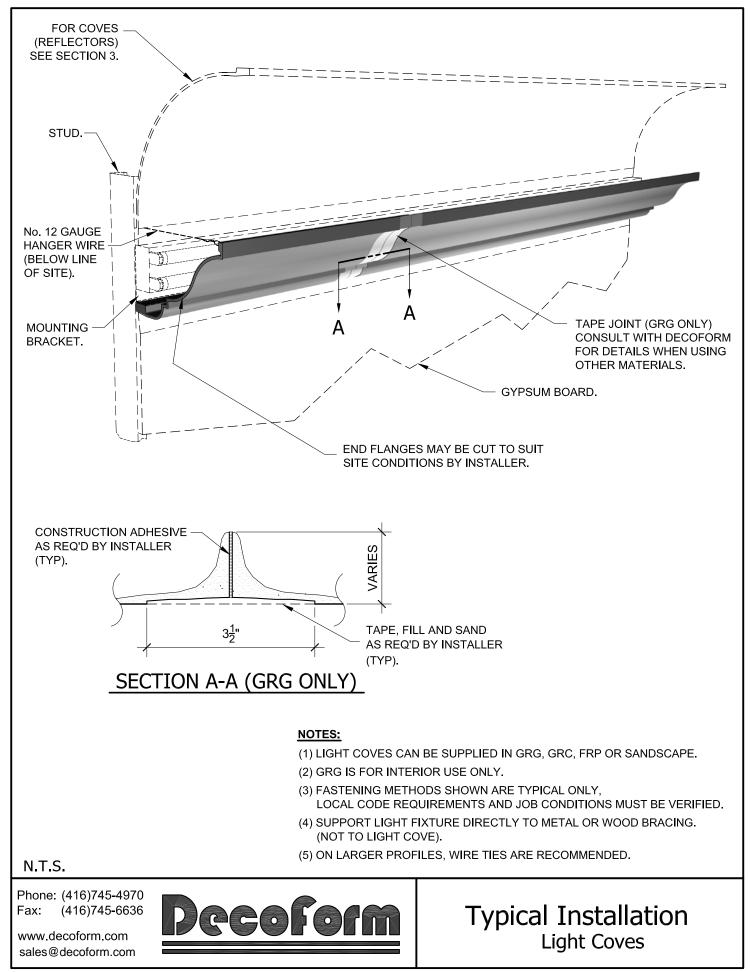
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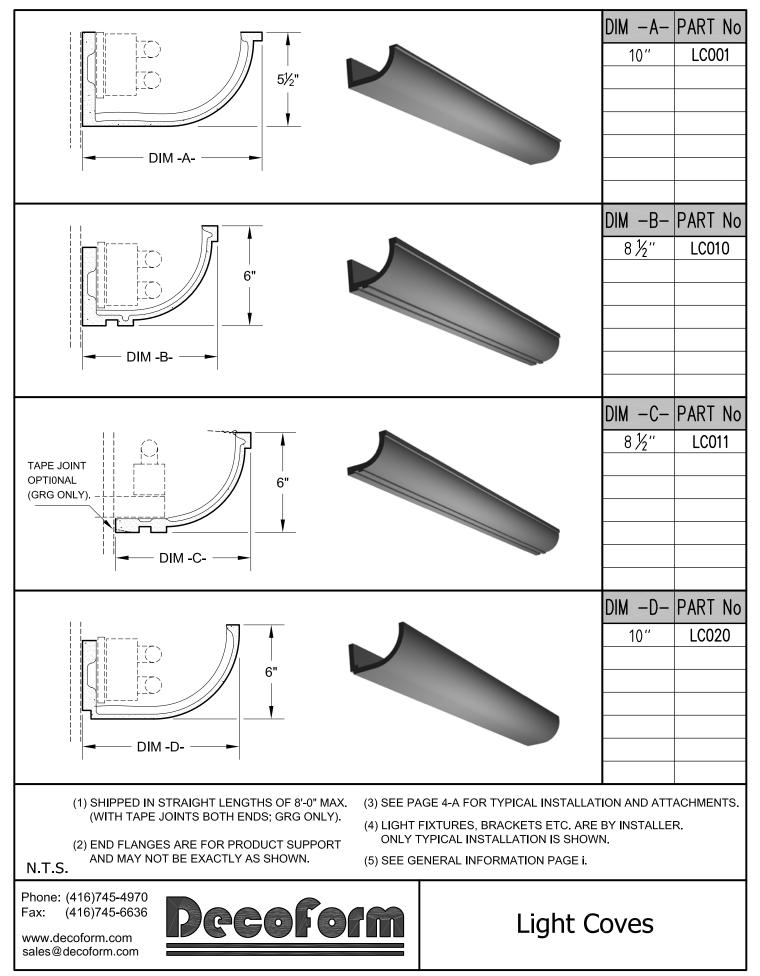


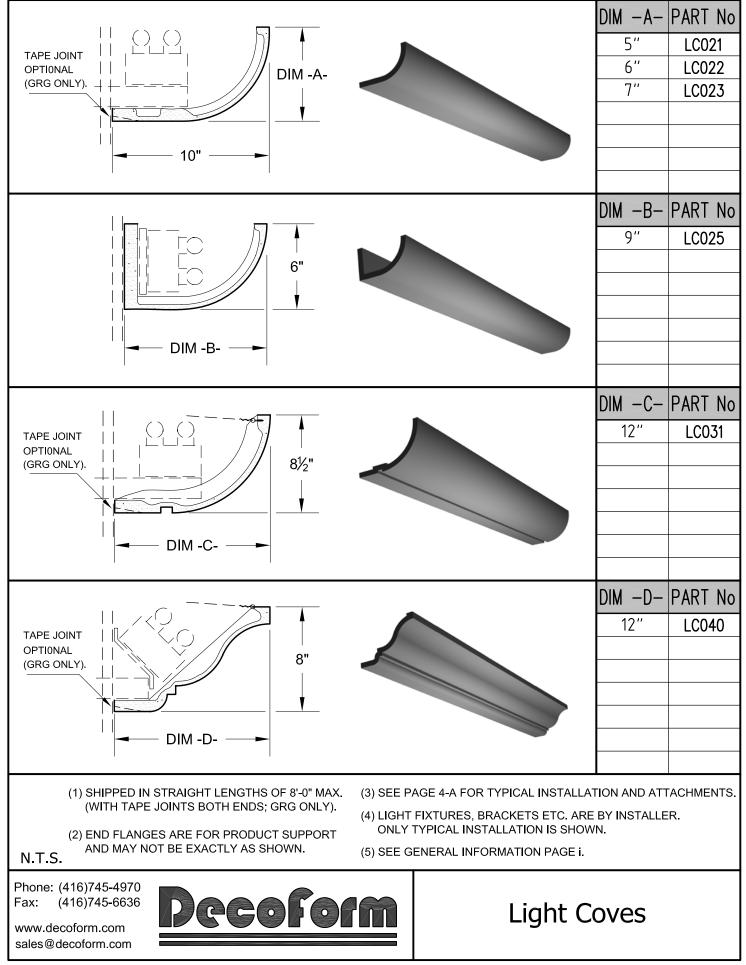
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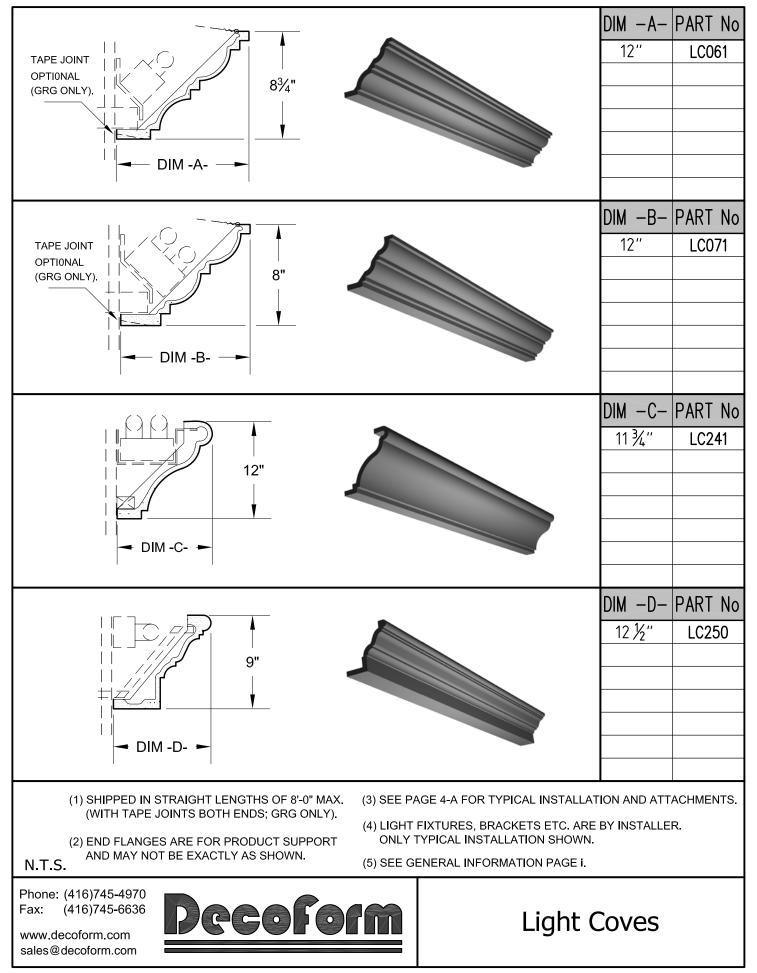


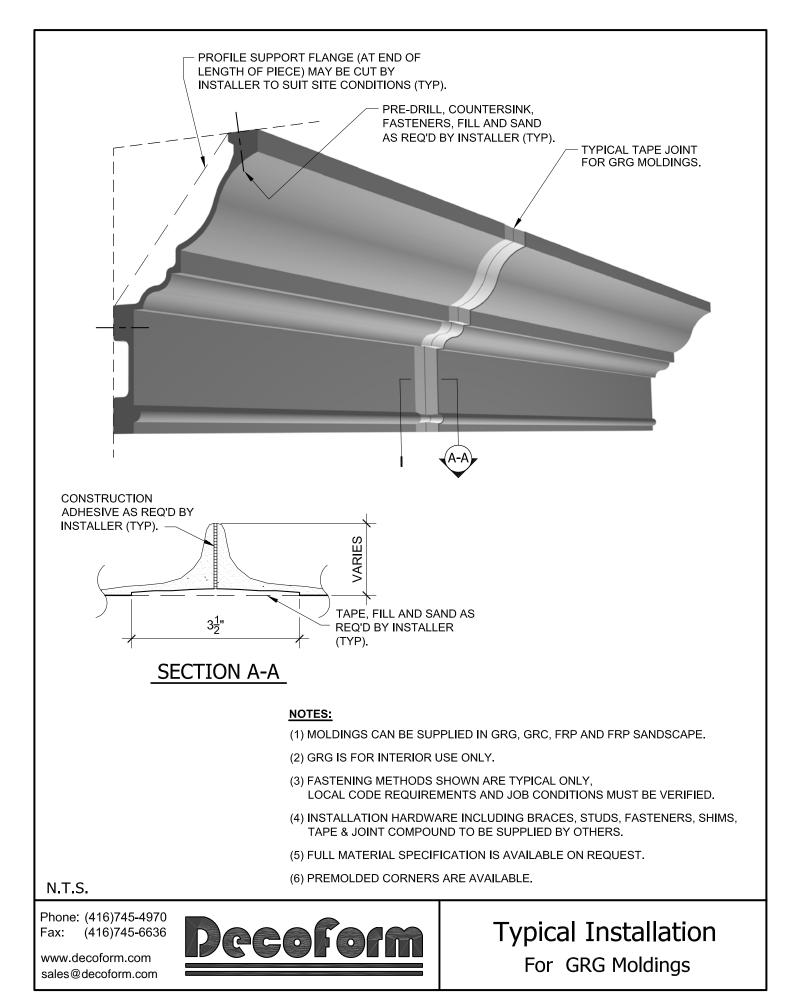




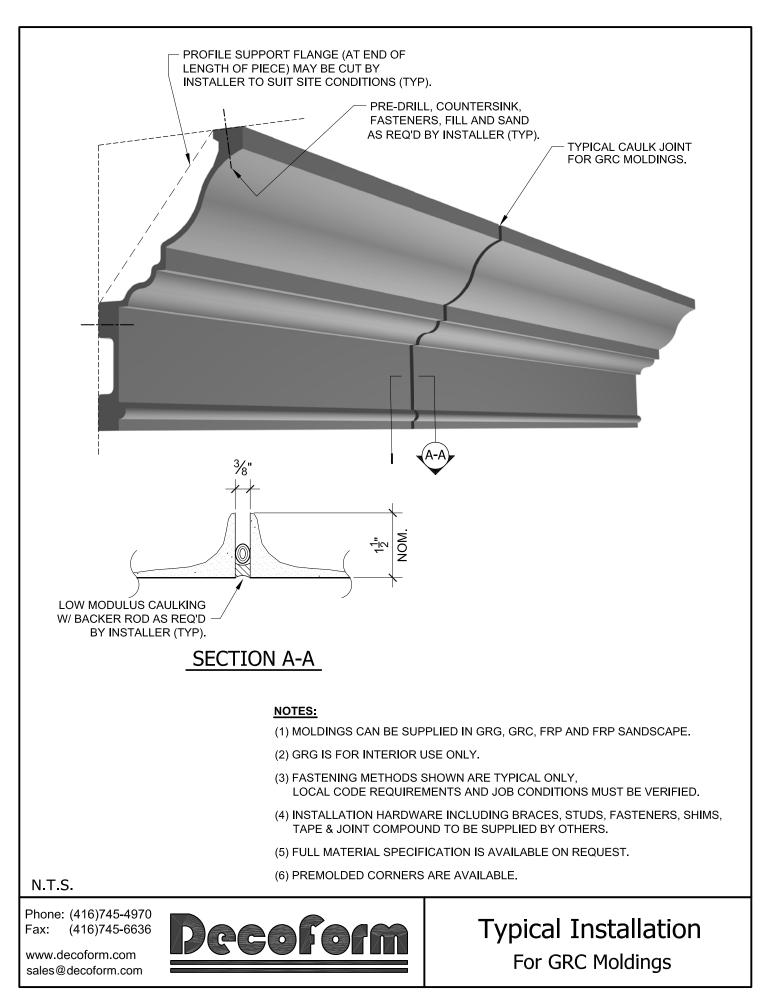


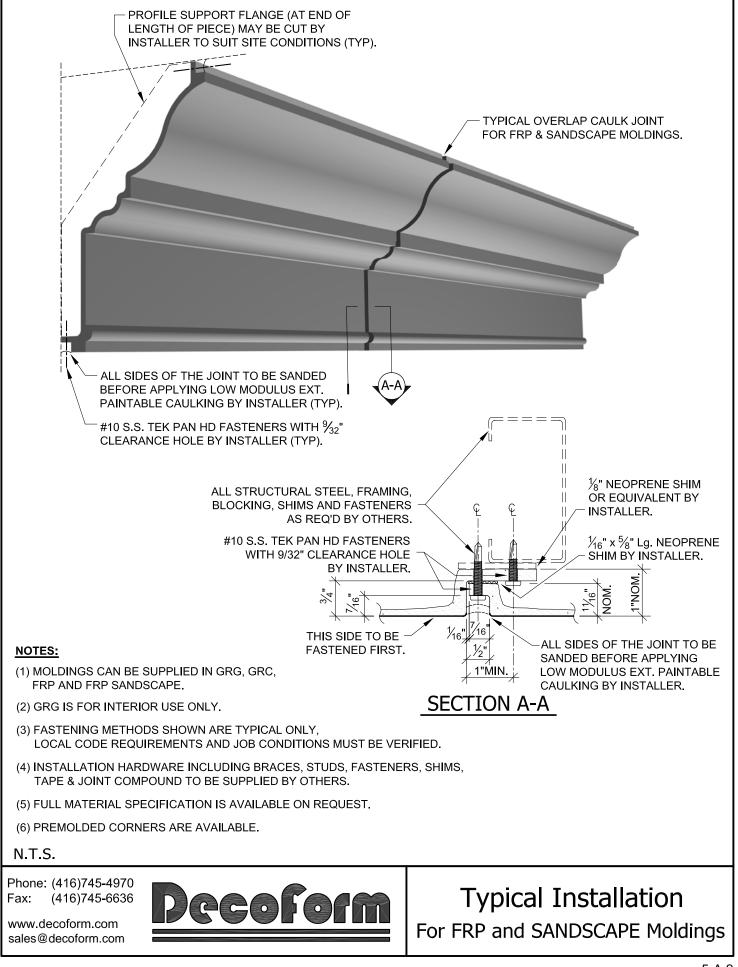


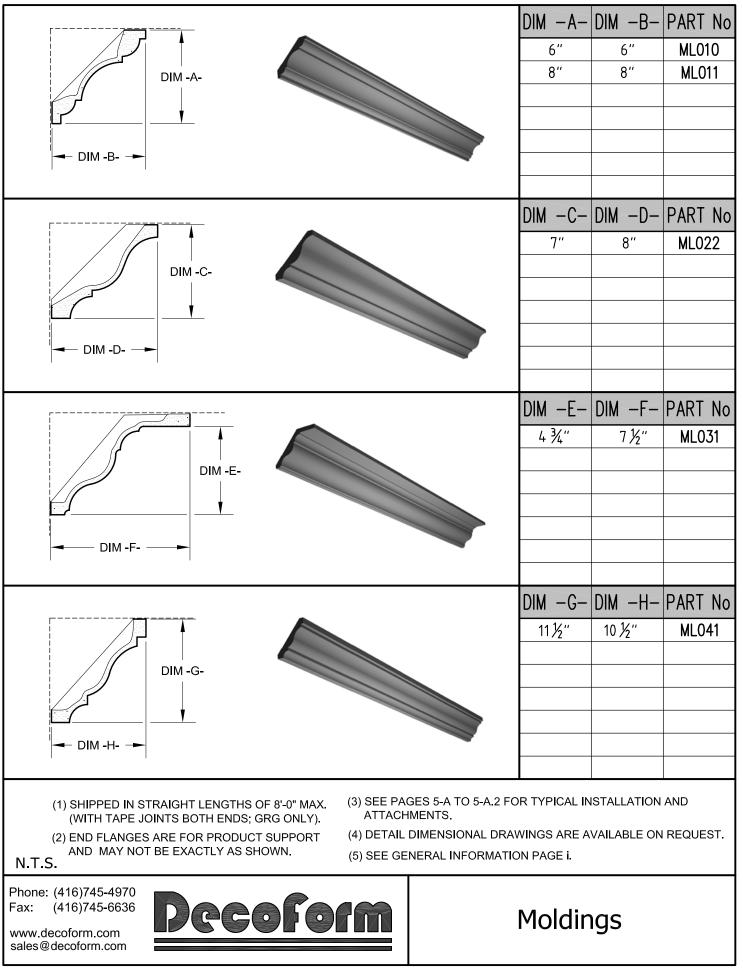


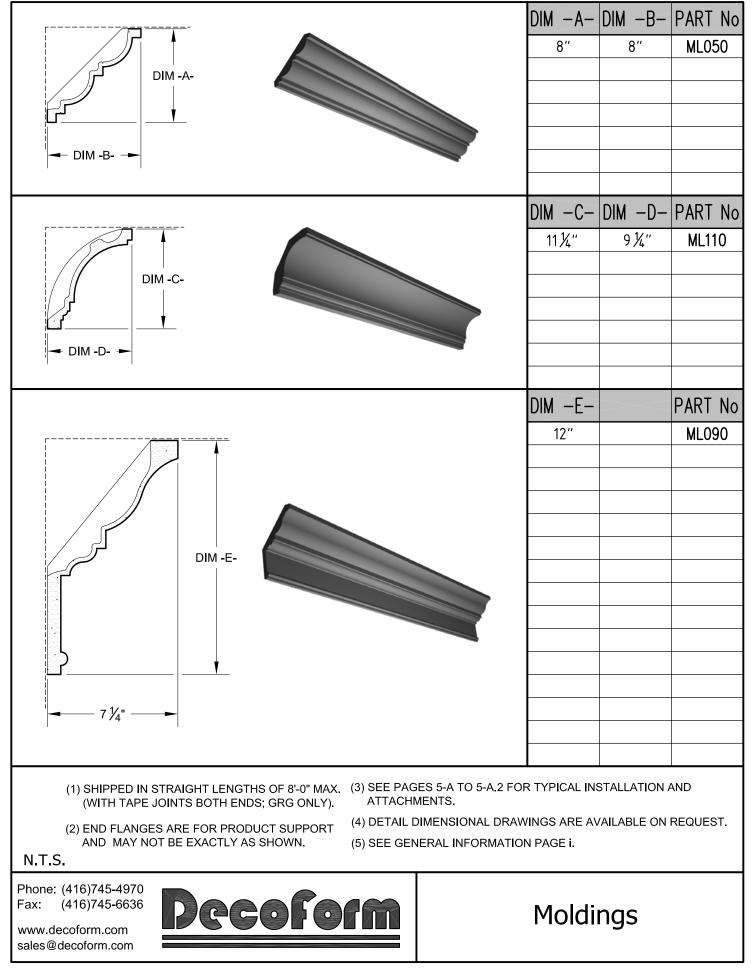


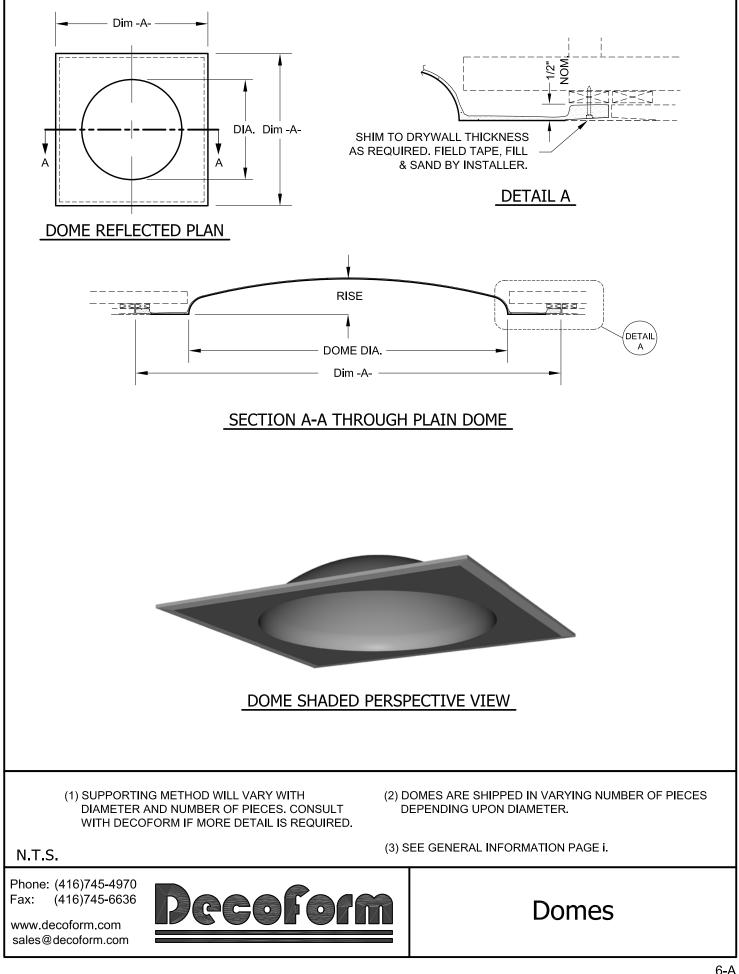
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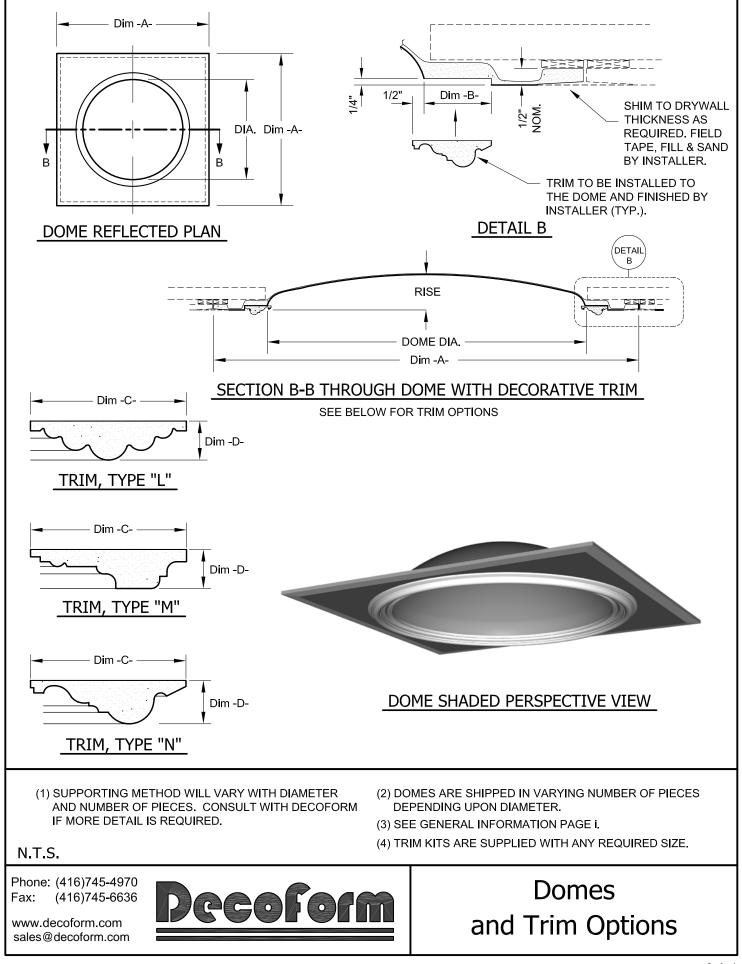


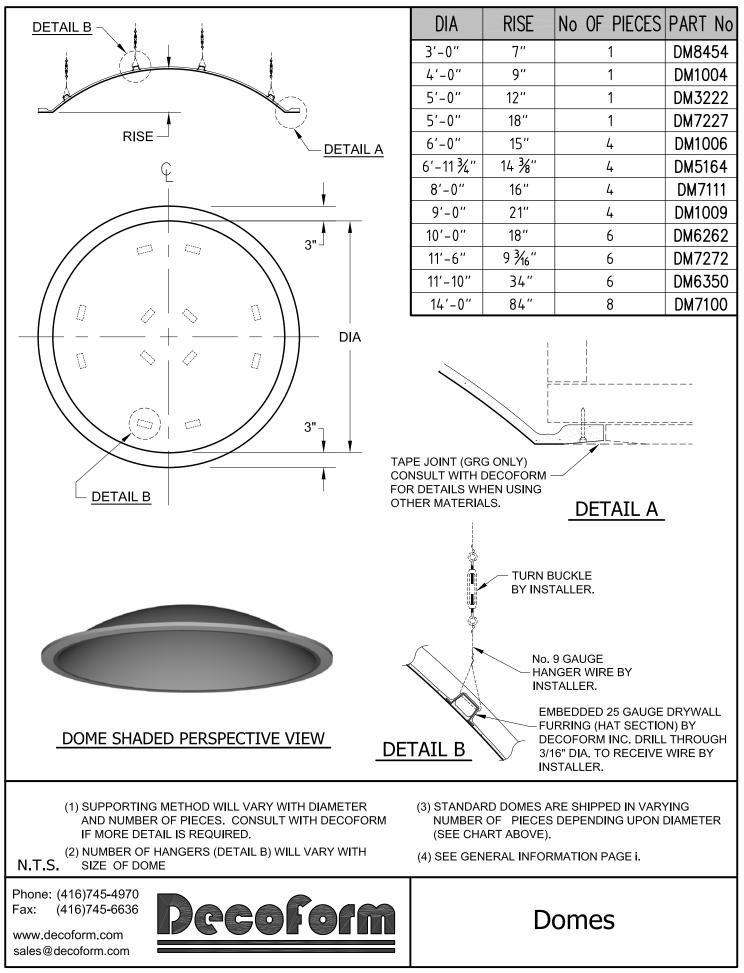


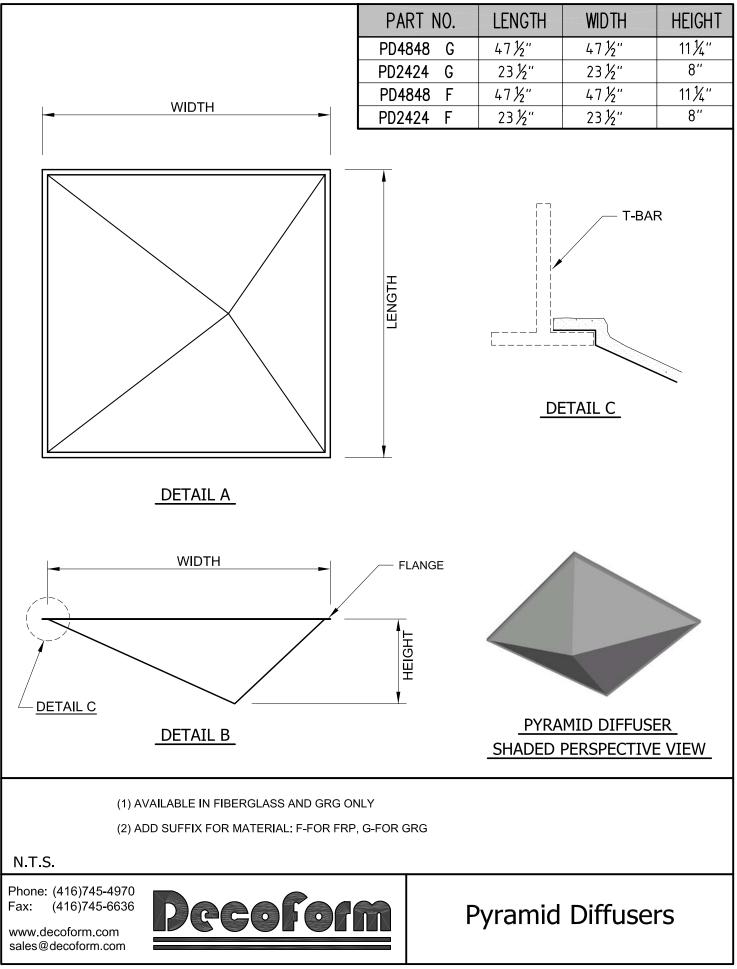


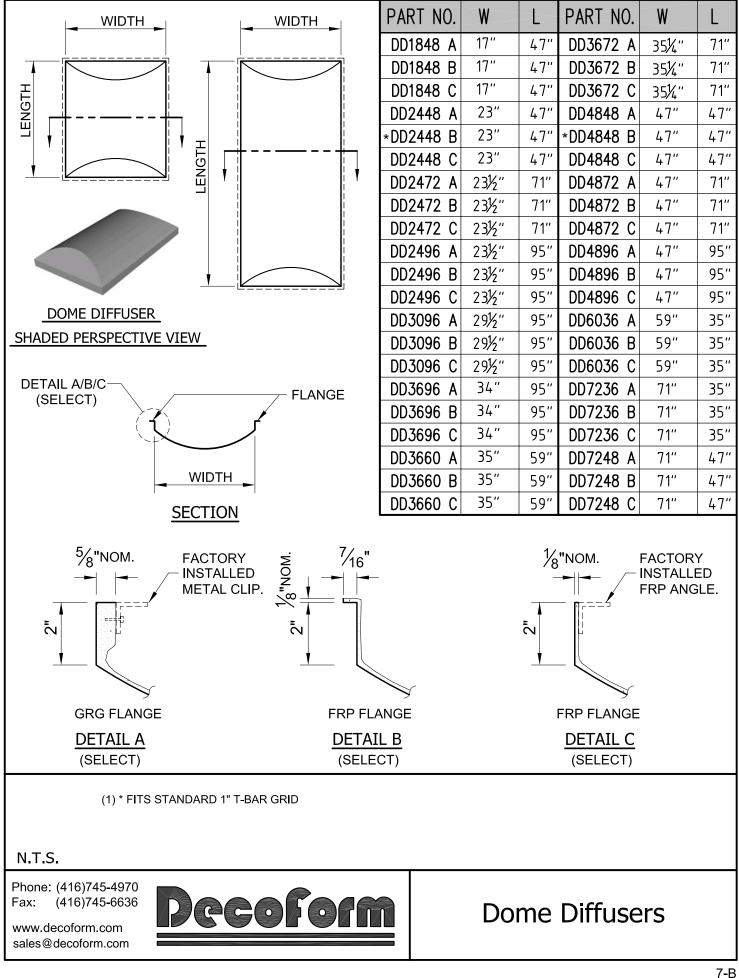












A Guide to Material Selection

DecoForm manufactures quality, molded, interior and exterior architectural components. Any project involving repetitive, linear or modular shapes are prime candidates. DecoForm products are used primarily for:

Bulkheads Light Coves Column Covers Wall Panels Domes Coves Ceiling Coffers Pilasters Chair Rails Vaults

Capitals and Bases Pediments Cornices Brackets

Dramatic savings in site labor can often be realized and superstructure requirements reduced as the result of the use of pre-molded shapes.

DecoForm offers products in four different materials:

GRG (Glassfiber Reinforced Gypsum) (Spec. Section 09540)
GRC (Glassfiber Reinforced Cement) (Spec. Section 03500)
FRP (Fiberglass Reinforced Polyester) (Spec. Section 06600)
SandScape[™] (FRP faux sandstone/limestone) (Spec. Section 06600)

Selection Criteria

(1) Is the product to be used outside or inside?

- GRG products are for interior use only.
- GRC, FRP and SandScape[™] products are for interior or exterior.

(2) Is the desired product to be site painted or is it to be pre-finished?

- GRG requires site finishing (usually prime and paint).
- GRC requires site finishing. Breathable primer & paint is required.
- FRP can be supplied pre-finished or paint ready (depending on budget and design criteria). A factory gloss finish is available on request and at a premium.
- SandScape[™] is pre-finished.

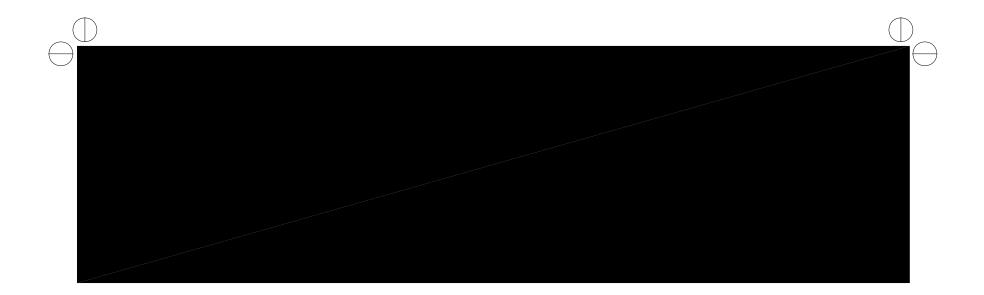
(3) Budget Considerations

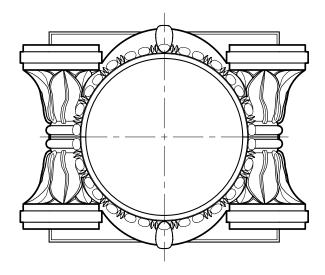
• GRG is the least expensive followed by GRC, FRP and SandScape[™] respectively, assuming the same scope and shape.

(4) Fire Code Consideration

All DecoForm products/materials listed herein are available to suit a Class 1 designation.

DecoForm offers complete specification and design assistance.





Presenterd By:



 \bigcirc

26 Ashwarren Road Toronto, Ontario Canada, M3J 1Z5 Phone: (416) 745-4970 Fax: (416) 745-6636 Email: sales@decoform.com www.decoform.com

CAT #DF101



Decoform Inc.

26 Ashwarren Road Toronto, ON, Canada M3J 1Z5

DecoForm manufactures quality, molded, interior and exterior architectural components. Any project involving repetitive linear or modular shapes are prime candidates. DecoForm products are used primarily for:

Column Covers	Light Reflectors
Cornice	Light Coves
Bulkheads	Pediments
Capitals and Bases	Pilasters, Brackets
Ceiling coffers, Domes and Vaults	Wall Coverings

DecoForm offers products in three different materials:	Spec. Section:	Applications:
GRG (Glassfiber Reinforced Gypsum)	09540	Interior
GRC (Glassfiber Reinforced Cement)	03540	Interior/Exterior
FRP (Glassfiber Reinforced Polyester)	06600	Interior/Exterior

Selection Criteria:

(1) Is the desired product to be site painted or is it pre-finished?

GRG requires site finishing, usually prime & finish paint.GRC requires site finishing. breathable primer & paint requiredFRP can be supplied pre-finished or paint ready (depending on budget and design criteria). A factory gloss finish is available on request and at a premium.

(2) Budget Considerations:

GRG is least expensive, followed by GRC & FRP assuming the same shape and scope.

(3) Fire Code consideration:

All DecoForm products are manufactured with a Class 1 (Class A) designation (unless otherwise specified).

Contact us at:

Decoform Architect Inc.

Telephone: 416 745-4970 Website: <u>www.decoform.com</u> Contact: Henry Liu

Fax: (416) 745-6636 E-mail: sales@decoform.com E-mail: sales@decoform.com



Company Information

DecoForm Architect Inc., is a premier manufacturer of high quality molded architectural products for commercial construction. Founded in 1991, DecoForm has successfully completed projects across North America and offshore that range from small and simple to very large and highly complex. DecoForm's many awards for excellence are a testimony to a dedicated staff with strength in architecture, design, manufacturing and construction.

DecoForm manufactures interior and exterior products in various materials and finishes. Projects with repetitive or modular shapes are prime candidates. Dramatic savings in site labor can often be realized and superstructure requirements reduced as the result of using premolded shapes.

DecoForm offers products in four different materials:

- 1. GRG [Glassfiber Reinforced Gypsum] Master specification 09 27 00
- 2. GRC [Glassfiber Reinforced Cement] Master specification 03 49 00
- 3. FRP [Glassfiber Reinforced Plastic] Master specification 06 60 00
- 4. SandScape™ [FRP faux sandstone / limestone] Master specification 06 60 00

Material Information

Specifications for all our products are available from the DecoForm website, DecoForm representatives or by contacting DecoForm directly.

If you require further information please contact us at:

DecoForm Architect Inc. 26 Ashwarren Road Toronto, ON, Canada, M3J 1Z5 Tel: (416)745-4970 Fax: (416) 745-6636 www.decoform.com



Our Shapes and Materials:

DecoForm manufactures shapes such as column covers in the four basic architectural styles, Tuscan, Doric, Ionic and Corinthian. We also provide bases and capitals to match each style.

Also manufactured are domed, vaulted and coffered ceiling modules along with the light coves and reflectors required to finish the job perfectly.

Cornices, signage, wall decorations and ornamental trim shapes are also part of our offerings.

Materials offered:

<u>GRG (Glassfiber Reinforced Gypsum)</u> Interior only product

DecoForm GRG is a high density gypsum matrix, skillfully reinforced with glassfibers and cast from specialty molds. The product is light weight (1.7 lbs/sq.ft.) and made with the industry standard 3/16" nominal thickness. Shapes can be made to almost any form, all of which are easily installed by Drywall trades people using the traditional tools. GRG requires site finishing (prime and paint).

<u>GRC (Glassfiber Reinforced Cement</u>) Interior / Exterior product

DecoForm GRC is a high density cementitious matrix reinforced with glassfibers and cast from specialty molds. Relatively lightweight at 2.9 lbs/sq.ft. this product has a 1/4" (3/8" nominal) minimum thickness. Shapes can be made to almost any form, all of which are easily installed by site trades people using the traditional tools and commonly available materials. GRC requires site finishing by priming and painting with *breathable paints*.

FRP (Glassfiber Reinforced Plastic) Interior / Exterior product

DecoForm FRP is a polymer matrix reinforced with glassfibers and cast from specialty molds. Light in weight at 1.65 lbs/sq.ft. and thin walled (1/8" shell thickness – 3/16" nominal) this durable extremely strong product can be molded into almost any shape. FRP is easy to install by site trades people and installation requires normal jobsite tools and materials. DecoForm FRP is available in a matte or gloss finish and shipped precolored or paint ready for site finish.

PART 1 - GENERAL

1.01 <u>SUMMARY:</u>

- .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 <u>RELATED DOCUMENTS:</u>

- .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 <u>QUALIFICATION:</u>

- .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.

GLASSFIBER REINFORCED GYPSUM (GRG)

C. S. I. Spec 09225 Master Spec 09 27 13 Page 2

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.
 - Nail Pull Resistance .1 ASTM A 370
 - .2 ASTM C 11 Terminology
 - Physical Testing of Gypsum .3 ASTM C 472
 - Humidified Deflection .4 ASTM C 473
 - .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:**

- This specification is intended to outline the general requirements of the DecoForm .01 (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) ± 3/16" (4.8mm)
 - .2 Dimensional all directions (10' -20')
 - .3 Straightness along an edge or surface
 - .4 All reveals, setbacks or returns
 - .5 All corners

 \pm 1/8"/linear ft. 5° draft

1/16" - 1/8" radius

C. S. I. Spec 09225 Master Spec 09 27 13 Page 3

1.10 <u>SAMPLES:</u>

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

1.11 <u>SHOP DRAWINGS:</u>

.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 <u>SCHEDULING:</u>

.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 <u>WARRANTY:</u>

- .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.

GLASSFIBER REINFORCED GYPSUM (GRG)

C. S. I. Spec 09225 Master Spec 09 27 13 Page 4

PART 2 - PRODUCTS

MANUFACTURER: 2.01

DecoForm Architect Inc. 26 Ashwarren Road Toronto, Ontario CANADA M3J 1Z5 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.
- PHYSICAL PROPERTIES: 2.03
 - .01 Glass content
 - .02 Density
 - .03 Shell Thickness
 - .04 Flame Spread Index (ASTM E 84)
 - .05 Fuel Contribution (ASTM E 84)
 - .06 Smoke Developed Index (ASTM E 84)
 - .07 Compressive Strength (ASTM C 472)
 - .08 Flexural Strength (M.O.R.) (ASTM C 947)
 - .09 Flexural Strength (P.E.L.) (ASTM C 947)
 - .10 Ultimate Tensile Strength (ASTM D 638)
 - .11 Compressive Strength (ASTM D 638)
 - .12 Impact Resistance (ASTM D 256) (ASTM D 2583)
 - .13 Barcol Hardness
 - .14 Consistency
 - .15 Specific Heat
 - .16 Dielectric Strength
 - .17 Coef. of Thermal Expansion (ASTM D 696)
 - .18 Nail Pull (wood embedment) (ASTM C 473)
 - .19 Nail Pull (metal embedment) (ASTM A 370)
 - .20 Behaviour at 750EC (ASTM E 136)
 - .21 Humidified Deflection (ASTM C 473)
 - .22 Young's Modulus (ASTM D 638)
 - .23 Weight

5 - 6% by weight 103 - 112 lb./cu. ft. 3/16" nominal (1/8" minimum) 0 (Class 1) (Class A) 0 (Class 1) (Class A) 0 (5, water vapor) 11,289 phi (77.83 Mpa) (average) 3,084 psi (21.27 MPa) (mean value) 2,857 psi (19.70 MPa) (mean value) 1,220 psi (8.41 MPa) (mean value) 5,790 psi (39.9 Mpa) (mean value) 7.88 ft.lb./in. (mean value) 75 avg. 25 - 30 c.c. 0.253 Btu/lb./°F same as air w/dry, conductive w/wet (7.3x10⁻⁶in/in/°F)13.1x 10⁻⁶ mm/°C 480 lbf. (min.) 590 lbf. (min.) Passed 3 mm. mid-point defl. (mean value) 2.08 x 10⁶ (14,300 Mpa) 1.7 lb/sq. ft.

10/08/20

C. S. I. Spec 09225 Master Spec 09 27 13 Page 5

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 <u>PREPARATION:</u>

- .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.

GLASSFIBER REINFORCED GYPSUM (GRG)

C. S. I. Spec 09225 Master Spec 09 27 13 Page 6

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 <u>FINISHING:</u>

- .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.



Material Safety Data Sheet

Section 1 Product and Company Information

PRODUCT NAME:	Glassfiber Reinforced Gypsum (GRG)		
PRODUCT USE:	Architectural Decorations		

MANUFACTURER: DecoForm Architect Inc. 26 Ashwarren Road Toronto, ON Canada M3J 1Z5 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 Plaster of Paris Crystalline Silica	6 93 - 94 <1	10 10 0.05	15 15 0.1	65997-17-3 26499-65-0 14808-60-7
		Section 3		

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: Unusual Fire & Explosion	Not expected to burn			
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: <u>July 10, 2006</u> Issue: <u>1</u> Replaces Issue: <u>Original</u>

MANUFACTURER CERTIFICATION FOR LEED CREDIT

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

Do herein certify that:

- 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.
- The manufactured product contains <u>0%</u> Post Consumer recycled materials and <u>5%</u> Pre Consumer recycled materials.
- 4. Product data submitted under separate cover.

DecoForm contributes to greener construction management by:

- 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 Architect Inc.

Certification by: _____

Date: _____

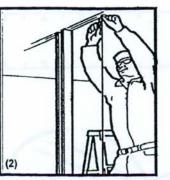
Name: <u>Henry Liu</u>

Title: <u>President</u>

•



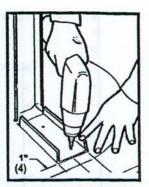
Locate the center-line of the structural column and scribe a line on the floor on both sides which extend further than the dia. of the column cover.



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



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

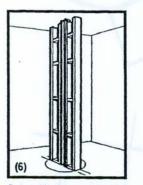


Fasten framing to structural column on center-line and plumb.

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

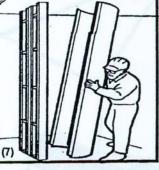


Locate and scribe center-line of structural column. Cut and instal studs to structural column.



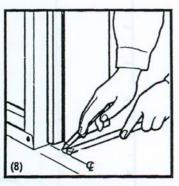
Cut and instal cross-bracing @ 24" centers.

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

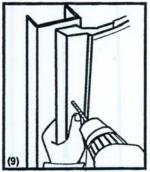


Locate first column cover half and position over scribed circular line on floor. Shim at floor if necessary.

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



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



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

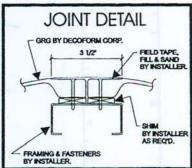


Locate mating half column cover and position around skeleton against vertical stud. Shim at base to match first column cover half.



Insure fit and fasten through column and into stud on 16" centers. Tape and float joints.

Sand smooth, prime and paint as required.





26 Ashwarren Road Toronto, Ontario, M3J 1Z5

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Printed in Canada Cat. #Df028

COVERS DECOFORM MANUFACTURES UNLIMITED MOLDED ARCHITECTURAL PRODUCTS INCLUDING.

domes	niches
vaults	brackets
comice	frieze
fascia	rosettes
soffit	pilasters
medallions	moldings
pediments	wall surfaces
builtheads	chair rails
silis	base boards

Our range of materials includes:

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



IN ADDITION TO GRG COLUMN

ODUCIO MUCLU	Dinto.
domes	niches
vaults	bracket
comice	frieze
fascia	rosettes
soffit	pilasters
medallions	molding
pediments	wall surf
builtheads	chair rai
sills	base ba

PART 1 - GENERAL

1.01 <u>SUMMARY:</u>

- .01 Provide special glassfiber reinforced cement (GRC) 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 GRC component's proper installation.

1.02 WORK INCLUDED

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

1.03 <u>RELATED WORK SPECIFIED ELSEWHERE:</u>

- .01 Framing and support systems.
- .02 Caulking.
- .03 Finishes. The paint manufacturer shall recommend a breathable primer and paint, suitable for cement surfaces.

1.04 <u>QUALITY ASSURANCE:</u>

.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.

1.05 <u>QUALIFICATION:</u>

- .01 The manufacturer of glassfiber reinforced cement work shall submit evidence of satisfactory projects completed 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 GRC units, shall carry out the installation efficiently and co-operate fully with other trades.

C. S. I. Spec 03500 Master Spec. 03 49 00 Page 2

1.06 <u>CERTIFICATION/REFERENCES:</u>

- .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 C 473	Nail Pull Resistance
.2	ASTM C 473	Humidified Deflection
.3	ASTM C 947	Elastic Limits
.4	ASTM D 256	Impact Resistance
.5	ASTM D 638	Ultimate Tensile Strength
.6	ASTM D 638	Young's Modulus
.7	ASTM D 696	Coefficient of Linear Thermal Expansion
.8	ASTM D 790	Flexural Strength
.9	ASTM D 790	Flexural Modulus
.10	ASTM D 2583	Barcol Hardness
.11	ASTM E 84	Flame Spread Index,
.12	ASTM E 84	Smoke Developed Index

1.07 DESCRIPTION OF WORK:

- .01 This specification is intended to outline the general requirements of the DecoForm (GRC) 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, caulking, filling and patching and will assume responsibility for coordinating installation with associated trades.
- .03 GRC is a decorative non-load bearing material and as such the manufacturer cannot be held responsible for structural, load, or seismic considerations.

1.08 DESIGN CRITERIA:

- .01 Unless stated on DecoForm's drawings, fabrication tolerances are as indicated below.
 - .1 Dimensional all directions (0' 10') $\pm 1/8"$ (3.2mm)
 - .2 Dimensional all directions $(11' 20') \pm 3/16" (4.8mm)$
 - .3 Straightness along an edge or surface $\pm 1/8$ "/linear ft.
 - .4 All reveals, setbacks or returns
 - .5 All corners

1/16" - 1/8" radius

5° draft

1.09 SAMPLES:

.01 Submit duplicate min. 6" x 6" GRC samples.

1.10 SHOP DRAWINGS:

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

1.11

Page 3

SCHEDULING:

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

1.12 DELIVERY, STORAGE AND HANDLING:

- .01 Units shall be handled and transported in a manner so as not to create damage or excessive stresses.
- .02 GRC 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.

1.13 <u>WARRANTY:</u>

- .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 <u>MANUFACTURER:</u>

DecoForm Architect Inc. 26 Ashwarren Road Toronto, Ontario CANADA M3J 2Z5 Phone: (416) 745-4970 Fax: (416) 745-6636 Email: sales@decoform.com Website: www.decoform.com

GLASSFIBER REINFORCED CEMENT (GRC)

C. S. I. Spec 03500 Master Spec. 03 49 00 Page 4

2.02 <u>MATERIALS:</u>

- .01 GRC units shall be prefabricated with glassfiber reinforced cement.
- .02 Units will be suitably reinforced with additional materials as required.
- .03 GRC units are supplied primer ready. Finishing is specified elsewhere and shall be applied after the GRC units are installed.
- .04 Exposed fasteners shall be stainless steel. All other fastening or attachment devices shall be appropriately plated or galvanized.
- .05 Where cast-in texture is specified, the texture shall be approved at time of sample submission.
- .06 Related product sections include:

.1 Columns	Master Spec.	03 49 13
.2 Trim	Master Spec.	03 49 43
.3 Cementitious Panels	Master Spec.	07 44 53

2.03 PHYSICAL PROPERTIES:

.01	Glass content		5 - 6% by weight,
.02	Weight (depending on reinforc	ing)	2.9 lbs/sq.ft.
.03	Shell Thickness		3/8" nominal (1/4" min.)
.04	Flame Spread Index	(ASTM E 84)	0 (Class 1) (Class A)
.05	Smoke Developed Index	(ASTM E 84)	0 (Class 1) (Class A)
.06	Flexural Strength	(ASTM D 790)	4,650 psi (32.1 MPa)
.07	Flexural Modulus	(ASTM D 790)	1.43 x 10 ⁶ (9,860 MPa)
.08	Elastic Limit	(ASTM C 947)	981 psi (6.70 MPa) avg.
.09	Ultimate Tensile Strength	(ASTM D 638)	1,480 psi (10.2 MPa)
.10	Impact Resistance	(ASTM D 256)	7.83 ft.lb./in (mean value)
.11	Barcol Hardness	(ASTM D 2583)	
.12	Coef. of Thermal Expansion	(ASTM D 696)	5.50 x 10 ⁻⁶ in/in °F/9.95 x 10 ^{-6 mm/mm}
.13	Nail Pull (wood embedment)	(ASTM C 473)	466 lbf. Avg.
.14	Nail Pull (metal embedment)	(ASTM A 473)	139 lbf. Avg.
.15	Humidified Deflection	(ASTM C 473)	0.2 mm. mean deflection
.16	Compressive Strength	(ASTM C 472)	10,364 psi.
.17	Young's Modulus	(ASTM D 638)	1.48 x 10 ⁶

10/08/20

C. S. I. Spec 03500 Master Spec. 03 49 00 Page 5

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 manufacture'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 condition.
- .04 All surfaces or framing structures shall be plumb and true as required.

3.02 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.
- .04 Fasten units with screws through the face of the GRC unit(s), or from the rear.
- .05 Adequate control and/or expansion joints shall be employed.
- .06 Pre-drill fastener holes in GRC components. Clean fastener holes to remove dirt and oil.
- .07 Attach GRC components to framing and substrate with steel drill screws. Do not use pneumatic staple guns. Countersink screw heads below adjoining finished surface.
- .08 Fasten not less than 5/16" from edge or end.
- .09 Cover screw heads with joint compound to produce, smooth, flush and level surfaces.
- .10 GRC units shall be handled with care and lifted with appropriate equipment.
- .11 GRC units shall be installed true and plumb, shimmed where necessary.
- .12 Caulk joints where required with a one-compound elastomeric low modulus urethane sealant equivalent to Sonolastic Ultra. Control joints shall be provided where required as specified by Architect. Color of caulk to be selected by Architect.
- .13 Expansion joints shall be installed as per Architect's recommendation.
- .14 Anchors and fasteners: Type 304 stainless steel where exposed; hot dip galvanized steel where unexposed.

GLASSFIBER REINFORCED CEMENT (GRC)

C. S. I. Spec 03500 Master Spec. 03 49 00 Page 6

3.03 PATCHING AND CLEANING:

- .01 Repair any defects found after the work of all trades has been completed, regardless of how, or by whom, the damage was caused. Patching shall match the original work. Use Auto Body filler or a polymer modified cementitious product with migrating corrosion inhibitors equivalent to Sika Top to repair any defects and areas requiring patching. Select the correct product by application.
- .02 Patch all countersunk fasteners and damages to match unit's texture, finished flush with face of unit.
- .03 Soiled units may be cleaned using detergent and water.
- 3.04 <u>FINISHING:</u>
 - .01 All DecoForm GRC requires site prime and paint. Use only breathable primers and paints/coatings equivalent to Sherwin-Williams Loxon A-100 breathable primers and paints).



Material Safety Data Sheet

Section 1 Product and Company Information

PRODUCT NAME:	Glassfiber Reinforced Cement (GRC)
PRODUCT USE:	Architectural Decorations
MANUFACTURER:	DecoForm Architect Inc. 26 Ashwarren Road Toronto, ON Canada M3J 1Z5 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 Plaster of Paris Portland Cement Sand Acrylic Polymer	6 21 42 31	10 10 10 0.05 (R)	15 15 15 0.1 (R)	65997-17-3 26499-65-0 65997-15-1 14808-60-7 107-21-1
Section 2				

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. Portland Cement is a nuisance dust.

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: Unusual Fire & Explosion	Not expected to burn		
Hazards: Hazardous Combustion Product	None		
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: <u>September 1, 2007</u> Issue: <u>3</u> Replaces Issue: <u>2</u>

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 <u>5%</u> 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 Architect Inc.

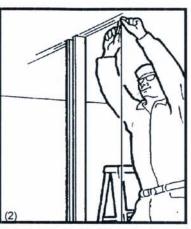
Certification by: _____

Date: _____

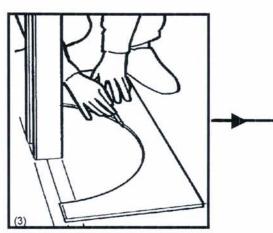
Name: <u>Henry Liu</u> Title: President



Locate center of structural column and scribe a line on both sides which extend further than the base to be installed later.



Use a plumb bob or laser to transfer center line onto celling.



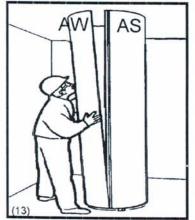
Cut "base" and "capital" plywood templates using paper outline supplied by DecoForm. Place "base" template on floor, center on structural column and trace enlire outline. With "capital" template, duplicate this procedure on the ceiling tracing the rectangular profile only.



Scribe line on structural column at height "Y" as measured in step (6).

Cut and instal top cross brace at height "Y" to insure Dia. "X" minus 1/4".

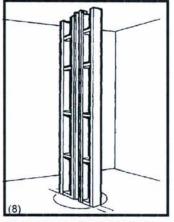
Repeat @ 180 degrees on column.



Locate mating column cover half and position around flange on other column half so as to insure proper tit.

Shirn at base to match first column cover half. Shirn joint with 1/4" spacer.

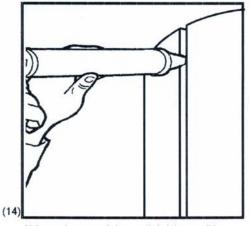
Refer to Detail "A" on opposite side of page.



Measure and cut cross-bracing to appropriate lengths and instal @ 24" centers.

Using straight edge on outer, vertical frame, Insure that there is no bowing.

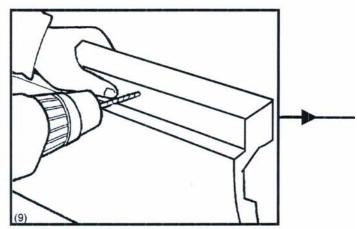
Skeleton should be solid and plumb.



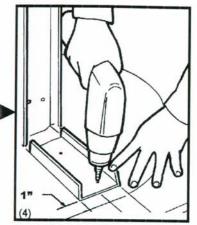
Using a low modulus, paintable caulking, caulk all seams including horizontal reveals at floor and ceiling.

Ensure weeping hole at bottom of column. Patch and sand screw holes with joint compoind.

Prime & paint using breathable products.

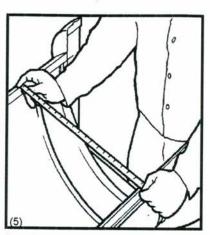


On the column cover half with the karger vertical flange ("AS"), drill and countersink hole 6" from lower end of column cover half and at 16" centers thereafter. Repeat on other column cover half starting at 5" from lower end but drill holes in center of flange as well as into the overlap joint at capital. Refer to drawing "A" (lower right of opposite page).



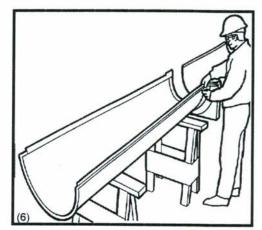
Fasten framing to structural column on center-line and plumb.

Fasten base blocking on center-line 1" back from circle scribed on floor.



Locate column cover half which has the larger, indented vertical flange,

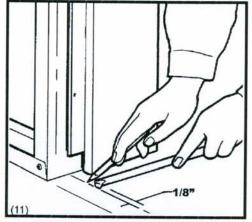
Measure the inner diameter between flanges (at the capital), (Dia. "X").



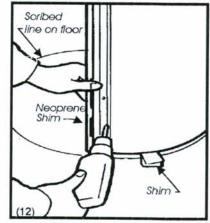
Measure length of column cover half from lower end to the point at which the diameter was measured in step #5. [Dim. "Y"],



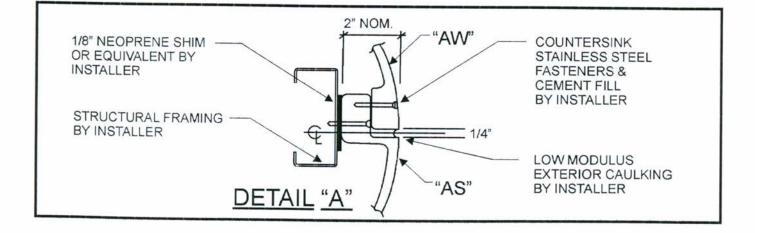
Locate column cover half as identified by the larger. Indented vertical flange and position over scribed circular line on floor.



Place the column cover half with the outside diameter, 1/8" back of scribed center line.



Shim bottom of column cover half until top is 1/8" from ceiling or passes through ceiling. Use neoprene shim between column cover and framing to insure O.D. of column cover is held. Plumb and fasten through previously drilled holes.





PART 1 - GENERAL

- 1.01 <u>SUMMARY:</u>
 - .01 Provide special fiberglass reinforced plastic (FRP) 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 FRP components proper installation.

1.02 WORK INCLUDED:

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

1.03 RELATED WORK SPECIFIED ELSEWHERE:

- .01 Masonry work.
- .02 Structural steel: Support framing for fiberglass components.
- .03 Rough carpentry.
- .04 Joint sealants.
- .05 Finishing: Paint manufacturer shall recommend paint suitable for FRP surfaces.

1.04 <u>RELATED DOCUMENTS:</u>

.01 Composites Fabricators Associations (CFA) Guidelines and Recommended Practices for Fiberglass Reinforced Plastic Architectural Products.

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 <u>QUALIFICATION:</u>

- .01 The manufacturer of FRP work shall submit evidence of satisfactory projects it has achieved in 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 FRP units, shall carry out the installation efficiently and co-operate fully with other trades.

C. S. I. Spec 06600 Master Spec 06 82 00 Page 2

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.

- Ultimate Tensile Strength

- Coefficient of Linear Thermal Expansion

- Impact Resistance .1 ASTM D-256
 - Water Absorption
- .2 ASTM D-570 .3 ASTM D-638
- .4 ASTM D-638
- Deflection Temperature .5 ASTM D-648
- .6 ASTM D-696 .7 ASTM D-790 .8 ASTM D-2583
- Flexural Properties

- Young's Modulus

- Barcol Hardness
- .9 ASTM E-84
- Surface Burning

1.08 **DESCRIPTION OF WORK:**

- .01 This specification is intended to outline the general requirements of the DecoForm (FRP) 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, caulking (filling) and patching and will assume responsibility for coordinating installation with the work and associated trades.

1.09 **DESIGN CRITERIA:**

- .01 Unless otherwise stated on DecoForm's drawings, fabrication tolerances are as indicated below.
 - .1 Dimensional all directions (0' 10')
 - .2 Dimensional all directions (10' 20')
 - .3 Straightness along an edge or surface
 - .4 All reveals, grooves, setbacks or returns
 - .5 All outside corners
- SAMPLES: 1.10
 - .01 Submit duplicate, minimum 6" x 6" FRP samples.
- SHOP DRAWINGS: 1.11
 - .01 Submit for approval, shop drawings of units which show sections, details, joint treatment and the relation of the FRP units to adjoining components
- 1.12 SCHEDULING:
 - .01 Special scheduling for site coordination must be specified at time of bidding.

- \pm 1/16"/linear ft.
- 3° draft (min.)
- 1/16" 1/8" radius
- ± 1/8" ± 3/16"

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 FRP 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 The installer is responsible for chipping, cracking, or other damage to fiberglass components, after delivery to the job-site and until installation is completed and inspected approved by the Owner's representative.

1.14 <u>WARRANTY:</u>

- .01 The manufacturer warrants that the delivered material supplied will conform to samples 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

.01 MANUFACTURER:

DecoForm Architect Inc. 26 Ashwarren Road Toronto, Ontario CANADA M3J 1Z5 Phone: (416) 745-4970 FAX: 416 745-6636 E-mail: sales@decoform.com Website : www.decoform.com

2.02 <u>MATERIALS:</u>

- .01 Show face shall be as per the TYPE selected and may include the following special features: ISO/NPG, ultra violet stabilized, polyester gel-coat minimum thickness 15-20mil. Color to be matt white, ready for field painting.
- .02 Fiberglass reinforcement shall consist of a glassfiber reinforced polyester composite with glass content and thickness to meet structural design. Additional stiffeners (as required) shall be encased in the fiberglass composite to ensure straightness and strength. Flat surfaces equal to or greater than 12" x 12" or any running surface equal to or greater than 9" in width, shall be fabricated with a minimum 1/4" thick sandwich core.
- .03 Anchors and fasteners: Type 304 stainless steel where exposed; hot dip galvanized steel where unexposed.
- .04 Form stripping agent must be compatible with and for application of sealant and applied finishes.
- .05 Units will be reinforced (by design) with additional materials (such as wood, metal, etc.) as required.
- .06 Caulk joints where required with, one-compound elastomeric low modulus urethane sealant equivalent to Sonolastic Ultra. Do not use acrylic based products. Color of caulk to be selected by Architect.

.03 <u>PHYSICAL PROPERTIES:</u>

)	FITTSICAL FROFERTIES.		
.01	Glass Content		- 25% by weight
.02	Specific Gravity		- 1.7
.03	Shell Thickness		- 1/8" min.
.04	Flame Spread Index (FSI)	(ASTM E84)	- 20 (Class 1)(Class A)
.05	Smoke Developed (SD)	(ASTM E84)	- 375 (Class 1)(Class A)
.06	Flexural Strength	(ASTM D790)	- 24.4 x 10 ³ p.s.i.
.07	Flexural Modulus	(ASTM D790)	- 1.03 x 10 ⁶ p.s.i.
.08	Tensile Strength	(ASTM D638)	- 10.6 x 10 ³ p.s.i.
.09	Young's Modulus	(ASTM D638)	- 1.45 x 10 ⁶ p.s.i.
.10	Ultimate Elongation	(ASTM D638)	- 1.09%
.11	Impact Strength (Method A)	(ASTM D256)	- 11.4 ftlb./in.
.12	BarcolHardness	(ASTM D2583)	- 45 - 51
.13	Water Absorption	(ASTM D570)	- Mean value350%/24hrs.
.14	Heat Deflection	(ASTM D648)	- >220°C
.15	Coefficient of Thermal Expansion	sion (ASTM D696)	- 2.06 x 10⁻⁵ 1°C
.16	Crosshatch Adhesion*	(ASTM D3359)	-Coating not scored
.17	Weight		- 1.65 to 2.3 lbs/sq.ft.

C. S. I. Spec 06600 Master Spec 06 82 00 Page 5

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, the Architect and the manufacturer. 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 condition.
- .04 All surfaces or framing structures shall be plumb and true as required.

3.02 <u>PREPARATION:</u>

- .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, 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.
- .04 FRP units shall be handled with care and lifted with appropriate equipment.
- .05 FRP units shall be installed true and plumb, shimmed where necessary.
- .06 Caulk or fill all joints as required following Manufacturers recommendations. Control joints shall be provided where required as specified by Architect.
- .07 Where a Monolithic Joint has been specified, fill with Autobody filler or an equivalent product and sand the complete component assembly following Manufacturers recommendations under "Typical Monolithic Joint Installation". Use a primer which is compatible with high solids polyurethane paints for exterior and acrylic, polyurethane or oil based enamel paints for interior applications.
- .08 Expansion joints shall be installed as per Architect's recommendation.

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C. S. I. Spec 06600 Master Spec 06 82 00 Page 6

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 by whom, the damage was caused. Patching shall match the original work. Use Manufacturers recommended materials when available.
 - .02 Patch all countersunk fasteners and damages to match unit texture, finished flush with face of unit. . Use Manufacturers recommended materials when available
- 3.06 FINISHING:
 - .01 Reference shall be made to the painting/texturing section of the specifications.



Material Safety Data Sheet

Section 1
Product and Company Information

PRODUCT NAME:	Fiberglass Reinforced Polyester (FRP)	
PRODUCT USE:	Architectural Decorations	
MANUFACTURER:	DecoForm Architect Inc. 26 Ashwarren Road Toronto, ON Canada M3J 1Z5 Tel:: 416-745-4970 Fax: 416-745-6636	
	Section 2	

 Important Product Information

 Fiberglass Reinforced Polyester is classified as an 'article' under the Hazard

 Communication Standard (29 CFR 1901200) by the US Occupational Safety and Health

 Administration (OSHA).

This product is therefore considered to be non-hazardous based on evaluations made by Maxxam Analytics under the OSHA Hazard Communication Standard (29 CFR 1901200).

An 'article' is defined as a manufactured item, other than fluid or a particle, which:

- Is formed to a specific shape or design during manufacture
- Has end use function(s) dependent in whole or part upon its shape or design during end use.
- Under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of hazardous chemical and does not pose a physical hazard or health risk to individuals who might come in contact with the finished product.

Section 3 Hazard Identification

EMERGENCY OVERVIEW

This product is not expected to produce any unusual hazards during normal use.

When fiberglass reinforced polyester is abraded, machined or mechanically disturbed, excessive dust may be released. Adequate control of released dust must be established (e.g., vacuum up any dust deposits or clean the area by applying wet methods.

Exposure to high dust levels may irritate the skin, eyes, nose, throat or upper respiratory tract.

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				
Flash Point:	. N/A			
Flammability:	FRP meets the requirements for a Class 1 fire rating with Flame Spread Index (FSI) of 14 and Smoke Developed Index (SDI) of 375.			
Explosion Data:	. N/A			
Extinguishing Media:	. Carbon dioxide, dry chemical powder, foam and water spray.			

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.

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 D	Date: Septen	ber 1, 2007 I	ssue: 2	2 Re	places 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 <u>5%</u> 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: <u>DecoForm Architect Inc.</u>

Certification by: _____

Date: _____

Name: <u>Henry Liu</u> Title: President



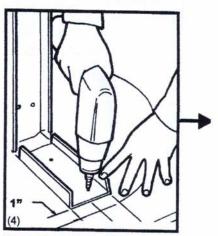
Locate center of structural column and scribe a line on both sides which extend further than the base to be installed later (step #18).



Use a plumb bob or laser to transfer center line onto ceiling,

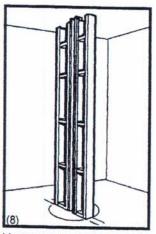


Cut "base" and "capital" plywood templates using paper outline supplied by DecoForm. Place"base" template on floor, center on structural column and trace entire outline, With "capital" template, duplicate this procedure on the ceiling tracing the rectangular profile only.



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

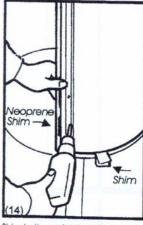
Fasten base blocking on center-line 1" back from circle scribed on floor.



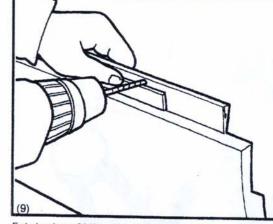
Measure and cut cross-bracing to appropriate lengths and instal @ 24" centers.

Using straight edge on outer, vertical frame, insure that there is no bowing.

Skeleton should be solid and plumb.

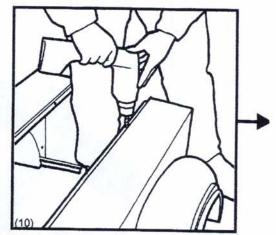


Shim bottom of column cover half until top is 1/8" from celling. Use neoprene shim between column cover and framing to insure O.D. of column cover is held. Plumb and fasten through previously drilled clearance holes.



Fabricate a 3/4" wide x 6" long height gauge.

On the column cover half with the larger vertical flange, drill 3/16" dia. clearance hole 6" from lower end of column cover half and at 16" centers thereafter. Repeat on other column cover half starting at <u>5"</u> from lower end but drill holes in center of flange as well as into the overlap joint at capital.



Into the "base" and "capital" caulk recess, drill 3/16" dia. clearance holes in caulk recess, 6" from each end,

Also drill 3/16" dia. clearance holes in caulk recess of 2nd. column cover half, spaced on 16" centers.



Locate mating column cover half and position around fiange on other column half so as to insure proper fit.

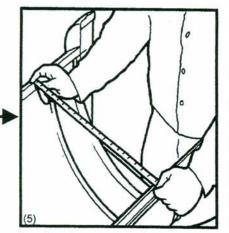
Shim at base to match first column cover half.



While ensuring that the column cover halves are held tight together use #10 x 1 1/4" "TEK" screws and fasten through both flanges into support stud down entire length of column covers.

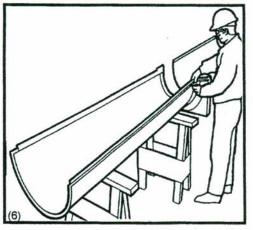


Position blocking along inside of both scribed lines and fasten to floor.



Locate column cover half which has the larger vertical flange.

Measure the inner diameter between flanges (at the capital). (Dia."X").



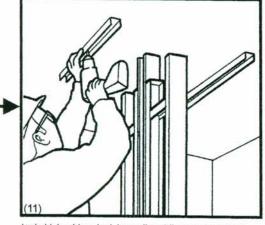
Measure length of column cover half from lower end to the point at which the diameter was measured in step #5. (Dim. "Y").



Scribe line on structural column at height "Y" as measured in step (6).

Cut and instal top cross brace at height "Y" to insure Dia. "X" minus 1/4".

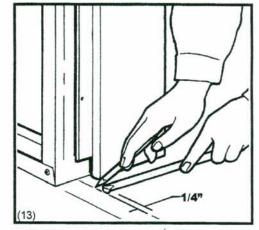
Repeat @ 180 degrees on column.



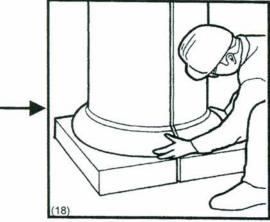
Instal blocking inside scribed lines on celling.



Locate column cover half as identified by the larger vertical flange and position over scribed circular line on floor.



Place the column cover half with the outside diameter, 1/4" back of scribed center line.



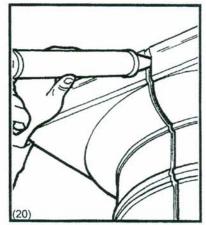
Position both base halves around column cover assembly. Fasten both base halves together through vertical reveals.

Align base assembly with reveal of column cover shaft.



At caulk recess, fasten base assembly through to blocking.

Repeat procedure at capital.



Using a low modulus, paintable caulking, caulk all seams including horizontal reveals at floor and ceiling.



Page 1

SandScapeTM FIBERGLASS REINFORCED POLYESTER (LIMESTONE / SANDSTONE)

PART 1 - GENERAL

1.01 <u>SUMMARY:</u>

.01 Furnish all labor, materials, joint treatment, suspension systems, scaffold, equipment and related services necessary for the completer installation of the SandScape units. Items not noted herein, which are required to make a complete installation shall also be included. The installing contractor will be responsible for supply, installation and coordination of the work outlined in this section and will do so in compliance with local codes and/or ordinaces.

1.02 WORK INCLUDED:

- .01 Supply of SandScape[™] units.
- .02 Erection / installation.
- .03 Joint treatment.
- .04 Supply and installation of backup supports, shimming, labor and materials, etc.

1.03 RELATED WORK SPECIFIED ELSEWHERE:

- .01 Masonry work.
- .02 Structural steel: Support framing for fiberglass components.
- .03 Rough carpentry.
- .04 Joint sealants.

1.04 QUALITY ASSURANCE:

- .01 The manufacturer of SandScape[™] shall conform to the latest edition of reference specifications specified herein and applicable codes and requirements of local authorities having jurisdiction, whichever is more stringent.
- 1.06 <u>QUALIFICATION:</u>
 - .01 The manufacturer of SandScape[™] work shall submit evidence of satisfactory projects it has achieved in the last (5) 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 shall be fully experienced in the installation of SandScape[™] units shall carry out the installation efficiently and co-operate fully with other trades.

Page 2

1.07 <u>CERTIFICATION / REFERENCES:</u>

- .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 C-947 Flexural Strength
 - .2 ASTM D-256 Impact resistance
 - .3 ASTM D-638 Ultimate Tensile Strength
 - .4 ASTM D-696 Coefficient of Linear Thermal Expansion
 - .5 ASTM D-785
 - 7 ASTM D-790
 - .8 ASTM D-2583
 - Indentation Hardness

- Modulus of Elasticity in Flexural

- Rockwell Hardness

.9 ASTM E-84 - Flame Spread Index, Smoke Developed Index

1.08 DESCRIPTION OF WORK:

- .01 This specification is intended to outline the general requirements of the DecoForm SandScape[™] 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, caulking (filling) and patching and will assume responsibility for coordinating installation with the work and associated trades.

1.09 DESIGN CRITERIA:

- .01 Unless otherwise stated on DecoForm's drawings, fabrication tolerances are as indicated below.
 - .1 Dimensional all directions (0' 10')
 - .2 Dimensional all directions (10' 20')
 - .3 Straightness along an edge or surface
- \pm 1/16"/linear ft.

± 1/8"

± 3/16"

.4 All reveals, grooves, setbacks or returns

- .5 All outside corners
- 1.10 <u>SAMPLES:</u>
 - .01 Submit duplicate, minimum 3" x 3" SandScape[™] samples.
- 1.11 <u>SHOP DRAWINGS:</u>
 - .01 Submit for approval, shop drawings of units which show sections, details, joint treatment and the relation of the SandScapeTM units to adjoining components

1.12 <u>SCHEDULING:</u>

- \pm 1/16 /inteal ft. 3° draft (min.)
- 1/16" 1/8" radius

10/08/20

.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 SandScape[™] 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 The installer is responsible for chipping, cracking, or other damage to fiberglass components, after delivery to the job-site and until installation is completed and inspected approved by the Owner's representative.

1.14 <u>WARRANTY:</u>

- .01 The manufacturer warrants that the delivered material supplied will conform to samples 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

.01 MANUFACTURER:

DecoForm Architect Inc. 26 Ashwarren Road Toronto, Ontario CANADA M3J 1Z5 Phone: (416) 745-4970 FAX: 416 745-6636 E-mail: sales@decoform.com

2.02 <u>MATERIALS:</u>

- .01 Show face shall be aggregate with polyester resin and ISO/NPG, ultra violet stabilized gelcoat. Standard color as per sample.
- .02 SandScape[™] shall consist of a glassfiber reinforced polyester composite with glass content and thickness to meet structural design. Additional stiffeners (as required) shall be encased in the fiberglass composite to ensure straightness and strength.
- .03 Anchors and fasteners: Type 304 stainless steel where exposed; hot dip galvanized steel where unexposed.
- .04 Units will be suitably reinforced with additional materials (such as wood, metal, etc.) as required.
- .05 Caulk joints where required, with Sonneborn Ultra , one-component elastomeric sealant or equivalent low modulus urethane product. Do not use acrylic based products. Color of caulk to be selected by Architect.

2.03	PHYSICAL PROPERTIES:		
.01	Glass Content		- 25% by weight
.02	Specific Gravity		- 1.7
.03	Shell Thickness		- 3/16 nominal - 1/8" min.
.04	Flame Spread Index (FSI)	(ASTM E84)	- (Class 1)(<25 FSR)
.05	Flexural Strength	(ASTM D790)	- 19,000 p.s.i.
.06	Flexural Modulus	(ASTM D790)	- 12,000
.07	Tension Modulus	(ASTM D790)	- 2.7 – 3.8-x 10 ⁶ p.s.i.
.08	Impact Strength	(ASTM D256)	- 16 ftlb./in.
.09	Barcol Hardness	(ASTM D2583)	- 35 - 60
.10	Weight		- 1.65 to 2.3 lbs/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, the Architect and the manufacturer. 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 condition.

.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, 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.
- .04 SandScapeTM units shall be handled with care and lifted with appropriate equipment.
- .05 SandScapeTM units shall be installed true and plumb, shimmed where necessary.
- .06 Caulk or fill all joints as required following Manufacturer's recommendations. Control joints shall be provided where required as specified by Architect.
- .07 Expansion joints shall be installed as per Architect's recommendation.

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 by whom, the damage was caused. Patching shall match the original work. Use Manufacturers recommended materials when available.
- .02 Patch all countersunk fasteners and damages to match unit texture, finished flush with face of unit. . Use Manufacturers recommended materials when available



Cutting DecoForm Material

Blade:

For Best results, use a Diamond Blade or Diamond Abrasive Wheel.

Tools:

Depending on the style and detail of the profile, a hand held Circular Saw or a Sawzall will do the trick.

Small Profiles:

Depending on the size and detail of the profile, one can construct a mitre box to house the shape, enabling the person to cut the form to it's preferred angle.

Large Profiles:

Depending on the size and detail of the profile, one would first support the shape in a manner that will best represent the position as it would be when fastened. On that surface, draw a line representing the desired angle. Slide a piece of wood along this angle against the profile. Cut the wood as close as possible to the new profile. Mark the new profile on the shape and proceed to cut.

26 Ashwarren Road, Toronto, ON, Canada, M3J 1Z5 Tel: (416-) 745-4970 Fax: (416) 745-6636



Frequently asked questions:

1. Does DecoForm install their products?

No, DecoForm is a manufacturer only. We do not install or take site measurements but we may be able to provide names of contractors in your area who have installed our products.

2. What is the difference between GRC and GFRC?

GFRC is a glassfiber reinforced concrete with a minimum thickness of ½". True GFRC incorporates cast-in-place steel skeletons with rebar outriggers which in turn are welded to the building structure. GFRC components can be supplied pre-colored.

GRC is glassfiber reinforced cement that is typically 3/8" thick and mechanically attached via screws. GRC is lighter in weight which makes it possible to install larger components without major lifting equipment. GRC is primed and painted on site.

3. What is the lowest cost vs most expensive material manufactured by DecoForm?

With projects of equal scope, SandScape is the most expensive material followed by FRP, GRC then GRG respectively.

4. Is there asbestos in DecoForm products?

There is no asbestos in any product manufactured by DecoForm.

5. What finishes can be used on DecoForm products?

SandScape and FRP are pre-finished, however FRP may also be painted. GRG components are typically primed then coated with compatible finishing material (check with finish material manufacturer). GRC components must be coated with a breathable primer then coated with a compatible overcoat (check with finish material manufacturer).

6. How are DecoForm products best cut?

All DecoForm products can be cut with tungsten or carborundum blades. If many parts are cut, diamond encrusted blades / wheels should be used.