SECTION 03490

PART 1 GENERAL

* 1. RELATED SECTIONS

All contract documents apply to work of this section: this includes but is not limited to: Drawings, Instructions to Bidders, General and Supplementary Conditions and Division One Administrative Sections of the Specifications.

1. Section 04720 – Cast Stone.
2. Section 05500 – Metal Fabrications: Supplementary supports for large Items.
3. Section 06100 – Rough Carpentry: Supplementary supports for large items.
4. Section 06610 - Glass Fiber Reinforced Plastic Fabrications.
5. Section 09235 - Glass Fiber Reinforced Gypsum Fabrications.
6. Section 09900 – Paints and Coatings: Field painting and sealing prior to painting.
	1. SECTION INCLUDES
7. Glass fiber reinforced concrete fabrications as indicated on the drawings.
	1. REFERENCES
8. ASTM International (ASTM)
	1. ASTM C 150 - Standard Specification for Portland Cement; 1999a.
	2. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 1999.
	3. ASTM G 23 - Standard Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials; 1996.
	4. SUBMITTALS
9. Submit under provisions of Section 01300.
10. Product Data: Manufacturer’s data sheets on each product to be used, including dimensions, finishes, storage and handling requirements and recommendation, and installation recommendations.
11. Shop Drawings: For custom items, provide drawings showing dimensions, layout, joints, details, and interface with adjacent work: include field measured dimension of the space where items are to be installed, if critical to proper installation.
12. Selection Samples: For Each product specified, two samples representing manufacturer’s full range of available finishes and textures.
13. Verification Samples: For each custom finish specified, two samples, minimum size 6 inches (150mm) square, representing actual product, color, and patterns.
14. Quality Assurance Submittals:
	1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
	2. Manufacturer’s Instructions: manufacturer’s installation instructions.
	3. Manufacturers Field Reports: manufacturer’s field reports specified herein.
15. Closeout submittals: Submit manufacturer’s standard warranty documents.
	1. QUALITY ASSURANCE
16. GFRC Parts and Installation to conform to ASTM Standards governing Molded Glass Fiber Reinforced Gypsum Parts, Namely: (Place ASTM Sections Here) including physical properties and tolerances. See 1.3 References.
17. Manufacturer Qualifications: Manufacturer shall have a minimum of 5 years experience having successfully supplied GFRC parts for other projects similar in scope and complexity for the work of this contract.
18. Installer Qualifications: Acceptable to manufacturer, experienced in work of this section and has specialized in installation of work similar to that required for this project.
19. Substrates to accept GFRC parts shall be installed straight and true within 1/8 in. in 8 linear ft. (3mm in 2500mm) in accordance to ASTM C1116 / C1116M and shall be free of obstructions and interference that prohibits the correct alignment and attachment of the GFRC part.
	1. DELIVERY, STORAGE, AND HANDLING
20. Transport, lift, and handle units with care, avoiding excessive stress and preventing damage: use appropriate equipment.
21. Store Products in manufacturer’s unopened packaging until ready for installation, in a clean dry area protected from weather, moisture and damage: store units upright and not stacked unless permitted by manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

1. Acceptable manufacturer: Spectis Moulders Inc.; 100 Cedar Dr.; P.O. Box 970; Niverville, MB, Canada R0A 1E0; ASD. Toll Free: 800-685-9981; Phone: 204-388-6700; Fax: 204-388-6710; Email: contactus@spectis.com ; Web Site: www.spectis.com
2. Substitutions: Not permitted.
3. Requests for substitutions will be considered in accordance with provisions of section 01600.

2.2 Physical Properties

1. Glass Fiber Reinforced Concrete Fabrications: High density concrete made of ASTM C 150 Portland cement, crushed stone, silica sand, and polymers reinforced with continuous filament glass fiber mat and structural reinforcing as required; asbestos free.
	1. Color: As selected from manufacturer's selection.
	2. Color: To match Architect's sample.
	3. Density: 140 pcf (2240 kg/cu m).
	4. Shell Thickness: 3/8” to 3/4 inch (9.5 mm), nominal.
	5. Surface Burning Characteristics: Flame spread index of 0, smoke developed index of 5; when tested in accordance with ASTM E 84. Fuel contribution of 3.
	6. Weather Resistance: No significant loss in strength or change in appearance after 200 hours accelerated weathering conducted in accordance with ASTM G 23.
	7. Flexural Strength: 1000 to 1800 psi (6.9 to 12.4 MPa).
	8. Modulus of Elasticity: 1.4x106 to 2.9 x106
	9. Compressive Strength: Over 5000 psi (34 MPa).
	10. Variation from Dimensions Indicated on Drawings: Plus and minus 1/8 inch (3 mm), maximum.
	11. Variation from Plane Along Edge or Surface: Plus and minus 1/16 inch per linear foot (1.5 mm in 300 mm), maximum.
	12. Outside Corner Radius: 1/16 inch to 1/8 inch (1.5 to 3 mm).
	13. Draft Angle: 3 degrees, minimum, on returns, setbacks, reveals, and grooves.
	14. Provide concealed anchorage points for plaster type wire anchors.
	15. Provide screwed or bolted anchors with reinforced holes through face of units.
	16. Provide anchors and reinforced anchoring points as indicated on drawings.

PART 3 EXECUTION

3.1 EXAMINATION

1. Do not begin installation until substrates have been properly constructed; verify that substrates are plumb and true.
2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
3. Check field dimensions before beginning installation. If dimensions vary too much from design dimensions for proper installation, notify Architect and wait for instructions before beginning installation.

3.2 PREPARATION

1. Clean surfaces thoroughly prior to installation.
2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the projects conditions.
3. Install supplementary temporary and permanent supports as required for proper installation.

3.3 INSTALLATION

1. Install in accordance with applicable code and manufacturer’s recommendations, plumb and true to line; shim where necessary.
2. Join pieces with cemented butt joints except at control and expansion joints.
3. Provide control joints at no more than 35 feet (10.5m) on center if not indicated on drawings.
4. Provided expansion joints where moving joints is substrate occur.

3.4 PROTECTION

1. Protect installed products until completion of project.
2. Touch-up, repair or replace damaged products before substantial completion.

END OF SECTION