



GFRC (Glass Fiber Reinforced Concrete)

CSI Section 11 68 10 Artificial Rock Play Structures

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Glass fiber reinforced concrete playground fabrications as indicated in the drawings.

1.2 RELATED SECTIONS

- A. Section 02881 - Playground Equipment and Structures
- B. Section 05500 - Metal Fabrications: Supplementary supports for large items.

1.3 REFERENCES

- A. ASTM C 150 - Standard Specifications for Portland Cement; 1999a.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 1999.
- C. ASTM G 23 - Standard Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials; 1996.
- D. ASTM F1487-11- Standard Consumer Safety Performance Specification for Playground Equipment for Public Use
- E. ASTM F2373-11 - Standard Consumer Safety Performance Specification for Public Use Playground Equipment for Children 6 Months through 23 Months
- F. Consumer Product Safety Council (CPSC) Handbook for Public Playground Safety

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including dimensions, finishes, storage and handling requirements and recommendations, and installation recommendations.
- C. Shop Drawings: For custom items, provide drawings showing dimensions, layout, joints, details, and interface with adjacent work; include use zones if critical for proper installation.
- D. Samples: For each custom finish specified, two samples, minimum size 6 inches (150mm) square, representing actual product, color, and patterns.





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1.5 QUALITY ASSURANCE

A. Installer Qualifications: Regularly engaged and experienced in the installation of playground structures certified by International Playground Contractors Association (NPCAI).

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Transport, lift, and handle units with care, avoiding excessive stress, and preventing damage; use appropriate equipment.
- B. Store products until ready for installation, in a clean dry area protected from damage; store units upright.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: The 4 Kids Inc., 4400 Oneal, Greenville, TX 75404. ASD. Tel: (903)454-9237. Fax: (903) 454-3642. Email: info@the4kids.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 MATERIALS

- A. 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: 140pcf (2240 kg/cu m).
 - 4. Shell Thickness: 1/2" to 2 inch, nominal
 - 5. Surface Burning Characteristics: Flame spread index of 0, smoke developed index of 5; when tested in accordance with ASTM E 84.





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6. Weather Resistance: No significant loss of strength or change in appearance after 200 hours accelerated weathering conducted in accordance with ASTM G 23.
7. Compressive Strength: Over 5000 psi (34 MPa).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly constructed.
- B. If substrate preparation is the responsibility of another contractor, notify Architect of unsatisfactory preparation before proceeding.
- C. Check field dimensions before beginning installation.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Install supplementary temporary and permanent supports as required for proper installation.

3.3 INSTALLATION

- A. Install in accordance with applicable code and manufacturer's recommendations; shim where necessary.
- B. Patch exposed anchor points to match color and texture of unit.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. Do not allow access to the structure until protective ground surfacing is in place, and inspections have been completed.

END OF SECTION

