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SECTION 13 34 23 FIBERGLASS BUILDINGS AND ENCLOSURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Freestanding, shop fabricated fiberglass reinforced plastic (FRP) composite buildings including the following:
 - 1. Doors and frames.
 - 2. Windows.
 - 3. Structural steel base.
 - 4. Electric service.
 - 5. Lighting.
 - 6. HVAC.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 05 50 00 - Metal Fabrications.
- C. Section 07 90 00 - Joint Protection.
- D. Section 08 71 53 - Security Door Hardware.
- E. Division 15 - HVAC services and connections.
- F. Division 16 - Electrical; electrical power service and wiring connections.

1.3 REFERENCES

- 1. ASTM E 72 - Standard Test Method of Conducting Strength Tests of Panels for Building Construction
- 2. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- 3. ASTM C 582 - Standard Specification for Contact Molded Reinforced Thermosetting Plastic (FRP) Laminates for Corrosion-Resistant Equipment
- B. American Society of Civil Engineers (ASCE):
 - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. Building Officials Code Administrators International (BOCA).
- D. FM Global.
- E. International Business Code (IBC).
- F. Universal Building Code (UBC).

1.4 DESIGN REQUIREMENTS

- A. Overall Outside Dimensions (in/mm):
 - 1. Length: _____.
 - 2. Width: _____.
 - 3. Eave and Wall Height: _____.
- B. Buildings shall conform to dimensions shown on Drawings.
- C. Waterproof, air tight, corrosion resistant, chemical resistant, lightweight, and environmentally aesthetic.
- D. Code Requirements:
 - 1. UBC.
 - 2. BOCA.
 - 3. State and local authorities having jurisdiction.
 - 4. Local authorities having jurisdiction.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
- C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Certificates: Product certificates signed by the manufacturer certifying material compliance with specified performance characteristics and criteria, and physical requirements.
 - 1. Welding certificates.
 - 2. Design Certification: Signed and sealed by a qualified professional engineer. Include the following:
 - a. Project name.
 - b. Manufacturer.
 - c. Contractor.
 - d. Dimensions of building.
 - e. Governing building codes.
 - f. Design loads.
 - g. Load combinations.
 - h. Building use categories.
- F. Warranty Documentation: For warranty as specified herein.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing FRP prefabricated structures with a minimum documented experience of five years.
- B. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in jurisdiction where Project is located.

- C. Prefabricated Components: Comply with manufacturer's published literature for products meeting indicated design loads in accordance with state and local requirements as applicable.
- D. Preconstruction and Preinstallation Meetings: Conduct meetings to verify project requirements, substrate conditions, utility connections, manufacturer's installation instructions, and warranty requirements. Comply with Division 1 requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Shrink-wrap the completed structure or building components with protective plastic for shipment to and storage at the job site.
 - 1. Support structure for shipment and handling to prevent warping and fracturing.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Protect all components and accessories from corrosion, deformation, damage and deterioration when stored at job site. Keep materials free from dirt and foreign matter.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

- A. Manufacturer's Warranties: Provide manufacturer's 1-year limited warranty on products of its manufacture to be free of leaks and defects in materials and workmanship from date of shipment.
- B. Provide manufacturer's warranties on all accessory items provided such as, but not limited to, lighting, doors, windows, and HVAC equipment.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Mekco a division of ConceptWorks, which is located at: 11110 Hwy. 42; Newton, WI 53063; Tel: 920-693-8163; Fax: 920-693-8165; Email: build@mekco.com; Web: www.mekco.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 PERFORMANCE REQUIREMENTS

- A. Cooperate with regulatory agency or authority and provide data as requested by authority having jurisdiction.
- B. Prefabricated structures and shelters specified herein shall be handicapped accessible in accordance with ICC/ANSI A117.1 and other state and local requirements as applicable.
- C. Design to sustain superimposed loads for load combinations in accordance with ASCE 7 and as applicable at the location of the project.

- D. Design to withstand effects of gravity loads and the following loads and stresses within limits and under conditions indicated.
 - 1. Determine loads based on the following minimum requirements:
 - a. Dead load of building.
 - b. Mechanical equipment.
 - c. Uniform pressure of 40 lbf per sq ft (1.92 kPa), acting inward or outward (standard).
 - d. Uniform pressure as indicated on Drawings.
 - e. Wind Load: Buildings: 120 mph (193.1 kph) (2000 IBC Exp. C).
 - f. Wind Load: Shelters: 90 mph (144.8 kph).
 - g. Wind Load: As indicated on Drawings.
 - h. Snow Load: Buildings and Shelters; 40 lbf per sq ft (1.92 kPa).
 - i. Snow Load: Buildings and Shelters; 30 lbf per sq ft (1.44 kPa).
 - j. Snow Load: As indicated on Drawings.
 - k. Live Load: Meet requirements of local authorities having jurisdiction.
 - l. Live Load: As indicated on Drawings.
 - 2. Stresses produced by specified load conditions shall be determined consistent with recognized methods of analysis.
- E. Energy Code: Meet energy code requirements for state where structure resides.
- F. Seismic Performance: Capable of withstanding effects of earthquake motions according to ASCE 7 - Minimum Design Loads for Buildings and Other Structures: Section 9 - Earthquake Loads.
- G. Average R Value of Assembled Building: _____.
- H. Electrical Devices: Devices UL listed with wiring bearing UL classification and conforming to the current NEC.

2.3 MATERIALS

- A. Resin:
 - 1. COR61-AA-545 Resin as manufactured by Interplastic Corporation. or equivalent.
 - 2. Orthophthalic polyesters. Fillers and additives may be used to achieve chemical resistance and fire-retardant properties specified.
 - 3. Suitable for Service Temperature Range: Minus 30 to 140 degrees F (minus 1 to 60 degrees C).
- B. Gel Coat: Isophthalic NPG, UV- stable, chalk resistant.
 - 1. Manufacturer: LHM-2900 Low Hap White HydroShield LITE, NPG/ISO Marine Gel Coat as manufactured and supplied by HK Research Corporation or equivalent.
 - 2. Color: White.
 - 3. Color: White high gloss.
 - 4. Color: As selected by the Architect from manufacturer's standard selections.
- C. Glass Fiber Reinforcing: Type E glass and treated with finish compatible to resin being used.
 - 1. Glass Fiber Chopped Roving: Manufactured by PPG, Owens Corning, or equivalent. Used for making random fibers 1-1/4 inch (32 mm) in length.
 - 2. Stitch Mat: Type CM-2415 or CDM-2415 manufactured by BTI, Knytex, or equivalent.
- D. Insulation: Ridged polyisocyanurate urethane foam designed for permanent thermal insulation.
 - 1. Functional Temperature Range: Minus 300 to 300 degrees F (Minus 184.4 to 148.9 degrees C).
 - 2. Thickness: 1 inch (25 mm).
 - 3. Thickness: 1-1/2 inch (38 mm).

4. Thickness: 2 inches (51 mm).
5. Thickness: As indicated on the Drawings.

2.4 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS

- A. Wall and Roof Building Panels: High gloss molded to desired structural architectural shapes.
 1. Uninsulated FRP Laminate Panels: 3/16 inch (5 mm) thick.
 - a. Isophthalic NPG Exterior Gel Coat: 18 mils (0.457 mm) minimum.
 - b. Glass Fiber Chopped Roving: 1-1/4 inch (32 mm) random fiber (minimum glass content to be 35 percent by weight).
 - c. Polyester structural laminating resin.
 2. Insulated FRP Laminate Panels: Two, 1/8 inch (3 mm) thick skins sandwiching a core of insulation.
 - a. Isophthalic NPG Exterior Gel Coat: 18 mils (0.457 mm) minimum.
 - b. Glass Fiber Chopped Roving: 1-1/4 inch (32 mm) random fiber (minimum glass content to be 35 percent by weight).
 - c. Polyester structural laminating resin.
 - d. Core Insulation: Solid polyisocyanurate urethane insulation.
 3. Panel Flanges: Minimum 1/4 inch (6 mm) FRP laminate.
 4. Perimeter Anchoring Flanges: 1/4 inch (6 mm) minimum thickness FRP laminates.
 - a. One layer of stitch mat laminated within the anchoring flange.
 5. Detachable roof.
 6. Roof Hatches: Bilco style roof hatch or equivalent.
 - a. Hatch Model and Size (in/mm) _____.
- B. FRP Panel Properties:
 1. Barcol Hardness: 35 minimum.
 2. Laminates with Stitch Mat and Random Chopped Fibers Warp Direction: Minimum values.
 - a. Tensile Strength: 61,400 psi (423338.1 kPa).
 - b. Tensile Modulus: 2.98 msi (20.54 gPa).
 - c. Compressive Strength: 44,500 psi (306816.7 kPa).
 - d. Compressive Modulus: 2.28 msi (15.72 gPa).
 - e. Flexural Strength: 73,700 psi (508143.6 kPa).
 - f. Flexural Modulus: 2.35 msi (16.20 gPa).
 3. Laminates with Random Chopped Fibers: Minimum values.
 - a. Tensile Strength: 12,500 psi (86184.5 kPa).
 - b. Tensile Modulus: 1.1 msi (7.58 gPa).
 - c. Compressive Strength: 22,700 psi (156511 kPa).
 - d. Compressive Modulus: 1.04 msi (7.17 gPa).
 - e. Flexural Strength: 23,800 psi (164095.2 KPa).
 - f. Flexural Modulus: 0.97 msi (6.69 gPa).
- C. Fabrication:
 1. Form individual segments on high gloss molds ensuring consistent dimensions of finished parts. Cast each segment in one piece.
 2. Laminate shall consist of alternating layers of stitch mat and/or chopped roving impregnated with resin.
 3. Form panel flanges and perimeter anchoring flanges to the interior of the building.
 4. Insulation: Bonded to interior and exterior laminate with resin.
 - a. Panels without a continuous and consistent bond between insulation and laminate are not acceptable.
 5. Interior Finish: White corrosion resistant FRP.
 6. Exterior Finish: White.
 7. Exterior Finish: White high gloss molded gel coat.
 8. Exterior Finish: Color as selected by the Architect from manufacturer's standard

selections.

2.5 DOORS AND FRAMES

- A. Doors and Frames (Grade II - Economy): FRP/Aluminum.
 - 1. Doors and frames: Industrial grade aluminum frame construction.
 - a. Double panel 6068.
 - b. Insulated between two FRP door panel skins.
 - 2. Hardware: Heavy-duty stainless steel.
 - 3. Triple Butt Hinges: 4 x 4 inch (102 x 102 mm).
 - 4. Closer/Hold Open Devices: Pneumatic.
 - 5. Inactive Leaf: Top and bottom bolts.
 - 6. Weather stripping.
 - 7. Seals: Threshold and header.
 - 8. Rain drip edge.
 - 9. Commercial lockset.

- B. Doors and Frames: (Grade I - Premium): FRP.
 - 1. Manufacturer: FRP Doors and Frames shall be as manufactured by Tiger Door, 1181 Garden Street, Greensburg, PA 15601; Tel: 724-832-4416; www.tigerdoor.com.
 - 2. Double Panel 6068.
 - 3. Face Panels: Chemical resistant, using a fiberglass- reinforced polyester resin system with light stabilizing additives.
 - a. Thickness: 0.090 to 0.125 inch (2.29 to 3.2 mm).
 - 4. Door Thickness: 1-3/4 inch (44 mm).
 - 5. Finish: All surfaces shall have a textured, semi-gloss, seamless gel coat Finish. Gel Coat coverage shall be 12 to 18 mils (0.305 to 0.457 mm) thick.
 - 6. Color: As selected by architect to match building exterior.
 - 7. Internal Construction:
 - a. Stiles and Rails: Rectangular and square high modulus pultruded fiberglass tubes.
 - b. Core material: Rigid polyurethane foam laminated to interior of face panels.
 - 1) Thickness: 1-1/2 inch (38 mm).
 - 2) "R" factor: 11-12.
 - c. Internal Reinforcements for Full Mortise Hinges: Solid FRP blocking and for thru-bolted hardware to be high modulus pultrusions.
 - 8. Fiberglass Reinforced Plastic Frames:
 - a. Head and Jamb: Pultruded fiberglass reinforced plastic, conforming to SDI requirements.
 - 1) Wall Thickness: 1/4 inch (6 mm) wall minimum.
 - b. Frame Profile: Double rabbeted with 5/8 inch (16 mm) stop.
 - 1) Face: 2 inch (51 mm).
 - 2) Jamb Depth: 5-3/4 inch (146 mm).
 - c. Joint Connection: Jamb to Head joints will be neatly mitered at 45 degrees.
 - d. Finish: 12 to 18 mil (0.305 to 0.457 mm) gel coat.
 - e. Color: Match door unless otherwise indicated.
 - f. Frame Corner Reinforcements (WxDxLxT): 4 x 4 x 5-3/8 x 1/4 inch (102 x 102 x 135.5 x 6 mm) pultruded fiberglass angle.
 - 9. Hardware and Fasteners: Highest grade corrosion resistant available.
 - a. Hinges: 4-1/2 x 4-1/2 inch (114 x 114 mm) NRP triple butt style in type 304 stainless steel.
 - b. Closer: On active panel only with hold open device.
 - 1) Advantage 4000 Series Closer:
 - a) Medium Duty, ANSI Grade 2.
 - b) UL Listed: UL10C Positive pressure rated conforming to UBC 7-2.
 - c. Lockset: Sargent, entrance function.

- d. Threshold: Solid FRP, 1/2 inch (13 mm) beveled profile.
- e. Integral to Passive Panel: Mortised flush bolts and full height astragal.
- f. Weatherstrip and Sweep: Full perimeter sealing.

C. Doors and Frames:

- 1. Everlast Insulated Utility Doors, Series 99 as manufactured and supplied by The Plyco Corporation.

D. Doors and Frames: Supplied by others.

- 1. Doors and hardware are specified in the appropriate Division 08 sections.
 - a. Provide opening with framing to accept installation of door.
- 2. Doors and hardware are listed in schedules on the Drawings.
 - a. Provide opening with framing to accept installation of door.

2.6 WINDOWS

- 1. Windows: Fixed windows and one slider with insect screen and positive locking device.
- 2. Windows: Additional fixed windows.
- 3. Windows: Additional horizontal sliding windows.
- 4. Windows: Vertical Sliding Windows.
- 5. Windows: One Cashier Window.
- 6. Windows: As indicated on Drawings.
 - a. Glazing: See Section 08 83 13 - Mirrored Glass Glazing.
 - b. Glazing: 1/4 inch (6 mm) thick, clear tempered safety glass.
 - c. Glazing: 3/4 inch (19 mm) thick, insulated, clear tempered safety glass.
 - d. Glazing: 1/4 inch (6 mm) thick, clear polycarbonate.
 - e. Glazing: With tint.
 - 1) Glazing Tint: Grey.
 - 2) Glazing Tint: Bronze.
 - 3) Glazing Tint: Green.
 - 4) Glazing Tint: As indicated on Drawings.
 - f. Glazing: Low E.
 - g. Glazing: Ballistic protection as specified.
 - h. Glazing: As indicated on Drawings.

2.7 STRUCTURAL STEEL BASE

- A. Base Material: 2 to 6 inch (51 to 152 mm) structural tube, channel, or angle steel welded frame and structural steel subflooring.
 - 1. Seamless .250 in (6 mm) flat deck plate
 - 2. Fork and crane liftable.
 - 3. Offset Steel Hold Down Lug Plates: 4, quarter-turn 6 x 4 x 1/4 in (152 x 102 x 6 mm).
 - 4. Epoxy painted, all surfaces
 - a. Color: Safety blue.
 - b. Color: As selected by the Architect from manufacturer's standard selections.

2.8 MISCELLANEOUS ITEMS

- A. Concrete Stainless Steel Anchor Bolts: Minimum 3/8 inch (9 mm). Diameter.
 - 1. Oversized Stainless Steel Plate Washers: Used to prevent localized stressing of the base flange.
 - 2. Conform to requirements of Section 05 50 00 - Metal Fabrications.
- B. Connection of Building Panels:
 - 1. Building Panel Connectors: Stainless steel hex bolts, flat washers, and hex nuts of size as determined by manufacturer's structural analysis, minimum 5/16 inch (8 mm).
 - 2. Permanently fused building assembly yielding a watertight one-piece structure.

- C. Louvers: As specified in the appropriate Division 05 Section.
- D. Base Gasket:
 - 1. Soft, closed cell, neoprene foam gasket material.
 - 2. Suitable for exposure to weather conditions at building location.
 - 3. Suitable for exposure to sewage and sewage gases.
 - 4. Thickness: 3/8 inch (9 mm) minimum.
- E. Wall and Roof Gasket:
 - 1. Soft PVC.
 - 2. Suitable for exposure to weather conditions at building location.
 - 3. Suitable for exposure to sewage and sewage gases.
 - 4. Thickness: 1/4 inch (6 mm) minimum.

2.9 ELECTRIC SERVICE

- A. Electrical Power Service: Provide in accordance with NEC Standards. 125 amp, 120/240 VAC, single-phase, 3-wire service with 8-16 circuit breaker panel.
 - 1. Copper wiring in surface mounted 1/2 inch (13 mm) minimum EMT conduit.
 - 2. Receptacles: 120-V GFCI power duplex receptacle with tester.
 - 3. Receptacles: 120-V spec grade power duplex receptacle.
- B. Electrical Conduits: Class 1, division 1 and 2 locations. Listed and labeled as defined in NFPA 70.
 - 1. Metallic Conduit:
 - a. EMT: Electrical metallic tubing Per ANSI C80.3 and UL 797.
 - b. PVC Coated Rigid Steel: 0.04 in (1 mm) thick coating. Per NEMA RN 1.
 - c. GRC: Galvanized Rigid Steel Conduit: Per ANSI C 80 and UL 6.
 - 2. Nonmetallic Conduit:
 - a. PVC: Rigid nonmetallic conduit, EPC-40 per NEMA TC 2 and UL 651.

2.10 LIGHTING

- A. Indoor Lighting Fixtures:
 - 1. Ceiling-mounted fluorescent light fixtures 48 inches (1219 mm) long with two 40-W lamps.
 - 2. Fixture Type: Ceiling-mounted fluorescent light fixtures 48 inches (1200 mm) long with two 32-W / T-8 lamps (standard).
 - 3. Fixture Type: Hi Abuse Fixture, Linear Fluorescent 40 Watts, Lamp Quantity 2, 120 V. Length 49.38 inches, width 9.25 inches, depth 3.38 inches, white, cold weather.
 - 4. Ceiling-mounted LED light fixtures 48 inches (1219 mm) long
 - 5. Switching: Provide single-pole switch mounted adjacent to door to control lighting fixtures (standard).
 - 6. Exit Signage: Exit signs shall be clearly marked. In the event of electrical power outage during use or occupancy in the press box, the exit signs will illuminate.
 - 7. Switching: Single-pole switch mounted adjacent to door to control lighting fixtures.
 - 8. Provide quantity of fixtures required to maintain illumination level.
 - a. Illumination Level: 20 foot-candles.
 - b. Illumination Level: 30 foot-candles.
 - c. Illumination Level: 50 foot-candles (standard).
- B. Outdoor Lighting Fixtures: High Abuse cold weather, linear fluorescent 40 Watt, Lamps, 120 Vac.
 - 1. Size (LxWxD): 49.38 x 9.25 x 3.38 inches (1254 x 235 x 86 mm).
 - 2. Fixture Type: Flood light, QTZ, RAB QF500W 120V, White.
 - 3. Fixture Type: Flood light, QTZ, RAB QF500W 120V, Bronze.
 - 4. Fixture Type: Wall Pack, Cooper XTOR1A-WT-PC1, white with photo cell

5. Switching: Provide single-pole switch mounted adjacent to door to control lighting fixtures.
 6. Switching: Provide photoelectric controller.
 7. Provide quantity of fixtures required to maintain illumination level.
 - a. Illumination Level: 20 foot-candles.
 - b. Illumination Level: 30 foot-candles.
 - c. Illumination Level: 50 foot-candles.
- C. Solar Powered Lighting Devices:
1. Solar powered internal lighting.
 2. Light Emitting Diode (LED) type illumination.
 3. Automatic Sensors which activate and deactivate lights.
 4. Interior illumination time frame between dusk to dawn.
 5. LED lights contained in vandal resistant box.
 6. No required connection to outside electrical grid source.
 7. Sealed 3-day battery power storage, maintenance free LED operation for up to 100,000 hours.
 8. Manual test switch.
 9. Solar panel and low voltage wiring harness supplied with lighting package.
 10. Mounting: Bracket for mounting Solar Panel to building.
 11. Mounting: Pole for mounting Solar Panel independently from shelter.
 12. Provide quantity of fixtures required to maintain illumination level.
 - a. Illumination Level: 20 foot-candles.
 - b. Illumination Level: 30 foot-candles.
 - c. Illumination Level: 50 foot-candles.
- D. Lighting Fixtures: Supplied only for wiring and installation by others.

2.11 HVAC

- A. Heating Unit: Wall-mounted and thermostatically controlled. Electric heater with fan-forced operation. Enclose heater in enameled steel cabinet. Sized to meet Project requirements.
- B. Heating Unit: Wall-mounted and thermostatically controlled. Infrared surface mounted convection heater. Sized to meet Project requirements.
- C. Heating Unit: Thermostatically controlled. Electric heater with fan-forced operation. Enclose heater in enameled steel cabinet. Sized to meet Project requirements.
- D. Heating Unit: Wall-mounted and thermostatically controlled. Corrosion resistant Electric heater with fan-forced operation. Enclose heater in stainless steel enclosure, Sized to meet Project requirements.
- E. Thru-wall Air Conditioning: Sized to meet Project requirements.
- F. Thru-wall Heating and Air Conditioning: Sized to meet Project requirements.
- G. Louvers: Extruded Aluminum Louvers with Insect Screens as manufactured and supplied by Sunvent Industries. Sized to meet Project requirements.
- H. Gravity Intake Damper with Insect Screen. Sized to meet Project requirements.
 1. Galvanized.
 2. Galvanized; motorized.
 3. Aluminum.
 4. Aluminum; motorized.
 5. FRP.

- I. Shutter Wall Mounted Exhaust Fan. Sized to meet Project requirements
 - 1. Galvanized.
 - 2. Aluminum.
 - 3. FRP.

2.12 ASSEMBLY

- A. Shop assemble complete building.
 - 1. Flanges between adjacent panels shall be factory bonded together with methyl methacrylate.
 - 2. Seal exterior edges of adjacent panels with color matched silicon sealant.
- B. Fit and bond appurtenances, formed separately, into openings cut in finished panel or integrally mold into panel. Bond attachments with glass fibers and resin from interior of panel.
- C. Resin seal cut all drilled edges.

2.13 EQUIPMENT BY OTHERS, INSTALLED BY MANUFACTUER

- A. Equipment Schedule:

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine supporting foundations for compliance with manufacturer's requirements, including installation tolerances and other conditions affecting performance of supporting members.
- B. Check installed anchor bolts for accuracy. Verify that bearing surfaces are ready to receive the work.
- C. Verify the rough-in of required mechanical and electrical services prior to placement of the structure.

3.2 PREPARATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. Clean surfaces thoroughly prior to installation.
- D. Commencement of installation constitutes acceptance of conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Field Assembly:
 - 1. Flanges between adjacent panels shall be bolted and gasketed.
 - 2. Use washers to avoid localized stresses.
 - 3. Seal exterior edges of adjacent panels with color matched silicon sealant.
- C. Install continuous neoprene gasket between perimeter anchoring flange and where panels

rest on supporting structure.

- D. Resin seal cut all drilled edges.
- E. Repair damaged panels.
- F. Minimum spacing and edge distances of concrete anchors shall conform to requirements of Section 05 50 00 - Metal Fabrications.
- G. Place on prepared concrete foundations and slabs provided as specified under Section 03 30 00 - Cast-in-Place Concrete.
- H. Anchor securely in place, allowing for required movement, including expansion and contraction.
- I. Connect mechanical services as specified under Division 15.
- J. Connect electrical services as specified in Division 16.

3.4 PROTECTION

- A. Protect installed buildings until completion of project.
- B. Touch-up, repair or replace damaged items before Substantial Completion.

END OF SECTION