

**PREFOAM - PERMANENT STADIUM SEATING RISER SYSTEM
FOR SEISMIC ZONES AND/OR RISER MONTED SEATING**

PART 1 – GENERAL DESCRIPTION

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections and manufacturer’s shop drawings apply to this section.

1.2 SUMMARY

- A. Provide PREFOAM EPS Geofom blocks that have been factory fabricated to fit project dimensions minimizing field cutting and site generated waste.
- B. Provide PREFOAM permanent metal riser system to provide selfsupporting framework for concrete floor slabs.
- C. This Section includes the following:
 - 1. Straight Riser system for Riser mount seating;
 - 2. Straight Riser system for seismic zone installations;
 - 3. Radius Riser system for radius platforms;
 - 4. Intermediate step forms.
- D. Related Sections include the following:
 - 1. Division 3 Section “Cast-in-Place Concrete” for concrete reinforcing and slabs poured on top of permanent riser forms.
 - 2. Division 5 for miscellaneous metal screws and power actuated fasteners.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: concrete platforms shall be continuously supported on Expanded Polystyrene Blocks (EPS). EPS blocks shall be EPS 15 with a minimum density of 0.90pcf and a minimum compressive resistance of 3.6psi at 1% deformation. EPS blocks shall be attached together using an approved Polystyrene adhesive. System must be capable of withstanding design loads as required by the governing Building Code and the design documents.

1.4 SUBMITTALS

- A. Shop Drawings: Show layout and dimensions of each permanent riser platform area. Indicate location, size, and gauge of riser and step forms. Provide cross section of each platform area indicating height and depth of each tier. Provide plan view of each layer of EPS with each part identified, located and dimensioned.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold formed metal parts from corrosion, deformation, and other damage during delivery, storage, and handling.

- B. Store cold formed metal parts, protect with a waterproof covering, and ventilate to avoid condensation.
- C. Protect EPS Block as follows:
 - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment;
 - 2. Protect against ignition at all times;
 - 3. Do not deliver EPS materials to project site before installation time;
 - 4. Complete installation and concealment of EPS materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 MANUFACTURER/DISTRIBUTER

- A. Available Manufacturer's: Subject to compliance with requirements, manufacturer's offering PREFOAM cold-formed metal framing and EPS and assembly methods that may be incorporated into the work include the following:

Stadium Seating Enterprises, Inc.

9325 Sky Park Ct., Ste. 250

San Diego, CA 92123

Phone: 844.773.3626

Attention: Taylor Moson

taylormoson@stadiumseating.com

www.stadiumseating.com

2.2 MATERIALS

- A. Steel Sheet: ASTM-A569 Hot-rolled Steel, ASTM-A366 Cold-rolled steel or ASTM-A621 Hot-rolled Pickled and Oiled Steel.
- B. Molded, Rigid Cellular Polystyrene EPS Geofoam Blocks: Comply with manufacturer's requirements, ASTM D6817 for EPS-15 and the following:
 - 1. Minimum density: 0.90 pounds per cubic foot;
 - 2. Flame-Spread and Smoke-Developed Indexes: 20 and 450 or less, respectively, per ASTM E 84;
 - 3. Minimum Compressive Resistance: at 1% deformation = 3.6 psi per ASTM D6817;
 - 4. Flexural Strength: 25-30 psi per ASTM C203;
 - 5. Tensile Strength: 16-23 psi per ASTM D1623;
 - 6. Shear Strength: 280-320 psi;
 - 7. Blocks shall contain no CFC's, HCFC's, HFC's, or formaldehyde

2.3 METAL RISERS FOR STANDARD FLOOR MOUNT SEATING

- A. Steel Risers for Straight or Radius Rows: Manufacturer's standard Z and U-

shaped cold rolled formed steel riser, drilled connector brackets and retainer straps, and as follows:

1. Minimum Uncoated-Steel Thickness: 12 GA;
2. Height: As indicated on Shop Drawings;
3. Length: As indicated on Shop drawings.

2.4 CONNECTING HARDWARE:

- A. Manufacturer's standard 16 GA formed steel connector brackets, connector straps, retainer straps, anchor cleats and associated parts for connecting risers end-to-end and securing risers to Geofoam as shown on shop drawings in place ready for concrete pour.
 4. Connector Straps: Fabricated to attach to inside face of forward riser forms with ½" self tapping screws and outside face rear riser forms with ½" self-tapping screws with each connector strap slotted to accept anchor cleats. Length: As indicated on shop drawings.
 5. Retainer Straps: Fabricated to attach to inside face of riser forms with ½" self tapping screws and slotted to accept anchor cleats. Length: As indicated on shop drawings.
 6. Connector Plates: Fabricated to attach to inside face of riser forms with ½" self tapping screws and join adjacent risers end to end without need for cutting or welding.
 7. Anchor Cleats: Fabricated to anchor retainer straps to Geofoam and secure bottom edge of riser plate to Geofoam.
- B. Step Forms: Manufacturer's standard 16 Gauge steel formed step forms as follows:
 1. Height, Width, and Depth: As indicated on shop drawings.

2.5 FABRICATION

- A. Fabricate 12 GA risers factory precut to fit all riser dimensions.
 1. Fabricate 16 GA connector straps, retainer straps, cleats, connector plates factory precut for installation.
 2. Marking and Identification: Individual risers and step forms shall be marked as follows:
 - i. Auditorium/Section number identification;
 - ii. Steel component identification corresponding to shop drawing steel layouts and Steel Component Schedule.
- B. Fabricate EPS blocks, square, and true to dimension.
 1. Factory cut block for delivery to jobsite and installation without the need for excessive field cutting.
 2. Retrofit Projects with preexisting sloped floors, fabricate block with slope consistent to existing floor slope;
 3. Ramp areas, fabricate block with slope consistent with ramp slope requirements.

- C. Marking and Identification: Individual EPS blocks shall be marked as follows:
 - 1. Auditorium/Section number identification;
 - 2. Layer I.D. code identification corresponding to shop drawing layout and EPS Schedule.

PART 3 - EXECUTION

EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.1 GENERAL INSTALLATION

- A. Install system in compliance with Architects plans and installation/shop drawings as prepared by Stadium Seating Enterprises, Inc.
- B. On retrofit projects with a preexisting sloped floor; Contractor to fill in any depressions or other conditions that would cause a compound slope to the floor surface. Existing floor surface must be sloped in only one back to front direction. Floor shall be constant elevation parallel to direction of platforms;
- C. PREFOAM EPS Installation: Install blocks in layers and locations as specified on shop drawings.
- D. EPS shall be layered over a continuous flat floor surface. If deviations exist, the installing contractor shall fill any dips, valleys, holes or other such deviations with a suitable permanent fill material to achieve a flat continuous floor elevation.
- E. Hold dimensions on shop drawings and Architect's plans.
 - 1. Place non-solvent based adhesive between each layer of EPS to tack in place during assembly;
- F. Metal Riser Installation: Install metal risers plumb and square for straight rows and/or field score and bend to required radius.
 - 1. Hold riser forms 4" forward of the EPS foam blocks to allow a 4" channel of concrete between the EPS and the inside face of the 12 GA riser forms;
 - 2. Starting from the left and right sides of each row, connect risers end-to-end with connector brackets;
 - 3. Field score top and bottom flange of riser to bend to shape for radius platforms as required;
 - 4. Insert expanding connector plate in the middle of the row and adjust length of the riser to the exact field dimension for that row;
 - 5. Push end cleat into EPS foam blocks at proper distance to hold riser straight and true;
 - 6. Install connector straps as detailed on the shop drawings;

7. Install retainer straps as detailed on the shop drawings;
 8. Push cleats into slots in connector and/or retainer straps to further anchor retainers into EPS foam block;
 9. Secure connector and/or retainer straps to risers with #10, pan head self-tapping screws;
 10. Install foam cleats along the bottom risers to anchor risers to EPS.
Note: Steel riser components should not require any field cutting if field dimensions are consistent with shop drawings . All risers are factory precut and delivered to the jobsit ready for installation.
- G. Step Form Installation: Install step forms in locations shown on shop drawings.
1. Screw step forms to each other (double step form) and to metal riser face with self-tapping sheet metal screws.
 2. Place EPS filler foam into step form as void filler for concrete pour.

NOTE: Do not weld risers or cut risers with torch in the same room as installed or stored EPS. Protect EPS against ignition at all times.

END OF SECTION