SECTION 11 61 00 – ORCHESTRA PIT SAFETY SYSTEM

SAFEPIT+® HD

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

• Division 01 Specification Sections apply to this Section.

Related Sections:

– Division 03 – Concrete.
– Division 04 – Masonry.
– Division 05 – Metals.
– Division 06 – Wood, Plastics, and Composites.
– Division 11 – Equipment.

1.2 SUMMARY

This specification describes the safepit+® Orchestra Pit Safety System, a proprietary orchestra pit safety system consisting of engineered equipment, assemblies, and components required to provide a performance surface at stage level over an orchestra pit. The system provides an acoustically transparent walking surface over the orchestra pit for use when the orchestra pit is used for musical performances.

Section Includes:

– Verification of site dimensions, existing conditions, and attachment conditions.
– Engineering, fabrication, furnishing, and installation of the safepit+® system.
– Manufacturer's Shop Drawings sealed by a professional structural engineer licensed in the project jurisdiction.
– Coordination with the Project Structural Engineer or Engineer of Record when required by the Contract Documents or when supporting conditions require coordination.
– Testing, demonstration, training, and closeout documentation.

1.3 PROPRIETARY PRODUCT

Basis of Design: safepit+® Orchestra Pit Safety System manufactured by Productions Unlimited, Inc., Roebuck, South Carolina.

The safepit+® Orchestra Pit Safety System is protected by U.S. Patent Nos. 9,631,385 and 10,221,581 and Canadian Patent No. 2,933,878.

This is a closed proprietary specification. Substitutions are not permitted unless specifically authorized in writing by the Owner and Architect and accepted by Productions Unlimited, Inc. Any approved substitution shall comply with all applicable requirements of the Contract Documents.

1.4 SYSTEM DESCRIPTION

Provide a removable orchestra pit safety system consisting of fixed attachment/support components and removable platform framing, woven wire mesh panels, solid decking panels, and associated hardware and accessories.

1.5 PERFORMANCE REQUIREMENTS

• Platform covered with solid decking panels: Minimum vertical live load, in addition to platform dead load: 150 pounds per square foot (PSF).
• Caster Load: Minimum 1,250-pound load applied through a single 16-inch diameter by 5-inch wide flat rubber tire. The caster load is concurrent with the 150 PSF uniformly distributed live load. The specified tire dimensions represent the design and tested load application condition.

- Platform with solid decking panels removed, mesh panel only: Minimum vertical live load, in addition to platform dead load: 20 PSF.
- Point Load Capacity without additional live load: 300 pounds.
- Lateral Live Loading: 10 percent of the applicable maximum vertical load with the vertical load imposed simultaneously.
- Maximum Allowable Deflection of Support Structure: L/360 of span.
- Uniformly distributed and concentrated loads shall be non-concurrent except for the HD caster load and 150 PSF live load specified above.

Coordination with Adjacent Surfaces:

  – Maximum horizontal and vertical space between solid decking panels and floor at stage level: 1/8 inch.
  – Maximum vertical space between mesh panels and stage level: 2 inches.
  – Maximum horizontal space between mesh panels: 2 inches.

- Building Code: International Building Code, current adopted edition.
- Built-In Work: Provide anchor bolts, inserts, plates, and other anchorage devices specified herein to be built into concrete, masonry, or work of other trades. Include templates and instructions necessary for proper placement.
- Supplementary Parts: Provide components and hardware necessary to complete the system in accordance with the Contract Documents.
- Design, fabricate, and install system components and connections to withstand stresses imposed by the specified design loads, including tension, compression, flexure, shear, and torsion as applicable.
- Design, fabricate, and erect steel structural components and fastenings in accordance with applicable AISC requirements. Perform welding in accordance with applicable AWS standards.
- Materials, components, processes, and workmanship shall comply with applicable codes, regulations, and standards identified in the Contract Documents.

1.6 STRUCTURAL ENGINEERING AND COORDINATION

Manufacturer's Structural Engineering: Provide engineering for the safepit+® system, including system components, connections, attachment requirements, and project-specific conditions affecting the Manufacturer's work. Shop Drawings shall be prepared and sealed by a professional structural engineer licensed in the project jurisdiction.

Standard Product Engineering: Standard components previously engineered and sealed by the Manufacturer's structural engineer may be incorporated into the system without separate project-specific engineering for each component, provided the components are used within their established design parameters and approved applications.

Existing Structures: Verify existing structural conditions at proposed attachment locations. Where existing construction is inadequate to support the safepit+® system, provide structural reinforcement or modifications as required to support the system and its specified design loads. Required reinforcement shall be designed and detailed by a professional structural engineer licensed in the project jurisdiction.

Structural Coordination: Where supporting structure or attachment conditions cannot be adequately determined from available information, coordinate with the Project Structural Engineer or Engineer of Record as necessary. For new construction, coordinate with the Project Engineer of Record as required by the Contract Documents and project structural review procedures.

Structural reinforcement or modifications required to support the safepit+® system shall be provided under the portion of the Contract indicated by the Drawings and Schedule of Work. Do not install the system until required supporting structural modifications have been completed and accepted by the responsible structural engineer.

1.7 SUBMITTALS

- Product Data and manufacturer's technical data.
- Manufacturer's installation instructions.
- Shop Drawings showing dimensions; materials and finishes; construction and modifications; component connections and hardware; installation procedures; component locations; attachment details; anchorage details; and project-specific conditions.
- Shop Drawings sealed by the Manufacturer's professional structural engineer licensed in the project jurisdiction.
- Preconstruction documents for approval before fabrication or installation.
- Project-specific installation drawings, cut sheets, schedules, plans, elevations, sections, and attachments.
- Operation and Maintenance Manuals.
- Parts Manual listing individual parts by number.
- Closeout Documents including Operation and Maintenance Data, Manufacturer's warranty, and As-Built Drawings.

1.8 QUALITY ASSURANCE

- Manufacturer: Productions Unlimited, Inc., Roebuck, South Carolina.
- Manufacturer shall have a minimum of five years' experience in the manufacture and installation of orchestra pit safety systems.
- Installer shall be experienced in installation of orchestra pit safety systems and shall be authorized in writing by Productions Unlimited, Inc. to install the safepit+® system.
- Manufacturer shall be capable of providing field service representation during construction and approving installation methods.
- Installation by an unauthorized installer is prohibited.

1.9 WARRANTY

- Provide a special Manufacturer's warranty for two years from the date of Owner acceptance against defects in materials and workmanship and improper adjustment of Manufacturer-furnished components.
- Powder coat and exterior finishes are excluded from the special warranty except to the extent otherwise stated in the Contract Documents.
- Replace or repair defective Manufacturer-furnished components within 30 days after notification, subject to the terms and exclusions of the warranty.
- Respond promptly to conditions that present a safety hazard and take corrective action in accordance with the warranty and Contract Documents.
- Warranty exclusions include misuse, abuse, unauthorized modification or alteration, damage caused by others, failure to properly maintain the system, normal wear and deterioration, improper installation by an unauthorized party, and operation outside specified operating or environmental conditions.
- Warranty exclusions apply only to the extent the excluded condition caused or contributed to the claimed defect or damage.
- Unauthorized cutting, drilling, welding, alteration, modification, or other changes to system components shall void the Manufacturer's warranty to the extent affected by such work.

1.10 PROJECT CONDITIONS

- Verify actual locations and dimensions of walls, stage structure, pit structure, and other construction contiguous with or supporting the system by field measurement before fabrication.
- Notify the Architect and responsible structural engineer of conditions that differ materially from the Contract Documents or approved Shop Drawings.
- Protect components from corrosion, deformation, contamination, and other damage during delivery, storage, and handling.
- Do not deliver or install materials until spaces are enclosed and weather tight, wet work is complete and dry, and HVAC is operating and maintaining ambient conditions suitable for installation.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- Productions Unlimited, Inc., Roebuck, South Carolina.

2.2 SYSTEM COMPONENTS

- Support Structure: Structural steel tube, steel sheet and plate, and associated engineered connection components.
- Platform Framing: Removable structural framing engineered as part of the safepit+® HD system.
- Woven Wire Mesh Panels: Steel framed mesh panels suitable for the specified loads and openings.
- •• HD Solid Decking Panels: Plywood, Grade B or better, double layer, with top lamination selected from the following:
  - – Laminated with tempered hardboard; finished on all sides with water-based paint and covered with inherently fire-retardant felt on bottom surface.
  - – Laminated with polyonyx+® Performance Flooring; plywood edges painted with water-based paint and covered with inherently fire-retardant felt on bottom surface.

2.3 HARDWARE AND CONNECTIONS

- Provide engineered connection hardware for all fixed and removable components as applicable to the system.
- Provide plastic retainer discs, threaded knobs, threaded receiver discs, threaded fasteners, and other hardware required for attachment and removal of components.

2.4 SAFETY COMPONENTS AND SIGNAGE

- Provide removable safety stanchions and high-visibility chain for removable conductor's hatch where applicable.
- Provide signage identifying maximum live load, maximum point load, and pertinent hazards, avoidance procedures, and consequences associated with the equipment.
- Provide laser-engraved black powder-coated aluminum plaque with characters 3/8 inch high; install as directed by the Architect.

2.5 ACCESSORIES AND SUPPLEMENTARY COMPONENTS

- Provide accessories and supplementary components required for a complete, fully functional system in accordance with the Contract Documents.

2.6 FABRICATION AND FINISHES

- Fabricate components to the dimensions and tolerances indicated in approved Shop Drawings.
- Provide factory finishes indicated in the Contract Documents. Touch-up materials shall be compatible with factory-applied finishes.

PART 3 – EXECUTION

3.1 EXAMINATION

- Examine substrates, attachment conditions, and work prepared by others. Report conditions that adversely affect installation to the Architect and responsible structural engineer before proceeding.
- Verify mounting surfaces are ready to accept installed components.
- Verify flatness, plumb, and level of mounting conditions.
- Inspect system components for damage from shipping or storage.
- Commencement of installation constitutes acceptance of preparatory work except for concealed conditions not reasonably discoverable by visual examination.

3.2 PREPARATION

- Verify field measurements at the site prior to installation and coordinate any required adjustments with approved Shop Drawings.
- Deliver equipment after the building has been closed in and conditioned.
- Coordinate storage at the site and protect materials and components from damage.
- Clean surfaces as necessary prior to installation.

3.3 INSTALLATION

- Install fixed attachment/support components and removable platform framing as shown on approved Shop Drawings.
- Install prefabricated mesh and solid decking panels onto the support structure and connection devices. Make only field adjustments and modifications specifically permitted by the approved Shop Drawings or authorized in writing by the Manufacturer.
- Do not cut, drill, weld, alter, modify, or otherwise change system components without written authorization from the Manufacturer.
- Field verify material routing and access to the theatre.
- Install components plumb, straight, square, and level at locations indicated on the Contract Documents and approved Shop Drawings.
- Fit exposed connections accurately together to form tight joints. Weld connections where indicated.
- Perform installation in accordance with OSHA requirements and applicable local codes.
- Perform welding in accordance with the latest applicable AWS requirements.
- Coordinate attachment to supporting structure with the responsible structural engineer.
- Touch up finishes disturbed during shipping and installation to match the original finish.

3.4 FIELD QUALITY CONTROL

- Verify system installation, connections, and component operation before Owner training.
- Correct deficiencies attributable to the Manufacturer or authorized installer.

3.5 TESTING, DEMONSTRATION, AND INSTRUCTION

- Demonstrate operation and use of the safepit+® system to the Owner's operational staff.
- Provide instruction on installation and removal of removable solid decking panels.
- Provide instruction on installation and removal of woven mesh panels.
- Provide instruction on installation and removal of removable platform framing.
- Schedule training at a time agreed upon by the Owner and not concurrent with system commissioning and testing.
- Provide instruction and maintenance manuals pursuant to Division 01.

3.6 PROTECTION AND CLEANING

- Protect completed work from damage until Owner acceptance.
- Remove debris, packaging, and temporary protections from the work area.

END OF SECTION