

SECTION 11 61 15 – ACOUSTICAL CLOUDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Types of theater and stage equipment required include the following:
  - 1. Acoustical Cloud System.
- B. Related Sections:
  - 1. Division 01 Section "Coordination Drawings" for requirements to coordinate the work of this Section with the construction elements indicated as "Coordination Drawing Content" and as required by the other Prime Contractors for the Project Coordination Drawings.
  - 2. Division 05 Section "Metal Fabrications" for overhead steel framing and supports for acoustical clouds.
  - 3. Division 11 Section "Stage Curtains and Rigging System."
  - 4. Division 26 Sections for lighting and lighting access systems mounted adjacent to acoustical clouds.

1.3 ACTION SUBMITTALS

- A. Product Data: Manufacturer's product data, assembly and installation instructions.
- B. Shop Drawings: Include plans, elevations, and details of typical connections and showing acoustical cloud component sizes, arrangements and edge details.
  - 1. Indicate coordination with related overhead components including structure, rigging, catwalks, lighting, ducts, piping, and other overhead components in the area of the acoustical clouds.
- C. Samples: For each color and finish for acoustical clouds.

1.4 INFORMATIONAL SUBMITTALS

- A. Warranty: Submit sample meeting warranty requirements of this Section.

1.5 MAINTENANCE MANUAL SUBMITTALS

- A. Maintenance Data: Include manufacturer's cleaning instructions.

1.6 QUALITY ASSURANCE

- A. Source Quality Control: Provide each type of theater and stage equipment and related accessories by a single manufacturer.
- B. Fabricator/Installer Qualifications: Firm with not less than five years of successful experience in fabrication and installation of stage equipment similar to those required for this project.

1.7 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at project site.
  - 1. Review specification requirements.
  - 2. Review installation procedures.
  - 3. Inspect project conditions.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Check conditions by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the work.
  - 1. When necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's written warranty indicating manufacturer's intent to repair or replace auditorium acoustical cloud components that fail in materials or workmanship within five years from date of Substantial Completion. Failures are defined to include, but are not limited to, the following:
  - 1. Fracturing or breaking of unit components which results from normal wear and tear and normal use other than vandalism.
  - 2. Delamination or other failures of glue bond of components.
  - 3. Warping of components not resulting from leaks, flooding, or other uncontrolled moisture or humidity.
  - 4. Failure of unit to perform acoustically in accordance with manufacturer's published data.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Galvanized Steel Sheet: Zinc coated carbon steel sheet of commercial quality, complying with ASTM A 526, G60 zinc coating, mill phosphatized; 0.075 inch (14 gage) minimum nominal thickness for structural members; 0.048 inch (18 gage) minimum for trim members.
- B. Aluminum: Alloy and temper recommended by manufacturer for strength and corrosion resistance, mill finish, ASTM B 221 for extrusions.
- C. Plywood: PS 1.

- D. Hardboard: ANSI/AHA A135.4, Class 1 tempered.
- E. Steel Hardware: Zinc coated, ASTM A 153.
- F. Fasteners: Manufacturer's standard non corroding through connection type; screws are not acceptable.

## 2.2 ACOUSTICAL CLOUDS

- A. General: Provide acoustical clouds designed for optimum sound reflection, which are self-supporting, adjustable, designed to mix and blend sound and reflect a maximum range of audible frequencies to the audience.
- B. Construction: Fabricate individual acoustical shell units of acoustical clouds on adjustable metal framework, capable of angular adjustment for proper blending and projection of sound.
- C. Frame: Fabricate framing members, base assembly, and braces from either cold-rolled galvanized steel or heavy gauge extruded aluminum shapes.
- D. Panels: Fabricate acoustical clouds of not less than 3/16 inch thick tempered hardboard on the front and back sides.
  - 1. Style: Panels shall be furnished in 8 foot by 10 foot rectangular units, as required to provide an adequate ceiling for the performing area it will serve.
  - 2. Panels shall have a 20 foot radius with a minimum face weight of 2.2 lb/sf.
- E. Finish: The face of the clouds shall be a hardwood birch, oak, or maple veneer with stain or clear finish as selected by Architect. All steel hardware and reinforcement on the clouds shall be either galvanized or bright zinc electroplated. All hardware above the clouds shall be painted black.
- F. Hardware: Each cloud shall be equipped with the necessary hardware to hang from recommended 1-1/2" schedule 40 steel pipe and cloud shall be supported at each corner and not more than 24 inches o.c., 3/16" grade 30, proof coil black chain shall be used to support the clouds from the pipe above. Rated screw pin shackle shall be used for attachment.
- G. Manufacturer shall "aim" clouds in best suited position for layout indicated and to achieve the optimum acoustical benefit for the area they serve.
- H. Configuration/Dimensions: As shown on the drawings
- I. Manufacturer: Subject to compliance with requirements, provide one of the following acoustical clouds:
  - 1. Wenger Corporation; "Acoustical Clouds."
  - 2. Conwed Corporation; "Respond Curved Reflective Ceiling Clouds."
  - 3. Pittsburgh Stage; "Acoustical Panel."
  - 4. SECOA; "Ceiling Reflector System."
  - 5. RCB Associates; "Millennium Series."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine jobsite conditions for compliance with requirements for installation tolerances, including required overhead clearances, and other existing conditions affecting installation and performance of acoustical clouds. Proceed with unit installation upon correction of unsatisfactory conditions.

3.2 ACOUSTICAL CLOUD INSTALLATION

- A. Install acoustical cloud units plumb, level and true, in accordance with manufacturer's recommendations and approved submittals. Suspend from overhead structure using specified installation accessories.

3.3 CLEANING

- A. Clean exposed surfaces of acoustical clouds. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Repair or replace defective work as directed by Architect upon inspection.

END OF SECTION 11 61 15