

Section 09800

ACOUSTICAL WALL / CEILING SYSTEMS (SHOOTING RANGE)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and Supplementary conditions.

1.2 SUMMARY

- A. This section includes:
 - 1. Acoustical wall systems
 - 2. Acoustical insulation
- B. Related sections
 - 1. Division 1 "LEED Requirements"
 - 2. Section 05400 – Cold Formed Metal Framing
 - 3. Section 05500 – Metal Fabrications
 - 4. Section 06100 – Rough Carpentry
 - 5. Section 06202 – Interior Finish Carpentry
 - 6. Section 07212 – Board and Batt Insulation
 - 7. Section 07900 – Exterior Joint Sealers
 - 8. Section 07920 – Interior Joint Sealers
 - 9. Section 08347 – Sound Control Doors
 - 10. Section 09260 – Gypsum Board Assemblies
 - 11. Section 13085 – Acoustical Floor Isolation System

1.3 DEFINITIONS AND REFERENCES

- A. NRC: Noise Reduction Coefficient
- B. STC: Sound Transmission Class
- C. American Society for Testing and Materials (ASTM):
 - ASTM C423-90a: Standard Specification for Testing Noise Reduction Coefficient.
 - ASTM E84: Standard Test Method for Surface Burning Characteristic of Building Materials.

1.4 SUBMITTALS

- A. Comply with Section 01300.

- B. Product Data: For each type of panel edge, core material, and mounting indicated.
- C. Manufacture Coordination Drawings: Show intersections with [**wall base,**] [**doors,**] [**electrical outlets and switches,**] [**thermostats,**] [**lighting fixtures,**] [**air outlets and inlets,**] [**speakers,**] [**sprinklers,**] [**access panels,**] and other adjacent work. Show operation of [**doors**].
- D. Samples for Verification: For the following products. Prepare Samples from same material to be used for the Work.

Panel Edge: 12-inch- long Sample showing edge profile, corner, and finish.

Core Material: 12-inch- square Sample showing corner.

Mounting Device: Full-size Sample.

- E. LEED Submittals:

Manufacturer's product data verifying compliance with GREENGUARD certification IEQ Credit 3.

- Building insulation (Greenguard or specified as no added urea-formaldehyde resins)
- Acoustical ceilings or wall panels (Greenguard)

- F. Product Certificates: For each type of acoustical wall system, signed by product manufacturer.
- G. Qualification Data: For fabricator and testing agency.
- H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of acoustical wall system.
- I. Maintenance Data: For acoustical wall boards to include in maintenance manuals.
- J. Warranty: 5 year defective material and acoustical performance.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Source Limitations: Obtain acoustical wall board through one source from a single manufacturer.
- C. Fire-Test-Response Characteristics: Provide acoustical wall system with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

Flame-Spread Index: 5 or less.

Smoke-Developed Index: 0 or less.

- D. Reverberation time for the completed facility shall be 1.3 seconds or less.

Tactical: Acoustical Wall System on all walls and baffles

Fixed Point: Acoustical Wall System on all walls and baffles 45 feet to front, rear and above shooter.

- E. NRC for the completed facility shall be a minimum NRC value of 1.1.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Comply with acoustical wall system manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.
 - B. Deliver materials and panels in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.
 - C. Protect panel edges from crushing and impact.
- 1.7 PROJECT CONDITIONS
- A. Environmental Limitations: Do not install acoustical wall system until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 - B. Lighting: Do not install acoustical wall panels until a lighting level of not less than 50 fc is provided on surfaces to receive acoustical wall system.
 - C. Air-Quality Limitations: Protect acoustical wall system from exposure to airborne odors, such as tobacco smoke, and install panels under conditions free from odor contamination of ambient air.
 - D. Field Measurements: Verify locations of acoustical wall boards by field measurements.
- 1.8 WARRANTY
- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of acoustical wall system that fail in performance or materials within specified warranty period.

Failure in performance includes, but is not limited to, acoustical performance.
Failures in materials include, but are not limited to, distorting or releasing from panel edge; or warping of core.
Warranty Period: Five (5) years from shipment date.
- 1.9 EXTRA MATERIALS
- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Wall System Mounting Devices: Full-size units equal to 5 percent of amount installed, but no fewer than 5 attachment devices.
 - 2. Acoustical Insulation: 1 bale.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Troy Acoustics Corporation 15904 Strathern St. #4 Van Nuys, CA 91406-1314
Telephone: 1-800-987.3306
Fax: 1-818-376-8495
Website: www.troysoundwalls.com
E-mail: billb@troysoundwalls.com

2.2 MANUFACTURED UNITS

- A. Cement Wood Fiber Board: ASTM C 612, Type IA or Types IA and IB; density of not less than 4.5 lb/square foot with an one inch section, unfaced, dimensionally stable 2" thick x 24" wide x 96" long, saw cut rigid board, paintable, impact resistant, bullet absorptive, with maximum flame-spread and smoke-developed indexes of 5 and 0, respectively.
- B. Mineral Wool Insulation: 1 ½" thick x 24" wide x 48" high, maximum flame-spread and smoke-developed indexes of 5 and 0, respectively.
- C. System Performance
- a. Sound Absorption Coefficients: Type B and A mountings, ASTM C423-90a.

Frequencies (Hz)	125	250	500	1,000	2,000	4,000	NRC
2" thick w/ 1.5" wool	1	1.14	0.91	0.82	1	.93	0.95
 - b. Fire Rating: The system shall be considered noncombustible per ASTM C 136 & complies with ASTM C 665 Type I. Surface burn characteristics per ASTM E 84.
 - c. Water Resistance: The system shall maintain acoustical performance requirements in exterior applications in adverse weather conditions, rain, humidity, snow, or extreme heat.
 - d. Bullet Absorption: System shall bullets to penetrate or pass, never ricochet, without noticeable deformation.

2.3 ACCESSORIES

- A. Acoustic Caulking: Non-toxic, nonsag, paintable, nonstaining latex sealant complying with ASTM C 834.

PART 3 - PRODUCTS

3.1 EXAMINATION

- A. Examine substrates, blocking, and conditions, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of acoustical wall panels.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install acoustical wall system in locations indicated with vertical surfaces and edges plumb, top edges level and in alignment with other boards, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations. Boards to be saw cut and fastened to metal furring strips with #14 x 3" self tapping hex head screws with washers at 24" O.C. Insulation to be knife cut and installed within 'z'-channel furring strips fastened to wall at 24" O.C.
 - 1. Cut units to be at least 50 percent of unit width, with facing material extended over cut edge to match uncut edge. Scribe acoustical wall panels to fit adjacent work. Butt joints tightly.
- B. Comply with acoustical wall system manufacturer's written instructions for installation of panels using type of concealed mounting accessories indicated or, if not indicated, as recommended by manufacturer. Anchor panels securely to supporting substrate.
- C. Installation Tolerances: As follows:
 - 1. Variation from Level and Plumb: Plus or minus 1/16 inch.
 - 2. Variation of Panel Joints from Hairline: Not more than 1/16 inch wide.
- D. Finish by others. Coordinate with Architect.

3.3 CLEANING

- A. Clean adjacent surfaces and remove unused product and debris from site.
- B. After installation is completed, clean soiled surfaces of materials.
- C. Remove and reinstall improperly installed material.
- D. Remove damaged or discolored material, or material that cannot be properly cleaned, and install new material.

3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure that acoustical wall panels are without damage or deterioration at time of Substantial Completion.
- B. Replace acoustical wall boards that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 09800

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