

## SECTION 092313

### ACOUSTICAL GYPSUM PLASTERING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes Acoustical Ceiling System Plastering, complete, as shown and specified.
- B. **Description: The Acoustical Plastering System, wire hangers, main runners, cross tees, wall angle moldings and perimeter trim (Addendum 03)**
- C. Related Sections:
  - 1. Gypsum Board: Section 092900.
  - 2. **Acoustical Panel Ceilings: Section 095113 (Addendum 03)**

##### 1.2 SUBMITTALS

- A. Product Data: Submit for Owner's Representative's action. Submit manufacturer's literature and installation instructions for each material and accessory, clearly notating specified requirements.
- B. Shop Drawings: Submit for Owner's Representative's action. Submit shop drawings for the fabrication and installation of the Work. Prepare details at not less than 3 in. = 1 ft. scale. Submit Base Drawings, Approved Detail Drawings and Field Measurements.
  - 1. Show dimensioned wall elevations or ceiling plans with joint locations, mounting details, transitions details to adjacent work, design, weight, thickness, color and other data necessary to install the work and coordinate work with other affected trades.
- C. Samples: Submit for Architect's action. Furnish sufficient samples to establish full range of colors and textures for materials exposed in the finished Work, but not less than two 8 1/2 in. by 11 in. samples in finishes selected by Owner's Representative. Label samples to indicate product and location in the Work. Samples will be reviewed for appearance only. Compliance with other requirements is the responsibility of the Contractor.
- D. Quality Assurance/Quality Control Submittals: Submit for Owner's Representative's information.
  - 1. Certificates:
    - a. Document Review: Submit a written statement signed by the Contractor and the Applicator stating that the Contract Documents, shop drawings and product data have been reviewed with qualified manufacturer representatives. The statement shall certify that selected materials are proper, compatible with contiguous materials and adequate for the application shown.
    - b. Installer's Qualifications

c. Acoustical Performance Certification

- 1) Acoustical Performance: Submit Certified Acoustical Performance Sound Absorption Test data reports, conducted by a recognized, independent, testing agency. Sound absorption reports shall not be more than 3 years old.
- 2) Fire Hazard: Evidence of compliance with regulatory agency and specification requirements.

E. LEED Submittals:

1. Complete the LEED Material Buyout Form (MBoF) with all materials provided to the project. A complete submittal includes providing all material costs in the MBoF and all of the supporting documentation for the credits.

1.5 QUALITY ASSURANCE

- A. Qualified Installer: Installer to have 5 years' experience in the installation of specified materials on comparable projects. The firm shall have the approval of the materials manufacturer.
- B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, and regulations of Authorities Having Jurisdiction (AHJs). Obtain necessary approvals from AHJs.
- C. Mock-Up: Install mock-up, not less than 7 ft. by 7 ft., of sound absorptive finish system. Obtain mock-up acceptance before any additional applications. Accomplish work to equal or exceed standard established by accepted job site mock-up.
- D. Pre-Installation Meetings: Before the start of Work, meet at the Project site to review methods and sequence of installation, special details and conditions, quality standards, testing and quality control requirements, job organization and other pertinent topics related to the Work. The meeting shall include the Owner, Owner's Representative's consultants, Contractor, and subcontractors whose work is relevant to this Specification Section.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Allow materials to become acclimated to Project conditions before installation.
- B. Ship and deliver in protective packaging to prevent freight damage.
- C. Store materials in accordance with manufacturer's recommendations in a fully enclosed space where materials will be protected against damage from moisture, direct sunlight, surface contamination and other causes. All wet work must be completed in area of storage.

1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with requirements of referenced plaster application standards and recommendations of product manufacturer for environmental conditions before, during and after installation.
- B. Ventilation: Ventilate building spaces as required to remove excess moisture to promote drying of applied material.

- C. Protect contiguous work form soiling, splattering, moisture deterioration and other harmful effects that may be caused by the application of the material.

PART 2 - PRODUCTS

2.1 LEED REQUIREMENTS

- A. Interior Wet Applied Products: All wet-applied on-site paints, coatings, adhesives, and sealants products provided under Part 2 of this specification section shall be compliant with the VOC limits outlined under IEQc2: Low Emitting Materials in 018113 Sustainable Design Requirements. In addition, all paints and coatings shall be compliant with CDPH Standard Method v1.2-2017 emissions testing with proper unexpired CDPH testing certificates or acceptable third party certification.
- B. Ceilings, Walls, Thermal and Acoustic Insulation: All ceilings, thermal insulation, acoustic insulation, products provided under this specification section shall be compliant with CDPH Standard Method v1.2-2017 emissions testing with proper unexpired CDPH testing certificates or acceptable third party certification.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Comply with the applicable provisions of the referenced standards, except as modified by governing codes and the Contract Documents. Where a recommendation occurs in the referenced standards, it shall be considered mandatory. In the event of conflict, the more stringent standard or requirement shall govern.
  - 1. American Society for Testing and Materials (ASTM)
    - a. ASTM C423: Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
    - b. ASTM E795: Standard Practices for Mounting Test Specimens During Sound Absorption Tests.
    - c. ASTM E84: Standard Test Method for Surface Burning Characteristics and Building Materials. Class A Fire Rating.
- B. Performance Requirements:
  - 1. Noise Reduction Coefficient (NRC) for the 1.57" (40 mm) system shall be 0.80 as per ASTM C 423-07 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method. Specific performance of the 1.57" seamless absorptive plaster system shall be as follows:

Frequency, Hz	Absorption Coefficient
100	0.20
200	0.39
400	0.87
800	0.95
1,000	0.94

1,250	0.90
1,600	0.85
2,000	0.81
2,500	0.79
4,000	0.68
5,000	0.66

**2.3 MANUFACTURER (Addendum 03)**

**A. Acoustical ceiling system:**

1. **Basis-of-Design: ACOUSTIBuilt by Armstrong World Industries, Inc., or equal.**
2. **Finish:**
  - a. **Joint compound**
  - b. **Spray Applied Finish by Armstrong World Industries, Inc.**
3. **Suspension and Perimeter Trim Systems: Armstrong World Industries, Inc.**
4. **Soffit Construction: Armstrong World Industries, Inc Drywall Grid SimpleSoffit™**

5.

**2.4 MATERIALS (Addendum 03)**

**A. Acoustical Panels**

- a. **Surface Texture: Fine**
- b. **Composition: Mineral Fiber**
- c. **Color: White (Fine Texture Finish for ACOUSTIBuilt panels)**
  - i. **Custom Colors: Greater than LRV 0.70**
- d. **Size: 48 in x 72 in x 7/8 in - Item #2604**
- e. **Edge Profile: Tapered edges four sides**
- f. **Noise Reduction Coefficient (NRC): ASTM C 423; Panel 0.80 (UL)**
- g. **Ceiling Attenuation Class (CAC): ASTM C 1414; Panel 46 (UL), System up to 48**
- h. **Sabin: Cloud Applications: 0.80 Sabins/SF & 1.33 Sabins/SF with infill item 8200T10**
- i. **Flame Spread: ASTM E 1264; Class A**
- j. **Light Reflectance (LR) White Panel: ASTM E 1477; 0.87**
- k. **Dimensional Stability: HumiGuard Plus**
- l. **Recycle Content: Post-Consumer and Pre-Consumer – up to 75%**
- m. **Material Ingredient Transparency: Health Product Declaration (HPD); Declare Label**
- n. **Life Cycle Assessment: Third Party Certified Environment Product Declaration (EPD)**
- o. **Acceptable Product: ACOUSTIBuilt panels #2604 No added formaldehyde as manufactured by Armstrong World Industries**

**B. Finish**

- a. **Joint Compound**
  - i. **Setting Compound: Lightweight setting-type drywall joint compound, Ultra lightweight drying-type drywall joint compound**
  - ii. **Joint Tape: Self-Adhesive mesh drywall joint tape (Panel to Panel)**
    1. **Use Setting Type Compound for initial coats and use Drying Type Compound for final coats per the installation instructions. DO NOT use any other type of drywall compound such as All-Purpose Compound.**

2. Paper tape at the wall intersection
- b. Spray Applied Finish – Required Product: #2605WH Fine Texture Finish for ACOUSTIBuilt panels – White as manufactured by Armstrong World Industries.

**C. Suspension Systems**

- a. Armstrong Drywall Suspension Systems all main beams and cross tees shall be commercial quality hot-dipped galvanized steel
  - i. Main beam: manufactured main beam- 1-1/2" knurled face with ScrewStop™ reverse hem by 1-11/16 inches high. Drywall Main Beams are factory punched with cross tee routs, hanger wire holes, and SuperLock™ main beam clip for a strong secure connection and fast accurate alignment. Drywall Main Beams are Heavy-duty performance per ASTM C635
  - ii. HD8906 - 12ft HD Drywall Main Beam 1-1/2 in
- b. Cross Tees: manufactured cross tee- 1-1/2" knurled face with ScrewStop™ reverse hem by 1-1/2 inches high with factory punched cross tee routs and hanger wire holes and XL stake on clip for a strong secure connection.
  - i. XL8945P - 4ft Drywall Cross Tee
- c. Wall Molding:
  - i. KAM12 - 12ft Knurled Angle Molding 1-1/4" Face
- d. Hanger wire: a Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least time three times the design load, but not less than 12-gauge.
- e. Fasteners (for Panel attachment)
  - i. #6 x 1-5/8" Fine thread drywall screws
  - ii. Recommended Adhesives: Loctite PL Premium Polyurethane Construction Adhesive, OSI F38 Drywall Panel Adhesive.
- f. Perimeter Systems
  - i. Commercial quality extruded aluminum alloy 6063 trim channel, factory finished in baked polyester paint. Commercial quality galvanized steel unfinished T-bar connection clips; galvanized steel splice plates.
    1. Color: White
    2. Size: 120 in X 4 in and 6 in
    3. Recycle Content: Post-Consumer - 50% Pre-Consumer - 0%
    4. Acceptable Product: AXIOM One Piece for Drywall, 4in & 6in Straight – AX1PC4STR or Curved AX1PC4CUR as manufactured by Armstrong World Industries
  - ii. Axiom Trim Channel:
    1. AX4STR 4in Axiom Classic Straight
    2. AX1PC4STR 4IN One –Piece Drywall Trim
  - iii. Axiom Bottom Trim with taping flange
    1. AXBTASTR – Bottom Trim for ACOUSTIBuilt (also available in curved)
  - iv. Axiom Accessories:
    1. AXSPICE - Splice Plate

**PART 3 - EXECUTION**

**3.1 GENERAL**

- A. Manufacturer's Instructions: Prepare substrates and install the work, including components and accessories, in accordance with the manufacturer's instructions, except where more

stringent requirements are shown or specified. Examine the areas to receive the Work and remedy detrimental conditions.

- B. Prior to installation, contact your Armstrong Installation Systems Specialist (ISS). Before installation, inspect previous work of all other trades. Verify that all work is complete and accurate to the point where this installation may properly proceed in strict accordance with framing shop drawings. (Addendum 03)**
- C. Verify that all mechanical and electrical services within area of application has been tested and approved, prior to commencement of application.

### **3.2 SUSPENSION SYSTEM INSTALLATION (Addendum 03)**

- A. The system installation is similar to a conventional drywall installation. However, there are key differences in both material substrate and methods of finishing and installation that make this system unique. Installers should review and follow all written directions of the installation instructions.**
- B. Installation: In accordance with all approved plans, details, and manufacturer's installation guidelines located in the Armstrong ACOUSTIBuilt Assembly and Installation Instructions (BPLA-299099) and Drywall Grid Systems Hanging and Framing Flat Ceilings Installation Guides (BPCS3539).**
- C. Install seismic components as specified on the architectural plans.**
- D. Suspend main beam from overhead construction with hanger wires spaced 4-0 ft. on center along the length of the main runner. Install hanger wires plumb and straight.**
- E. 48" Cross tees shall be installed 16" on center. Extra cross tees are required at 72" every 12'. All 4 panel edges must be supported by a grid main or tee.**
- F. Install wall moldings/perimeter trim at intersection of suspended ceiling and vertical surfaces**
- G. Main runners and cross tees shall be attached at perimeter conditions**
- H. When determining the grid layout, consider the long edges of the boards must run parallel with the mains.**
- I. This system relies on a square grid system to ensure panel edges align at centers of cross tees. If the installation does not meet these squareness requirements, the panel edges may run off the grid system.**
- J. The system must be square to within 1/8" over a 48" x 48" module.**
- K. The suspension system must be leveled to within 1/4" in 10'.**
- L. Floating perimeters must be trimmed with either Axiom® One-Piece Drywall Trim or Axiom® Classic with Bottom Trim for ACOUSTIBuilt™. Refer to the installation instructions for integration with ACOUSTIBuilt installations.**
- M. Install access doors where plenum access is required.**

### 3.3 PREPARATION (Addendum 03)

- A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.
- B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

### 3.4 INSTALLATION (Addendum 03)

- A. Follow manufacturer installation instructions. Armstrong ACOUSTIBuilt Assembly and Installation Instructions (BPLA-299099)
  - a. Control joints are required following the standards used for gypsum board listed in ASTM C840, Section 20
    - i. Ceilings with perimeter relief cannot exceed 50 LF and 2500 SF between control joints
    - ii. Ceilings without perimeter relief cannot exceed 30 LF and 900 SF between control joints
  - b. Panel joints and fasteners are finished with tape and compound to create a flat surface. While the materials used to finish ACOUSTIBuilt panels are also used to finish drywall, the procedure has unique requirements.
  - c. Joint compound coverage shall be limited to preserve the acoustical performance of the panels. Compound at panel joints shall not exceed 8 inch widths. Compound applied to field fasteners shall not exceed 2 inch by 2-inch areas. All compound shall be smooth and free of tool marks and ridges. Panels are to be finished with taping knives. Production tools, including boxes, are detailed on the installation instructions.
  - d. Sanding and inspection: Throughout the sanding process, inspect the surface frequently for flatness. Direct a light across the ceiling to highlight unevenness that requires attention.
  - e. Fine Texture Finish shall be applied in 4-5 coat process (additional coat may be used to achieve the desired finish) as called out in the installation instructions. Fine Texture Finish for ACOUSTIBuilt is applied in multiple coats, layered to achieve a uniform appearance and acoustical performance. It is strongly encouraged to practice spraying to ensure proper calibration and technique are achieved. Refer to the installation video.
    - i. ACOUSTIBuilt fine texture finish **MUST** be sprayed with a Graco Mark V texture system. This equipment properly atomizes the finish for acoustics and aesthetics. Fine texture finish is not intended for use with any other airless paint systems not recommended by Armstrong or to be applied by brush or rolling.

- ii. See Manufactures installation instructions for correct spray tip, pressure settings for spray system, finish preparation, spray calibration and spray procedure and technique.

**B. ADJUSTING AND CLEANING**

- a. To remove soot, dirt, and dust use a vacuum operating at low power with a soft brush or use a dry soot cleaning sponge.
- b. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage.

3.5 PROTECTION

- A. Protection: Protect finishes from damage during construction period.

**END OF SECTION**

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