**SECTION 09 80 00

 09 84 13 Fixed Sound Absorptive Wall Panels**

# Part 1 – General

## 1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

## 1.2 SUMMARY

1. Related Sections
2. Section 09 83 00 – Acoustical Finish
3. Section 09 20 00 - Plaster and Gypsum Board
4. Section 09 22 16 - Non-Structural Metal Framing
5. Section 01 81 13 - Sustainable Design Requirements
6. Section 01 81 19 - Indoor Air Quality Requirements
7. Section 02 42 00 - Removal and Salvage of Construction Materials
8. Division 26 - Electrical
9. Alternates
	* 1. Prior Approval: Unless otherwise provided for in the Contract documents, submit proposed product substitutions no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect’s review and acceptance. Approved products will be set forth by the Addenda. If a substitution is included in a Bid and is not approved by an Addendum, the specified products shall be provided as in place of the substitute without additional compensation.
	1. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

## 1.3 REFERENCES

1. American Society for Testing and Materials (ASTM):
2. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board
3. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
4. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
5. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
6. ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
7. ASTM E1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers
8. International Building Code
9. ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality
10. NFPA 70 National Electrical Code
11. E3118 Standard Test Methods to Evaluate Seismic Performance of Suspended Ceiling Systems by Full-Scale Dynamic
12. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
13. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010
14. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings
15. International Well Building Standard
16. Mindful Materials
17. Living Building Challenge

## 1.4 SYSTEM DESCRIPTION

Wall Installation -Direct Attached to Gypsum Wall Panel

## 1.5 SUBMITTALS

1. **Shop Drawings:** Layout and details of walls. Show locations of items that are to be coordinated with or supported by the walls.
2. **Installation Instructions:** Submit manufacturer’s installation instructions as referenced in Part three, Installation.
3. **Product Data:** Submit manufacturer’s technical data for each type of ceiling unit and suspension system required.
4. **Samples:** Minimum 6 x 6 inch samples of specified panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
5. **Certifications:** Manufacturer’s certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.
6. **Non-Conformance:** All products not conforming to the requirements of this specification and or the manufacturer’s published values are to be disposed. The Contractor performing the work will replace with approved product at their expense.

## 1.6 SUSTAINABLE MATERIALS

1. Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.
2. Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.
3. Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).
4. Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDPH Standard Method v1.1 (Section 01350).
5. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.
6. End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.
7. Products meeting LEED V4 requirements including:
	1. Storage & Collection of Recyclables
	2. Construction and Demolition Waste Management Planning
	3. Building Life-Cycle Impact Reduction
	4. Building Product Disclosure and Optimization Environmental Product Declarations
	5. Building Product Disclosure and Optimization Sourcing of Raw Materials
	6. Building Product Disclosure and Optimization Material Ingredients
	7. Construction and Demolition Waste Management

## 1.7 QUALITY ASSURANCE

1. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
2. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
3. Surface Burning Characteristics: As follows, tested per ASTM E 84
4. Acoustical Panels: As with other architectural features located at the ceiling that may obstruct or skew the planned fire sprinkler pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.
5. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers. ACOUSTIBuilt Panels are 7/8” thick.
6. Installer Qualification: Subcontractor is an experienced Installer that has reviewed and understands the system installation instructions thoroughly. Subcontractor will follow written installation instructions and utilize approved equipment and procedures for finishing installation.

## 1.8 DELIVERY, STORAGE AND HANDLING

1. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
2. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content. Store all material within temperature limits required by manufacturer.
3. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

## 1.9 PROJECT CONDITIONS

1. Space Enclosure:
2. Building areas to receive walls shall be free of construction dust and debris. ACOUSTIBuilt panels should be installed in areas where the building is enclosed and the HVAC is continuously functioning. This product is not recommended for exterior applications, where standing water is present, or where moisture will come into direct contact with the ceiling.
	* 1. HVAC should be designed, installed, and operated in accordance with ASHRAE Standard 62.1. It is also necessary for the area to be enclosed, for the HVAC systems to be functioning, and in continuous operations for the life of the product. Product is not intended for use where natural ventilation is part of the ventilation strategy and not recommended in areas where a differential plenum pressure exists.

## 1.10 ALTERNATE CONSTRUCTION WASTE DISPOSAL

1. Reclaimed ceiling material must be kept dry and free from debris.
2. Contact the Armstrong Recycle Center a consultant will verify the condition of the material and that it meets the Armstrong requirements for recycling. The Armstrong consultant with provide assistance to facilitate the recycling of the ceiling.
3. Recycling may qualify for LEED Credits:
	1. LEED 2009 - Category 4: Material and Resources (MR)
		1. Credit MRc2: Construction Waste Management
4. LEEDv4 - MRp2 - Construction Waste Management Planning Qualifies as a material stream (non-structural) targeted for diversion. Walls will be source-separated and diverted through the Armstrong Ceiling Recycling Program.
	1. LEEDv4-MRc5 -
		1. Option 1: Divert walls to qualify for one of the 3 material streams (50%)
		2. Option 2: Divert walls to qualify for one of the 4 material streams (75%)

## 1.11 WARRANTY

1. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:
	1. Acoustical Panels: Manufacturer’s defects in material
	2. Grid System: Rusting and manufacturer's defects
2. Warranty Period:
	1. Acoustical panels: Ten (10) years from date of substantial completion
	2. Suspension: Ten (10) years from date of substantial completion
3. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

## 1.12 MAINTENANCE

1. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
	1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
	2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

1. Basis of Design ACOUSTIBuilt:
	1. Armstrong World Industries, Inc.
2. Installation
	1. Armstrong World Industries, Inc.
3. Finish
	1. Joint Compound Finish by Others
	2. Spray Applied Finish by Armstrong World Industries, Inc.

## 2.2.1 ACOUSTICAL WALL UNITS

1. Acoustical Panels
	1. Surface Texture: Fine
	2. Composition: Mineral Fiber
	3. Color: White (Fine Texture Finish for ACOUSTIBuilt panels)
	Custom Colors: Greater than LR 0.70
	4. Size: 48 in x 72 in x 7/8 in - Item #2604
	5. Edge Profile: Tapered edges four sides
	6. Noise Reduction Coefficient (NRC): ASTM C 423; Panel 0.80 (UL)
	7. Flame Spread: Class A
	8. Light Reflectance (LR) White Panel: ASTM E 1477; 0.87
	9. Dimensional Stability: HumiGuard Plus
	10. Recycle Content: Post-Consumer and Pre-Consumer – up to 75%
	11. Material Ingredient Transparency: Health Product Declaration (HPD); Declare Label
	12. Life Cycle Assessment: Third Party Certified Environment Product Declaration (EPD)
	13. Acceptable Product: ACOUSTIBuilt panels #2604 No added formaldehyde as manufactured by Armstrong World Industries
	14. Contact your local Armstrong Rep or TechLine at 877-276-7876 to locate your ACOUSTIBuilt Installation Specialist to schedule hands on training 6-8 weeks before beginning the installation.
2. Installation
	1. Screws Coarse-thread drywall or laminating screws
		1. #6 x 1-5/8” Coarse Thread Drywall Screw
	2. Recommended Adhesives Loctite® PL Premium® Polyurethane Construction Adhesive, OSI® F38 Drywall Panel Adhesive
3. Finish
	1. Joint Compound
		1. Setting Compound: Lightweight setting-type drywall joint compound, Ultra lightweight drying-type drywall joint compound
		2. Joint Tape: Self-Adhesive mesh drywall joint tape
			1. Use Setting Type Compound for initial coats and use Drying Type Compound for final coats per the installation instructions.  DO NOT us any other type of drywall compound such as All-Purpose Compound.
			2. Self-adhesive mesh tape at joints and paper tape at the wall intersection
	2. Spray Applied Finish – Required Product: #2605WH Fine Texture Finish for ACOUSTIBuilt panels – White as manufactured by Armstrong World Industries.

For information regarding the ACOUSTIBuilt products, contact your Armstrong Sales Representative:

Name here, 123-345-4567, email here@armstrongceilings.com

# PART 3 - EXECUTION

1. 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.
2. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
3. 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 and view the installation video. [Click to follow to video access.](https://www.armstrongceilings.com/commercial/en-us/commercial-ceilings-walls/acoustibuilt-ceiling-panels.html#!video=6034280272001)

**3.2.1 PREPARATION**

1. 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.
2. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
3. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

**3.2.3 INSTALLATION**

1. Follow manufacturer installation instructions. Armstrong ACOUSTIBuilt Assembly and Installation Instructions (BPLA-299099) [Click to follow to ACOUSTIBuilt Installation Instructions](https://www.armstrongceilings.com/pdbupimages-clg/221597.pdf/download/installation-instructions-acoustibuilt.pdf)
2. Controls joints are required following the standards used for gypsum board listed in

ASTM C840

1. 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.
2. 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 4 inch by 4-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 not permitted.
3. 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.
4. Fine Texture Finish shall be applied in 4 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.
	1. Must be applied with an air assist spray system (refer to manufacturers installation instructions for required equipment). The Fine texture finish is not intended for use with airless spay or to be manually applied by rolling.
	2. See Manufactures installation instructions for correct pressure settings for spray system, finish preparation, spray calibration and spray procedure and technique.

**3.2.4 ADJUSTING AND CLEANING**

1. To remove soot, dirt, and dust use a vacuum operating at low power with a soft brush or use a dry soot cleaning sponge.
2. 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.

**End of Section**