**SECTION 09 50 00**

### 09 54 46 FELTWORKS® Ceiling and Wall Acoustical 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. Section Includes:
	1. Non-Woven layered and formed Polyester felt fiber ceiling and wall panels
	2. Wire hangers, fasteners, main runners, cross tees, and accessories.
2. Related Sections:
	1. Section 09 53 00 - Acoustical Ceiling Suspension Assembly
	2. Section 09 20 00 - Plaster and Gypsum Board
	3. Section 09 22 16 - Non-Structural Metal Framing
	4. Section 01 81 13 - Sustainable Design Requirements
	5. Section 01 81 19 - Indoor Air Quality Requirements
	6. Divisions 23 (15) - HVAC
	7. Division 26 (16) Sections - Electrical Work
3. 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.
	2. Submittals, which 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); 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 A641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
3. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot- Dip Process.
4. ASTM A1008 Standard Specification for Steel, Sheet, and Cold Rolled Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
5. ASTM C635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
6. ASTM C636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
7. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
8. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
9. ASTM E580 Application of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Requiring Seismic Restraint.
10. ASTM C423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
11. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests
12. ASTM E 1264 Classification for Acoustical Ceiling Products.
13. International Building Code
14. ASHRAE Standard 62 1 2004 Ventilation for Acceptable Indoor Air Quality
15. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.2 2017
16. California Green Building Standards Code Cal Green Title 24
17. NFPA 70 National Electrical Code
18. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
19. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
20. International Code Council-Evaluation Services Report - Seismic Engineer Report
	1. ESR 1289 - Armstrong Drywall Suspension
21. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings
22. Underwriters Laboratories Green Guard
23. International Living Building Challenge

### 1.4 SUBMITTALS

1. **Shop Drawings**: Provide layout including panel type and components used in the assembly of the ceiling or walls. Show locations of items that are to be coordinated with the ceiling or walls.
2. **Installation Instructions**: Submit manufacturer’s installation instructions as referenced in Part three, Installation.
3. **Samples:** Minimum 6-inch x 6-inch sample of the colors selected in the ceiling or wall design, include manufacturer sample of suspension components.
4. **Product Data:** Submit manufacturer’s technical data for each type of ceiling or wall unit and suspension system required.
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.

### 1.5 QUALITY ASSURANCE

1. Single-Source Responsibility: Provide ceiling or wall panel units and suspension components by a single manufacturer.
2. Fire Performance Characteristics: Identify ceiling or wall components with appropriate markings of applicable testing and inspecting organization.
	1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with Class A products.
		1. Flame Spread: 25 or less
		2. Smoke Developed: 450 or less
3. Fire Sprinklers: Ceiling systems may obstruct or skew the planned water distribution pattern of fire sprinkler. In addition to creating a possible delaying or accelerating the activation of the sprinkler of fire detection system. Consult with a fire protection engineer for guidance.
4. Coordination of Work: Coordinate ceiling or wall work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

### 1.6 DELIVERY, STORAGE, AND HANDLING

1. Deliver acoustical ceiling or wall 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 or wall units, permit them to reach room temperature and a stabilized moisture content.
3. White gloves recommended for handling to avoid marring, especially on light color panels.

### 1.7 PROJECT CONDITIONS

1. Space Enclosure:
2. HumiGuard Plus Ceiling and Walls: Building areas to receive ceiling and or walls shall be free of construction dust and debris. Products with HumiGuard Plus performance and hot dipped galvanized steel suspension systems can be installed up to 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Cannot be used in exterior applications where standing water is present or where moisture will come in direct contact with the ceiling or walls.

### 1.8 WARRANTY

1. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period.
2. Warranty Period:
	1. Acoustical panels and Suspension: One (1) year 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.

### 1.9 SUSTAINABLE MATERIALS

1. The GREENGUARD Certification Program gives assurance that products designed for use in indoor spaces meet strict chemical emissions limits, which contribute to the creation of healthier interiors. GREENGUARD Certified products meet stringent chemical emissions requirements, such as being screened for more than 10,000 volatile organic compounds (VOCs).
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 CDHP Standard Method v1.2 (Section 01350).
5. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.
6. Products meeting LEED V4 requirements.

### 1.10 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. Ceiling or Wall Units: Furnish quality of full-size units equal to 2.0 percent of amount installed.
	2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 1.0 percent of amount installed.

*Attention Design Professional please edit Part 2 based on your project needs. Select product attributes and acceptable product item(s) that fit with the requirements of the FELTWORKS Ceilings and Wall selected for your project. Delete all items from the specification that do not relate to your project needs. Please refer to the Armstrong website (*[*Click here to link to the Armstrong Ceilings website*](https://www.armstrongceilings.com/commercial/en-us/)*.*

### PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

1. Basis of Design FELTWORKS Ceiling and Walls:
	1. Armstrong World Industries, Inc.
2. Suspension Systems:
	1. Drywall Grid System - Armstrong World Industries, Inc.
	2. Furring System by Others

### 2.2.0 CEILING AND WALL UNITS

1. Ceiling and Wall Panels:
	1. Surface Texture: Soft
	2. Composition: Non-woven layered and formed Polyester felt (PET) fiber
	3. Color: White, Beige, Light Grey, Dark Grey and Black
	4. Edge Profile: Square, Long Edges Beveled/Short Edges Beveled
	5. Light Reflectance (LR) Cotton Panel: ASTM E 1477; 0.78
	6. Material Ingredient Transparency: Health Product Declaration (HPD); Declare Label (EPD)
	7. GREENGUARD Gold Certified
	8. Sizes (*Select appropriate panel size*):
		1. Item: 8246 - 48” X 96” X 1”
		2. Item: 6322W24L048B4 – 24” X 48” X 1”
		3. Item: 6322W48L048B4 – 48” X 48” X 1”

*Custom Panel Options – W: 18”-54”; L: 18”-120”*

* 1. Acoustical Performance is tested per ASTM C423

(*Select appropriate panel Installation for Performance*):

* + 1. Wall Panel
			1. Adhesive – 0.75 NRC
			2. Screw to wall – 0.75 NRC
			3. Z-Clip to Z-Bar – 0.75 NRC
			4. Screw to 7/8” metal furring – 0.80 NRC
		2. Ceiling Panel
			1. Adhesive – 0.75 NRC
			2. Screw to 7/8” metal furring – 0.80 NRC
			3. Magnet to 7/8” metal furring – 0.85 NRC
			4. Screw or magnet to drywall grid or 1-1/2” metal furring – 0.90 NRC
	1. Flame Spread: Class A
	2. Dimensional Stability: HumiGuard Plus.
	3. Acceptable Product: FELTWORKS as manufactured by Armstrong World Industries.

### 2.2.1 SUSPENSION SYSTEMS

1. Drywall Suspension Components: All main beams and cross tees shall be commercial quality hot dipped galvanized steel as per ASTM A653. Main beams and cross tees are double-web steel construction with 1-1/2” inch type exposed flange design. Exposed surfaces chemically cleansed no capping, galvanized steel. Main beams and cross tees shall have rotary stitching.
	1. Structural Classification: ASTM C635 (Heavy Duty).
	2. Acceptable Product: Listed Below as manufactured by Armstrong World Industries, Inc.
		1. Item HD8906 - 12’ Drywall Main Beam
		2. Item XL8926 - 2’ Drywall Suspension Tee
	3. Clips
2. Item QSUTC QuickStix Uptight Clips (layout dependent)
3. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
4. Wire for Hangers and Ties: ASTM A641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least times-three design load, but not less than 12 gauge.
5. Accessories: Ordered Separately Based on Layout
	1. Item 6488 - Washers Mill Finish (paintable), Black
	2. Item 6489 - #8 x 1-7/8" Screws for washer installation Mill Finish (paintable), Black
	3. Item 6526 – Magnets
	4. Item 6527 #8 x 1" Screws for magnet installation
	5. Item 7142L04 – Z-Clips and Item 7142L71 – Z-Bars, Light Duty PVC
6. Metal Furring: Steel channel/hat channel 20-guage 7/8” galvanized steel. Installation to structure is the responsibility of the design team to provide guidance on the architectural plans or by the construction professional installing the framing.
7. Adhesive Installation: Armstrong Ceilings and Wall System recommends Henry® 237B AcoustiGum or Titebond GREENchoice Acoustical Ceiling Tile Adhesive. Follow the adhesive manufactures instructions for preparation and Armstrong FELTWORKS installation instructions for application on the panel.

### PART 3 - EXECUTION

### 3.1 EXAMINATION

1. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out.
2. Proper designs for both supply air and return air, maintenance of the HVAC filters and building interior space are essential to minimize soiling. Before starting the HVAC system, make sure supply air is properly filtered and the building interior is free of construction dust.

### 3.2 PREPARATION

1. Measure each ceiling or wall area, establish layout of FELTWORKS acoustical units. Coordinate panel layout with mechanical and electrical fixtures.

### 3.3 INSTALLATION

1. Install suspension system, adhesive or Z-Clips in compliance with the approval of the authorities having jurisdiction, and in accordance with the manufacturer’s FELTWORKS Ceiling and Wall Installation Instructions.

### 3.4 ADJUSTING AND CLEANING

1. Replace damaged or broken FELTWORKS panels.
2. Clean exposed surfaces of ceilings and wall panels. Comply with manufacturer’s instructions for cleaning and touch up of minor finish damage.

### END OF SECTION