**Armstrong World Industries, Inc.**

### Ceiling & Suspension System Specification

**Please understand that you are responsible for the accuracy of all project specifications, including any Armstrong guide specifications that you use.**

**ARMSTRONG SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE USE OF ANY OF ITS GUIDE SPECIFICATIONS.**

### SECTION 09 51 33

### METALWORKS TORSION SPRING CEILINGS

### 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. Metal ceiling panels.
	2. Suspension system.
	3. Wire hangers, clips, wall angle moldings and accessories.
2. Related Sections:
	1. Section 09 51 00 (09510) - Acoustical Ceilings
	2. Section 09 20 00 (09250) - Plaster and Gypsum Board
	3. Division 23 (15) Heating, Ventilating, and Air Conditioning
	4. Division 26 (16) Electrical Work
3. Alternates
	1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than twenty-five (25) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
		1. Roll formed, pre-painted steel is not an acceptable substitute.
	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):
	1. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
	2. ASTM C 423 "Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method"
	3. ASTM E 84 "Standard Test Method for Surface Burning Characteristics of Building Materials"
	4. ASTM E 1264 Classification for Acoustical Ceiling Products
	5. ASTM E1477 "Standard Test for Luminous Reflectance Factor of Acoustical Materials by use of Integrating-Sphere Reflectometers"

### 1.4 SUBMITTALS

1. Product Data: Submit manufacturer's technical data for each type of ceiling unit and suspension system required.
2. Samples: Minimum 6 inch x 6 inch samples of specified metal panel; 8 inch long samples of suspension system if applicable.
3. Installation Instructions: Submit manufacturer's installation instructions as referenced in Part 3, Installation.
4. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.
5. If the material supplied by the acoustical subcontractor does not have a Factory Mutual classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

### 1.5 QUALITY ASSURANCE

1. Single-Source Responsibility: Provide metal ceiling and suspension components produced by a single manufacturer with resources adequate to deliver a product of consistent quality in terms of appearance and physical properties for all project scopes without risk of delay or interruption.
2. Fire Performance Characteristics: Identify ceiling components with appropriate applicable, testing, including:
	1. Surface Burning Characteristics: As follows, tested per ASTM E84:
		1. Flame Spread: 25 or less
3. Coordination of Work: Coordinate ceiling 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 system components in manufacturer's original, unopened packages clearly labeled with the following information: item number and quantity, manufacturer's name and address, client name and address and site address.
2. Store components in a fully enclosed dry space where they will be protected against damage from moisture, direct sunlight, surface contamination and other construction activities.
3. Exercise care in handling components to prevent damage to the surfaces and edges and prevent distortion or other physical damage.

### 1.7 PROJECT CONDITIONS

1. Space Enclosure:
2. Painted Panels: Building areas to receive ceilings shall be free of construction dust and debris. Products may be installed where temperatures are between 32°F (0°C) and 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Such installations shall not be exposed to abnormal conditions, namely: chemical fumes, presence of standing water, or contact with moisture, as could result from condensations or building leaks. These products cannot be used in exterior applications unless the system has been specifically designed and approved for exterior application.
3. PureWood Veneer Panels: Wood veneer ceiling materials should be permitted to reach room temperature and have a stabilized moisture content for a minimum of 72 hours before installation.
	1. The wood veneer panels should not be installed in spaces where the temperature or humidity conditions vary greatly from the temperatures and conditions that will be normal in the occupied space.
	2. As interior finish products, the wood veneer panels are designed for installation in temperature conditions between 50 degrees F and 86 degrees F, in spaces where the building is enclosed and HVAC systems are functioning and will be in continuous operation. Relative humidity should not fall below 25 percent or exceed 55 percent

### 1.8 WARRANTY

1. Ceiling System: 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:
	1. Ceiling Panels and Suspension System: Rust and manufacturing defects.
2. Warranty Period:
	1. One (1) year from date of substantial completion.
	2. Grid: 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.

### 1.9 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 Units: Furnish quantity of full-size units equal to 2 percent of amount installed.
	2. Suspension System Components: Furnish quantity of each exposed suspension component equal to 1 percent of amount installed.
2. Deliver extra stock to Owner's representative.

### 2.1 MANUFACTURERS

1. Ceiling Panels:
	1. Armstrong World Industries, Inc.
2. Suspension Systems:
	1. Armstrong World Industries, Inc.

### 2.2.0 METAL CEILINGS PLANKS

### A. Ceiling Panels Type AMP-1:

1. Surface Texture: Smooth
2. Composition: Aluminum
3. Perforations: (Non-perforated) (custom perforations)
4. Finish: Wood Veneer applied to aluminum and multiple pre and post coated finishes (contact 877-276-7876 option 1,1,4 for assistance)
5. Colors: (Whitelume)(Silverlume)(Gun Metal)(Satin Anodized)(Lacquer Mill)(Brushalume)(Laminates Rock Maple)(Laminates Light Cherry)(Laminates Wild Cherry)(Ceiltex)(Natural Variations Veneer Maple)(Natural Variations Veneer Light Cherry)(Natural Variations Veneer Dark Cherry)(Custom RAL colors)
6. Size: (24inch X 24inch) (24inch X 48inch) (24inch X 72inch) (24inch x 96 inch) (30inch X 30inch)(custom sizes)
7. Edge Profile: Butt Edge (Reveal and Center Scoring options available)
8. Noise Reduction Coefficient (NRC): (up to 0.90 with fiberglass infill panels, contact 877-276-7876 option 1,1,4 for assistance)
9. Flame Spread: ASTM E 1264; Class A per IBC.
10. Acceptable Product: MetalWorks Torsion Spring, Item # (7209\_\_\_\_\_) (7210\_\_\_\_\_) (7211\_\_\_\_\_) (7212\_\_\_\_\_) (7213\_\_\_\_\_), as manufactured by Armstrong World Industries.

### 2.2.1 SUSPENSION SYSTEMS

1. Components: Prelude XL (contact 877-276-7876 option 1,1,4 for assistance)
	1. Pre-Slotted Main Beam: Galvanized Steel Item# (7301TS)
	2. Pre-Slotted Cross Tees: Galvanized Steel Item# (XL7341TS) (XL7390TS)
	3. Cross Tees: Galvanized Steel Item # (XL7378) (XL7328) (XL7341)
	4. Accessories:
		1. Box Molding Item # (7125\_\_\_)
		2. Extruded Perimeter Trim Item# (7147\_\_\_)
			1. Only available in White, Silver, Gun Metal Grey, Satin Anodized, Black, Natural Variations Veener Maple, Natural Variations Veneer Light Cherry, Natural Variations Veneer Dark Cherry
		3. Formed Perimeter Trim Item # (7131\_\_\_)
		4. Spreader Hold Down Item # (7126)
		5. Torsion Spring Hook Access Tool Item # (7129)
		6. Torsion Spring Suction Access Tool Item # (7130)

### PART 3 - EXECUTION

### 3.1 EXAMINATION

1. Installer must inspect the area where the ceiling system is to be installed for conditions that may affect the work and notify the Contractor in writing of any unsatisfactory conditions before proceeding.
2. All work above the ceiling system is to be satisfactorily completed prior to start of the ceiling installation.
3. All unsatisfactory conditions potentially affecting the ceiling system are to be corrected prior to the start of ceiling installation.
4. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out.

### 3.2 PREPARATION

1. Examine construction and conditions under which system will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.3 INSTALLATION

1. Install the suspended ceiling system in accordance with the manufacturer's installation instructions, applicable industry standards, and the governing code of jurisdiction.
	1. MetalWorks Torsion Spring Installation (contact 877-276-7876 option 1,1,4 for assistance).
2. Installed panels should be free from damaged edges or other defects detrimental to appearance and function.

### 3.4 FIELD QUALITY CONTROL

1. Deflection of any grid components shall not exceed 1/360 of the span.

### 3.5 ADJUSTING AND CLEANING

Adjust ceiling components to provide a consistent finish and appearance in conformity with pre-established tolerances and requirements. All panels showing signs of damage, either in finish or in form are to be replaced. All exposed surfaces are to be cleaned of any dirt, grease, fingerprints and marks or other imperfections with cleaning materials recommended by the manufacturer.

### END OF SECTION