**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 EXTERIOR 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 C 423 "Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method"
	2. ASTM E 84 "Standard Test Method for Surface Burning Characteristics of Building Materials"
	3. ASTM E 1264 Classification for Acoustical Ceiling Products
	4. ASTM E1477 "Standard Test for Luminous Reflectance Factor of Acoustical Materials by use of Integrating-Sphere Reflectometers"
	5. Wind Uplift Test Method “UL 580 Underwriters Laboratories, Inc. Standard for Safety, Test for up lift Resistance of Roof Assemblies.

### 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( UL.) 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
		2. Smoke Development: 50 or Less
3. Wind up lift Class 90: UL. 580 Underwriters Laboratories, Inc. Standard for Safety, Test for up lift Resistance of Roof Assemblies.
4. 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

**NOTICE:** Consult your local Armstrong representative before specifying any optional or custom metal system as shape, material, size, perforation and finish limitations can affect feasibility. The options provided in parentheses are not always compatible.

**LIMITATION:** The Torsion Spring Exterior ceiling system is intended for use as an exterior soffit

or canopy ceiling with a maximum wind load as test. Its suitability and specific

Installation requirements vary with: site location, building orientation on the site, product

Location on the building, available structural members and local codes. We recommend an

Independent evaluation before specifying the Torsion Spring Exterior system. The structural

Elements supporting the Torsion Spring Exterior system must be designed and/or approved by the structural engineer of record.

### 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: (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 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

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

1. Surface Texture: Smooth
2. Composition: Aluminum 0.040” (options up to 0.125” thickness) Minimum 25% up to 98%recycled content. Factory Assembled Springs to panel Returns.
3. Perforations: (Non-perforated) (Standard perforations) (custom perforations)
4. Finish: multiple pre and post coated finishes . (RAL Colors)
5. Colors: Whitelume, Silverlume, GunMetal, SatinAnodized, LacquerMill, Brushalume.
6. Laminates: Rock Maple, Light Cherry, Wild Cherry, Ceiltex. Custom RAL colors.
7. Size: 24inch X 24inch (Custom size)
8. Edge Profile: Butt Edge (Reveal and Center Scoring options available)
9. Noise Reduction: Coefficient (NRC): (up to 0.90 with fiberglass infill panels, contact 877-276-7876 option 1,1,4 for assistance)
10. Flame Spread: ASTM E 1264 Class A (25/50)
11. Acceptable Product: Metal Works Aluminum Exterior Torsion Spring.

### 2.2.1 SUSPENSION SYSTEMS

1. Components: Extruded Aluminum Exterior Mains and Cross Tees.
	1. Pre-Slotted -Main Beam: 1-1/2” x 1-3/4” with Extruded Aluminum Mill Finish.
	2. Cross Tee 1-1/2” x 1-3/4” Extruded Aluminum Mill finish with Angled Couplers and wind load clips.
	3. Accessories:
		1. Aluminum perimeter Box Molding.
		2. WAMANA Clip
		3. Extruded Perimeter Trim
			1. Only available in White, Silver, Gun Metal Grey, Satin Anodized, Black, Natural
		4. Formed Perimeter Trim
		5. Spreader Hold Down
		6. Compression post (By Others)
		7. Torsion Spring Hook Access Tool Item # (7129)
		8. 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 shop drawings, Applicable industry standards (UL580) 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.

### 3.5 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