**SECTION 09 50 00**

**VidaShield UV 24™ Air Purification System**

**LED** **Panel
Acoustical 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

A. Section Includes

 1. VidaShield UV24™ Air Purification System

 2. Acoustical Infill panels

 3. Exposed grid suspension system

 4. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings

B. Related Sections

 1. Section 09 51 00 - Acoustical Ceilings

 3. Section 09 53 00 - Acoustical Ceiling Suspension Assemblies

 4. Section 09 20 00 - Plaster and Gypsum Board

 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. Divisions 23 - HVAC Air Distribution

 Section 23 43 00 Electronic Air Cleaners

 Section 23 43 23 Self-Contained Electronic Air Cleaners

 9. Division 26 - Electrical

C. Alternates

 1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted 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 of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.

 2. 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

A. American Society for Testing and Materials (ASTM):

 1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural,

 High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

 2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

 3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the

 Hot-Dip Process

 4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation

 Room Method

 5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and

 Lay-in Panel Ceilings

 6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for

 Acoustical Tile and Lay-in Panels

 7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of

 Interior Coatings in an Environmental Chamber

 8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

 10. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic

 Restraint

 11. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings

 Systems

 12. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms

 Sharing a Common Ceiling Plenum

 13. ASTM E 1264 Classification for Acoustical Ceiling Products

B. International Building Code

C. ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality

D. NFPA 70 National Electrical Code

E. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

F. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components

G. International Code Council-Evaluation Services Report - Seismic Engineer Report

 1. ESR 1308 - Armstrong Suspension Systems

I. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.2 2017

J. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings

K. International Well Building Standard

L. Mindful Materials

M. Living Building Challenge

N. U.S. Department of Agriculture BioPreferred program (USDA BioPreffered).

## 1.4 SYSTEM DESCRIPTION

Continuous/Wall-to-Wall

## 1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of acoustical infill unit and suspension system required.

B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.

C. Shop Drawings: Layout and details of acoustical infills show locations of items that are to be coordinated with, or supported by the infill panels.

D. Acoustical Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

a. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory 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.

## 1.6 SUSTAINABLE MATERIALS

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.

1. 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.

2. 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).

3. 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 v1.1 (Section 01350).

4. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.

5. 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.

6. Products meeting LEED V4 requirements including:

 Storage & Collection of Recyclables

 Construction and Demolition Waste Management Planning

 Building Life-Cycle Impact Reduction

 Building Product Disclosure and Optimization Environmental Product Declarations

 Building Product Disclosure and Optimization Sourcing of Raw Materials

 Building Product Disclosure and Optimization Material Ingredients

 Construction and Demolition Waste Management

## 1.7 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

 1. Fire Performance Characteristics: Identify acoustical infill panel components with appropriate markings of applicable testing and inspecting organization.

 2. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.

B. VidaShield UV 24™ Air Purification System : As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution 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.

C. Coordination of Work: VidaShield UV 24™ Air Purification System with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

## 1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver VidaShield UV 24™ Air Purification System and infill 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.

B. Before installing acoustical infill units, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical infill units carefully to avoid chipping edges or damaged units in any way.

## 1.9 PROJECT CONDITIONS

A. Space Enclosure:

HumiGuard Plus Ceilings: Building areas to receive ceilings shall be free of construction dust and debris. Products with HumiGuard Plus performance and hot dipped galvanized steel, aluminum or stainless 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.

## 1.10 ALTERNATE CONSTRUCTION WASTE DISPOSAL

A. Infill panel material being reclaimed must be kept dry and free from debris.

B. 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 will help facilitate the recycling of the infill panel.

C. Recycling may qualify for LEED Credits:

 a. LEED 2009 - Category 4: Material and Resources (MR)

 i. Credit MRc2: Construction Waste Management

 b. LEEDv4 - MRp2 - Construction Waste Management Planning Qualifies as a material stream (non-structural) targeted for diversion. Infill panels will be source-separated and diverted through the Armstrong Ceiling Recycling Program.

 c. LEEDv4-MRc5 -

 i. Option 1: Divert ceilings to qualify for one of the 3 material streams (50%)

 ii. Option 2: Divert ceilings to qualify for one of the 4 material streams (75%)

## 1.11 WARRANTY

Medical Illumination offers a 3-year limited warranty on the VidaShield panel.

* Medical Illumination warrants VidaShield fixtures to be free from defects in materials and workmanship for the specified period beginning on the date of purchase (or date of manufacture when purchase date is in question).
* Warranted for a full year – UV lamp and fans.
* Warranted for 3 years – fixture construction, including ballasts, photocell and failure indicator lamp.
* This warranty does not cover:
* Damages to products for reasons beyond Medical Illumination’s control, including, but not limited to: power surge, water infiltration, abuse, misuse, accidental damage, vandalism, fire, natural disaster and lighting; Incompatibility with products not supplied by Medical Illumination, or other issues not related to materials and manufacture; Installations not in accordance with the latest National Electrical Code, Underwriters Laboratory Bulletins, and ANSI Specifications; Labor costs associated with removing, re-packaging for shipment, or reinstalling product.
* See warranty accompanying your unit for full details. If you need to submit a claim for a warranty, contact TechLine at 877-276-7876 or techline@armstrongceilings.com.

## 1.12 MAINTENANCE

A. 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 Infill 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

A. Air Purification System

 1. VidaShield UV24™

B. Armstrong World Industries, Inc. Infill Panels:

 1. Armstrong World Industries, Inc.

C. Suspension Systems:

 1. Armstrong World Industries, Inc.

**2.2.1 Air Purification System**

A. Component:

The VidaShield is a patented 2 x 4 troff­er with a UV-C air treatment system. The VidaShield is a standalone, ceiling mounted unit. The VidaShield draws in untreated air, pushes it through a highly reflective UV chamber with an ultraviolet light set at the wavelength of 253.7 nanometers which inactivates bacteria or fungi that passes over the lamp. Four fans continue to push the air through the unit at approximately 50 cfm. This allows the unit to treat the equivalent of one full volume of air from a typical 10 x 10 room with 8 ft. ceilings four times an hour. The system works 24/7/365.

B. VidaShield Chamber

1. Dimensions – 16” wide x 48" long x 2" high
2. UVC Lamp – One 59w T5HO 22” Lamp w/ 15w of UVC Output
3. Fan System – Air Circulation Fans
4. Volume – 50 CFM
5. Generator – Dedicated UV Ballast
6. Air Filter – MERV 6 High Air Flow Particle Filter
7. Light Block – Formed Baffles Prevent UV Light Leaks
8. Safety Lock – Switch Deactivates UV When Accessed

C. VidaShield Fixture

1. Dimensions - 24" wide x 48" long x 6" high (UV chamber included)
2. Weight – 42 lbs.
3. Voltage – 120v units draws 1.04 amps. 277v unit draws .27 amps
4. Housing – 20-gauge Steel with a Powder Coat Finish
5. Door LED Light Panel
6. Lumens – 7200
7. Color Temp – 4000k
8. Driver – 0-10 V Dimming \*Dimming control provided by others
9. Efficacy – 47lm/W
10. Total Watts – 59W UV Bulb + 4 fans + 60W LED Panel = 255 total watts
11. Acceptable Product: VidaShield UV24 System with LED Light Infill Panel item 51LUVC as manufactured by Armstrong World Industries

 D. Performance

Removal rates for most pathogens are in excess of 90% in the primary configurations. At the

nominal design airflow of 50 cfm, and with a MERV 6 filter and a UV lamp with 15 W of UV output the VidaShield System provides overall single pass removal rates of approximately 97% on the average for the 44 airborne nosocomial pathogens. Please contact your Armstrong representative for the complete performance white paper.

E. Installation

Please follow the Manufacturers installation instructions. These instructions are available as a download on the Armstrong website [www.armstrongceilings.com](http://www.armstrongceilings.com).

## 2.4.1 METAL SUSPENSION SYSTEMS

A. Components:

 Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.

 a. Structural Classification: ASTM C 635 Heavy Duty

 b. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.

 c. Sustainability: Environmental Product Declaration (EPD), Health Product Declaration (HPD)

 d. Acceptable Product: Prelude XL, Silhouette XL, Suprafine, Interlude XL and Clean Room

 15/16” Suspension as manufactured by Armstrong World Industries

B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft annealed, with a yield stress load of at least time three design load, but not less than 12 gauge.

D. Edge Moldings and Trim:

 1. 7800 - 12' Wall Molding

E. Accessories:

# PART 3 - EXECUTION

## 3.1 EXAMINATION

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. (Exception: HumiGuard Max Ceilings)

## 3.2 PREPARATION

A. Coordinate VidaShield UV 24™ Air Purification System layout with acoustical ceiling panels, mechanical and electrical fixtures.

B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

## 3.3 INSTALLATION

A. Follow manufacturer installation instructions.

B. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.

C. Suspend main beam from overhead construction with hanger wires spaced 4-0 on center along the length of the main runner. Install hanger wires plumb and straight.

D. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

## 3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.

B. Clean exposed surfaces of acoustical infill panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove any infill panel products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

C. Before disposing of infill panels, contact the Armstrong Recycling Center at 877-276-7876, select option #1 then #8 to review with a consultant the condition and location of building where the infill panels will be removed. The 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 recycle of the infill panel.

**End of Specification**