**Armstrong StrataClean IQTM**

# Division 23 – Heating, Ventilating, and Air Conditioning

**Section 23 37 13 – Diffusers, Registers, and Grilles**

**Section 23 40 00 – Air Cleaning Devices**

# PART 1 – GENERAL

##  Section Includes

1. Ceiling Filter Unit

##  Related Requirements

1. Section 01 40 00 - Quality Requirements
2. Section 01 74 19 - Construction Waste Management and Disposal
3. Section 01 78 00 - Closeout Submittals
4. Section 01 79 00 - Demonstration and Training
5. Section 22 0513 - Common Motor Requirements for Plumbing Equipment.
6. Section 22 0548 - Vibration and Seismic Controls for Plumbing Piping and Equipment.
7. Section 23 0923 - Direct-Digital Control System for HVAC.
8. Section 23 09 93 - Sequence of Operations for HVAC Controls.
9. Section 23 37 00 - Air Outlets and Inlets.
10. Section 26 27 17 - Equipment Wiring: Electrical characteristics and wiring connections.

##  Reference Standards

1. All referenced standards and recommended practices in this section pertain to the most recent publication thereof, including all addenda and errata.
2. UL 507 – Standard for Safety Electric Fans
3. UL 867 – Standard for Electrostatic Air Cleaners
4. UL 2998 – Environmental Claim Validation Procedure (ECVP)
5. ASHRAE 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.
6. ASHRAE 62.1 - Ventilation for Acceptable Indoor Air Quality.
7. NFPA 70 - National Electrical Code

##  Administrative Requirements

1. Pre-installation Meeting: Conduct a pre-installation meeting one week prior to the start of the work of this section and require attendance by all affected installers.

##  Submittals

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Product Data shall be provided with data indicating configuration, general assembly, and materials used in fabrication, including catalog performance ratings that indicate air flow, dBA designation, and electrical characteristics
3. Shop Drawings shall indicate configuration, general assembly, and materials used in fabrication, and electrical characteristics and connection requirements.
4. Manufacturer's Installation Instructions shall indicate installation instructions, and recommendations.
5. Project Record Documents shall record actual locations of units and controls components and locations of access doors.
6. Operation and Maintenance Data shall include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts lists.
7. Manufacturer’s warranty shall be submitted and ensure forms have been completed in Owner's name and registered with manufacturer.
8. Maintenance Materials shall be furnished for the Owner's use in maintenance of the project.

##  Quality Assurance

1. Manufacturer Qualifications shall be specified in this section, with minimum ten years of documented experience.
2. Product Listing Organization Qualifications: The manufacturer shall be listed with an organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

##  Warranty

1. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
2. Provide 18-month manufacturer warranty from date of shipment for air terminal units.

# PART 2 – PRODUCTS

## 2.01 Ceiling Filter Unit

1. Basis of Design: Armstrong World Industries
2. Ceiling Filter Unit: StrataClean IQTM
3. Alternates, complying with specification
	1. WhisperFlow Fan Filter Unit
	2. Titus FFDER
4. Performance Requirements:
5. The unit shall operate at the following three speeds:
	1. Low – 150 CFM
	2. Medium – 200 CFM
	3. High – 230 CFM
6. The unit shall operate at the following sound levels:
	1. Low – 29 dbA
	2. Medium – 34 dbA
	3. High – 37 dbA
7. General:
8. The terminal units shall be factory-assembled and UL 867 and UL 507 Certified

## 2.02 Ceiling Filter Unit, Standard

1. Description:
	1. Furnish and install Armstrong World Industries StrataClean IQ TM units per configurations as indicated on the plans.
2. Construction:
3. Casing
4. The unit casing shall be constructed of 20-gauge steel.
5. The casing shall be designed to fit in a 2’ x 2’ ceiling grid.
6. The unit shall be constructed with removable side panel for accessibility.
7. Motor
	1. Electronically Commutated Motor
	2. The unit shall be supplied with an electronically commutated motor (ECM), complete with a single-phase integrated controller/inverter that operates the wound stator and senses motor position to electronically commutate the stator.
	3. The motor rotor shall be permanent magnet type with near zero rotor losses.
	4. The motor shall be permanently lubricated with ball bearings, maintaining a minimum of 70% efficiency over its entire operating range.
	5. The ECM shall be furnished with factory programming:
8. Three-speed (3SPD) Motor Operation:
9. Motor shall be provided with speed control harness which includes three separate 24 VAC speed taps, corresponding to High, Medium, and Low speed, respectively.
10. Discharge Connections
	1. Unit shall have a flat discharge connection compatible with flush mounted diffuser connections.
11. Blower
	1. The blower shall be a dynamically balanced, forward curved, double width/double inlet (DWDI) centrifugal type, constructed of zinc coated galvanized steel for corrosion resistance.
12. Diffuser
	1. Square Plaque Diffuser
		1. General
			1. The square plaque diffuser shall be supplied to deliver a 360-degree radial, horizontal air flow pattern. The back cone shall be a one-piece die-formed design with smooth, aerodynamically designed surfaces and no corner joints. This contoured design shall protect the ceiling and help to prevent smudging and streaking.
		2. Construction
			1. Diffusers shall be steel construction, and shall consist of a seamless, one-piece, precision formed backpan.
			2. An inner plaque assembly shall be incorporated and shall drop no more than ¼ inch below the ceiling plane to assure proper air distribution performance.
			3. The inner plaque assembly shall be completely removable from the room side to allow for full access to any dampers or other ductwork components located near the diffuser neck.
			4. The face panel shall have smooth edges and rounded corners to blend with the back cone.
			5. The diffuser ceiling module size shall be 24 x 24 inches (600 x 600 millimeters).
		3. Paint Specification
			1. All components shall have a baked-on powder coat finish.
			2. The paint finish must demonstrate no degradation when tested in accordance with ASTM D1308 (covered and spot immersion) and ASTM D4752 (MEK double rub) paint durability tests.
			3. The paint film thickness shall be a minimum of 2.0 mm.
			4. The finish shall have a hardness of 2H.
			5. The finish shall withstand a minimum salt spray exposure of 500 hours with no measurable creep in accordance with ASTM D1654, and 1000 hours of exposure with no rusting or blistering as per ASTM D610 and ASTM D714.
			6. The finish shall have an impact resistance of 80 inch-pounds.
13. Return Filter
	1. The unit shall be equipped with the following filter tested in accordance with ASHRAE 52.2:
		1. MERV-13 Filter
14. Electrical:
15. Units shall be furnished with single point power connection.
16. Units shall be furnished with a NEMA 250, Type 1 electrical enclosure.
17. Unit Mounting
	1. The unit shall be mounted with the use of hanger brackets. The manufacturer shall supply 12-gauge zinc coated steel hanger brackets, shipped loose for field installation with threaded hanger rods supplied by others

# PART 3 – EXECUTION

## 3.01 Examination

1. Verify that conditions are suitable for installation.
2. Verify that field measurements are as shown on the drawings.

## 3.02 Field Quality Control

1. See Section 01 40 00 - Quality Requirements, for additional quality requirements.

## 3.03 Cleaning

1. See Section 01 74 19 - Construction Waste Management and Disposal for additional cleaning requirements.

## 3.04 Closeout Activities

1. See Section 01 78 00 - Closeout Submittals for closeout submittals.
2. See Section 01 79 00 - Demonstration and Training for additional closeout requirements.