Section 23 34 00

HVAC Fans

Part 1 General

1. 1.1 Summary
	1. Section Includes
		1. The ceiling-mounted circulation fan is the model scheduled with the capacities indicated. The fan shall be furnished with mounting hardware and a remote control as manufactured by Big Ass Fans.
	2. Summary of Work
		1. Installation of the fan, wireless network, miscellaneous or structural metal work (if required), field electrical wiring, cable, conduit, fuses, and disconnect switches, other than those addressed in the installation scope of work, shall be provided by others. Installation services are available through Big Ass Fans. Consult the appropriate installation scope of work for information on the available installation options, overview of customer and installer responsibilities, and details on installation site requirements.
2. 1.2 Related Sections
	1. 21 00 00 Fire Suppression
	2. 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)
	3. 26 00 00 Electrical
3. 1.3 References
	1. International Organization for Standardization (ISO)
	2. National Electrical Code (NEC)
	3. National Fire Protection Association (NFPA)
4. 1.4 Submittals
	1. Shop Drawings: Drawings detailing product dimensions, weight, and attachment methods
	2. Product Data: Specification sheets on the ceiling-mounted fan, specifying electrical and installation requirements, features and benefits, and controller information
	3. Revit Files: Files provided for architectural design
	4. Installation Guide: The manufacturer shall furnish a copy of all installation, operation, and maintenance instructions for the fan. All data is subject to change without notice.
	5. Schedule
5. 1.5 Quality assurance
	1. Manufacturer Qualifications
		1. The fan and any accessories shall be supplied by Big Ass Fans, which has a minimum of twenty (20) years of product experience.
		2. ISO 9001-compliant
6. 1.6 Delivery, storage, and handling
	1. Deliver product in original, undamaged packaging with identification labels intact. The fan shall be new, free from defects, and factory tested.
	2. The fan and its components must be stored in a safe, dry location until installation.
7. 1.7 Warranty
	1. The manufacturer shall replace any products or components defective in material or workmanship, free of charge to the customer (including transportation charges within the USA, FOB Lexington, KY), pursuant to the complete terms and conditions of the Big Ass Fans Warranty in accordance to the following schedule:

Period of Coverage 3 years

Labor to repair the defect will be provided free of charge at the Big Ass Fans service center for defects arising during the Warranty Period.

Part 2 Product

1. 2.1 Manufacturer
	1. Delta T LLC, dba Big Ass Fans, PO Box 11307, Lexington, Kentucky 40575.
	Phone (877) 244-3267. Fax (859) 233-0139. Website: www.bigassfans.com
2. 2.2 BIG ASS FANS es6®
	1. Complete Unit
		1. Quality: The fan shall display good workmanship in all aspects of its construction. Field balancing of the airfoils shall not be necessary.
		2. Colors: Airfoil colors may be selected by the architect or owner as described in 2.2.C, “Airfoils.”
		3. Optional Accessories
			1. The Chromatic Uplight™ may be selected at the time of order.
			2. An LED light that attaches to the bottom of the fan may be selected at the time of order.
			3. A 0–10 V module may be selected at the time of order. The module shall enable the fan to be integrated with a home or building automation system or a 3rd party 0–10 V dimmer using an industry-standard protocol.
	2. Mounting System
		1. Universal Mount
			1. The universal mount shall be suitable for flat or sloped ceilings with heights ranging from 9–18 ft (2.7–5.5 m).
			2. The fan shall be equipped with a mounting bracket, canopy, mounting ball and wedge, downrod, wiring cover, motor hub, and mounting hardware.
			3. The fan shall be available with a diameter of 60 in. (152 cm), 72 in. (183 cm), or 84 in. (213 cm).
			4. The fan shall include one (1) downrod. The length of the downrod may be selected at the time of order.
				1. A 7-inch (178-mm), 20-inch (508-mm), or 32-inch (813-mm) downrod shall be included with the fan.
				2. A 48-inch (1219-mm) or 60-inch (1524-mm) downrod shall be available for purchase separately.
	3. Airfoils
		1. The fan shall be equipped with six airfoils spanning a total diameter of 60 in. (152 cm), 72 in.
		(183 cm), or 84 in. (213 cm), as specified by the architect or owner.
		2. Airfoils shall be made of aircraft-grade aluminum.
			1. Airfoils shall be available in Black or White.
			2. Airfoils shall be suitable for indoor and covered outdoor (inland) spaces.
	4. Motor
		1. The fan shall have an electronically commutated motor (ECM) rated for 100–277 VAC, single phase.
		2. The motor shall draw 21.8–23.7 watts depending on the speed at which the fan is operated and if a light is installed.
		3. The fan shall be designed for continuous operation in ambient temperatures of 32–104°F (0–40°C) and a humidity range of 20–90% (non-condensing).
		4. The fan’s motor unit and motor unit trim shall be available in a Black or White finish, as specified by the architect or owner.
	5. Safety Cable
		1. The fan shall be equipped with a safety cable that provides an additional means of securing the fan assembly to the building structure. The safety cable shall be 1.5 mm in diameter and fabricated of aircraft steel.
		2. Field construction of safety cables is not permitted.
	6. Big Ass Fans Mobile App
		1. The fan shall be able to wirelessly connect to local Ethernet networks or host a network. The fan’s Bluetooth® capability shall permit over-the-air firmware updates.
		2. Fan control features shall be managed by users via the Big Ass Fans mobile app. The Big Ass Fans mobile app shall be supported by Android™ and iOS® mobile devices.
		3. Mobile App Control Modes
			1. Motion Sensor. The fan and light automatically turn on and off depending on whether motion is detected in the room.
			2. Rooms. Enables users to group multiple fans in the same space for synchronized operation. Users shall be able to use the Big Ass Fans mobile app to automate fan and light functions or adjust settings manually.
			3. Manual Speed Control. Speed settings range from 0 (Off) to 7 (High).
			4. Manual Light Control. The optional Chromatic Uplight and LED light have adjustable brightness and On and Off settings, as well as the ability to be controlled by the motion sensor feature. The mobile app shall also provide control of the Chromatic Uplight’s Night Light mode and optional UV-C Clean Mode. For fans with the Chromatic Uplight, see 2.2.I, “Chromatic Uplight.” For fans with an LED light, see 2.2.J, “LED Light.”
			5. Amazon Alexa Integration. Enables the use of Amazon Alexa to control the fan and light(s).
			6. Google Assistant Integration. Enables the use of Google Assistant to control the fan and light(s).
	7. Display and Sound
		1. Changes to fan settings shall be confirmed with auditory feedback (a beep) and/or visual indication.
	8. Remote Control
		1. The fan shall be equipped with a compact Bluetooth remote control that allows intuitive operation of the fan speed and light brightness in the following modes:
			1. Fan speeds 0 (Off) through 7 (High)
			2. Auto Mode
			3. Light brightness 0–100%
		2. The remote shall be 1.5” wide x 5.7” tall x 0.8” thick (39 mm wide x 146 mm tall x 20 mm thick) and shall operate on a CR 2450 3 V lithium battery (included).
	9. Chromatic Uplight (Optional)
		1. The fan shall be equipped with the Chromatic Uplight, as specified by the architect or owner.
		2. The Chromatic Uplight shall be installed on top of the fan motor hub for upward-directed lighting.
		3. The Chromatic Uplight kit shall include an LED light module that shall secure to the fan downrod with two set screws.
		4. The Chromatic Uplight shall allow the user to adjust the color temperature to 2700 K, 4000 K, or RGB color changing and shall have night light functionality. The user shall be able to change the RGB color setting to red, orange, yellow, green, blue, purple, or pink.
		5. The Chromatic Uplight shall have a standard lumen option of 1,845 lumens (2700 K setting) or 1,984 lumens (4000 K setting) and shall be capable of dimming down to 1%.
		6. As an upgrade, the Chromatic Uplight shall also include UV-C LEDs, as specified by the architect or owner. The UV-C LEDs shall emit UV-C light while the fan is spinning.
		7. For safety, the optional UV-C LEDs shall only be able to be turned on while the fan is spinning.
	10. LED Light (Optional)
		1. The fan shall be equipped with an LED light, as specified by the architect or owner.
		2. The LED light kit shall include an LED light module with a diffused translucent lens.
		3. The LED light shall use a twist lock mechanism to attach to the bottom of the fan for downward-directed lighting.
		4. The LED light shall allow the user to adjust the color temperature to 2700 K or 4000 K.
		5. The LED light shall have a standard lumen option of 1,770 lumens and shall be capable of dimming down to 1%.
	11. 0–10 V Module (Optional)
		1. The fan shall be equipped with a 0–10 V module, as specified by the architect or owner.
		2. The module shall be installed in the fan’s mounting bracket.
		3. The module shall provide independent control of fan speed and light intensity and shall support daisy chaining for one or up to 10 fans.
		4. The module shall be compatible with any 0–10 V sinking/sourcing dimmer and with most home or building automation systems.

Part 3 Execution

1. 3.1 Preparation
	1. The fan location must have an appropriate ceiling-mounted outlet box marked “Acceptable for Fan Support.” If there is not an appropriate outlet box already installed at the location, one must be installed on a ceiling joist or beam and be properly wired. Additional mounting options may be available. Consult the installation guide for additional details.
	2. The fan location must be free from obstacles such as lights, cables, or other building components.
	3. Check the fan location for proper electrical requirements. Consult the installation guide for appropriate circuit requirements.
2. 3.2 Installation
	1. Install the fan according to the manufacturer’s installation guide, which includes acceptable mounting methods.
	2. Required Distances
		1. For 60-inch (152-cm) and 72-inch (183-cm) fans, the airfoils must be at least 7 ft (2.1 m) above the floor.
		2. For 84-inch (213-cm) fans, the airfoils must be at least 8 ft (2.4 m) above the floor.
		3. The airfoils must have at least 2 ft (0.6 m) clearance from all obstructions.
		4. The fan shall not be located in close proximity to the outputs of HVAC systems or radiant heaters.
	3. Install and set up the Big Ass Fans mobile app according to the manufacturer’s instructions.

End of Section