

ADDENDUM NO.1

October 28, 2021

PROJECT NAME: Amalgamated Sugar 2 ARi

Specifications:

1. Add the attached spec section 23 – 23 5725 Gas Fired Unit Heater
2. Add the attached spec section 23 – 23 3450 HVAC Fans

Drawings:

1. Sheet P1.0 & P1.1 – New storage room added at grid 4/B. Includes additional S-3, HB-3, & FD-1.
2. Sheet P1.0 & P1.1 – Changed DF-2 at grid line 3/G to DF-1.
3. Sheet P1.1 Note 18 – Shop 13 to receive pre-action fire sprinkler system in lieu of wet system specified.
4. Sheet P3.2 – Fixture schedule – Deleted DF-2. Bi-level drinking fountain.
5. Sheet M1.1 – New storage room added at grid 4/B. Includes additional EF-13. Note 4 modified and ventilation schedule added.
6. Sheet M1.2 – Added EF-11 & EF-12 in Shop 13 and added Note 16.
7. Sheet M3.1 – Detail C – Height of OL Louvers raised up to 8' AFF to bottom of louver.
8. Sheet M3.2 – Revised Rooftop HVAC Unit Schedule
Revised Furnace Schedule.
Added EF-11 through EF-13 to Exhaust Fan Schedule.
Added Detail E – Pendant Fan Detail.

Prior Approvals:

1. 23 3114 Louvers and Dampers: Safe-Air Dowco
2. 23 5725 Gas Fired Unit Heaters: Modine
3. 23 3713 Grilles, Registers and Diffusers: Tuttle & Bailey
4. 23 5540 Electric Heaters: Ouellet

END OF ADDENDUM

SECTION 23 3450 - HVAC FANS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 23 0100 apply to this Section.

1.2 WORK INCLUDED

- A. The ceiling mounted, circulation fan shall be Big Ass Fans or approved equal. The fan shall be the model scheduled with the capacities indicated. The fan shall be furnished with standard mounting hardware and variable speed controls.

1.3 RELATED WORK

- A. Factory installation services shall be available through the manufacture; consult the appropriate installation scope of work for more information. Installation of the fan, miscellaneous or structural metal work (if required), field electrical wiring, cable, conduit, fuses and disconnect switches other than those not addressed in the installation scope of work consulted, will be provided by others.

PART 2 - PRODUCT

2.1 MANUFACTURER

- A. Delta T Corporation, dba Big Ass Fans, PO Box 11307, Lexington, Kentucky 40575. Phone (877) 244-3267. Fax (859) 233-0139. Website: www.bigassfans.com or approved equal.

2.2 HIGH VOLUME, LOW SPEED FANS

- A. Complete Unit:
 - 1. The fan shall be ETL certified and built pursuant to construction guidelines set forth by UL standard 507 and CSA standard 22.2. The fan shall be designed to move an effective amount of air for cooling and destratification in large industrial applications over an extended life. The fan and components shall be designed specifically for high volume, low speed fans to ensure lower noise operation. The sound levels from the fan operating at maximum speed shall not exceed 55 dBA (measured 20' or 6.1 m below the blades and 20' or 6.1 m horizontally from the center of the fan).
- B. Airfoils:
 - 1. The fan shall be equipped with ten (10) high volume, low speed airfoils of precision extruded aluminum alloy. Each airfoil shall be of the high performance Powerfoil design. The airfoils shall be connected by means of two (2) locking bolts per airfoil. The airfoils shall be connected to the hub and interlocked with zinc plated steel retainers.
- C. Winglets:
 - 1. The fan shall be equipped with ten (10) Powerfoil winglets designed to redirect outward airflow into downward airflow, thereby enhancing the efficiency and effectiveness of the fan. The winglets shall be molded of high density polypropylene and nominally measure 8-1/2" x 3" (21.6 cm x 7.6 cm). A winglet shall be attached at the tip of each airfoil by means of a barrel screw. The standard color of the winglets shall be "Safety Yellow."
- D. Motor:
 - 1. The fan motor shall be an AC induction type inverter rated at 1725 RPM, 230/460 VAC, and 60 Hz for 3 ϕ and 1725 RPM, 208 VAC, and 60 Hz for 1 ϕ . The motor shall be totally enclosed, fan cooled (TEFC) with an IP55 NEMA classification. NEMA standard frames 56C/143TC/145TC shall be provided for ease of service. The motor shall be manufactured with a double baked Class F insulation and be capable of continuous operation in -30oF to 122oF (-34oC to 50oC) ambient conditions.
- E. Gearbox:

1. The fan gearbox shall be a NitroSeal™ Drive designed specifically for the Powerfoil X. The gearbox shall include a high efficiency, hermetically sealed, nitrogen filled, offset helical gear reducer with two stage gearing, a 2-1/2" (6.4 cm) hollow output shaft, cast iron housing, double lip seals, high quality SKF Explorer Series bearings with crowned cages for optimal lubrication flow, and precision machined gearing to maintain backlash less than 11 arc-minutes over the life of the unit. Lubrication shall be a high grade, low foaming synthetic oil with extreme pressure additives and a wide temperature range.
 2. The fan gearbox shall be equipped with a passageway in which wiring, piping, etc can be routed below the fan. A non-rotating, standard junction box shall be provided at the base of the fan for installing optional features such as lights, cameras, and VESDA. An aluminum cover plate shall be provided for attachment to the junction box when these features are not installed.
- F. Mounting Post:
1. The fan shall be equipped with a mounting post that provides a structural connection between the fan assembly and upper mounting system. The mounting post shall be 3" x 3" (7.6 cm x 7.6 cm) square tubing and powder coated for corrosion resistance and appearance. As an option, mounting post may be colored as specified by the architect or owner.
- G. Hub:
1. The fan hub shall be precision cast aluminum alloy for high strength and light weight. The hub shall be secured to the output shaft of the gearbox by means of a steel flange interface. Both hub and flange shall be precision machined to achieve a well balanced and solid rotating assembly. The hub shall incorporate five (5) safety retaining clips made of 1/4" (0.6 cm) thick steel that shall restrain the hub/airfoil assembly in case of gearbox output shaft failure.
- H. Mounting System:
1. The fan mounting system shall be designed for quick and secure installation from a structural support beam. All components in the mounting system shall be of welded construction using low carbon steel no less than 3/16" (0.5 cm) thick and be powder coated for appearance and resistance to corrosion. All mounting bolts shall be SAE Grade 8 or equivalent. As an option, mounting components may be colored as specified by the architect or owner.
- I. 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 3/8" (1 cm) diameter and fabricated out of 7 x 19 stranded galvanized steel. The loops shall be secured with swaged Nicopress fittings, pre-loaded and tested to 3,000 lb·f (13,345 N).
 2. Field construction of safety cables is not permitted.
- J. Controller:
1. The fan controller shall be constructed using a Variable Speed Drive (VSD) that is pre-wired to the motor and factory programmed to minimize the starting and braking torques, for smooth and efficient operation. The controller shall be prewired to the motor using a short run of flexible conduit THHM with a dedicated ground conductor to minimize electromagnetic interference (EMI) and radio frequency interference (RFI). An incoming power cord shall also be pre-wired to the controller for ease of installation. The controller shall be contained within a completely sealed aluminum enclosure with an IP45 NEMA classification for 3 φ and a NEMA 4/12 rating for 1 φ. The controller will be secured to the mounting post 'onboard' the fan assembly.
- K. Wall Control:
1. The fan shall be equipped with a remote wall control. The wall control shall be a digital keypad device mounted inside an aluminum bezel. The bezel shall be capable of mounting to a standard wall box. The wall control shall be equipped with touchpad controls and an LED display for controlling the fan's direction, operation and speed. Communication with the fan drive and controller shall be by a standard commercially available CAT-5 (or higher) Ethernet cable that is field installed and provided by the installer. A 5' (1.5 m) 'patch cable' shall be provided to test and verify communication signals locally prior to connecting the remote connection cable.
 2. The wall control shall be equipped with a simple diagnostic program to identify faults in the system. Provisions must be made for retrieving fan operation and diagnostic data (fault messages) through the remote wall device.
- L. 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, F.O.B. Lexington, KY), pursuant to

the complete terms and conditions of the Big Ass Fans Non-Prorated Warranty in accordance to the following schedule:

- a. Airfoils Lifetime (Parts)
- b. Hub Lifetime (Parts)
- c. Motor 10 years (Parts)†
- d. Gearbox 10 years (Parts)†
- e. Controller 10 years (Parts)†
- f. Labor 1 year††
- g. † 10 year parts warranty only valid with factory installation, 5 year parts without factory installation.
- h. †† All reasonable costs of repair or replacement will be paid or reimbursed provided customer obtains pre-approval; see full warranty for details.

- 2. Further information on the terms and conditions of the warranties can be found in the Installation Guide.

PART 3 - ANCILLARY

3.1 INSTALLATION

- A. The fan shall be mounted to an angle iron or I-beam structure. Consult the Installation Guide for acceptable I-beam width, and proper sizing and placement of angle iron for a span mount. A structural engineer must be consulted for installation methods outside the manufacturer's recommendation and a certification submitted prior to installation.
- B. To reduce the risk of injury to persons, the fan shall be installed so that the airfoils are at least 10' (3 m) above the floor. The fan installation area must be free of obstructions such as lights, cables, sprinklers or other building structures; with the airfoils at least 2' (61 cm) clear of all obstructions. The fan should not be installed where it will be continuously subjected to wind gusts or in close proximity to the outputs of HVAC systems.
- C. If the fan is hung from an extension tube that measures 4' (1.2 m) or longer, it may be necessary to provide guy cables or struts to limit potential lateral movement of the fan. A stiffening strut braced against an additional beam may be required if there is a close clearance situation.
- D. The design criteria for the fan mounting system shall be capable of handling 300 ft·lbs (407 N·m) of torque.

3.2 WORKMANSHIP

- A. Good workmanship shall be evident in all aspects of construction. Field balancing of the airfoils shall not be acceptable.

3.3 DOCUMENTATION

- A. The manufacturer shall furnish a copy of all operating and maintenance instructions for the fan.
- B. All data is subject to change without notice. Data indicated in this document are for your convenience and were correct at the time of printing with the exception of clerical and/or printing errors. This document supersedes all previously published documents.

END OF SECTION 23 3450

SECTION 23 5725 - GAS FIRED UNIT HEATERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 23 0501 apply to this Section.

1.2 SUMMARY

- A. Furnish and install gas fired unit heaters as described in Contract Documents.

1.3 QUALITY ASSURANCE

- A. Units shall be AGA approved and suitable for natural gas.

1.4 WARRANTY

- A. Heat exchangers and draft hoods shall be guaranteed by manufacturer for a period of ten years under normal operating conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Unit heaters shall have capacities shown on drawings.
- B. Heat exchangers shall be 18 gauge aluminized steel with 16 gauge aluminized steel header plates. Seams shall be electrically welded.
- C. Burners:
 - 1. Stainless steel ribbon inserts
 - 2. Fire directly into the heat exchanger tubes
 - 3. Easily opened access panel in the bottom of each heater for removal of individual burners and pilot assembly.
- D. Unit heaters (unless connected to ductwork) shall have four-way adjustable louvers for proper air diffusion.
- E. Each heater shall be equipped with:
 - 1. 24 volt automatic gas valve
 - 2. Automatic pilot with 100% safety shutoff
 - 3. Snap-acting high limit switch
 - 4. Gas pressure regulator
 - 5. Manual gas cock
- F. Blower models shall be equipped with 115/24 volt transformer and fan control.
- G. Heaters shall be controlled by a Honeywell T87F room thermostat.
- H. Approved Manufacturers:
 - 1. Lennox
 - 2. Reznor

END OF SECTION 23 5725