

University of Houston Master Specification

<Insert Project Name>

<Insert U of H Proj #>

<Insert Issue Name>

<Insert Issue Date>

SECTION 23 8413 – STEAM GRID HUMIDIFIERS

Revise this Section by deleting and inserting text to meet Project-specific requirements.

This Section uses the term "Engineer." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
 2. The University of Houston's Supplemental General Conditions and Special Conditions for Construction.

1.2 SUMMARY

- A. Perform all Work required to provide a dry steam grid type humidifier that utilizes a steam jacketed distributor.

1.3 REFERENCE STANDARDS

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.
- C. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:
 1. ARI 610 - Central System Humidifiers.
 2. ARI 630 - Selection, Installation and Servicing of Humidifiers.

1.4 SUBMITTALS

- A. Product Data:

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1. Rated capacities, dimensions, duct sizes, piping inlet and outlet dimensions, and electrical service connections and wire sizes, electric nameplate data, electrical and control wiring diagrams.
2. Manufacturer's descriptive literature, operating instructions, installation instructions, clearance requirements, maintenance and parts listing.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, protect and handle products to the Project Site under provisions of Division 01 and Section 23 0100 "Mechanical General Provisions."
- B. Protect humidifier and internals from entry of foreign material. Protect pipe openings with the use of temporary caps.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.2 MANUFACTURERS

- A. Armstrong.
- B. DriSteam.
- C. Pure Steam.
- D. Spirax Sarco.

2.3 STEAM GRID HUMIDIFIERS

- A. Provide a dry steam grid type humidifier with the following:
 1. Steam jacketed separating chamber.
 2. Stainless steel dispersion tube with internal silencing screen, sized by the manufacturer to fit the duct at the required humidifier capacity.
 3. Spring electric actuated fully modulating control valve. The control valve is at the normally closed position on loss of electrical power to the actuator.
 4. Float and thermostatic type (inverted bucket steam trap if above 15 psi) drain trap, pipeline strainer, and escutcheon plate to completely seal the duct opening.
 5. Duct mounted airflow switch option.
 6. Condensate return thermostatic switch option set at a temperature of 205 degrees F.

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7. Steam strainer.
- B. Humidifiers installed in central air handling units shall be installed on the downstream side of coils or final filter banks.
1. If the humidifier must be located within the air handling unit casing, the humidifier must be shipped to the air handling unit manufacturer to ensure that the humidifier is properly sealed when the low air leakage test is being performed on air handling unit by the manufacturer.
 2. The humidifier shall be provided with enough distribution manifolds to limit the steam particle vapor trail to less than 3 feet at scheduled capacities. The number of distribution manifolds and duct size dimensions determine whether vertical or horizontal mounting configuration will be used.
 3. Humidifiers installed in ducts shall be provided with clearance requirements for maintenance.
 - a. The duct section where the humidifier is located shall be constructed of stainless steel material.
 - b. The bottom of the stainless steel duct section shall be pitched to drain off condensed steam. Pipe a stainless steel NPT drain connection welded to the bottom of the duct to the nearest sink or floor drain.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.
- B. All installation shall be in accordance with manufacturer's published recommendations.
- C. Provide galvanized steel rods to support distribution manifolds and mount in air system plenums.
- D. Connect dry steam humidifiers to steam supply and to condensate piping. Provide gate valve, inlet strainer, and inverted bucket steam trap. Refer to Sections 23 2213 "Steam and Steam Condensate Piping" and 23 2230 "Steam and Steam Condensate Specialties."

END OF SECTION 23 8413

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