

SECTION 15XXX
HUMIDIFIERS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. NORTEC MES2 Series electrode steam humidifier[s] as indicated on drawing[s] and as indicated on schedule[s].
- B. Complete and operable humidification system [which meets applicable building codes].
- C. Equipment start-up and project inspection by qualified factory trained representative.

1.2 QUALITY ASSURANCE

- A. Manufacturer: For each product specified, provide components by same manufacturer throughout.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authority having jurisdiction, and marked for intended use.
- C. Comply with ARI 640, "Standard for Commercial and Industrial Humidifiers."
- D. Products shall be supported with a warranty that ensures the product will be free from defects in materials and workmanship for a period of two years after shipment.
- E. Commissioning of a system or systems specified in this section is part of the construction process. Documentation and testing of these systems, as well as training of the Owner's operation and maintenance personnel, is required in cooperation with the Commissioning Authority. Project Closeout is dependent on successful completion of all commissioning procedures, documentation, and issue closure. Refer to Project Closeout, Section 01700, for substantial completion details. Refer to Section 01810, Commissioning, for detailed commissioning requirements.
- F. Products specified below are to be manufactured in an ISO 9001-2000 certified facility.

1.3 SUBMITTALS

- A. Submit product data under provisions of Section 15010. Include product description, model, dimensions, component sizes, rough-in requirements, service sizes, and finishes. Include rated capacities, operating weights, furnished specialties, and accessories.
- B. Submit manufacturer's installation instructions.
- C. Submit operation and maintenance data.
- D. Submit coordination drawings. Detail fabrication and installation of humidifiers. Include piping details, plans, elevations, sections, details of components, and dispersion tubes. Detail humidifiers and adjacent equipment. Show support locations, type of support, weight on each support, and required clearances.
- E. Submit wiring diagrams including power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.
- F. Submit minimum water quality requirements and water pressure requirements.

1.4 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.5 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.6 COORDINATION

A. Coordinate location and installation of humidifiers in ducts and air-handling units. Revise locations and elevations to suit field conditions and to ensure proper humidifier operation.

XXXXX OR XXXXX

A. Coordinate location and installation of humidifier in the space it serves with the electrical, mechanical, and plumbing contractors.

PART 2 - PRODUCTS

2.1 ELECTRODE STEAM HUMIDIFICATION SYSTEM - NORTEC MODEL MES2

A. NORTEC MES2 electrode steam generating system using regular type potable water supply.

B. Partial unit, requiring external primary voltage contactor, secondary control voltage (24 Vac) supply, steam distributor[s] for mounting into AHU/duct[s]. [refer to schedule].

C. Unit[s] to be complete with:

1. Disposable steam cylinder[s] with published life expectancy.
2. Auto-Adaptive control system to optimize contained water conductivity, control automatic drain/flush cycles, minimize energy waste and maximize cylinder life.
3. Modulation output between 20% and 100% of rated or manually limited capacity.
4. Remote fault indication relay.
5. Modular plumbing and electrical.
6. High water sensor circuitry to prevent over filling.
7. Full cylinder indication to advise end of cylinder life.
8. Dual signal status lamps to indicate unit operation.
9. Fill valve, drain valve and fill cup assembly with minimum 1 inch [25 mm] air gap.
10. Drain water tempered by fill water to ensure drains do not exceed 140°F [60°C] during standard operation.
11. Two year limited warranty.
12. Standard of acceptance NORTEC MES2 Series.
13. Heater element technology humidifiers not acceptable.

D. Optional accessories:

1. Modbus interface for display and control of operational parameters.
2. Plumbing enclosure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine ducts, air-handling units, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in for piping systems to verify actual locations of piping connections before humidifier installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install humidifiers and steam dispersion panels per manufacturers' instructions.
- B. Seal humidifier dispersion-tube duct penetrations with flange.
- C. Install with required clearance for service and maintenance.

3.3 TESTING

A. System verification testing is part of the commissioning process. Verification testing shall be performed by the Contractor and witnessed and documented by the Commissioning Authority. Refer to section 01810, Commissioning, for system verification tests and commissioning requirements.

XXXXX OR XXXXX

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections. Report results in writing.

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove malfunctioning units, replace with new units, and retest.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 TRAINING

A. Training of the Owner's operation and maintenance personnel is required in cooperation with the Commissioning Authority. Provide competent, factory authorized personnel to provide instruction to operation and maintenance personnel concerning the location, operation, and troubleshooting of the installed systems. The instruction shall be scheduled in coordination with the Commissioning Authority after submission and approval of formal training plans. Refer to System Demonstrations, section 01670, for contractor training requirements. Refer to section 01810, Commissioning, for further contractor training requirements.

XXXXX OR XXXXX

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain humidifiers.

1. Train Owner's maintenance personnel on procedures and schedules for installations, operation, maintenance and servicing and troubleshooting.

2. Review data in maintenance manuals. Refer to Division 1 Section "Contract Closeout."
3. Review data in maintenance manuals. Refer to Division 1 Section "Operation and Maintenance Data."
4. Schedule training with Owner, through Architect, with at least seven days advance notice.

END OF SECTION