

SECTION 23 74 13

CUSTOM, INDOOR, CENTRAL-STATION AIR-HANDLING UNITS

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.

1.2 SUMMARY

- A. This Section includes custom, indoor, central-station air-handling units with the following components and accessories:
 - 1. Chilled water coils
 - 2. Filter sections

1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design air handling unit supports to comply with seismic performance requirements, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria as may apply.
- B. Seismic Performance: Air handling units shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
- C. Air handling unit shall be hospital grade equipment and shall meet all current AIA guidelines and industry standards.

1.4 SUBMITTALS

- A. Product Data: Include manufacturer's technical data for each air handling unit, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 1. Wiring Diagrams: Power, signal, and control wiring.

- C. Coordination Drawings: Plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Structural members to which air handling units will be attached.
- D. Operation and Maintenance Data: For air handling units to include in emergency, operation, and maintenance manuals.
- E. Unit manufacturer to warrant it's product to be free of defects in materials and workmanship under normal use for a period of 18 months from date of shipment or 12 months after initial equipment start-up, whichever occurs first. Equipment found to be defective should be replaced or repaired to include all parts and labor. VFDs shall have a 3 year warranty.

1.5 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. Filters: One set of filters for each unit.

1.6 RATINGS AND CERTIFICATIONS

- A. Unit shall conform to AMCA 210 for fan performance ratings.
- B. Unit shall conform to E.T.L. standards.
- C. Unit sound ratings shall be reported in accordance with ARI 260 for inlet and discharge sound power levels.
- D. Unit casing radiated sound ratings shall be reported in accordance with ISO 9614 parts 1 & 2 and ANSI S12.12.
- E. Unit shall conform to ARI 410 for capacities, pressure drops, and selection procedures of air coils.
- F. Unit shall conform to ARI 430 for all fabrication procedures of air handling units.
- G. Motors covered by the Federal Energy Policy Act (EPACT) shall meet EPACT requirements.
- H. Damper performance shall comply with AMCA 500.
- I. Air handling units shall be ISO 9001 certified.
- J. The Unit Electrical Panel(s) shall be built in strict accordance to NEC Standards and shall bear an appropriate label certifying compliance with UL Standard 508A.
- K. The unit construction and installation shall be in accordance with IBC 2006 Section 1613 and in accordance with ASCE 7 and approved by a structural engineer.

1.7 UNIT SANITATION, DELIVERY, STORAGE AND HANDLING

A. Unit Sanitation (Clean Room AHU)

1. The standards that provide the basis for the clean packaging and delivery to the customer cleanroom include:
 - a. SEMI E49.1-95 Guide for Tool Final Assembly, Packaging and Delivery
2. The “clean-as-you-go” methodology is key to minimize any contaminants being trapped during construction of equipment. The “clean-as-you-go” methodology means that each work area cleans their portion of build that they are responsible for. The cleaning continues throughout the build until the entire unit every surface has been cleaned. Each work area uses Isopropyl Alcohol (IPA) wipes, depending upon the customer’s request. The Isopropyl Alcohol is an 85% mixture and the wipes are nonwoven clean room wipe 65% cellulose / 35% polyester. Before packaging the unit gets a final vacuum and IPA wipe down. If unit has been painted. Touch up paint will be applied to any scratches.
3. The equipment should be totally enclosed and sealed in at least 2 layers of clean polyethylene when received at the site cleanroom. Each layer forms a seal against moisture and particles.
4. Triple Wrap Strategy – Each configuration of product should be evaluated to determine the wrap materials to provide the “Triple Wrap Strategy”. The individual wraps are intended to be removed in stages and should adhere to the following guidelines:
 - a. Inner Wrap – This wrap should stay with the product all the way into the site cleanroom or a staging area of the same order wipe down. The wrap should be cleaned prior to movement into the cleanroom.
 - b. Middle Wrap – This wrap should stay on the product until it reaches an immediate staging area.
 - c. Outer Wrap – This wrap is used to protect the product while in transit to the loading dock. This layer is removed on the loading dock.
 - d. Packaging, crating or tarpaulin outside the triple wrap should provide protection during shipment and handling to the receiving dock or outside staging area.

A. Air Handling Unit (AHU)

1. Cover all corners and sharp edges using white foam strip and secure in place with 2” polyethylene white clean room tape.
2. Cover piping and hardware with bubble wrap and secure in place with 2” polyethylene white clean room tape.
3. (Option for overseas shipments only). Cover coil header piping sticking out of the wall panel, with 2x4 and plywood box and strap into place. Lumber used for crating and rapping needs to be certified for export (ISPM15) and marked as so by shipping with a stamp.
4. Wrap vertical surfaces in 3 places. Top, Middle and bottom with 18” wide stretch film overlapping 50% in a horizontal direction. (Elasticfilm gauge 80 or equivalent).
5. Cover bottom of unit with one continuous sheet of 4mil translucent ploy (420C).Tape to secure with 2” polyethylene white clean room tape. Carefully slit

the poly to allow lifting lugs to pass through. Tape the silted poly to the lug to seal. Fold under and inward toward the center of the sort side.

6. Cover top of unit with one continuous sheet of 4mil translucent ploy (420C). Tape of secure with 2" polyethylene white clean room tape. Fold under and inward toward the center of the sort side.
7. (Option for overseas shipments only). When shipping overseas use blue VCI wrap instead of the translucent ploy (420C).
8. Cover bottom of unit with one continuous sheet of white heat shrink wrap. Tape to secure with 2" polyethylene white clean room tape. Carefully slit the poly to allow lifting lugs to pass through. Tape the silted poly to the lug to seal. Fold under and inward toward the center of the sort side.
9. Cover top of unit with one continuous sheet of white heat shrink wrap. Tape of secure with 2" polyethylene white clean room tape. Fold under and inward toward the center of the sort side.
10. Heat between seams and pat to seal.
11. Tape all seams and corners with 4" white heat shrink tape. Heat tape to seal seams.

B. Shipping

1. Spacer (4") minimum shall be used to provide for the use of forklifts. Fork lift (forks) should not slide on the bottom poly to preclude damage to the outer wrap.
2. The method wrapping is the responsibility of air handling unit manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Huntair
 2. Temtrol

2.2 GENERAL DESCRIPTION

- A. Factory manufactured air-handling units shall be designed and built to meet performance detailed in this submittal.
- B. Units shall be complete with fans, motors, coils, dampers, access doors and other components/options, as shown on drawings, wiring diagrams, and as described in performance specifications.
- C. Fans and drives shall be balanced to limit vibration at operating speeds.
- D. Units shall ship in one (1) piece whenever possible. Shipping splits shall be provided when necessary. Lifting lugs shall be provided where required for proper lifting.
- E. Unit casing and frame shall be factory insulated.
- F. Units shall be ETL labeled.

2.3 UNIT CASING

- A. Casing leakage shall not exceed 1% of design CFM at ± 8 " static pressure differential across casing.
- B. Panel deflection shall not exceed $L/240$ at ± 8 " static pressure differential across casing.
- C. Unit casing shall consist of a structural frame with insulated roof, wall, and floor panels.
- D. Unit shall have double wall, 2" insulated panels for walls, roof, and floor. Exterior skin shall be galvanized sheet steel. Individual segments shall have galvanized sheet steel, as described in performance specifications.
- E. Unit casing will be insulated to achieve thermal resistance of $R13 \text{ hr-ft}^2\text{-}^\circ\text{F}/\text{BTU}$.
 - 1. Insulation application meets the requirements of NFPA 90A.
- F. Double wall access doors will be provided on sections as shown on product drawings.
 - 1. Stainless steel hinges permit a 180° door swing.
 - 2. Access door will be of the same material type as exterior/interior casing.
 - 3. Provide test ports on each door.

2.4 BASES

- A. Unit bases shall be constructed from structural steel channel iron or tubing around the entire perimeter of the unit and provided with intermediate structural tubing, channel and angle iron as required to support all internal components. All tubing, channel and angle joints shall be solid welded. Bolted or formed channel bases are not acceptable.
- B. Base shall be provided with removable lifting lugs minimum (4) per section, properly located to assure uniform loading. Maximum spacing between lifting lugs shall be 120".
- C. Drain pans shall be 304 Stainless Steel double-walled construction with solid welded seams for complete water capture and containment. Pans under cooling coils shall extend a minimum 18" passed the leaving face of the coil in direction of airflow. Drain Pans shall be fully recessed in the unit floor and all headers and return bends shall be located over the drain pan for collection of all condensate forming on headers and return bends. Drain pans will have at least 1" clearance between pan and coil supports. All coils shall be easily removable without cutting or removing any portion of the drain pan. Pans shall be insulated between the liner and the main pan. Pans shall be IAQ Double Sloping at least $1/8$ " per foot to a single drain. Drain connection shall be a minimum $1\text{-}1/4$ " diameter MIPS thread extending out through the channel base the same side as the coil connections unless other wised indicated on the drawings. Pans shall be provided for cooling coils, as required. Mastic coated drain pans are not acceptable as they are "non-Cleanable".

2.5 FANS

- A. Fan Array
 - 1. The Fan Array shall consist of multiple, direct driven, arrangement 4 plenum fans constructed per AMCA requirements for the duty specified, Class I, II, or III. All fans shall be selected to deliver the specified airflow quantity at the specified operating Total Static Pressure and specified fan/motor speed. The Fan Array

shall be selected to operate at a system Total Static Pressure that does not exceed 90% of the specified fan's peak static pressure producing capability at the specified fan/motor speed. The fan intake wall, inlet funnel, and motor support structure shall be powder coated for superior corrosion resistance. All motors shall be standard pedestal mounted type, TEAO T-frame motors selected at the specified operating voltage, RPM, and efficiency as specified or as scheduled elsewhere. All motors shall include isolated bearings or shaft grounding. Each fan/motor cartridge shall be dynamically balanced to meet AMCA standard 204-96, category BV-5, to meet or exceed Grade 2.5 residual unbalance. If fans do not meet balance criteria, each fan shall be individually isolated on a concrete inertia base, isolated from the air handling unit with seismically restrained 3" deflection spring isolators.

- a. The Fan Array shall be provided with coplanar acoustical silencers that reduces the bare fan discharge sound power levels by a minimum of 15 db re 10⁻¹² watts throughout the eight octave bands with center frequencies of 125, 250, 500, 1000, 2000, 4000, and 8000 HZ when compared to the same unit without the silencers. The silencers shall not increase the fan total static pressure, nor shall it increase the airway tunnel length of the Air Handling Unit when compared to the same FWT unit without the silencer array.
 - b. Alternate manufacturers must submit acoustical data for review and approval prior to the bid indicating that the proposed alternate equipment can meet all specified performance requirements without impacting the equipment performance or design features including duct connection location, unit weights, acoustical performance, or specified total fan HP for each array. Proposals submitted which indicate a higher connected fan HP than specified or scheduled will not be accepted.
2. The fan array shall consist of multiple fan and motor "cubes", spaced in the air way tunnel cross section to provide a uniform air flow and velocity profile across the entire air way tunnel cross section and components contained therein. Each fan cube shall be individually wired to a VFD, as specified elsewhere, for the total connected HP for all fan motors contained in the array. Wire sizing shall be determined, and installed, in accordance with applicable NEC standards.
 3. The Fan Array shall produce a uniform air flow profile and velocity profile within the airway tunnel of the air handling unit not to exceed the specified cooling coil and/or filter bank face velocity when measured at a point 12" from the intake side of the Fan Array intake plenum wall, and at a distance of 48" from the discharge side of the Fan Array intake plenum wall.
 4. Each fan/motor assembly shall be removable through a 30" wide, free area, access door.
 5. Each fan/motor "cube" will be provided with an individual back-draft damper similar to a Ruskin BD6 Heavy Duty 6063T5 extruded aluminum frame, .125" wall thickness. Frame shall have galvanized steel braces on all corners. Blades shall be minimum .070" wall thickness 6063T5 extruded aluminum. Bearings shall be corrosion resistant long life synthetic. Linkage shall be ½" tie bar with stainless steel pivot pins. The manufacturer shall provide a complete spare fan/motor assembly for emergency replacement, one for each type of assembly provided on the project.

2.6 ELECTRICAL MOTORS

- A. Fan motors will be built in accordance with the latest NEMA and IEEE standards.

- B. Fan motors comply with ASHRAE Standard 90.1, IECC and be premium efficient type.
- C. Fan motors will be furnished in sizes, electrical power and starting characteristics as shown in drawing schedules.
 - 1. Fan motors will be rated for continuous, full load duty at 104°F (40°C) ambient temperature and 1.15 service factor.
 - 2. Fan motors will be NEMA design ball bearing type.
 - 3. Fan motors will meet NEMA premium efficiency standards.
 - 4. Motors will be suitable for use with variable frequency drives, per NEMA MG-1 Part 30.
 - 5. Provide shaft grounding rings on all motors.

2.7 FAN MOTOR DISCONNECTS

- A. Fan motor disconnects will be provided with unit, as shown in drawing schedules. Provide motor overloads and disconnects for each individual motor.
- B. Disconnect will be housed in a NEMA 1 enclosure, and mounted on the primary access side of segment.
- C. Disconnect will be suitable for use as an OSHA lockout/tagout disconnect when applied in accordance with part IV, Department of Labor OSHA 29 CFR Part 1910, Control of Hazardous Energy Source (lockout/tagout): final rule.
- D. Disconnect handles can be padlocked in the "off" position with up to three padlocks. Switch mechanism can be directly padlocked in the "off" position when door is open.
- E. Disconnects will be provided with an integral ground lug.
 - 1. 16A to 100A disconnects will have two (2) #14 ground wires.
 - 2. 200A to 400A disconnects will have one (1) #6-250 ground wire.

2.9 FAN VARIABLE FREQUENCY DRIVES

- A. Variable frequency drives will be furnished shipped loose or provided with units.
- B. VFDs will be UL or ETL listed and comply with applicable provisions of the National Electric Code.
- C. VFDs will be programmed and started by a manufacturer's trained and employed technician.
- D. VFD will include harmonic distortion feedback protection:
 - 1. Swinging DC Line Choke (equivalent to 5% input line reactor)
 - 2. Integral RFI/EMI filtering to meet EMC EN61800-3 for First Environment
- E. User interface will include:
 - 1. 30 Character multi-lingual alphanumeric display
 - 2. Parameter set-up and operating data
 - 3. Display data includes:
 - a. output frequency (Hz)
 - b. speed (RPM)
 - c. motor current

- d. calculated % motor torque
- e. calculated motor power (kW)
- f. DC bus voltage
- g. output voltage
- h. heat sink temperature
- i. elapsed time meter (re-settable)
- j. kWh (re-settable)
- k. input / output terminal monitor
- l. PID actual value (feedback) & error
- m. fault text
- n. warning text
- o. scalable process variable display

F. VFD protection circuits will include:

- 1. over current
- 2. ground fault
- 3. over voltage
- 4. under voltage
- 5. over temperature
- 6. input power loss of phase
- 7. loss of reference/feedback
- 8. adjustable current limit regulator

G. VFD will be UL 508C approved for electronic motor overload (12t).

H. VFD will include high input transient protection and surge suppression:

- 1. 4 MOVs ahead of diode bridge
- 2. 120 Joule rated 1600V diode module
- 3. Compliant with UL 1449 / ANSI 61.4

I. VFD communication features include:

- 1. Two programmable analog inputs
- 2. Two programmable analog outputs
- 3. Three programmable digital relay outputs
- 4. Adjustable filters on analog inputs and outputs
- 5. Input speed signals, including 4-20 mA and 0-10 VDC
- 6. Acceleration/Deceleration contacts (floating point control)
- 7. Auto restart (customer selectable and adjustable)
- 8. Start/Stop options will include 2 wire (dry contact closure), 3 wire (momentary contacts), application of input power, and application of reference signal (PID sleep/wake-up)
- 9. Integrated control interface for Honeywell.

J. VFD will have the following functions:

- 1. Premagnetization on start
- 2. DC braking/hold at stop
- 3. Ramp or coast to stop
- 4. Seven preset speeds
- 5. Three critical frequency lockout bands
- 6. Start function will include ramp, flying start, automatic torque boost, and automatic torque boost with flying start

2.10 COOLING COILS

- A. Water coil capacity and pressure drop performance will be certified in accordance with ARI Standard 410, when selected within fluid velocity, inlet fluid temperature, and entering air temperature ranges specified by ARI 410.
- B. Cooling coil segments will have a full-width IAQ drain pan that extends at least 6" downstream of the last coil in the section.
- C. Coils will be removable from the side and/or top of unit, via removable AHU panels. No more than one panel must be removed to remove a coil. Refer to drawings and contractor field measurements for coil pull location.
- D. Coils will have frames constructed of galvanized steel. Casing channels will be free-draining and do not block fin area.
- E. Cooling coils with finned height greater than 48" will have an intermediate drain pan with downspout to drain condensate to main drain pan. Intermediate drain pan material will match coil frame material.
- F. Coil segment door clearances will allow for at least 2-inches of field installed piping insulation.
- G. Coil bulkheads and blank-offs will prevent air from bypassing coils.
- H. Coil connections will be extended through unit casing.
- I. Water coils will have a 1/4" FPT plugged vent or drain tap on each connection that is accessible from outside the unit.
- J. Spool shaped coil grommets will be provided to insulate and seal coil penetrations.
- K. Water coils will be designed to operate at 250 psig and up to 300° F and will be factory tested with 325 psig compressed air under water.
- L. Water coil tubes will be mandrel expanded to form fin bond and burnished, work-hardened interior surface.
- M. Coil fins will be die-formed, continuous, and have fully drawn collars to accurately space fins, and form a protective sheath for tubes.

2.11 FILTERS

- A. Filter segments will be provided, as shown on drawing schedule. Filter tracks/frames will be an integral part of the unit.
- B. Filter types, nominal sizes, efficiencies, and performance characteristics will be as shown in the drawing schedules.
- C. Filter access will be provided via access doors on filter segments or adjacent segments as required by filter loading scheme.
- D. Final filter should handle both cartridge and bag filters.

2.12 DAMPERS

- A. Dampers will be factory installed.
- B. Dampers will have airfoil blades with extruded vinyl edge seals and flexible metal compressible jamb seals.
- C. Dampers will have a maximum leakage rate of 4 CFM/square foot at 1" w.g. and comply with ASHRAE 90.1, IECC.
- D. Maximum damper torque requirement will be 7 in. lbs./ft².
- E. Damper blades will be opposed acting unless submitted otherwise.

2.13 MAGNEHELIC FILTER GAUGE

- A. A differential pressure gauge shall be installed across each filter bank. The gauge shall be diaphragm-actuated dial type, 4-3/4" O.D. with white dial, black figures and graduations, and pointer zero adjustment. Range shall be as follows:
 - 1. 0" – 1.0" w.c. for pleated filters
 - 2. 0" – 2.0" for bag and rigid filters
 - 3. 0" – 3.0" for combination filter banks.

2.14 SERVICE LIGHTS

- A. Provide vapor proof marine type 150-watt light fixtures in each accessible section complete with a protective metal cage and sealed glass enclosure. Lights to be wired to a common switch mounted in a weatherproof box adjacent to the fan access door complete with a convenience outlet. Outlet shall have an indicator light. Power shall be 120V/1/60.
- B. All wiring to lights shall be in conduit and internal to the unit. No external conduit runs for the lights are allowed.
- C. Air handler manufacturer shall allow a minimum 1.5" clearance above the entire width of each interior bulk headers (coils, filters, fan blank off, etc.). This will be to allow wiring of any 110V or 24V runs internally to the unit as required by the controls contractor and reduce the number of penetrations of the exterior panels.
- D. If the unit requires splitting, junction boxes shall be furnished at each section to allow the electrical contractor to make final connections in the field. Wiring to be clearly labeled at junction points to facilitate reconnection.

2.15 APPURTENANCES

- A. Base rails suitable for rigging and lifting will be provided.
- B. Lifting lugs will be provided where required for proper lifting.
- C. Temperature controls.

2.16 FINISHES

- A. External unit surfaces will be factory cleaned prior to finishing or shipping.

2.17 CAPACITIES AND CHARACTERISTICS

- A. Refer to schedules on drawings.

2.18 SOUND POWER LEVELS

- A. The sound power level at the air handling unit discharge, air intake (OSA intake), and casing radiated shall not exceed the values listed on the drawings, when the unit is operating at maximum design airflow and static Pressure.
- B. It shall be the option of the contractor to provide a quieter fan, acoustical lining, sound traps or other sound attenuating devices within the air handling unit to supplement the design in order to meet the specified levels above.
- C. The air handling units sound power data shall be submitted for approval. The submittal shall include a complete description of the methods and procedures used to develop the sound power levels being submitted.

2.19 CLEANING PROCEDURE

- A. All sub-assemblies are pre-cleaned with an IPA solution.
- B. Panels are pre-cleaned prior to insertion of insulation.
- C. All areas exposed to the air stream must be free of dirt, dust, oils, chips and other particles.
- D. Unit is thoroughly vacuumed.
- E. Particles are removed with magnets and/or adhesive attached to a rod, in areas not accessible with a vacuum.
- F. All surfaces are wiped with low lint towels and IPA solution.
- G. Scratches are touched-up with paint.
- H. Unit is sealed after a Quality Control inspection.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

- A. Unit Support: Install unit level on pad. Secure AHUs to concrete pad with anchor bolts.
- B. Install seismic restraints according to manufacturer's written instructions.

3.3 CONNECTIONS

- A. Install condensate drain, minimum connection size, with trap and indirect connection to nearest drain, as indicated on drawings.
- B. Install piping adjacent to AHUs to allow service and maintenance.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- B. Tests and Inspections:
 - 1. After installing AHUs and after electrical circuitry has been energized, test units for compliance with requirements.
 - 2. Inspect for and remove shipping bolts, blocks, and tie-down straps.
 - 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Remove and replace malfunctioning units and retest as specified above.

3.5 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
- B. Complete installation and startup checks according to manufacturer's written instructions and do the following:
 - 1. Inspect for visible damage to unit casing.
 - 2. Inspect for visible damage to coils and fans.
 - 3. Inspect internal insulation.
 - 4. Verify that labels are clearly visible.
 - 5. Verify that clearances have been provided for servicing.
 - 6. Verify that controls are connected and operable.
 - 7. Verify that filters are installed.
 - 8. Remove packing from vibration isolators.
 - 9. Verify lubrication on fan and motor bearings.
 - 10. Inspect fan-wheel rotation for movement in correct direction without vibration and binding.
 - 11. Adjust fan belts to proper alignment and tension.
 - 12. Start unit according to manufacturer's written instructions.
 - 13. Inspect and record performance of interlocks and protective devices; verify sequences.

14. Inspect outdoor-air dampers for proper stroke.
15. After startup and performance testing and prior to Substantial Completion, replace existing filters with new filters.

3.6 CLEANING AND ADJUSTING

- A. After completing system installation and testing, adjusting, and balancing AHU and air-distribution systems, clean filter housings and install new filters.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain AHUs. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 237413