SECTION 23 40 00

HVAC AIR CLEANING DEVICES

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\*\* NOTE TO SPECIFIER \*\* Air Innovations, Inc.; Environmental Process Control Systems.  
This section is based on the products of Air Innovations, Inc., which is located at:7000 Performance Dr.North Syracuse, NY 13212Toll Free Tel: 800-825-3268Tel: 315-452-7400Email: [request info (info@airinnovations.com)](https://arcat.com/rfi?action=email&company=Air%252BInnovations%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(15860ann)%253A%2520&coid=51485&spec=15860ann&rep=&fax=)  
Web: <https://airinnovations.com>   
 [ [Click Here](https://arcat.com/company/air-innovations-inc-51485) ] for additional information.  
Have you ever needed a solution you couldn't just buy off a shelf in a store or easily order online? We can relate. If the custom solution you need involves environmental control - temperature or humidity control, filtration, or pressurization - we can help you achieve your goals.  
Air Innovations is a world leader in designing and building environmental process control systems for applications that can't be addressed with standard HVAC equipment. We customize packaged solutions for temperature, humidity, filtration, pressurization, and with direct-expansion, chilled-water, or thermoelectric capabilities. If you want to learn more about our environmental control capabilities visit Our Areas of Expertise.  
Many Air Innovations customers fall into two categories: businesses integrating our solution into their OEM equipment or businesses requiring a complete HVAC solution. We can meet almost any need in environmental control across almost any industry with major projects in Aerospace, Military, Semiconductor, Pharmaceutical and Life Sciences.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Environmental control units; custom built. (AdvanceAir)
    2. Clean room HVAC systems. (HEPAir)
    3. Ventilating room air filtration systems. (HEPAiRx)
    4. Portable contamination control systems. (IsolationAir)
    5. Personal desk environment management console. (MyZone)
    6. Sterile storage cabinets. (SSC 4500)
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 13 21 13 - Clean Rooms.
    2. Section 23 70 00 - Central HVAC Equipment.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American National Standards Institute (ANSI):
       1. ANSI/AAMI ST79-2006 - Comprehensive Guide To Steam Sterilization And Sterility Assurance In Health Care Facilities.
       2. ANSI/ASHRAE/ASHE Standard 170-2017 - Ventilation of Health Care Facilities.
    2. American Institute of Architects (AIA):
       1. AIA guidelines for design and construction of hospitals.
    3. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE):
       1. ASHRAE Chapter 7 in Applications Handbook regarding health care facilities.
    4. International Electrotechnical Commission (IEC):
       1. IEC 60601-1- Medical Electrical Equipment, Part 1: General Requirements for Safety.
    5. Canadian Standards Association (CSA)
       1. CSA Z314.15-10 - Warehousing, storage, and transportation of clean and sterile medical devices.
    6. Intertek Listed Mark (ETL).
    7. Underwriters Laboratories (UL):
       1. UL 60601-1 - Medical Electrical Equipment, Part 1: General Requirements for Safety.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
       2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
       3. Retain mock-up during construction as a standard for comparison with completed work.
       4. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  4. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Air Innovations, Inc., which is located at:7000 Performance Dr.North Syracuse, NY 13212Toll Free Tel: 800-825-3268Tel: 315-452-7400Email: [request info (info@airinnovations.com)](https://arcat.com/rfi?action=email&company=Air%252BInnovations%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(15860ann)%253A%2520&coid=51485&spec=15860ann&rep=&fax=);Web: <https://airinnovations.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 26 00 00 - Electrical.
  1. HVAC AIR CLEANING DEVICES

\*\* NOTE TO SPECIFIER \*\* are ideal for a variety of applications from both OEM (original equipment manufacturers) and single-project customers. AdvancAir® puts greater capacity and enhanced performance in a smaller footprint. Delete options not required.

* + 1. Basis of Design: AdvancAir environmental control units (ECUs) as manufactured by Air Innovations. Custom built to required project specifications. Each unit is a system of individual, standardized components prefabricated into customized cubes that can take any shape, any volume, and any capacity. Units can be installed anywhere in standalone or mounted fashion.
       1. Testing: Under contract load conditions simulated in a psychrometric testing chamber.
       2. Technical Capabilities:
          1. Temperature Control: Plus or minus 0.04 degrees F (0.02 degrees C).
          2. Humidification Control: Plus or minus 0.5 percent Relative Humidity.
          3. Sophisticated process and static pressure controls.
          4. Chilled water or DX-based systems.
          5. Computer managed system-wide control for total environmental process or may be integrated into a facility control system.
          6. Configurations: Vertical or horizontal.
          7. Meets a broad range of industry standards.
          8. Non out-gassing construction available.
       3. Controls:
          1. Hot gas bypass refrigeration control.
          2. PID loop controllers.
       4. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Frequency drive for recirculation fan control.
        2. Electronic suction throttling or liquid injection refrigeration control.
        3. Touchscreen/PLC, PC, or customer specific controls.
        4. Remote monitoring, modern monitoring, or computer interface capabilities.
        5. Automatic room/enclosure pressure control.
        6. Monitoring of critical control points; airside, refrigeration, or process.
        7. Chart recording or datalogging capabilities.
        8. Smoke detectors, loss of airflow and other alarms available.
        9. Automatic restart after power interruption.
      1. Componentry Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Scroll compressors or semi-hermetic compressor.
        2. DX evaporator coil.
        3. Water-cooled condenser with built-in chillers for process water control utilizing same DX system.
        4. Electric reheater.
        5. DI ultrasonic humidifier or immersed element humidifier-Dl or standard water.
        6. Chilled water evaporator coils or hot water reheat coils.
        7. Air-cooled condensers with Class ll centrifugal recirculation fan or direct-drive plug recirculation fan.
        8. Filter options include HEPA, carbon filters, ULPA, molecular.
        9. Shunt trip breaker for emergency unit shutdown.
        10. Condensate pump.
      1. Cabinet:
         1. Welded frame capable of being lifted by top four corners.
         2. 360 removable door panels for accessibility.
         3. Customized Cube Construction: Any shape, any volume, any capacity, any color.
         4. Options:

Material: Aluminum.

Material: Galvanized steel.

Material: Stainless steel.

Material: Carbon fiber.

Material: Plastics construction.

Finish: Baked polyurethane.

Finish: Powder-coated.

Finish: \_\_\_\_\_\_\_\_.

Internal Cladding Insulation: Steel.

Internal Cladding Insulation: Stainless steel.

Air Pre-Filtration: Once through or recirculated.

* + 1. Basis of Design: HEPAir clean room HVAC systems as manufactured by Air Innovations. Fully integrated modular HVAC systems, that control temperature, humidity, pressure, and cleanliness for cleanroom and hi-tech industries such as compounding pharmacies, computer rooms, laboratories, hospitals, facility additions, minienvironments, and process isolators.
       1. Model 1-Ton.
       2. Model 2-Ton.
       3. UL and CSA approved.
       4. Temperature Control: Plus or minus 0.36 degrees F (0.2 degrees C).
       5. Humidification Control: Plus or minus 0.5 percent Relative Humidity.
       6. Pressure: Regulated to be positive or negative.
       7. Multi-Panel Design: Provides easy access for service.
       8. Outer Body: Lightweight, aluminum.
       9. Mounting: Ceiling.
       10. Mounting: Floor.
       11. Mounting: Adjacent room.
       12. Multiple supply and return air openings.
       13. Self-contained design.
       14. Factory-Tested: Prior to shipment.
       15. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Self-contained air-cooled or integral water-cooled condensers.
        2. Humidity management (Dryer/Humidifier).
        3. PID temperature and/or humidity control.
        4. High static pressure plug fans.
        5. Integrated HEPA/ULPA filtration, UV lighting, and chemical filtration.
        6. Explosion-proof.
        7. Electric reheat.
        8. Duct collars.
    1. Basis of Design: HEPAiRx Ventilating Room Air Filtration Systems as manufactured by Air Innovations. Keep patients and staff safe in the dental setting.
       1. Converts room to negative pressure to contain contaminates within the space, or positive pressure to isolate space from nearby contamination risks.
       2. The on-board heating and cooling system provides patients and health care workers with a comfortable environment. Creates a true isolation space by eliminating cross contamination risks from adjacent spaces.
       3. The integrated HEPA filter and engineered airflow quickly removes particle contaminates from the space. Smart sensors tell you when a filter needs to be changed based on particle loading data.
       4. Optional UV-C light is used to sterilize the viruses that are captured on the HEPA filter.
       5. Electric: Min. circuit size 115 volt, 60 cycles, 15 amps.
       6. Power: Colling: 6.8 Amps. Heating: 9.6 Amps.
          1. Outlet: 3-Pronged.
       7. Operating:
          1. Cooling (high speed) 6,230 BTU/hour total, 4,000 BTU/hour sensible.
          2. Cooling (low speed) 4,220 BTU/hour total, 3,190 BTU/hour sensible.
          3. Heating 3,413 BTU/hour (1 kW).
       8. Airflow: 99.97 percent HEPA.
          1. Evaporator (with HEPA filter): High Speed: 225 cfm (382.3 cu per hour). Low Speed: 140 cfm (267.9 cu m per hour).
       9. Fresh Air:
          1. Intake: Positive Pressure: 60. Negative Pressure: 40.
          2. Exhaust: Positive Pressure: 40. Negative Pressure: 60.
       10. Standard Operating Temperature:
           1. Outdoor Air: 95 degrees F (35 degrees C). Inside Air: 75 degrees F (23.9 degrees C).
           2. Outdoor Air: 80 degrees F (26.7 degrees C). Inside Air: 67 degrees F (19.4 degrees C).
       11. Dimensions:
           1. Inside Window (WxHxD): 22 x 22 x 12 inch (559 x 559 x 305 mm).
           2. Outside Window (WxHxD): 19.5 x 13.75 x 17 inch (495 x 495 x 432 mm).
           3. Overall (WxHxD): 22 x 22 x 29 inch (559 x 559 x 737 mm).
           4. Minimum Window Opening (WxH): 22 x 22 inch (559 x 559 mm).
       12. Cabinet Construction:
           1. Commercial grade components for durability and longevity.
           2. Exterior surfaces power-coated aluminum for weather resistance.
           3. Air louvers (4) adjust airflow and direction.
       13. Filters: Loading of filters is dependent on outside air and room conditions.
           1. Prefilter (2) - capture large particles before they enter the re-circulating system.

Removable; vacuum, rinse off and replace as needed.

* + - * 1. Outside screen - capture large particles before they enter room.

Removable; vacuum, rinse off and replace as needed.

* + - * 1. HEPA - 99.97 percent minimum efficiency at removing airborne particles 0.3 micron size.

Call Manufacturer for replacement.

* + - 1. Controls:
         1. Programmable touch pad.
         2. Digital LCD display with blue illumination.
         3. Negative and positive pressure options.

\*\* NOTE TO SPECIFIER \*\* Delete option if not required.

* + - * 1. UV-C light.
      1. Certifications: ETL.
      2. Weight: 118 lbs (53.52 kg).
      3. Refrigerant: R410A.
      4. Sound: Similar to white noise machines.
      5. Warranty: 1 year materials and workmanship. 90 days labor.
         1. HEPA filters are consumables and exempt from this warranty.
    1. Basis of Design: IsolationAir Portable Contamination Control Systems as manufactured by Air Innovations. A portable contamination control system ideal for hospitals, extended care facilities, and emergency preparedness centers. Maintains a sterile environment in an isolated room, which prevents cross-contamination throughout the rest of the facility creating a better environment for patients and staff.
       1. Performance and Design Requirements: Meets or exceeds the following.
          1. Office of the Assistant Secretary for Preparedness and Response.

Helps hospitals meet or address Capability 4 Medical Surge Objective 2:

Activity No. 9: Enhance Infectious Disease Preparedness and Surge Response.

Activity No. 6: Provide Burn Care during a Medical Surge Response.

Activity No. 1: Develop Emergency Department and Inpatient Medical Surge Capacity and Capability.

Ensure Immediate Bed Availability by rapidly using non-traditional spaces; Critical Care: Rapidly expand capacity by adapting areas for critical care.

* + - * 1. U.S. Department of Health and Human Services Critical Benchmarks:

Critical Benchmark No. 2-2: Surge Capacity: Isolation Capacity.

Critical Benchmark No. 2-9: Surge Capacity: Trauma and Burn Care.

Cross-cutting Critical Benchmark No. 6: Preparedness for Pandemic Influenza.

* + - * 1. Meets the Guidelines for the Following Organizations:

CDC Guidelines for Infectious Disease Control in Health Care Facilities.

Minimum of 12 air changes per hour via HEPA filters.

Use portable units as needed to augment ACH - recirculating room air.

Maintains minimum pressure differential of 0.01 inch (0.254 mm); plus or minus depending on the application.

Maintains dehumidification controls.

Maintains backup ventilation; can be portable units; for emergency provision.

Ultraviolet light can be used for supplemental control.

AIA guidelines for design and construction of hospitals, incl. heating and cooling control to 75 degrees F (23.9 degrees C).

ASHRAE Chapter 7 in Applications Handbook regarding health care facilities.

* + - 1. Attributes:
         1. Cooling Capacity: Nominal 1/4-ton (3,000 BTU/H) R-134a refrigerant.
         2. Heating Capacity: Optional 1 kW electric heating element.
         3. Final Filtration: HEPA 99.97 percent efficient in trapping 0.3 microns particles; MERV 17 rating; All-recirculated and exhausted air is HEPA treated. Wood (for incineration) or aluminum frame options.
         4. Pre-Filter: Washable media at 10 pores per inch (25 mm).
         5. Room Airflow: 12 air exchanges per hour minimum via HEPA filters; ACH based on maximum room size 375 sq ft (34.84 sq m) with 8 ft (2438 mm) high ceiling.
         6. Condenser Airflow: Exhausted to return air grille or directly outside.
         7. UV-C Lights: Dual, 36-watt bulbs upstream of HEPA.
         8. Sound Level: 59 dB(A) 6 ft (1829 mm) from the unit at bed height.
         9. Ambient Range: Unit is not designed to operate in ambient conditions over 90 degrees F (32 degrees C).
      2. Controls:
         1. Temperature Control: Set point range 65 to 80 degrees F (18.3 to 26.7 degrees C); user adjustable; electronic controller.
         2. Hour Meter: Total run time.
         3. Service Light :Flashing indicator light at service intervals.
         4. On/Off Switch: Rocker.
      3. Utilities:
         1. Electric: 110 Volts / 1 Phase / 60 Hz; 15 amps.
         2. Condensate: 32 oz (0.97 kg) internal bottle. No drain connections are required.
      4. Physical:
         1. Dimensions (DxWxT): 30 x 20 x 48 inches (762 x 508 x 1219 mm).
         2. Weight: 125 lbs (56.7 kg).
         3. Cabinet: Powder coated aluminum. Color: White.
         4. Power Cord: Factory-installed LCDI cord (leakage current detection interrupter), rated for 15 amp protection.
         5. Casters: 4 inch (102 mm) wheels, front locking.
      5. Sample Field Performance Data:

\*\* NOTE TO SPECIFIER \*\* Pressure measured as a differential between patient room and adjoining hallway. Highest values are based on results with additional temporary door seals, lowest figures are without any additional

* + - 1. AIA recommends temperature control capability of at least 75F; testing was conducted to that point, could have also held 70 degrees F.
      2. Note 3: - Room particle counts based on measuring total particle concentration of 0.5 micron particles per cubic foot of room air, tests done with a laser particle counter positioned over patient bed, room was unoccupied during test.
         1. Single Room: 125 sq ft (16.61 sq m).

Air Changes per Hour: 36.

Negative Pressure Control: Minus 0.034 to minus 0.052 inches (Minus 0.86 to minus 1.32 mm).

Positive Pressure Control: 0.015 to 0.022 inches (0.38 to 0.56 mm).

Particle Reduction (0.5i/ft3)note 3: 6,480 to 225 in 2 hours.

Temperature Control: 70 degrees F (21.1 degrees C) Plus or minus 1.5 degrees F (0.83 degrees C).

* + - * 1. Double room: 288 sq ft (26 76 sq m).

Air Changes per Hour: 16.

Negative Pressure Control: Minus 0.01 to minus 0.017 inches (Minus 0.254 to minus 0.432 mm).

Positive Pressure Control: 0.003 to 0.011 inches (0.08 to 0.28 mm).

Particle Reduction (0.5i/ft3)note 3: 34,254 to 1,630 in 3 hours.

Temperature Control: 70 degrees F (21.1 degrees C) Plus or minus 1.5 degrees F (0.83 degrees C).

* + - * 1. Dimensions: (HxWxD): 48 x 20 x 30 inches (1219 x 508 x 762 mm).

Overall Height with Casters:52 inches (1321 mm).

* + 1. Basis of Design: MyZone Console Management Systems and Personal Desk Environment as manufactured by Air Innovations. Console management systems that attach to personal work surfaces and combines environmental control, lighting control, and lift functions inside a single unit. Features a nonfixed controller, allowing users the flexibility to position the controller anywhere on their desk. Can be mounted horizontally or vertically under desk.
       1. Variable Heating & Cooling with adjustable louvers.
       2. Cord connected controller for flexibility.
       3. Integrated leg lift control for sit/stand desk.
       4. Task light dimming.
       5. Presets for up to 15 users.
       6. Automatic motion sensor puts system into sleep mode after ten (10) minutes inactivity.
       7. Adjustable clock and calendar.
       8. Adjustable white noise generator.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. HEPA Filter: Reduces particle counts by 94 percent in 5 minutes.
      2. Attributes:
         1. Cooling: Air Velocity Up to 1100 ft/min (5.6 m per sec).
         2. Heating: 0 to 350 W; up to 140 degrees F (60 degrees C) outlet temperature.
         3. Task Light: Max 3A load, 2 outlets, on/off versatility for incandescent lights.
         4. Lifts: Up to 3 Linak lifts control references (Linak Model CBD6S) or dry contacts for up to two, 24 VDC 2 AMP max load leg lifts.
         5. Auxiliary Outlet: Dimmable 120 volt outlet may adjust through graphical interface.
         6. LED Light: Dimmable 24 VDC light used with power barrel connector PWG 2.10 ID, 5.5 mm OD.
         7. Commercial Grade: Powder coated, lightweight aluminum.
         8. Controls: Touchscreen digital interface.
         9. Filtration: MERV 7 (standard); Optional 99.97 HEPA filtration.
         10. Motion Sensor: 10 minute turn off with no activity; returns to last setting upon activation.
         11. USB Port on the User Interface: 5 VDC output, 5w charge power.
         12. White Noise Generator: Sound masking allows for speech privacy and sharper focus.
         13. Voltage / Frequency / Current: 115 V / 60 Hz / 3.9 A.
         14. User presets: Up to 15 users.
         15. Clock / Calendar: Standard digital clock / Display calendar.
      3. Dimensions: (HxWxD): 14.32 x 15.5 x 5.10 inches (364 x 394 x 129 mm).
    1. Basis of Design: SSC 4500 Series Sterile Storage Cabinets as manufactured by Air Innovations. For storage of items post sterilization or anywhere ISO-6 cleanliness is required.
       1. Manufactured using hospital grade 304 stainless steel for the interior payload.
       2. Cleanable White Powder Coated Aluminum Storage Cabinet: Designed to control temperature, humidity, pressure, and cleanliness.
       3. Integrated Cooling and Steam Humidifier: Maintain temperature and humidity conditions within the chamber to meet set point conditions.
       4. Onboard Control System: Utilizes a digital display for monitoring temperature, humidity, pressure, and system status. User friendly capacitive touch controls.
       5. Casters: Unit can be moved from as required.
       6. Made for plug and play applications.
       7. Modular: Multiple units can work in unison for larger volume needs.
       8. Prevents reprocessing by keeping sterile equipment within proper humidity, temperature, pressure, and cleanliness parameters.
       9. Helps Prevent Infection: Maintains the sterility of equipment and supplies.
       10. No hardwired electrical or plumbing connections.
       11. Optional Accessories:
           1. Ceiling Exhaust Kit:

Dimensions: 24 x 24 inch or 24 x 48 inch (610 x 610 mm or 610 x 1219 mm).

Allows storage of Cabinet in small closets, venting though a ceiling tile. Waste heat from cabinet can be discharged to the space above the ceiling tiles.

* + - * 1. UV-C Lights:

Located above the HEPA filter flooding it with intense UV-C rays. This sterilizes airborne viruses and bacteria on the HEPA filter.

* + - * 1. Retransmit Kit: 0-10 VDC:

Remotely monitor temperature, humidity, and pressure of Sterile Storage Cabinet from another room. A microprocessor sends a 0 to 10 VDC signal that can be controlled to the process values of the cabinet by a simple formula.

* + - 1. Performance and Design Requirements:
         1. Standards Compliance:

Exceeds requirements of VA Directive 1116(2).

CSA (Canadian Standards Association) Z314.15-10.

ANSI/AAMI ST79-2006.

ANSI/ASHRAE/ASHE Standard 170-2017.

Conforms with UL60601-1.

Meets IEC 60601-1 Medical Standard for Power Supplies.

* + - * 1. Capable of interfacing with VA network environmental monitoring system via an access port.
        2. Temperature: Maintains 66 to 72 degrees F (19 to 22 degrees C).
        3. Humidity: Maintains at 20 to 60 percent Relative Humidity.
        4. Positive Pressure: Maintains plus 0.03 inches (0.76 mm) WC.
        5. HEPA Filtration: Exceeds ISO 6 Cleanliness or better in some environments.
        6. Air Changes: 230 air changes per hour.
        7. Integrated Condensate Control System:

Condenser Exhaust Air: 120 cfm (204 cu m per hour) and 20 degrees F (11degrees C) higher than room temperature.

Cabinet Produced Condensation: Internally evaporates into the condenser air which can be a maximum of 8 oz (227 grams) per hr.

Full Load Operating Conditions: Condenser outlet to be less than 50 percent of Relative Humidity under all specified operating conditions.

* + - * 1. Integral pressure monitoring with alarm.
        2. Steam humidification: Utilizing demineralized water.
        3. Integral 3/4 gallon (2.84 Liter) reservoir: Filled through front spout access.
        4. Plug-In-Cord: 120 VAC hospital grade. 10 ft (3048 mm) long.
        5. Sound Pressure: 55 to 59 DBA at 3 ft (1 m).

\*\* NOTE TO SPECIFIER \*\* The following items are optional. Delete if not required.

* + - * 1. Ducted heat exhaust.
        2. UV-C light to sterilize HEPA filter.
      1. Requirements:
         1. Building Environmental Conditions:

Temperature: 60 to 82 degrees F (15.6 to 27.8 degrees C).

Dew Point: 60 degrees F (15.6 degrees C).

* + - * 1. Minimum Recommended Room Size: 10 x 10 ft (3048 x 3048 mm) with no ductwork.

\*\* NOTE TO SPECIFIER \*\* Delete if not required. For installations of 3 or more units in one room, please contact Manufacturer for assistance.

Heat Exhaust Kit: allows for use in rooms smaller than 10 x 10 ft (3048 x 3048 mm).

* + - * 1. Demineralized water.
        2. Power Supply Room Receptacle: 120 VAC, 1 Phase, 60 Hz, grounded 15 AMP (10 RLA).

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturers recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION