

- C. Horizontal Dampers: Galvanized steel, 22-gauge, 0.0299-inch frame, stainless steel closure spring, and lightweight, heat-retardant, non-asbestos fabric blanket.
- D. Curtain Type Dampers: Galvanized steel with interlocking blades. Provide stainless steel closure springs and latches for horizontal installations. Configure with blades out of air stream except for 1-inch pressure-class ducts up to 12 inches in height.
- E. Multiple Blade Dampers: 16-gauge, 0.0598-inch galvanized steel frame and blades, oil-impregnated bronze or stainless steel sleeve bearings and plated steel axles, 1/8 by 1/2 inch plated steel concealed linkage, stainless steel closure spring, blade stops, and lock.
- F. Fusible Links: UL 33, separate at 160 degrees F with adjustable link straps for combination fire/balancing dampers.

2.08 FLEXIBLE DUCT CONNECTORS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Flexible Duct Connections: Fabric crimped into metal edging strip.

2.09 SMOKE DAMPERS

- A. Fabricate in accordance with NFPA 90A and UL 555S, and as indicated.
- B. Dampers: UL Class 1 airfoil blade type smoke damper, normally open automatically operated by pneumatic actuator.
- C. Electro Thermal Link: Fusible link melting at 165 degrees F; 120 volts, single phase, 60 Hz; UL listed and labeled.

2.10 VOLUME CONTROL DAMPERS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Single Blade Dampers:
- Fabricate for duct sizes up to 6 by 30 inch.
 - Blade: 24 gauge, 0.0239 inch, minimum.
- C. Multi-Blade Damper: Fabricate consisting of opposed blades with maximum blade sizes 8 by 72 inches. Assemble center- and edge-crimped blades in prime-coated or galvanized-channel frame with suitable hardware.
- D. End Bearings: Except in round ducts 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon, thermoplastic elastomer, or sintered bronze bearings.
- E. Quadrants:
- Provide locking, indicating quadrant regulators on single and multi-blade dampers.
 - On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.
 - Where rod lengths exceed 30 inches provide regulator at both ends.
- F. Constant Airflow Regulators:
- General Requirements:
 - Provide bi-directional, air balancing regulator for pressure independent air volume control.
 - Complies with UL 2043 for heat and smoke release.
 - Complies with AMCA 500-D for the allowable leakage rates.
 - Construction:
 - Nominal Diameter: 4 inch.
 - Frame: Thermoplastic resin in compliance with UL 94.
 - Blade: Thermoplastic resin in compliance with UL 94.
 - Bearings: Hydraulic blade dampener.
 - Outer Seal: Removable rubber gasket-type around circumference of damper.
 - Spring: Stainless steel leaf-type.
 - Temperature Range: 25 to 150 degrees F.
 - Operating Range: 0.2 to 2 in-wc.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). See Section 23 31 00 for duct construction and pressure class.
- B. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.
- C. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, combination fire and smoke dampers, and elsewhere as indicated. Provide for cleaning kitchen exhaust ducts in accordance with NFPA 96 Provide minimum 8 by 8 inch size access door for hand and shoulder access, or as indicated on drawings. Provide minimum 4 by 4 inch size access door for balancing dampers only. Review locations prior to fabrication.
- D. Provide duct test holes where indicated and required for testing and balancing purposes.
- E. Provide fire dampers, combination fire and smoke dampers, and smoke dampers at locations indicated, where ducts and outlets pass through fire-rated components, and where required by authorities having jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.
- F. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.
- G. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.
- H. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum two duct widths from duct take-off.
- I. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

SECTION 23 34 23 HVAC POWER VENTILATORS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data on fans and accessories, including fan curves with specified operating point plotted, power, rpm, sound power levels at rated capacity, and electrical characteristics and connection requirements.

PART 2 PRODUCTS

2.01 CABINET EXHAUST FANS

- A. Centrifugal Fan Unit: V-belt or direct driven with galvanized steel housing lined with acoustic insulation, resiliently mounted motor, gravity backdraft damper in discharge.
- B. Disconnect Switch: Cord and plug-in housing for thermal overload protected motor and wall mounted switch.
- C. Grille: Molded white plastic.
- D. Sheaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is reached with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.
- E. Performance Ratings: As indicated on drawings.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide sheaves required for final air balance.
- C. Provide backdraft dampers on outlet from cabinet and ceiling exhauster fans and as indicated.

SECTION 23 36 00 AIR TERMINAL UNITS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings that indicate airflow, static pressure, and NC designation. Include electrical characteristics and connection requirements.

PART 2 PRODUCTS

2.01 SINGLE-DUCT, VARIABLE-VOLUME UNITS

- A. General:
- Factory-assembled, AHRI 880 (I-P) rated and bearing the AHRI seal, air volume control terminal with damper assembly, flow sensor, externally mounted volume controller, duct collars, and all required features.
 - Control box bearing identification, including but not necessarily limited to nominal cfm, maximum and minimum factory-set airflow limits, coil type and coil (right or left hand) connection, where applicable.
- B. Unit Casing:
- Minimum 22 gauge, 0.0299 inch galvanized steel.
 - Air Inlet Collar: Provide round, suitable for standard flexible duct sizes.
 - Unit Discharge: Rectangular, with slip-and-drive connections.
 - Acceptable Liners:

- Liner not to contain pentabrominated diphenyl ether (CAS #32534-81-9) or octabrominated diphenyl ether.

C. Sound Attenuator:

- Provide if required to meet scheduled acoustical performance requirements.
- Construction to consist of a continuous extension of the casing and liner as required to achieve required attenuation.
- At 2000 fpm inlet velocity, the minimum operating pressure with attenuator added not to exceed 0.14 in-wc.

D. Damper Assembly:

- Heavy-gauge, galvanized steel, or extruded aluminum construction with solid steel, nickel-plated shaft pivoting on HDPE, self-lubricating bearings.
- Provide integral position indicator or alternative method for indicating damper position over full range of 90 degrees.
- Incorporate low leak damper blades for tight airflow shutoff.

E. Electric Heating Coil:

- Listed and provided by the terminal unit manufacturer.
- Coil Casing: 20 gauge, 0.0359 inch galvanized steel.
- Heating Elements: Nickel chrome, supported by ceramic insulators.
- Integral Control Panel: NEMA EN 10250, Type 2 enclosure with hinged access door for access to all controls and safety devices.
- Furnish a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow.
- Provide the following additional components, mounted and/or wired within the control enclosure:

- Fused or non-fused door interlocking disconnect switch.

- Mercury contactors.

- Fuse block.

- Factory wired, including all limit switches and steps of control as indicated on the equipment schedule, with the SSR (solid-state relay) proportional heat control.

F. Electrical Requirements:

- Single-point power connection.
- Equipment wiring to comply with requirements of NFPA 70.

G. Controls:

- Terminal Unit Controls:
 - Provide accessories for field interfaced controller including ball valve and thermostat.
 - Factory ship DDC controller including airflow sensor, integral airflow transmitter, integral damper actuator, and duct-mounted temperature sensor.
- Sequence of Operation: Zone temperature control with airflow and coil discharge monitoring.
- DDC (Direct-Digital Controls):
 - Bi-directional Damper Actuator: 24 volt, powered closed, spring return open.
 - Microprocessor-Based Controller: Air volume controller, pressure-independent with electronic airflow transducers, factory-calibrated maximum and minimum CFMs.
 - Occupied and unoccupied operating mode.
 - Remote reset of temperature or CFM set points.
 - Proportional, plus integral control of room temperature.
 - Monitoring and adjusting with portable terminal.
 - Room Sensor:
 - Compatible with temperature controls specified.
 - Wall-mounted, system powered, with temperature set-point adjustment including connection access for portable operator terminal.

2.02 FAN-POWERED SERIES UNITS

- A. General:
- Factory-assembled and wired, AHRI 880 (I-P) rated, horizontal fan-powered terminal unit with blower, blower motor, mixing plenum, and primary air damper contained in a single unit housing.
- B. Unit Casing:
- Minimum 22 gauge, 0.0299 inch galvanized steel.
 - Primary Air Inlet Collar: Suitable for standard flexible duct sizes.
 - Unit Discharge: Rectangular, suitable for flanged duct connection.
 - Acceptable Liners:
- C. Primary Air Damper Assembly:
- Heavy-gauge, galvanized steel, or extruded aluminum construction with solid shaft rotating in bearings.
 - Provide indicator on damper shaft or alternative method for indicating damper position over full range of 90 degrees.
 - Incorporate low leak (2 percent) damper blades for tight airflow shutoff.
 - Fan(s): Forward curved, centrifugal type.
 - Fan Motor:
 - Fan motor shaft directly connected to fan and isolated from unit casing to prevent transmission of vibration.

D. Electric Heating Coil:

- Listed and provided by the terminal unit manufacturer.
- Coil Casing: Minimum 20 gauge, 0.0359 inch galvanized steel.
- Heating Elements: Open wire, nickel chrome, supported by ceramic insulators.
- Integral Control Panel: NEMA EN 10250, Type 2 enclosure, with hinged access door for access to all controls and safety devices.
- Provide a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow or electrical interlock to prevent heater operation when fan is not running.
- Provide the following additional components, mounted and/or wired within the control enclosure:
 - Fused or non-fused door interlocking disconnect switch.
 - Mercury contactors.
 - Fuse block.

E. Electrical Requirements:

- Single-point power connection.
- Equipment wiring to comply with requirements of NFPA 70.

F. Controls:

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install the inlets of air terminal units and air flow sensors a minimum of four duct diameters from elbows, transitions, and duct takeoffs.
- C. Provide ceiling access doors or locate units above easily removable ceiling components.
- D. Support units individually from structure with wire rope complying with ASTM A492 and ASTM A603 in accordance with SMACNA (SRM). See Section 23 0548.
- E. Do not support from ductwork.
- F. Connect to ductwork in accordance with Section 23 31 00.
- G. Verify that electric power is available and of the correct characteristics.

SECTION 23 37 00 AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

PART 2 PRODUCTS

2.01 RECTANGULAR CEILING DIFFUSERS

- A. Type: Provide rectangular and square formed adjustable, backpan stamped, core removable, and multi-louvered ceiling diffusers constructed to maintain 360 degree discharge air pattern with sectorizing baffles where indicated.
- B. Fabrication: Steel with baked enamel finish.

2.02 PERFORATED FACE CEILING DIFFUSERS

- A. Type: Perforated face with fully adjustable pattern and removable face.
- B. Fabrication: Steel with steel frame and baked enamel finish.
- C. Accessories: Radial opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.03 GOOSENECKS

- A. Fabricate in accordance with of minimum 18 gauge, 0.0598 inch galvanized steel.
- B. Mount on minimum 12 inch high curb base where size exceeds 9 by 9 inch.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Comply with SMACNA (ASMM) for flashing/counter-flashing of roof penetrations and supports for roof curbs and roof mounted equipment.
- C. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.
- D. Provide balancing dampers on duct take-off to diffusers and grilles and registers, despite whether dampers are specified as part of diffuser, or grille and register assembly.

3.02 PROTECTION

- A. Protect installed products until completion of project.
- B. Replace, repair, or touch-up damaged products before Substantial Completion.

SECTION 23 74 16 PACKAGED ROOFTOP AIR-CONDITIONING UNITS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide capacity and dimensions of manufactured products and assemblies required for this project. Indicate electrical service with electrical characteristics and connection requirements, and duct connections.
- B. Sustainable Design Documentation: Submit manufacturer's product data on refrigerant used, showing compliance with specified requirements.
- C. Shop Drawings: Indicate capacity and dimensions of manufactured products and assemblies required for this project. Indicate electrical service with electrical characteristics and connection requirements, and duct connections.

1.02 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
- B. Provide a five year warranty to include coverage for refrigeration compressors.

PART 2 PRODUCTS

2.01 PACKAGED, INTERMEDIATE-CAPACITY, ROOFTOP AIR-CONDITIONING UNITS

- A. General: Roof mounted units having gas burner and electric refrigeration that are 7.5 tons to 25 tons in capacity.
- B. Description: Self-contained, packaged, factory assembled and prewired, consisting of cabinet and frame, supply fan, return fan, heat exchanger and burner, heat recovery coil, controls, air filters, refrigerant cooling coil and compressor, condenser coil and condenser fan.
- C. Refrigerant: Use only refrigerants that have ozone depletion potential (ODP) of zero and global warming potential (GWP) no greater than that allowed by federal code.
- D. Disconnect Switch: Factory mount disconnect switch in control panel.

2.02 CASING

- A. Cabinet: Steel with baked enamel finish, including access panels with screwdriver-operated flush, cam type fasteners. Structural members to be minimum 18 gauge, 0.0478 inch, with access doors or panels of minimum 20 gauge, 0.0359 inch.

2.03 FANS

- A. Supply and Exhaust Fan: Forward curved centrifugal type, resiliently mounted with V-belt drive, adjustable variable pitch pulley, and rubber isolated hinge mounted. Provide with high efficiency motor or direct drive as indicated. Isolate complete fan assembly. See Section 23 05 48.

2.04 BURNERS

- A. Gas Burner: Atmospheric type burner with adjustable combustion air supply, pressure regulator, gas valves, manual shut-off, intermittent spark or glow coil ignition, flame-sensing device, and automatic 100 percent shutoff pilot.
- B. Gas Burner Safety Controls: Energize ignition, limit time for establishment of flame, prevent opening of gas valve until pilot flame is proven, stop gas flow on ignition failure, energize blower motor, and after airflow proven and slight delay, allow gas valve to open.

2.05 EVAPORATOR COIL

- A. Provide copper tube aluminum fin coil assembly with galvanized drain pan and connection.
- B. Provide capillary tubes or thermostatic expansion valves for units of 6 tons capacity and less, and thermostatic expansion valves and alternate row circuiting for units 7.5 tons cooling capacity and larger.

2.06 CONDENSER COIL

- A. Provide copper tube aluminum fin coil assembly with subcooling rows and coil guard.
- B. Provide direct drive propeller fans, resiliently mounted with fan guard, motor overload protection, wired to operate with compressor. Provide high efficiency fan motors.

2.07 COMPRESSORS

- A. Provide hermetic compressors, 3600 rpm maximum, resiliently mounted with positive lubrication, crankcase heater, high and low pressure safety controls, motor overload protection, suction and discharge service valves and gauge ports, and filter drier.

2.08 AIR FILTERS:

2.09 OPERATING CONTROLS - VARIABLE VOLUME UNITS

- A. Temperature transmitter located in supply air to signal electronic logic panel to control mixing dampers and cooling in sequence. Mixing section to operate as first stage of cooling and revert to minimum outside air above approximately 75 degrees F as determined by enthalpy of return and outdoor air.
- B. Control cooling by cycling compressors, cylinder unloading, and hot gas bypass.

2.10 ROOF CURBS

- A. Roof Mounting Curb: 18 inches high, galvanized steel, channel frame with gaskets, nailer strips.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NFPA 90A.

3.02 SYSTEM STARTUP

- A. Prepare and start equipment. Adjust for proper operation.

SECTION 23 81 26.13 SMALL-CAPACITY SPLIT-SYSTEM AIR CONDITIONERS

PART 2 PRODUCTS

1.01 SYSTEM DESIGN

- A. Split-System Heating and Cooling Units: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units; UL listed.
- B. Performance Requirements: See Drawings for additional requirements.

1.02 INDOOR AIR HANDLING UNITS FOR DUCTLESS SYSTEMS

- A. Indoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, evaporator coil, and controls; wired for single power connection with control transformer.
- B. Evaporator Coils: Copper tube aluminum fin assembly, galvanized or polymer drain pan sloped in all directions to drain, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve.

1.03 OUTDOOR UNITS

- A. Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser.
- Refrigerant: R-454B.
 - Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23 and UL 207.
- B. Accessories: Filter drier, high-pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid line).

PART 3 EXECUTION

2.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.
- B. Install in accordance with NFPA 90A and NFPA 90B.

DIVISION 25 - INTEGRATED AUTOMATION SECTION 25 05 00 COMMON WORK RESULTS FOR INTEGRATED AUTOMATION



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FOR PERMIT & CONSTRUCTION

Revision Schedule		Description
Rev. #	Date	
NEW ARcare MEDICAL OFFICE BUILDING 2709 Massard Rd FT. SMITH, AR 72903		
ARcare 117 S. 2ND ST. AUGUSTA, AR 72006		

DATE 06-15-2026	DRAWN BY CO
PROJECT # 2517	CHECKED BY JT

SHEET M002 MECHANICAL SPECIFICATIONS
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