

ITEM 11599.1201 M - SPLIT-SYSTEM AIR CONDITIONING UNITS

DESCRIPTION. This work shall consist of the installation of split-system air-conditioning and heat pump units consisting of separate evaporator-fan and compressor-condenser components as shown on the plans or as directed by the Engineer. Units are designed for exposed or concealed mounting, and connected to ducts.

MATERIALS.

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Carrier Air Conditioning; Div. of Carrier Corporation
P.O. Box 4808
Syracuse, New York
(315) 432-6000

Mitsubishi Electronics America, Inc.; HVAC Division
3100 Avalon Ridge Pl., Ste. 200
Norcross, Georgia
(800) 433-4822

Trane Company; Unitary Products Group
P.O. Box 1008
Clarksville, Tennessee
(615) 648-5267

York International Corp.
P.O. Box 1592-361P
York, Pennsylvania
(717) 771-7890

FLOOR-MOUNTING, EVAPORATOR-FAN COMPONENTS

Location: Storage/lunchroom at vent Chamber No.1

Cabinet: Enameled steel with removable panels on front and ends in color selected by Architect.

Discharge: Steel with surface-mounted frame.

Insulation: Faced, glass-fiber, duct liner.

Drain Pans: Galvanized steel, with connection for drain; insulated.

Air mixing plenum with motorized damper on outside air supply duct.

Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins, complying with ARI 210/240, and with thermal-expansion valve.

Electric Coil: Helical, nickel-chrome, resistance-wire heating elements with refractory ceramic support bushings; automatic-reset thermal cutout; built-in magnetic contactors; manual-reset thermal cutout; airflow proving device; and one-time fuses in terminal box for overcurrent protection.

Fan: Belt drive, centrifugal.

ITEM 11599.1201 M - SPLIT-SYSTEM AIR CONDITIONING UNITS

Fan Motors: Comply with requirements shown on the drawings.

Special Motor Features: Multitapped, multispeed with internal thermal protection and permanent lubrication.

Filters: Permanent, cleanable.

AIR-COOLED, COMPRESSOR-CONDENSER COMPONENTS

Casing: Steel, finished with baked enamel in color selected by Architect, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.

Compressor: Hermetically sealed with crankcase heater and mounted on vibration isolation. Compressor motor shall have thermal- and current-sensitive overload devices, start capacitor, relay, and contactor.

Compressor Type: Scroll.

Two-speed compressor motor with manual-reset high-pressure switch and automatic-reset low-pressure switch.

Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins, complying with ARI 210/240, and with liquid subcooler.

Fan: Aluminum-propeller type, directly connected to motor.

Motor: Permanently lubricated, with integral thermal-overload protection.

Low Ambient Kit: Permits operation down to 7 deg C.

Mounting Base: Polyethylene.

ACCESSORIES

Control equipment and sequence of operation are specified in Sections "HVAC Instrumentation and Controls".

Thermostat: Low voltage with subbase to control compressor and evaporator fan.

Thermostat: Wireless infrared functioning to remotely control compressor and evaporator fan, with the following features:

Compressor time delay.

24-hour time control of system stop and start.

Liquid-crystal display indicating temperature, set-point temperature, time setting, operating mode, and fan speed.

ITEM 11599.1201 M - SPLIT-SYSTEM AIR CONDITIONING UNITS

Fan-speed selection, including auto setting.

Automatic-reset timer to prevent rapid cycling of compressor.

Refrigerant Line Kits: Soft-annealed copper suction and liquid lines factory cleaned, dried, pressurized, and sealed; factory-insulated suction line with flared fittings at both ends.

Motorized Damper: Two positions for outside air supply.

CONSTRUCTION DETAILS.

SUBMITTALS

Product Data: Include rated capacities, furnished specialties, and accessories for each type of product indicated. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.

Shop Drawings: Diagram power, signal, and control wiring.

Samples for Initial Selection: For units with factory-applied color finishes.

Field quality-control test reports.

Operation and Maintenance Data: For split-system air-conditioning units to include in emergency, operation, and maintenance manuals.

Warranty: Special warranty specified in this Item.

QUALITY ASSURANCE

Product Options: Drawings indicate size, profiles, and dimensional requirements of split-system units and are based on the specific system indicated.

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

COORDINATION

Coordinate size and location of concrete bases for units. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork are specified on structural drawings.

WARRANTY

Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period.

ITEM 11599.1201 M - SPLIT-SYSTEM AIR CONDITIONING UNITS

Warranty Period: Five years from date of Substantial Completion.

EXTRA MATERIALS

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

Filters: One set of filters for each unit.

Fan Belts: One set of belts for each unit.

The Contractor shall install all units level and plumb. He shall install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure. Install ground-mounting, compressor-condenser components on structural frame. Install seismic restraints. Install compressor-condenser components on restrained, spring isolators with a minimum static deflection of 25 mm. Refer to Item "Hangers and Supports." Install and connect pre-charged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

CONNECTIONS

Piping installation requirements are specified in item "Refrigerant Piping". Drawings indicate general arrangement of piping, fittings, and specialties.

Install piping adjacent to unit to allow service and maintenance

Duct Connections: Duct installation requirements are specified in Item "HVAC Metal Ducts, Accessories and Insulation." Drawings indicate the general arrangement of ducts. Connect supply ducts to split-system air-conditioning units with flexible duct connectors.

Ground equipment according to Electric Specification, connect outside air supply duct to the unit with motorized damper.

Electrical Connections: Comply with requirements in Electric Specification for power wiring, switches, and motor controls.

FIELD QUALITY CONTROL

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

Perform the following field tests and inspections and prepare test reports:

Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.

ITEM 11599.1201 M - SPLIT-SYSTEM AIR CONDITIONING UNITS

Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment. Remove and replace malfunctioning units and retest as specified above.

STARTUP SERVICE

Engage a factory-authorized service representative to perform startup service. Complete installation and startup checks according to manufacturer's written instructions.

DEMONSTRATION

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

OPERATION AND MAINTENANCE

The work shall consist of a training program for the operations and maintenance (O&M) personnel. The objective of the O&M training program is to provide qualified technicians with the knowledge to operate and maintain the equipment and system in accordance with design intent, manufacturers' recommendations, and procedures contained in the Systems Manual.

The program shall be detailed such that it can be repeated for new and replacement personnel. Thorough documentation must be supplied for future training activities.

Training Programs shall be developed and executed, for specified equipment, using the Manufacturer's qualified representative. Contractor shall furnish all training materials, tools and equipment to conduct training session(s) for Owner's O&M personnel.

Contractor shall videotape each type of training session on DVD, to be given as specified in individual system manual, to serve as a future reference and review resource. Where multiple training sessions, of the same level, are required for a particular piece of equipment, at least two of the training sessions shall be video taped to produce the training documentation tape. It is not the intent to have every training session for a particular type of equipment or level of training, video taped. However, the Contractor is responsible for providing an informative videotape covering all pertinent training topics which may require video taping of more than one session.

METHOD OF MEASUREMENT. This work will be measured for payment on a lump sum basis for the work completed in accordance with the Contract Documents and as directed by Engineer.

BASIS OF PAYMENT.

The lump sum price bid for Split-System and Air Conditioning Units shall include the cost of all labor, materials, equipment, accessories, and appliances necessary to complete the work as shown on the contract drawings, and as specified in the referenced section.

Monthly payment will be made for this item in proportion to the total amount of work completed up to a limit of 50% of the lump sum price bid. The remaining 50% of the lump sum price bid shall be paid after all systems in the Split-System Air Conditioning Unit have been tested and accepted by the Owner, and the O&M training program is completed and accepted by the Owner.

ITEM 11599.1201 M - SPLIT-SYSTEM AIR CONDITIONING UNITS

Before the first payment estimate is issued for work under this item, the Contractor shall furnish to the Engineer a detailed estimate of quantities and prices for all materials and labor included under this item, which shall aggregate the contract lump sum price bid for this item. This estimate shall be made out in such form as required and, if requested, supported by such evidence of its correctness as the Engineer may direct. This evidence shall include certified copies of subcontracts.

The Contractor agrees that this detailed estimate shall not become effective until it has been approved by the Engineer, who shall have the right to revise the estimate as, in his/her judgment, may be required to make the various subdivisions of work conform to their value. The approved detail estimate shall be used as a basis for monthly payment for work completed under this item. The proportionate share for bond premiums for this item shall not be listed as a separate item but its cost shall be distributed pro rate throughout the estimate for this item.