HVAC Guide Specifications Ductless Mini-splits

Section 15700 – Mechanical HVAC

Size Range: 0.75 to 3 Tons Nominal

Mitsubishi Model Number: MXZ-3C30NA (outdoor condenser) MSZ-GE06NA-8 (wall-mount) Heat Pump series with

Wall mounted wireless controller

0.0) General

0.1) System Description

The heat pump air conditioning system shall be a Mitsubishi Electric MXZ split system with Variable Compressor Speed Inverter Technology (VCSI), charged with R410A refrigerant. The system shall consist of one, two, three or four slim silhouette, compact wall mounted evaporator section(s) with wireless controller. The outdoor unit shall be a horizontal discharge single phase unit. System model numbers is MXZ-3C30NA.The four evaporators shall be a combination of any 6,000, 9000 12,000, 15,000, 17,000 and 24,000 units

0.2) Quality Assurance

a) The units shall be listed by Electrical Testing Laboratories (ETL) and bear the ETL label.

b) All wiring shall be in accordance with the Canadian Electrical Code.

c) The units shall be rated in accordance with ARI Standard 210 and bear the ARI label.

d) The units shall be manufactured in a facility registered to ISO 9001 and ISO14001 which are a set of standards applying to environmental protection set by the International Standard Organization (ISO).

e) A full charge of R410A for 131 feet of refrigerant tubing shall be provided in the condensing unit.

f) A dry air holding charge shall be provided in the evaporator.

g) System efficiency shall meet or exceed 19.0 SEER and 10.6 HSPF.

0.3) Delivery, Storage and Handling

Unit shall be stored and handled according to the manufacturer's recommendation. The wireless controller shall be shipped inside the carton with the indoor unit and able to withstand 40.5°C (105°F) storage temperatures and 95% relative humidity.

0.4) Warranty

The units shall have a manufacturer's warranty for a period of five (5) years from date of installation. The compressor shall have a warranty of seven (7) years from date of installation. If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of the manufacturer. This warranty does not include labour. Manufacturer shall have twenty years experience in the Canadian market.

0.5) Performance

Each system shall perform in accordance to the ratings shown in the table below. Performance shall be based on 26.7°CDB, 19.4°CWB (80°FDB, 67°FWB) for the indoor unit and 35°CDB, 23.9°CWB (95°FDB, 75°FWB) for the outdoor unit.

0.5.1) MXZ-3C30NA Indoor Unit Combinations

see submittal

1.0) Indoor Unit General

The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, internal piping, control circuit board and fan motor. The unit shall have a self-diagnostic function, 3-minute time delay mechanism

an auto restart function, an emergency operation function and a test run switch.

Indoor unit and refrigerant pipes shall be charged with dry air before shipment from the factory.

1.1) Unit Cabinet

The casing shall have a white finish. Multi directional drain and refrigerant piping offering four (4) directions for refrigerant piping and two (2) directions for draining shall be standard. There shall be a separate back plate which secures the unit firmly to the wall.

1.2) Fan

The indoor unit fan shall be an assembly with a line-flow fan direct driven by a single motor. The fan shall be statically and dynamically balanced and run on a motor with permanently lubricated bearings. A manual adjustable guide vane shall be provided with the ability to change the airflow from side to side (left to right). A motorized air sweep flow louver shall provide an automatic change in airflow by directing the air up and down to provide for uniform air distribution. The indoor unit fan shall consist of three (3) speeds, High, Medium and Low.

1.3) Filter

Return air shall be filtered by means of easily removed catechin and enzyme filters.

1.4) Coil

The evaporator coil shall be of nonferrous construction with pre-coated aluminum strake fins on copper tubing. All tube joints shall be brazed with PhosCopper or silver alloy. The coil shall be pressure tested at the factory. A condensate pan and drain shall be provided under the coil.

1.5) Electrical

The electrical power of the unit, supplied from the outdoor unit shall be 208 volts or 230 volts, 1 phase, 60 hertz. The system shall be capable of satisfactory operation within voltage limits of 198 volts to 253 volts. The indoor unit shall not have any supplemental electrical heat elements.

1.6) Control

This unit shall have a wireless controller to perform input functions necessary to operate the system. The controller shall consist of a Power On/Off switch, Mode Selector,Temperature Setting, Timer Control, Fan Speed Select and Auto Vane Selector.Temperature changes shall be by 2°F increments with a range of 65°F to 87°F. There shall be a 24 hour On/Off timer. The microprocessor located in the indoor unit shall have the capability of sensing return air temperature and evaporator coil temperature, receiving and processing commands from the wireless controller, providing emergency operation and controlling the outdoor unit. The control voltage between the indoor unit and the outdoor unit shall be 208 volts or 230 volts AC. The system shall be capable of automatic restart
when power is restored after power interruption. The system shall have auto change over between heating and cooling. Control system shall control the continued operation of the air sweep louvers, as well as provide on/off and system/mode function switching.

2.0) Outdoor Unit General

The outdoor unit is designed specifically for use with MSZ series indoor units.
These units are equipped with a circuit board that interfaces to the MSZ indoor units. The unit shall be able to provide cooling operation at -10°C (14°F) and heating operation at -15°C (5°F). The outdoor unit shall be completely factory assembled, internally piped and wired.
Each unit must be run tested at the factory.

2.1) Unit Cabinet

The casing shall be zinc coated steel with acrylic or polyester coating for corrosion protection.

2.2) Fan

The unit shall be furnished with a direct drive propeller type fan. The fan motor shall have inherent protection, be permanently lubricated bearings. The fan motor shall be mounted for quiet operation. The fan shall be provided with a raised guard to prevent contact with moving parts. The outdoor unit shall have horizontal discharge airflow.

2.3) Coil

The condenser coil shall be of nonferrous construction with pre-coated aluminum strake fins on copper tubing. The coil shall be protected with an integral metal guard. Refrigerant flow from the condenser shall be controlled by means of a linear expansion valve (LEV) metering orifice. The linear expansion valve shall be controlled by a microprocessor controlled step motor.

2.4) Compressor

The compressor shall have variable compressor speed inverter technology (VCSI). The outdoor unit shall have an accumulator. The compressor shall be equipped with an internal thermal overload. The outdoor unit must have the ability to operate with a maximum height difference of 49 feet in case all indoor unit(s) is(are) installed higher than the outdoor unit or 49 ft between the highest and lowest indoor units if some indoor units are above and below outdoor unit and 33 feet between outdoor and lowest indoor unit if all indoor units all below outdoor unit. The unit shall have a maximum refrigerant tubing length of 82 feet per indoor unit and a total of 230 feet between all indoor and outdoor units for model MXZ-3C30NA without the need for line size changes, traps or additional oil. The unit shall be

pre-charged for a maximum of 131 feet of refrigerant tubing. The compressor shall be mounted to avoid the transmission of vibration.

2.5) Electrical

The electrical power of the unit shall be 208 volts or 230 volts, 1 phase, 60 hertz. The unit shall be capable of satisfactory operation within voltage limits of 198 volts to 253 volts. Pulse Amplitude Modulation shall be incorporated into electrical circuit The outdoor unit shall be controlled by the microprocessor located in the indoor unit. The control voltage between the indoor unit and the outdoor unit shall be 208 volts or 230 volts AC.