BARD MANUFACTURING COMPANY, INC.
WR35-WR58 Series Counterflow Step Capacity Air Conditioner
Engineering Specification Guide

1.0 QUALIFICATIONS

Manufacturer: Company specializing in manufacture of products specified in this section, with minimum of 5 years documented experience. Manufacturer shall have available, complete catalogue data with expanded ratings, installation and maintenance instructions.

2.0 GENERAL

Furnish and install self-contained, wall mounted air conditioner, suitable for outdoor use. Unit to be manufactured by Bard Manufacturing Company, Inc in accordance with plans. The unit shall be approved and listed by Intertek ETL Listed (ETL US/C). Unit shall be factory assembled, pre-charged, pre-wired, tested and ready to operate. The manufacturer of equipment shall be ISO 9001: 2015 Certified. Unit performance shall be certified by an independent third party testing agency, in accordance with the Air Conditioning Heating and Refrigeration Institute (AHRI) Standard 390-2003 for Single Package Vertical Units. Unit cooling efficiency shall be specified by EER.

Manufacturers: Capacities shall as indicated on drawings and units shall be manufactured by Bard Manufacturing Company, Inc. or prior approved equal.

2.0 CONSTRUCTION FEATURES

2.1 CABINET

Construction shall be a single, enclosed, weatherproof casing constructed of 20-gauge galvanized steel. Unit base is constructed of 16-gauge galvanized steel. Each exterior casing panel to be bonderized and finished with baked-on exterior polyester enamel paint prior to assembly. The baked-on cured paint finish shall pass the industry rub test with a minimum of 72 rubs MEK (Methyl Ethyl Ketone) or standard rub test of a minimum of 100 rubs using Toluene. Cooling section shall be fully insulated with a non – fiberglass material with heavy-duty foil facing for durability and ease of cleaning. Fiberglass insulation is not acceptable. Openings shall be provided for power connections. Access openings appropriate for outside structure to all fan motors and compressor for making

repairs and for removing internal components without removing unit from its permanent installation. Fresh air intake and outdoor coil shall be protected from intrusions by a sturdy metal grating with less than 1/4 inch openings.

Colors (Select One)

X- Beige (standard)
4- Buckeye Gray

Painted cabinet construction shall be a minimum of 20 gauge Zinc coated steel, painted units shall have baked on paint, designed and tested to withstand 1000 hours of salt spray test per ASTM B117-03.

2.2 DRAIN PAN

Drain pan shall be constructed of 20-gauge galvanized steel, bonderized and finished with baked-on exterior polyester enamel paint.

2.3 INSULATION

Insulation shall be non-fiberglass material with foil faced for ease of cleaning. Insulation materials used shall not contain fiberglass or formaldehyde. Insulation materials shall meet UL723 standards.

2.3.1 Filters

Filters shall be Minimum Efficiency Reporting Value of MERV 8 per ASHRAE standard 52.2. Filters shall be readily available commercial sizes

2.4 MOUNTING BRACKETS

Full-length side mounting brackets shall be an integral part of the cabinet. Bottom mounting bracket shall be provided.

2.5 REFRIGERATION SYSTEM

All models shall use a high efficiency hermetic scroll compressor with step capacity providing 2 stages of control. The compressor shall be covered by a 5-year parts warranty. The refrigeration circuit shall be equipped with factory installed high and low pressure controls, suction and liquid access valves, compressor control module and liquid line filter dryer. An Electronic Expansion Valve metering device and high/low pressure transducers are included. Compressor shall be mounted on rubber grommets. Unit shall be provided with R-410A (HFC) non-ozone depleting refrigerant.

2.6 OUTDOOR SECTION

The condenser coil shall be constructed of aluminum plate fins mechanically bonded to seamless copper tubes. The condenser fan, motor and shroud shall be of slide out configuration for easy access. ECM condenser fan motor shall be enclosed casing with ball bearings. Open winding motors are not accepted.

2.7 INDOOR SECTION

The evaporator coil shall constructed of aluminum fins mechanically bonded to seamless copper tubes. Aluminum fins shall have a hydrophilic coatings, to aid in condensate drainage, inhibit mold growth and protect aluminum fins from oxidation. A fin coating shall be provided to offer excellent resistance to corrosive agents, Ammonia Sodium Hydroxide, Sodium Chloride, Acidic solutions and solvents. The following shall have no effect on the coil fin surface after 30 minutes: Ammonia 26 Baume, Gasoline, Kerosene, 1 N Sodium Hydroxide, Glacial Acetic Acid, 70% IPA, Spray Nine, Windex, Copper Sulfate, 409 Cleanser, Clorox Bleach. Variable speed indoor blower motor shall be a single housing design with forward curve blades. Motor shall be high efficiency ECM with overload protection.

2.8 ELECTRICAL COMPONENTS

Electrical components are easily accessible for routine inspection and maintenance through front service panels. Circuit breaker is standard on all models. Circuit breaker access is through window in front access door.

2.9 CONTROL CIRCUIT

The internal control circuit shall consist of a current limiting 24VAC type transformer with resettable circuit. Auto reset high pressure switch and auto reset low pressure switch shall standard, compressor control module with adjustable voltage protection and adjustable delay on make and break shall be standard. To prevent rapid compressor short cycling, a five minute time delay circuit shall be factory installed. A low-pressure bypass shall be factory installed to prevent nuisance tripping during low temperature start-up.

Phase rotation protection and phase failure protection shall be standard factory on all equipment with three-phase power. If unit is wired incorrectly phase monitor will lock out compressor operation and red warning light shall energize. Once power wiring is corrected at field power wiring location, a green light will energize on phase monitor. If a phase of power is lost, the phase monitor will also lock out.

3.0 COOLING OPTIONS

3.1 STANDARD COOLING

The air conditioner shall function with standard cooling sensible and latent capacities.

3.2 BALANCED CLIMATE™

The air conditioner shall function with enhanced latent capacity when BALANCED CLIMATE™ cooling mode is enabled. PLC controls operate this mode based on indoor humidity levels. The reduction in fan speed increases latent capacity and reduces sensible capacity for increased runtime and increased latent capacity. Expanded rating in balanced climate mode shall be provide at time of submittal, and full factory performance data shall be available upon request.

4.0 HEATING OPTIONS (Select One)

4.1 None

4.2 Electric Heat

The air conditioner shall have a factory or field installed electric resistance heater available, designed specifically for application in the WR Series air conditioner. Heater shall include automatic limit safety controls and breaker.

5.0 VENTILATION OPTIONS (Select One)

Units shall include ventilation controlled by a PLC with economizer logic. No additional field installed relays shall be required to provide independent ventilation. Ventilation shall be de-energized during unoccupied hours unless otherwise specified. Only one ventilation package shall be provide and must be specified

5.1 ECONOMIZER STANDARD

The Economizer is internally mounted and allows outside air to be used for free-cooling when temperature and/or humidity conditions are favorable. The amount of exhaust air varies in response to the system controls and settings defined by the user. It includes a built in exhaust air damper. The economizer is designed to provide free cooling when outside conditions are cool and dry enough to satisfy

cooling requirements without operating the compressor, providing lower operating costs while extending the life of the compressor.

Standard Features:

- **Fully modulating**
- **Hi Torque Belimo actuator**
- **Blade design**
- **Positive shut-off with non-stick gaskets**
- **Electronic Enthalpy outdoor sensor.**
- **Both dry bulb only or Dry Bulb/Wet Bulb operation.**
- **Supply air sensor used for economizer control.**
- **PLC solid-state control board with built-in economizer control.**
- **Air quality sensor disables economizer based on outdoor air quality.**

6.0 FILTER OPTIONS

6.1 2" Pleated – MERV 8

7.0 STANDARD UNIT CONTROLS

7.1 Low ambient control.
7.2 Outdoor thermostat.
7.3 Crankcase heater.
7.4 High pressure/Low pressure transducer for system pressures and superheat/subcooling calculations.
7.5 Filter pressure switch
7.6 Externally visible filter replacement indicator.
7.6 Blower failure pressure switch.
7.7 Suction line temperature sensor.

8.0 OPTIONAL CONTROLS AND ACCESSORIES

8.1 None
8.2 Bard Guard security system.
8.3 VIC1500 Inverter option.

9.0 INSTALLATION

9.1 Installation shall be done in strict adherence to Bard's Installation Instructions.

10.0 WARRANTY

10.1 The Bard product specified shall be free from defects in materials and workmanship for a period of 5 years for compressor, and for a period of 5 years for all parts. Warranty period shall start from date of installation as stated on warranty card; or from date of shipment if no warranty card is returned to Bard Manufacturing. Equipment must be used under normal conditions and warranty is subject to Bard Manufacturing's standard limited warranty statement.