



**General Specifications:
Bard Wall – Mount™ WGxS-Series, 15.1 IPLV
Step Capacity 36-46 dbA Gas/Elec,
With CRV Intake & Exhaust,
White Rodgers 1F95-1277 Thermostat**

FURNISH and INSTALL

A one-piece exterior wall mounted, factory-assembled, pre-charged, prewired, tested and ready-to-operate, multi capacity two stage gas/electric unit. The unit shall be approved and listed by Intertek ETL Listed (ETL US/C) listed for installation on combustible surfaces for zero clearance between the unit and wall. The first three feet of the supply duct must be approved for 1" clearance to combustible material. Unit performance shall be certified in accordance with Air Conditioning, Heating and Refrigeration Institute (AHRI Std 390) for Single Package Vertical Units (SPVU) in EER and IPLV, and GAMA certified heating capacity/efficiency in AFUE. The Bard manufactured NOx certified model No. **WG4S*ANBVX4** gas/electric with the integral Classroom Ventilator (CRV) operated by a properly programmed White Rodgers 1F95-1277 thermostat and installed correctly to meet the Section 121 ventilation requirements of California Title 24 Code. See specification sheet S3489 (current version) for complete unit specifications.

The HVAC unit shall have outside air make-up for ventilation mixed with return air, filtered through the same filter, prior to passing through the indoor coil, and shall have a factory or field installable, integral classroom ventilator (CRV) capable of providing and exhausting 15 cfm per the anticipated 32 occupants, (480cfm) via a separate ventilation only mode. Outside ventilation air shall not bypass the indoor coil or the filter. The CRV shall be 3 position power open, spring loaded close, and meet ANSI/ASHRAE 62.1 ventilation standards.

VENTILATION OPTIONS – Select One (Some vent devices may require additional building exhaust)

CLASSROOM ROOM VENTILATOR (WGSCRVMP)- Standard

The built-in commercial room ventilator is internally mounted and allows outside ventilation air, up to 50% of the total air flow rating of the unit, to be introduced through the air inlet openings. It includes a built-in pressure relief exhaust air damper. The CRV can be controlled by indoor blower operation or field controlled based on room occupancy using CO2 controller. Unit complies with ANSI/ASHRAE Standard 62.1 Ventilation for Acceptable Air Quality.

ECONOMIZER – Enthalpy (WGSJIFM) - OPTIONAL

The Economizer is internally mounted and allows outside air to be used for free-cooling when temperature and 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 pressure relief 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.

ENERGY RECOVERY VENTILATOR (WGSERV) - OPTIONAL

The Energy Recovery Ventilator (ERV) shall consist of rotary wheels in an insulated cassette, frame with seals, drive motor and belt. The ERV assembly shall also include intake and exhaust blowers. The ERV thermal performance shall be certified by the manufacturer in accordance with ASHRAE Standard 84, Method of Testing Air-to Air Heat Exchangers and ARI Standard 1060, Rating for Air-to-Air Energy Recovery Ventilation Equipment Cassettes, and shall be listed in the ARI Certified Products. The ERV can be controlled by indoor blower operation or field controlled based on room occupancy using CO2 controller. Unit complies with ANSI/ASHRAE Standard 62.1 Ventilation for Acceptable Air Quality. ERV off load ventilation energy before passing through coil for conditioning, saving 20-25% operational cost.

PERFORMANCE

The HVAC system will have an indoor operating sound level that will not exceed **46 dbA** measured 10 feet directly in front of the return air grille at 5' above the floor. Other optional accessories are available to approach **35 dbA**.

The HVAC system shall be designed to maintain a minimum indoor temperature of 72 Deg F. in the heating season and a maximum of 78 Deg. F. in the cooling season. HVAC unit shall be sized to provide a maximum total air in circulation not to exceed 11 air changes per hour (every 5.44 minutes) during 2nd stage heating and/or cooling cycles, and not more than 8.0 air changes per hour, (every 7.41 minutes) during 1st stage heating and/or cooling cycles, and not more than 6.25 air changes per hour, (every 9.60 minutes), during the ventilation only cycle. Minimum outside air (480 cfm/occupant) must remain constant and not less than the equivalent of 3.5 air changes per hour or once every 17 minutes.

Energy efficiency rating for the WG4S* shall be minimum 15.1 IPLV (Integrated Part Load Value) certified by AHRI as meeting Standard 390-2003, and a GAMA certified 81% AFUE.

BLOWERS and FANS

To provide a quiet comfortable environment, the twin indoor blowers shall have a centrifugal forward curved direct drive blower. Indoor blowers shall discharge horizontally into a ducted supply with a maximum internal velocity of 1000 fpm. Maximum air velocity at the supply registers is not to exceed 500 fpm. The ECM indoor blower motor shall be variable speed providing super-high efficiency, low sound levels, and soft-start capabilities. The indoor blower motor shall be self adjusting to provide the proper airflow rate for the 3 stage airflow operation without user adjustment or wiring changes.

Propeller type outdoor fan shall be a blow through outdoor coil design and be direct driven by a 1-speed motor, separate from the indoor blower motor. The outdoor motor and shroud shall slide out for easy access and maintenance.

STANDARD FEATURES

Plug in CO2 sensor ready ventilation control.

Compressor protection: High and Low Auto Reset Pressure Controls Standard.

Two-inch pleated filter (MERV 8 Minimum) Optional MERV 13 or MERV 16 Capable

Copeland step capacity (2 stage) scroll compressor. Environmentally Safe R410A refrigerant.

High and Low pressure controls plus 24V transformer with built-in circuit breaker.

Circuit breaker or toggle disconnect.

All three (3) phase units to have a built-in phase monitor to prevent reverse rotation of scroll compressor motor.

Compressor Control Module with an alarm contact.

A separate Filter Service Door for easy 1" or 2" filter replacement.

Coremark Full Flow service ports.

CONTROLS

Ventilation and temperature control shall consist of a wall-mounted 5/1/1-day, 3 stage heat, 2 stage cool programmable thermostat White Rodgers 1F95-1277. The thermostat shall be equipped with key-pad lockout, ventilation control programming, and a standard locking thermostat guard. Thermostat to be pre-programmed to bring on continuous ventilation one hour prior to and during anticipated occupancy as per the California Title 24, Section 121-(c) 2 ventilation requirements.

BARD 8403-096 CO2 Sensor (Optional)

Furnish and install a Bard 8403-096 CO2 Sensor to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO2 in the space according to Section 121 California Title 24 ventilation standards. The CO2 sensor shall have non dispersion-infrared (NDIR) technology used to measure carbon dioxide gas, provide voltage or current output based on CO2 levels, provide SPST relay output, and Automatic Background Calibration (ABC) algorithm. The CO2 Sensor shall wire easily to the WGxS ventilation board, and provide modulating classroom ventilator (CRV) damper control of outside air between 700 – 1500 ppm CO2.

Filtration

Furnish and install Pure Aire Technologies 2" MERV 13 filters to capture >80% of 1 micron particles @ .23 esp.

Furnish and install Pure Aire Technologies 2" MERV 16 filters to capture >95% of .003 micron particles @ .35 esp.

UV Purification – Select One

Furnish and install APCO UV purification options with a UVBARDKIT to provide proper installation in the Bard unit for air purification and coil cleaning. 18,000 hour bulb life, and lifetime power pack warranty. Door shut off safety switch required.

Choose one:

1. Good: 1 bulb 24v one pass 39% Corona Virus kill rate, 6 pass 95% Corona Virus kill rate.
2. Better: 2 bulb 24v one pass 56% Corona Virus kill rate, 6 pass 99% Corona Virus kill rate.
3. Best: 1 bulb 110-277v one pass 99% Corona Virus kill rate, 6 pass 99% Corona Virus kill rate.

Acoustical Accessories (For operating sound levels below 45dbA)

1. For approximate 4–6 dbA sound reduction furnish and install 9" Vibration Sound Curb, Bard model WMSC5-4. (Grey) With WG9CA5-4 (Grey) Rain Cap.
2. For approximate 4-7 dbA sound reduction furnish and install Return Air Acoustical Plenum, Bard model WAPR11-X (Beige)
3. For approximate 1-2 dbA sound reduction furnish and install Supply Air Acoustical Plenum, Bard model WAPFB51-FF.

Note: All applications are different so actual sound reductions may vary from the values listed above. Contact us if your particular application requires the HVAC system to operate at or near 35 dbA.

Additional Accessories

1. Outdoor Coil Grille Guards, "**Bard Gards**". Protects outdoor coil from damage. Excellent when unit is located near a playground. All units shall have a heavy duty BARD GARD outdoor coil guard. The BARD GARD shall have a 14 gauge frame and 13 gauge expanded metal mesh. The entire BARD GARD shall be powder coated the same color as the wall mount unit.

See Bard Specification Sheet S3489 for additional information.

This document is available in MS Word format from:

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EQUIPMENT & MATERIAL SCHEDULE

Nox Certified Models

3.0 Ton* Gas/Elec, Bard, R410a, Step Capacity Wallmount, WG3S*ANAVX4
 35,000 Nom Btu Cooling Capacity - 14.6 IPLV
 45,000 Nom Btu Heating Capacity Input - 82.0 AFUE
 MCA 27, MOCP 40, Min. Wire Size #8
 1100 CFM @ .15 Esp, Unit Weight 585 lbs.
 230 Volt, 60 Cycle, Single Phase
 SITE ALTITUDE _____ GAS TYPE _____

4.0 Ton* Gas/Elec, Bard, R410a, Step Capacity Wallmount, WG4S*ANAVX4
 46,500 Nom Btu Cooling Capacity - 15.6 IPLV
 45,000 Nom Btu Heating Capacity Input - 82.0 AFUE
 MCA 36, MOCP 45, Min. Wire Size #8
 1400 CFM @ .15 Esp, Unit Weight 585 lbs.
 230 Volt, 60 Cycle, Single Phase
 SITE ALTITUDE _____ GAS TYPE _____

5.0 Ton* Gas/Elec, Bard, R410a, Step Capacity Wallmount, WG5S*ANBVX4
 56,500 Nom Btu Cooling Capacity - 14.7 IPLV
 68,000 Nom Btu Heating Capacity Input - 82.0 AFUE
 MCA 45, MOCP 60, Min. Wire Size #8
 1600 CFM @ .15 Esp, Unit Weight 585 lbs.
 230 Volt, 60 Cycle, Single Phase
 SITE ALTITUDE _____ GAS TYPE _____

NOTE:

* Unit certified for 1 or 2 Electrical Circuits, Consult WG*S Specifications Sheet, Form #S3489 for more detailed information.
 MCA: Minimum Circuit Ampacity
 MOCP: Maximum Overcurrent Protection

INTERIOR DUCTWORK- FLEX DUCT W/ 1" INSULATION- CLASS I U.L.-181
 FLAME SPREAD - 15
 SMOKE DEVELOPED - 25

LEGEND

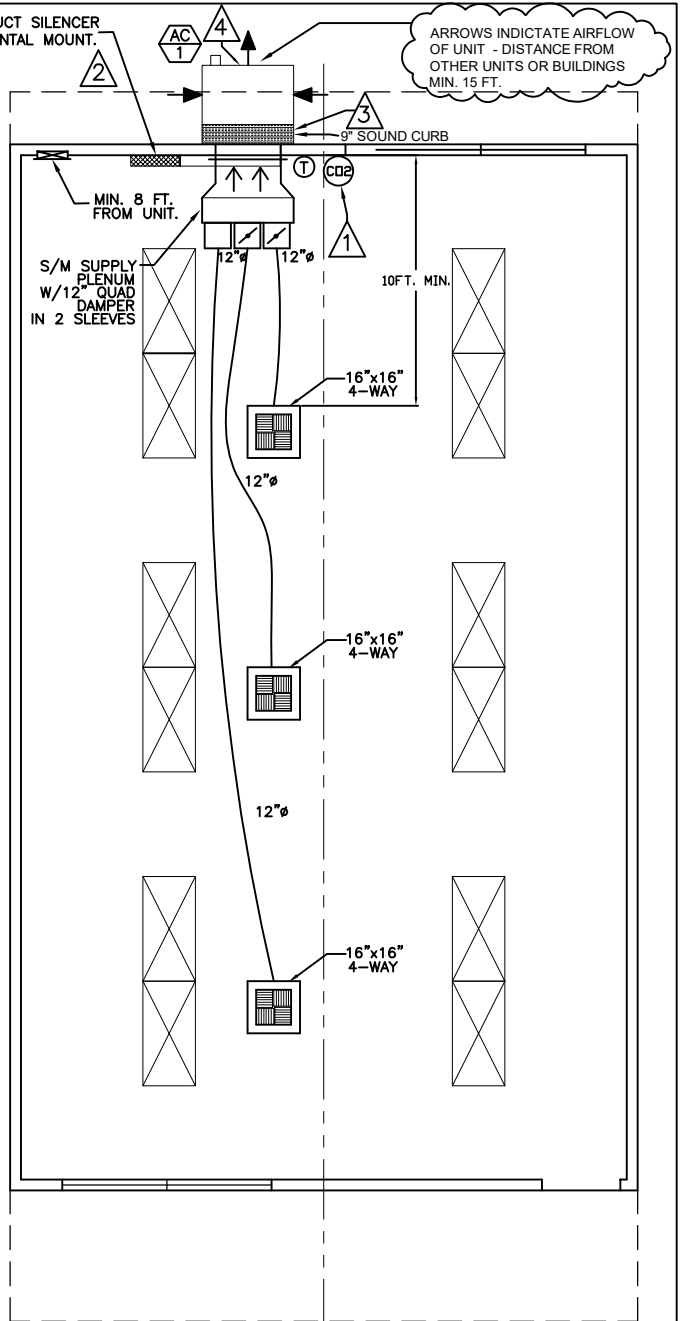
- Ⓣ THERMOSTAT - WHITE RODGERS 1F95-1277
 MOUNT AT +48" A.F.F.
 GP WIRING DIAGRAM # 11-0236
- Ⓢ STAT GUARD, CLEAR, WHITE-RODGERS, F29-0198,
- SHOEMAKER 104, T-BAR, 4 WAY
 16" X 16" SUPPLY AIR DIFFUSER
 WITH MIN. 26 GA. LINED SIDE OUTLET BOX
- RETURN GRILLE WALL, TRU-AIRE 270, 30 X 16, WHITE
 (NOT REQUIRED WHEN OPTION 2 BELOW IS SELECTED)

OPTIONS:

CHECK:

- 1 Ⓢ CO2 SENSOR - BARD #8403-096
 AT 60" A.F.F. (OPTIONAL)
- 2 BARD RETURN AIR DUCT SILENCER
 PT#WAPR11-X, Beige (OPTIONAL)
- 3 BARD PT# WMSC54 SOUND CURB
 WITH BARD PT# WG9CA54 RAIN CAP (OPTIONAL)
- 4 BARD GARD
 VANDALISM PROTECTION FOR OUTDOOR COIL (OPTIONAL)
- 5 BARD TOP DISCHARGE PLENUM
 #WGPB5 USED WITH TOP DISCHARGE UNIT. (OPTIONAL)
- 6 MERV. 13 FILTERS (OPTIONAL)
- 7 MERV. 16 FILTERS (OPTIONAL)
- 8 UV LIGHT FOR INDOOR COIL (OPTIONAL)

RETURN AIR DUCT SILENCER
 HORIZONTAL MOUNT.



MECHANICAL PLAN

MECHANICAL NOTES

FLEXIBLE DUCT SHALL BE MODULAR METAL FABRICATORS SERIES FDMA R6.0 WITH INSULATION, A SILVER POLY JACKET, AND A WIRE ENCAPSULATED NON-PERFORATED CORE THAT COMPLIES WITH ASTM C-518, 1991. FLEXIBLE DUCTING SHALL BE UL LISTED CLASS 1 AIR DUCT WITH A FLAME SPREAD RATING NOT TO EXCEED 25, AND A SMOKE-DEVELOPED RATING NOT TO EXCEED 50 IN ACCORDANCE WITH NFPA 90A & 90B.

THERMOSTAT PROGRAMMING TO BE PERFORMED AND BATTERY PROVIDED BY OTHERS ON SITE.

TEST AND BALANCE OF HVAC SYSTEM, CRV, OR ECONOMIZER TO BE PROVIDED AND PERFORMED BY OTHERS ON SITE.

ALL HVAC EQUIPMENT LEAVES FACTORY WIRED FOR 240V OPERATION. THE ACCEPTABLE OPERATING RANGE FOR THE 240 & 208 VOLT TAPS ARE:

TAP	RANGE
240V	253-216
208V	220-198 1 PH. 220-187 3 PH.

SAVE AS: 06-0038.DWG

**GEARY
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DWG NAME BARD "WGxS" R410a, "STEP CAPACITY" WALLMOUNT GAS/ELECTRIC WITH 3 EA. SUPPLY DUCTS

SIZE A CUSTOMER NAME JOB NO

DATE REV. DATE 5/27/21 REV# 11 APR DRAWN BY MDC SHEET 1 OF 1 Dwg # 06-0038