

SECTION 15831

AIR CURTAINS, COMMERCIAL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Service Window Models.
- B. Whispurr Air(R) Models.
- C. C-CH-CHS Models.
- D. Combi(R) and Super Combi Models.
- E. National Sanitation Foundation (NSF) Models.
- F. High Efficiency Particulate Air Curtain (HEPAC) Models.
- G. Air Curtains with Electric Heat.

1.2 RELATED SECTIONS

- A. Section 08110 - Steel Doors and Frames.
- B. Section 08330 - Coiling Doors and Grilles.
- C. Section 08400 - Entrances and Storefronts.
- D. Section 08500 - Windows.
- E. Section 08580 - Pass Windows.
- F. Sections of Division 16 affecting, or affected by, construction activities of this section.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's descriptive literature for products specified in this section; indicate options specified.
- C. Shop Drawings: Indicate installation and connection details for air curtains.
- D. Quality Assurance Submittals:
 - 1. Certificates: Indicate compliance to Regulatory Requirements specified in QUALITY ASSURANCE Article of this section.

2. Manufacturer's instructions: Printed installation instructions for each specified product.

E. Closeout Submittals:

1. Operation and maintenance data: Manufacturer's printed instructions for operating and maintaining air curtain components.
2. Warranty documents: Issued and executed by manufacturer.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five years documented experience producing respective products specified in this Section.
- B. Regulatory Requirements: Product compliance with the following regulatory agencies:
 1. Underwriters Laboratories.
 2. National Sanitation Foundation (NSF models only).
 3. National Electrical Code.
 4. United States Food and Drug Administration.
 5. United States Department of Agriculture.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products of this section in manufacturer's unopened packaging until installation.
- B. Maintain dry, heated storage area for products of this section until installation of products.

1.6 WARRANTY

- A. Supply manufacturer's standard warranty against defects in product workmanship and materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Mars Air Doors, 14716 South Broadway, Gardena CA 90248; ASD. Tel: (213) 770-1555 or (800) 421-1266; Fax: (310) 324-3030.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. Substitutions: Not permitted.

2.2 MANUFACTURED UNITS

A. Service Window Air Curtains:

1. Acceptable Product: Mars Model Number W-25.
2. Product Description: Self-contained electrically-operated air curtain for mounting at head or jamb of openings up to 60 inches (1,524 mm) high by 30 inches (762 mm) wide.
3. Housing: One piece molded high impact white polyethylene material; resistant to high humidity and all climatic conditions. Contains factory-provided mounting brackets at each end, and removable, washable aluminum mesh air intake filter.
4. Fan Assembly: Variable-speed, double-shaft motor with dual inlet fans having capacity to provide 1,400 feet per minute (7 m/sec) air velocity and 1,900 cubic feet per minute (897 L/sec) air volume at nozzle, and minimum 600 feet per minute (3 m/sec) air velocity at 2 feet (610 mm) above counter when mounting height does not exceed 5 feet (1,524 mm) above counter.
5. Fan Assembly: Double-shaft motor with dual inlet fans having capacity to provide 1,400 feet per minute (7 m/sec) air velocity and 1,900 cubic feet per minute (897 L/sec) air volume at nozzle, and minimum 600 feet per minute (3 m/sec) air velocity at 2 feet (610 mm) above counter when mounting height does not exceed 5 feet (1,524 mm) above counter.
6. Heater Assembly: Electric heater having 4000 watt, 13,700 BTU (14,454 J) per hour output, with manual-reset thermal overload switch and on/off control switch.
7. Operating Noise Level: 59 decibels on A scale, measured from interior, at 10 feet (3.048 m) from unit.
8. Utility Requirements: 115 Volts AC, single-phase, 2.6 Amperes.
9. Utility Requirements: 208/230 Volts AC, single-phase, 1.3 Amperes.
10. Utility Requirements: 208/230 Volts AC, single-phase, 22 Amperes.

B. Air Curtains:

1. Acceptable Product: Mars Whispurr Air(R) Model Number WA-__.
2. Product Description: Self-contained electrically-operated air curtain for mounting at head of openings up to 7 feet (2.134 m) high by 72 inches (1,829 mm) wide.

3. Housing:
 - a. One piece molded, high impact, white polyethylene material; resistant to high humidity and all climatic conditions. Discharge outlet nozzle directional vanes adjustable +/- 20 degrees front to back.
 - b. Mounting plate provided with keyhole slot for fast and easy installation and maintenance
 - c. Color: White.
 - d. Color: Gray.
 - e. Color: Gold.
 - f. Color: Beige.
 - g. Color: Dark Bronze.
 - h. Color: Custom color selected by Architect.
 4. Blower Assembly: Variable-speed motor and switch; field adjustable with control knob capable of reducing outlet air velocity up to 60 percent. Injection molded type blower wheel utilizing PolyMars(R) material; capacity to provide 1,800 feet per minute (9 m/sec) air velocity and ____ cubic feet per minute (____ L/sec) air volume at nozzle.
 5. Door-Activated Microswitch: Supply microswitch for automatic on/off control; turns air curtain on when door is opened and off when door is closed; field installed.
 - a. Type: Plunger.
 - b. Type: Roller.
 6. Operating Noise Level: ____ decibels on A scale, measured from interior, 10 feet (3.048 m) from unit.
 7. Utility Requirements: ____ Volts AC, single-phase, ____ Ampere.
- C. Air Curtains:
1. Acceptable Product: Mars Model Number ____ C__.
 2. Product Description: Self-contained electrically-operated air curtain for mounting at head of openings.
 3. Housing:
 - a. One piece molded white high-impact polyethylene material, resistant to high humidity and all climatic conditions.
 - b. Internal steel bracket with sufficient strength to provide housing rigidity and fastening to wall.
 - c. Mechanically field adjustable variable air intake louver assembly capable of reducing outlet air velocity up to 60 percent with louvers in totally enclosed position.

- d. Wedge shaped discharge air outlet nozzle containing adjustable air directional vanes with a +/- 20 degree sweep from front to back.
- e. Color: White.
- f. Color: _____.
- 4. Blower Assembly: Direct-drive, double-width and double-inlet squirrel cage steel blower wheels having capacity to provide ____ feet per minute (____ m/sec) air velocity and ____ cubic feet per minute (____ L/sec) air volume at nozzle.
- 5. Motor: Single 1/2 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option.
- 6. Motor: Single 1 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option.
- 7. Motor: Two 1/2 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option, both controlled by single switch.
- 8. Motor: Two 1 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option, both controlled by single switch.
- 9. Door-Activated Microswitch: Supply microswitch for automatic on/off control, on when door is opened, off when door is closed; field installed.
 - a. Type: Plunger.
 - b. Type: Roller.
- 10. Operating Noise Level: ____ decibels on A scale, measured from interior, 10 feet (3.048 m) from unit.
- 11. Utility Requirements: ____ Volts AC, _____-phase, ____ Ampere(s).
- D. Air Curtains with Heater Assemblies:
 - 1. Acceptable Product: Mars Model Number Heated ____ C ____.
 - 2. Product Description: Self-contained electrically-operated air curtain for mounting at head of openings.
 - 3. Housing:
 - a. One piece molded white high-impact polyethylene material, resistant to high humidity and all climatic conditions.
 - b. Internal steel bracket with sufficient strength to provide housing rigidity and fastening to wall.
 - c. Mechanically field adjustable variable air intake louver assembly capable of reducing outlet air velocity up to 60 percent with louvers in totally enclosed position.

- d. Wedge shaped discharge air outlet nozzle containing adjustable air directional vanes with a +/- 20 degree sweep from front to back.
 - e. Color: White.
 - f. Color: _____.
4. Blower Assembly: Direct-drive, double-width and double-inlet squirrel cage steel blower wheels having capacity to provide _____ feet per minute (_____ m/sec) air velocity and _____ cubic feet per minute (_____ L/sec) air volume at nozzle.
 5. Motor: Single 1/2 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option.
 6. Motor: Single 1 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option.
 7. Motor: Two 1/2 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option, both controlled by single switch.
 8. Motor: Two 1 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option, both controlled by single switch.
 9. Door-Activated Microswitch: Supply microswitch for automatic on/off control, on when door is opened, off when door is closed; field installed.
 - a. Type: Plunger.
 - b. Type: Roller.
 10. Fixed Delay Microswitch:
 - a. Delay: 30 seconds, factory preset.
 - b. Delay: 60 seconds, factory preset.
 - c. Delay: 90 seconds, factory preset.
 - d. Delay: 120 seconds, factory preset.
 - e. Delay: 240 seconds, factory preset.
 - f. Delay: 600 seconds, factory preset.
 - g. Type: Plunger.
 - h. Type: Roller.
 11. Adjustable Time Delay Microswitch: Field adjustable to 17 minutes.
 - a. Type: Plunger.
 - b. Type: Roller.
 12. Operating Noise Level: _____ decibels on A scale, measured from interior, 10 feet (3.048 m) from unit.
 13. Heater Assembly: Electric heater, _____ watts, _____ BTUs (_____ J) per hour output, with temperature limit controller.
 14. Thermostat: Wall-mounted, 24-Volt operation, with heater on/fan on and heater off/fan on selection.

15. Utility Requirements: ___ Volts AC, _____-phase,
___ Ampere(s).
- E. Air Curtains:
1. Acceptable Product: Mars Model Number _____ COMBI(R).
 2. Product Description: Self-contained electrically-operated air curtain for mounting at head of openings up to 10 feet (3.048 m) high.
 3. Housing:
 - a. One piece molded white high-impact polyethylene material, resistant to high humidity and all climatic conditions.
 - b. Internal steel bracket with sufficient strength to provide housing rigidity and fastening to wall.
 - c. Mechanically field adjustable variable air intake louver assembly capable of reducing outlet air velocity up to 60 percent with louvers in totally enclosed position.
 - d. Wedge shaped discharge air outlet nozzle containing adjustable air directional vanes with a +/- 20 degree sweep from front to back.
 - e. Color: White.
 - f. Color: Gray.
 - g. Color: Gold.
 - h. Color: Beige.
 - i. Color: Dark Bronze.
 - j. Color: Custom color selected by Architect.
 4. Blower Assembly: Direct-drive, double-width and double-inlet squirrel cage steel blower wheels having capacity to provide ___ feet per minute (___ m/sec) air velocity and ___ cubic feet per minute (___ L/sec) air volume at nozzle.
 5. Motor: Single 1/2 horsepower, three-speed, with three-speed on/off control switch; single phase only.
 6. Motor: Two 1/2 horsepower, three-speed, both controlled by single three-speed on/off control switch; single phase only.
 7. Door-Activated Microswitch: Supply microswitch for automatic on/off control, on when door is opened, off when door is closed; field installed.
 - a. Type: Plunger.
 - b. Type: Roller.
 8. Operating Noise Level: ___ decibels on A scale, measured from interior, 10 feet (3.048 m) from unit.
 9. Utility Requirements: ___ Volts AC, _____-phase,
___ Ampere(s).
- F. National Sanitation Foundation (NSF) Certified Air Curtains:

1. Acceptable Product: Mars Model Number ____.
2. Product Description: Self-contained electrically-operated air curtain for mounting at head of openings up to 12 feet (3.658 m) high.
3. Housing:
 - a. One piece molded white high-impact polyethylene material, resistant to high humidity and all climatic conditions.
 - b. Internal steel bracket with sufficient strength to provide housing rigidity and fastening to wall.
 - c. Washable aluminum mesh air intake filter.
 - d. Wedge shaped discharge air outlet nozzle containing adjustable air directional vanes with a +/- 20 degree sweep from front to back.
 - e. Color: White.
 - f. Color: Gray.
 - g. Color: Gold.
 - h. Color: Beige.
 - i. Color: Dark Bronze.
 - j. Color: Custom color selected by Architect.
4. Motors and Blower Wheels: Totally enclosed air over (TEAO) type motor(s), suitable for continuous heavy duty, all angle operation.
 - a. Explosion proof.
 - b. Sealed lifetime pre-lubricated ball bearings, resilient mounted and protected by an automatic reset thermal overload switch.
 - c. Quick disconnect plugs for fast easy removal of motor/fan assemblies for inspection and cleaning.
 - d. Double extended shaft and direct drive, double inlet, dynamically balanced forward curved squirrel cage blower wheels having capacity to provide ____ feet per minute (____ m/sec) air velocity and ____ cubic feet per minute (____ L/sec) air volume at nozzle.
 - e. Motor: Single 1/2 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option.
 - f. Motor: Single 1 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option.
 - g. Motor: Two 1/2 horsepower, maximum 1,750 revolutions per minute, single-speed, with two-speed option, both controlled by single switch.
5. Utility Requirements: ____ Volts AC, ____-phase, ____ Ampere(s).

6. Electrical Wiring: Junction box mounted on right side.
 7. Electrical Wiring: Junction box mounted _____.
 8. Door-Activated Microswitch(s): Supply 20 amp microswitch(s) for automatic on/off control, on when door is opened, off when door is closed; field installed.
 - a. Type: Plunger.
 - b. Type: Roller.
 9. Wall Mounted Control Panel: Power ___ motors through the panel.
 10. Factory Mounted Control Panel on Air Curtain: Power ___ motors through the panel.
 11. Operating Noise Level: ___ decibels on A scale, measured from interior, 10 feet (3.048 m) from unit.
- G. Air Curtains:
1. Acceptable Product: Mars Model Number _____ Super COMBI.
 2. Product Description: Self-contained electrically-operated air curtain for mounting at head of openings up to 12 feet (3.658 m) high.
 3. Housing:
 - a. One piece molded white high-impact polyethylene material, resistant to high humidity and all climatic conditions.
 - b. Internal steel bracket with sufficient strength to provide housing rigidity and fastening to wall.
 - c. Mechanically field adjustable variable air intake louver assembly capable of reducing outlet air velocity up to 60 percent with louvers in totally enclosed position.
 - d. Wedge shaped discharge air outlet nozzle containing adjustable air directional vanes with a +/- 20 degree sweep from front to back.
 - e. Color: White.
 - f. Color: Gray.
 - g. Color: Gold.
 - h. Color: Beige.
 - i. Color: Dark Bronze.
 - j. Color: Custom color selected by Architect.
 4. Blower Assembly: Direct-drive, double-width and double-inlet squirrel cage steel blower wheels having capacity to provide ___ feet per minute (___ m/sec) air velocity and ___ cubic feet per minute (___ L/sec) air volume at nozzle.
 5. Motor: Single 1 horsepower, two-speed, with two-speed on/off control switch; single phase only.

6. Motor: Two 1 horsepower, two-speed, both controlled by single two-speed on/off control switch; single phase only.
 7. Door-Activated Microswitch: Supply microswitch for automatic on/off control, on when door is opened, off when door is closed; field installed.
 - a. Type: Plunger.
 - b. Type: Roller.
 8. Operating Noise Level: ___ decibels on A scale, measured from interior, 10 feet (3.048 m) from unit.
 9. Utility Requirements: ___ Volts AC, _____-phase, ___ Ampere(s).
- H. High Efficiency Particulate Air Curtain (HEPAC(R)):
1. Acceptable Product: Mars Model Number HF40.
 2. Product Description: Self-contained electrically-operated air curtain for mounting at head of openings up to 8 feet (2.438 m) high.
 3. Housing:
 - a. One piece molded white high-impact polyethylene material, resistant to high humidity and all climatic conditions.
 - b. Internal steel bracket with sufficient strength to provide housing rigidity and fastening to wall.
 - c. Mechanically field adjustable variable air intake louver assembly capable of reducing outlet air velocity up to 60 percent with louvers in totally enclosed position.
 - d. Wedge shaped discharge air outlet nozzle containing adjustable air directional vanes with a +/- 20 degree sweep from front to back.
 - e. Color: White.
 - f. Color: Custom color selected by Architect.
 4. Blower Assembly: Direct-drive, double-width and double-inlet squirrel cage steel blower wheels having capacity to provide ___ feet per minute (___ m/sec) air velocity and ___ cubic feet per minute (___ L/sec) air volume at nozzle.
 5. Utility Requirements: 1/2 horsepower motor, ___ Volts AC, _____-phase, ___ Ampere(s).
- I. Fastening Devices: Types recommended in manufacturer's printed installation instructions for indicated substrates.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that required utilities are in correct location and are of correct capacities for specified products.

3.2 INSTALLATION

- A. Install air curtains in accordance with shop drawings and manufacturer's printed installation instructions.
- B. Connection to utilities is specified in Sections of Division 16.

END OF SECTION