

SECTION 23 34 33

AIR DOORS

Berner Model FS air doors are primarily mounted on exterior doors up to 16 feet high to prevent insects from entering.

Edit guide specification to include only information specific to your project. Delete or add text, select appropriate bracketed phrases, and fill in blanks as required. Go to Berner catalog or website to select specific models and sizes that are required for project and to obtain data necessary to edit this document.

Coordinate specification with information shown on project drawings and schedules. In general, drawings indicate locations of air doors and switches and special mounting requirements, while sizes and capacities of air doors and utilities should be described in specifications or schedules. Cross check mechanical and architectural drawings.

Guide specification is available in word processing format at www.berner.com. Turn on "Hidden Text" function in your word processor to display "Specifier Notes."

Selection guide is available at www.berner.com to suggest models appropriate for typical applications.

For additional information or name of Berner representative in your area, call Berner International Corporation at 800-245-4455 in U.S. or 800-242-4455 in Canada, or visit www.berner.com. A selection guide is available at www.berner.com to suggest models appropriate for typical applications.

PART 1 - GENERAL

1.1 CONDITIONS AND REQUIREMENTS

- A. The General Conditions, Supplementary Conditions, and Division 01 – General Requirements apply.

1.2 SECTION INCLUDES

Specifier Note: Delete items below that are not included in this section. Retain only those options in the first paragraph below that are required for a specific project.

- A. Air doors.
- B. [Insert item description.]

1.3 RELATED REQUIREMENTS

Specifier Note: In this article, specify work specified in other sections that is related to work of this section.

- A. Section 04 22 00 - Concrete Unit Masonry: Blocking or reinforcing in wall as required for attachment of air door.
- B. Section 05 40 00 - Cold-Formed Metal Framing: Reinforcing in wall as required for attachment of air door.
- C. Section 06 10 00 - Rough Carpentry: Blocking in wall as required for attachment of air door.

Specifier Note: If switches for air doors are mounted on door frames, retain either Section 08 11 00 or 08 41 00 below to facilitate coordination.

- D. Section 08 11 00 - Metal Doors and Frames: Coordinate installation of switches.

Specifier Note: Strip doors can be used in conjunction with air doors to provide an even higher level of separation. Retain first paragraph below if required for a specific project. Consult Berner catalog for a complete list of available strip doors.

- E. Section 08 38 13 - Flexible Strip Doors: Coordinate installation of strip doors with installation of air doors.
- F. Section 08 41 00 - Entrances and Storefronts: Coordinate installation of switches.
- G. Section 08 71 00 - Door Hardware: Coordinate with installation of hardware.

Specifier Note: Retain the first paragraph below if air door cabinets are to field painted. Protect electrical contacts and moveable parts from paint.

- H. Section 09 91 00 - Painting: Field applied finishes.

Specifier Note: Electrical connections should be flexible.

- I. Division 26 - Electrical: Connection of electrical service and controls.

Specifier Note: The following paragraph is a sample that may be used in this article. Add to or delete from the following as appropriate for the specific project.

- J. Section [xxxxx] – [Section Title]: [Include brief description of work specified in another section that is related to the work of this section.]

1.4 REFERENCE STANDARDS

- A. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- B. Underwriters Laboratories (UL):
 - 1. UL 507 - Electric Fans.

1.5 SUBMITTALS

Specifier Note: In this article, specify various types of data to be furnished by the contractor before, during, or after construction. Topics included in this article are: product data, shop drawings, samples, design data, test reports, certificates, manufacturers' instructions, manufacturers' field reports, qualification statements, and closeout submittals.

- A. Submit under provisions of Section [01 33 00] [_____].
- B. Product Data: Submit for air doors including:
 - 1. Rated capacities.
 - 2. Operating characteristics.
 - 3. Accessories.
 - 4. Options.
- C. Shop Drawings: For air door components not adequately described by product data. Show configuration of non-standard units. Include plans, elevations, sections, details, and attachments to other work. Include wiring diagrams for power, signal, and control wiring.
- D. Operation and Maintenance Data: For air doors to include in maintenance manuals.
- E. Warranties: Sample of special warranties.

1.6 QUALITY ASSURANCE

Specifier Note: In this article, describe qualifications, regulatory requirements, certifications, field samples, mock-ups, and pre-installation meetings.

- A. Manufacturers: Firms regularly engaged in manufacture of air doors of the types and sizes required, whose products have been in satisfactory use in similar service for not less than 10 years. Provide air doors produced by a manufacturer listed in this section.
- B. Source Limitations: Obtain each type of air door through one (1) source from a single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Units to comply with UL 507 and other applicable UL or CSA requirements.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver air doors in factory labeled packages.
- B. Store and handle in strict compliance with manufacturer's written instructions and recommendations.

- C. Protect from damage due to weather, excessive temperature, and construction operations.

1.8 WARRANTY

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

Specifier Note: Retain either of the following two subparagraphs to agree with type of unit selected for a project and delete the other. Retain both subparagraphs if project has both types of units.

1. Five-year limited warranty for unheated units.
2. Two-year limited warranty for heated units.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer: The design for air doors is based on products manufactured by Berner International Corporation, 111 Progress Avenue, New Castle, PA, Telephone: 724-658-3551; Toll-Free Telephones: 800-245-4455 (U.S.), 800-242-4455 (Canada); Fax: 724-652-0682; email: airdoors@berner.com; Website: www.berner.com.

Specifier Note: Retain one of the following two paragraphs and delete the other.

- B. Substitutions are not permitted.
- C. Substitutions will be considered under provisions of Section 01 60 00.

2.2 AIR DOORS

Specifier Note: Retain model types in the following paragraph as required for specific project. Delete those that are required.

- A. Acceptable Products: Berner Model FS.
- B. Construction: Provide factory-assembled units of sufficient structural strength to be supported from ends without intermediate support. Include one (1) pair of heavy-duty mounting brackets. Mounting brackets shall permit adjustment of air stream discharge angle of ± 20 degrees.
- C. Cabinet:
 1. Material: Minimum 14-gage aluminized steel with [gray] [insert color] colored baked enamel finish, all welded construction.
- D. Motors: 1725 RPM, totally enclosed (TEAO) direct drive motors.

- E. Fans: 24-inch diameter, four (4) blade propeller type with inlet venturi.
- F. Discharge Nozzles:
 - 1. Provide uniform velocity across width of air door.
 - 2. Aperture: Five (5) inches (127 mm) slot by width of air door.
- G. Inlet:
 - 1. Location: Top.
 - 2. Screen: Fan guard.

Specifier Note: Weather hood is optional. Retain the following subparagraph if hood is required for specific project.

- 3. [Weather Hood: Steel; provide one (1) per fan.]

2.3 CONTROLS

- A. Control Panel:
 - 1. UL listed, industrial type, pre-wired, with UL-listed components consisting of motor starter, motor overloads, and control transformer with [120] [24] volt fused secondary.

Specifier Note: Retain the Type 4X enclosure in areas subject to wind driven rain or wash-down type conditions and delete the first option.

- 2. Enclosure: Oil-tight and dust-tight NEMA Type [4] [corrosion resistant 4X] enclosure with neoprene door gasket.
- 3. Mounting: [Remote mounted as indicated on Drawings.] [Unit mounted.]

Specifier Note: Use of a disconnect switch on unit simplifies power shut-off when servicing air door.

- 4. Disconnect Switch: Provide lockable, [fused] [non-fused] disconnect switch.

- B. Switching:
 - 1. Automatic Door Switch: Switch automatically activates unit when door opens and deactivates unit when door closes.
 - 2. Combination HAND-OFF-AUTOMATIC Switch: Remotely mount one (1) HAND-OFF-AUTOMATIC switch and one (1) door switch in door area. HAND-OFF-AUTOMATIC switch, when in HAND position, activates unit whether door is opened or closed. In OFF position, unit shall not operate. In AUTOMATIC position, unit shall automatically be activated each time door is open and deactivate each time door is closed.
 - 3. [Manual Switch: Provide START-STOP push button operation.]

2.4 MOUNTING ACCESSORIES

Specifier Note: Show mounting brackets on Drawings if required.

- A. Provide brackets and other mounting accessories as required to permit installation and proper functioning of air door to meet project conditions of use.

Specifier Note: Retain the required material and finish in the following paragraph and delete the other one.

- B. Fabricate mounting accessories from painted aluminized steel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that door frame and adjacent construction are installed correctly and are ready to receive work of this Section.
- B. Verify that utilities are in correct location and are of correct capacities for specified products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

Specifier Note: Delete the optional text in the following paragraph if shop drawings are not required for a specific project.

- A. Install air doors where indicated on Drawings and accordance with [shop drawings and] manufacturer's instructions. Provide clearance to permit servicing and maintenance.
- B. Securely install air doors plumb, level, and as close as practical to top of opening and face of wall.
- C. Install switches where indicated on Drawings.

3.3 CONNECTIONS

- A. Connect air door to utilities as specified in Division 26 sections.

3.4 FIELD QUALITY CONTROL

- A. Provide a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Test and operate air door to be sure that it performs as intended.

3.5 ADJUSTING

- A. Adjust fan speed to prepare installed products to perform properly.

3.6 CLEANING

- A. Clean air door prior to commissioning.
- B. Repair or repaint damage to finishes on exposed-to-view surfaces.

3.7 SYSTEM STARTUP

Specifier Note: Retain optional text in paragraph below if required for a specific project.

- A. Test and operate air doors to ensure that they perform as intended. Adjust discharge nozzles to deflect air outward [unless otherwise required].

3.8 DEMONSTRATION

- A. Demonstrate for Owner's maintenance personnel how to adjust, operate, and maintain air curtains.

Specifier Note: Retain the following article if project requires multiple size and types of air doors. Alternatively, a tabular air door schedule can be downloaded at www.berner.com/schedule inserted onto drawings or added to the end of this specification section.

3.9 SCHEDULE

- A. Air Door 1 (AD-1):
 1. Width: Provide air door unit, nominally 42 inches wide.
 2. Air Door Units: Berner Model FS-1-42A.
 3. Motors:
 - a. Number of Motors: One (1) per air door unit.
 - b. Horsepower: Two (2).
 - c. Voltage: 240 volts, three (3) phase, 60 Hertz.
 4. Air Flow:
 - a. Maximum (Center Line) Velocity: 5000 ft/minute.
 - b. Air Volume: 6800 cu ft/minute.
 5. Sound Level: 93 dBA maximum, measured 10 ft (3.05 m) from unit in a free field.
 6. Controls: Combination switch with disconnect switch.
- B. Air Door 1 (AD-2):
 1. Width: [Provide a single air door unit, [insert number] inches ([_] mm) wide.] [Provide [two (2)] [three (3)] air door units end-to-end, each nominally [insert number] inches ([_] mm) wide.]
 2. Air Door Unit(s): Berner Model [insert model designation].
 3. Motor(s):
 - a. Number of Motors: [One (1)] [Two (2)] [Three (3)] per air door unit.
 - b. Horsepower: Two (2).

- c. Voltage: [insert number] volts, [one (1)] [three (3)] phase, [insert number] Hertz.
4. Air Flow:
 - a. Maximum (Center Line) Velocity: [Insert number] ft/minute ([____] m/s).
 - b. Average Outlet Velocity: [Insert number] ft/minute ([____] m/s).
 - c. Air Volume: [Insert number] cu ft/minute ([____] L/s).
5. Sound Level: [Insert number] dBA maximum, measured 10 ft (3.05 m) from unit in a free field.
6. Controls: [Automatic] [Combination] [Manual] switch [with disconnect switch].
7. Additional Requirements: [_____].

END OF SECTION

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Revised 03/11