SECTION 23 34 33

AIR CURTAINS

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\*\* NOTE TO SPECIFIER \*\* Berner International; air curtains.
This section is based on the products of Berner International, which is located at:
111 Progress Ave.
New Castle, PA 16101
Toll Free Tel: 800-245-4455
Tel: 724-658-3551
Fax: 724-652-0682
Email: [request info (sales@berner.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Berner+International&coid=30903&rep=&fax=724-652-0682&message=RE:%20Spec%20Question%20(15831ber):%20%20&mf=)
Web: [http://www.berner.com](http://http://www.berner.com)

 [ [Click Here](http://www.arcat.com/arcatcos/cos30/arc30903.html) ] for additional information.

Berner International manufactures a complete line of industrial, commercial/retail and ceiling mounted air curtains / air doors. Our air curtains are available heated or unheated and provide fly/insect control, environmental separation, refrigeration loss, and fume/odor control. Custom engineered air curtains are available for special applications. Our product line also includes strip doors, air entrance systems, and our "Posi-Flow" fabric ducts. No one else offers Berner's standards of quality, performance, and dependability, not to mention our service.
A selection guide is available at www.berner.com for typical applications. For additional information or the name of Berner representative in your area, call Berner International at 800-245-4455 in U.S. or 800-242-4455 in Canada, or visit www.berner.com.

1. GENERAL
	1. SECTION INCLUDES
		1. Air curtains.
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete sections below not relevant to this project; add others as required.

* + 1. Section 04 20 00 - Unit Masonry.
		2. Section 05 40 00 - Cold-Formed Metal Framing.
		3. Section 06 10 00 - Rough Carpentry.
		4. Section 08 11 13.16 - Custom Hollow Metal Doors and Frames.
		5. Section 08 41 00 - Entrances and Storefronts.
		6. Section 08 54 13 - Fiberglass Windows.
		7. Section 08 51 69 - Metal Storm Windows.
		8. Section 08 70 00 - Hardware.
		9. Section 09 29 00 - Gypsum Board.
		10. Section 09 51 23 - Acoustical Tile Ceilings
		11. Section 09 90 00 - Painting and Coating.
		12. Division 15 - Plumbing: Connection of hot water supply to heater used in air curtains.
		13. Division 15 - Heating, Ventilating, and Air-Conditioning: Connection of steam supply to heater used in air curtains.
		14. Division 16 - Electrical: Connection of electrical service and controls.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. AMCA 220 - Test Methods for Air Curtain Units.
		2. AMCA 211 - Certified Ratings Program.
		3. ARI 410 - Forced-Circulation Air-Cooling and Air-Heating Coils.
		4. UL 1995 - Heating and Cooling Equipment.
		5. UL 2021 - Fixed and Location-Dedicated Electric Room Heaters
		6. ANSI/NSF 37 - Air Curtains for Entranceways in Food Establishments.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Equipment ratings and operating characteristics.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Installation methods.
		3. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
			1. Show configuration of non-standard units.
			2. Indicate dimensions, weights, loads, clearances, location and field connections.
			3. Wiring diagrams for power, signal, and control wiring.
		4. Certificates: Indicate compliance to Regulatory Requirements and Performance Requirements.
		5. 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.
	2. QUALITY ASSURANCE
		1. Manufacturer Qualifications:
			1. Products in satisfactory use in similar service for not less than 10 years.
			2. Manufactured and assembled in the United States of America.

\*\* NOTE TO SPECIFIER \*\* Delete agency certifications below not required for project

* + 1. Regulatory Requirements: Product compliance with the following regulatory agencies:
			1. Underwriters Laboratories listing.
			2. National Electrical Code.
			3. Canadian Standards Association.
		2. 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.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for steam or hot water type air curtain.

* + 1. Comply with ARI 410 for components, construction, and rating. Certify coils in accordance with ARI 410.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph for ambient type of air curtain.

* + 1. Comply with AMCA 211, "Certified Ratings Program - Product Rating Manual for Fan Air Performance," for airflow rate, average outlet velocity, outlet velocity uniformity, velocity projection and power rating.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraphs as required for units specified.

* + 1. Certification:
			1. Unheated Units: Units shall be tested in accordance with AMCA 220 and licensed to bear AMCA Certified Ratings Seal.
			2. Heated Units: Except for inclusion of heating, units shall be tested in accordance with AMCA 220 and licensed to bear AMCA Certified Ratings Seal.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in compliance with manufacturer's written instructions.
		2. Maintain dry, heated storage area for products until installation.
	2. SEQUENCING
		1. Coordinate the installation of wiring and control switches for air doors with the openings and the hardware provided for such openings.
	3. WARRANTY
		1. Manufacturer's Warranty:

\*\* NOTE TO SPECIFIER \*\* Select warrantee applicable to products specified and delete those that are not applicable.

* + - 1. Supply manufacturer's standard two-year limited warranty for heated units.
			2. Supply manufacturer's standard five-year limited warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Berner International, which is located at: 111 Progress Ave.; New Castle, PA 16101; Toll Free Tel: 800-245-4455; Tel: 724-658-3551; Fax: 724-652-0682; Email: [request info (sales@berner.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Berner+International&coid=30903&rep=&fax=724-652-0682&message=RE:%20Spec%20Question%20(15831ber):%20%20&mf=); Web: [http://www.berner.com](http://http://www.berner.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Select the Air Curtains required from the following paragraphs and delete those not required.

* 1. ARCHITECTURAL AIR CURTAINS

\*\* NOTE TO SPECIFIER \*\* Berner Architectural Low Profile 8 Series for applications with low door to ceiling clearance or pass thru windows. Suitable for; opening heights of 2 feet (60.9 cm) to 8 feet (243.8 cm); environmental separation of 2 feet (60.9 cm) to 7 feet (213.4 cm) and insect control. Can be wall mounted or suspended from ceiling. Electric heated units to be installed indoors only and require a minimum clearance of; 6 feet (182.9 cm) between bottom of the unit and floor; 4 inches (10.2 cm) between the top and ceiling; and 1 inch (2.5 cm) between sides and any combustible material.

* + 1. Berner Architectural Low Profile 8 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model ALC08 Ambient.
			2. Model ALC08 Electric Heated.
			3. Model ALC08 Hot Water Heated.
			4. Model ALC08 Steam Heated.
			5. Cabinet:
				1. Dimensions: Not to exceed 7.5 in (19.1 cm) high by 13.75 in (34.9 cm) deep.
				2. Material: Aluminum base frame with stainless steel riveted construction with cover of:

\*\* NOTE TO SPECIFIER \*\* Select one of the following materials and delete the ones not required.

Corrosion resistant clear anodized aluminum.

Corrosion resistant aluminum with polyester powder coat finish.

Corrosion resistant stainless steel.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen and removable bottom access panel.
			1. Motor: 1/5 HP, 1680 RPM, single phase, variable speed, ODP, direct drive.
			2. Fans: Cross flow tangential type, aluminum with flexible hubs.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 2 inches (5 cm) slot by width of air curtain.
			4. Vanes: 0.875 (2.2 cm) minimum height; airfoil-shaped aluminum extrusions.
			5. Inlet: Front location with aluminum and extruded aluminum frame and same finish used for the cabinet.

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Delete if not required.

* + - 1. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter clips.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
			2. Controls:
				1. Controller: UL listed, industrial type, pre-wired, with solid-state control switch.

Factory-mounted Intelliswitch digital programmable controller featuring:

\*\* NOTE TO SPECIFIER \*\* Supplied standard with an Intelliswitch digital programmable controller. Unit mounted display is standard.

5 volt DC output for control circuit.

Lock and Unlock tamperproof feature.

Motor and switching suitable for 10 fan speed settings.

Programmable fan start and stop.

Programmable settings for all user controlled options.

Adjustable time delay from 0 to 10 minutes.

Five preset and three customizable programs.

Fan fail lockout.

Built-in capillary style thermostat for heated units.

Two heating modes, one for heat and one for fan and heat.

Emergency stop.

Clock with lighted display

\*\* NOTE TO SPECIFIER \*\* Select display type require and delete the one not required.

Unit mounted display.

Remote mounted display with 20 ft (6.1m) cable.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if automatic door switch is required. Automatic door switch automatically activates unit when door opens and deactivates unit when door closes. Select the type required and delete those not required.

Door Switch:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic style door switch.

\*\* NOTE TO SPECIFIER \*\* Select the following remote control option if required.

Remote Control: Infrared controller for use with Intelliswitch digital programmable controller.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric heated units.

Thermostat: For remote mounted sensing to prevent the operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

Disconnect Switch: Provide lockable remote mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Series Architectural High Performance 10 air curtains (a.k.a. air doors) for commercial and retail entry doors where a decorative appearance and quiet operation is desired. Suitable for opening heights up to 10 feet (304.8 cm) for environmental separation and up to 8 feet (243.8 cm) for insect control. Can be wall mounted or suspended from the ceiling. Electric heated units are installed indoors only and requires a clearance of at least; 6 feet (182.9 cm) between the bottom of the unit and floor; 8 inches (20.3 cm) between the top and ceiling; and 1 inch (2.5 cm) between sides and any combustible material.

* + 1. Berner Architectural High Performance 10 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model AHC10 Ambient.
			2. Model AHC10 Electric Heated.
			3. Model AHC10 Hot Water Heated.
			4. Model AHC10 Steam Heated.
			5. Cabinet:
				1. Dimensions: Not to exceed 12.25 inches (31.1) high by 22 inches (55.9 cm) deep.
				2. Material: Aluminum base frame with welded construction with cover of:

\*\* NOTE TO SPECIFIER \*\* Select one of the following materials below. Delete those not required.

Corrosion resistant clear anodized aluminum.

Corrosion resistant aluminum with polyester powder coat finish.

Corrosion resistant stainless steel.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Top of wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen and removable bottom access panel.
			1. Motor: 1/2 HP, 1680 RPM, single phase, 3 speed, ODP, direct drive.
			2. Fans: Forward curved type, double inlet, with air inlet venturis. Wheels and housings of galvanized steel.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 2.5 inches (6.4 cm) slot by width of air curtain.
			4. Vanes: 1.5 inch (3.8 cm) minimum height; constructed of airfoil-shaped aluminum extrusions; adjustable plus or minus 20 degrees to deflect airflow.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for all unheated and heated units installed above the ceiling. Select Material and Discharge required and delete those not required.

* + - 1. Nozzle Extension:
				1. Unpainted aluminized steel 21 inches (53.3 cm) high for field cutting to length.
				2. Clear anodized aluminum 6 inches (15.2 cm) high fixed.
				3. Discharge vanes, airfoil shaped 1.5 inch (3.8 cm) aluminum.
				4. Discharge grille, multi-blade 0.875 inch (2.2 cm) white aluminum.
			2. Inlet: Front location with aluminum and extruded aluminum frame with same finish used for the cabinet.

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Delete if not required.

* + - 1. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter bracket.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
			2. Controls:

\*\* NOTE TO SPECIFIER \*\* Select location of control switches. Unit mounted switches are standard.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs for unheated and steam/hot water heated models.

Manual Factory installed: "Fan On-Off" and "High-Med-Low" switches.

Manual Remote mount: 4 position rotary cam Off-High-Med-Low switch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs for electric heated models.

Manual Factory installed: "Fan-Off-Fan & Heat" and "High-Med-Low" switches.

Manual Remote mount: 7 position rotary cam "Low-Med-High-Off-Hi & Heat-Med & Heat-Low & Heat" switch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 Control paragraphs and delete the others. Basic control package can be used on both heated and unheated units.

* + - * 1. Basic Control: Air curtain on when door is opened and off when door is closed.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Deluxe control can be used on both heated and unheated units.

* + - * 1. Deluxe Control Package: Air curtain turns on when door is open and off when door is closed, unit remains on until set delay time expires.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control: With switch and factory-installed time delay

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph only if 3 speed electric, steam or hot water heated units are required.

* + - * 1. Comfort Plus 24 Volt Control Package: Provides supplemental heat when door is closed and allows air curtain to run at speed selected to protect the opening when door is open. Air curtain shuts off after door is closed and set delay time expires. When door is closed and temperature drops below set point air curtain runs at low speed providing supplemental heat until thermostat is satisfied.

\*\* NOTE TO SPECIFIER \*\* Select door switch from the following paragraphs. Delete those not required.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric heated units and when thermostat is not included in a control package.

* + - * 1. Thermostat: For remote mounted sensing to prevent the operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

* + - * 1. Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Model Architectural Elite 8 air curtains (a.k.a. air doors) for entry doors where a white decorative appearance and quiet operation is desired. Suitable for opening heights to; 8 ft (243.8 cm) for environmental separation; and 7 ft (213.4 cm) for insect control. Can be wall mounted or suspended from ceiling. Electric heated units are installed indoors only and requires a minimum clearance of; 6 feet (182.9 cm) between bottom of unit and floor; 4 inches (10.2 cm) between top and ceiling; and 1 inch (2.5 cm) between sides and combustible material.

* + 1. Berner Architectural Elite 8 (AEC08) Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models and delete those not required.

* + - 1. Model AEC10 Ambient.
			2. Model AEC10 Electric Heated.
			3. Cabinet:
				1. Dimensions: Not to exceed 11 inches (27.9 cm) high by 24 inches (61.0 cm) deep or 30 inches (76.2 cm) deep with decorative rear adapter.
				2. Material: Corrosion resistant aluminum with polyester powder coat finish

\*\* NOTE TO SPECIFIER \*\* Select one of the following and delete the one not required.

Equip air curtains with a perforated grill rear adaptor.

Equip air curtains with a solid rear adaptor.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen and removable bottom access panel.
			1. Motor: 1/2 HP, 1680 RPM, single phase, 3 speed, ODP, direct drive.
			2. Fans: Curved type, double inlet, with air inlet venturis. Wheels and housings galvanized steel.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 2.75 inches (7 cm) slot by width of air curtain.
			4. Vanes: 0.875 inch (2.2 cm) minimum height; constructed of airfoil-shaped aluminum extrusions; adjustable plus or minus 20 degrees to deflect airflow.
			5. Inlet: Front location with aluminum and extruded aluminum frame with same finish used for the cabinet.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
			2. Controls:
				1. Switching: Factory-supplied remote-installed multi-speed control switch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 Control paragraphs and delete the others. Basic control package can be used on both heated and unheated units.

* + - * 1. Basic Control Package: Air curtain turns on when door is opened and shuts off when door is closed.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Deluxe control package can be used on heated and unheated units.

* + - * 1. Deluxe Control Package: Air curtain turns on when door is opened and shuts off when door is closed, unit remains on until set delay time expires.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control: With switch and factory-installed time delay

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph only if 3 speed electric heated units are required.

* + - * 1. Comfort Plus 24 Volt Control Package: Provides supplemental heat when door is closed and allows air curtain to run at the speed selected to protect opening when door is open. Air curtain shuts off after door is closed and set delay time expires. When door is closed and temperature drops below set point air curtain runs at low speed providing supplemental heat until thermostat is satisfied.

\*\* NOTE TO SPECIFIER \*\* Select door switch from the following paragraphs. Delete those not required.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric heated units and when thermostat is not included in a control package.

* + - * 1. Thermostat: For remote mounted sensing to prevent the operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

* + - * 1. Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Series Architectural Recessed 12 air curtains (a.k.a. air doors) for applications where unit cabinet will mount up in the ceiling leaving decorative bottom exposed to sit flush with the finished ceiling. Suitable for opening heights up to; 12 feet (243.8 cm) for environmental separation; and 10 feet (304.8 cm) for insect control. Can be only be suspended from ceiling. Electric heated units are installed indoors only and require a minimum clearance of; 6 feet (182.9 cm) between the bottom of the unit and floor; 1 inches (2.5 cm) between top and ceiling; and 1 inch (2.5 cm) between sides and any combustible materials.

* + 1. Berner Architectural Recessed 12 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model ARC12 Ambient.
			2. Model ARC12 Electric Heated.
			3. Model ARC12 Hot Water Heated.
			4. Model ARC12 Steam Heated.
			5. Cabinet:
				1. Dimensions: Not to exceed 15.25 inches (38.7 cm) high by 26.25 inches (66.7 cm) deep.
				2. Material: Minimum 16-gage aluminized steel cabinet, welded construction with:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs. Delete the ones not required.

White on white polyester painted aluminum bottom cover with 16-gage steel white powder coated screen

Brushed finish stainless steel bottom cover with mill aluminum screen

Powder coated aluminum bottom cover and screen color as selected.

* + - * 1. Mounting: Suspended mounting type.
				2. Service Access: Hinged removable screen and removable bottom access panel.
			1. Motor: 1/2 HP, 1680 RPM, single phase, 3 speed, ODP, direct drive.
			2. Fans: Curved type, double inlet, with air inlet venturis. Wheels and housings galvanized steel.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 3.5 inch (9 cm) slot by width of air curtain.
			4. Vanes: 1.5 inch (3.8 cm) minimum height; airfoil-shaped aluminum extrusions.
			5. Inlet: Location: Bottom location with perforated metal screen of same material finish used for the cabinet.
			6. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter clips.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
			2. Controls:
				1. Controller: UL listed, industrial type, pre-wired, with solid-state control switch.

Factory-mounted and wired Intelliswitch digital programmable controller with the following features:

\*\* NOTE TO SPECIFIER \*\* Units are supplied standard with an Intelliswitch digital programmable controller. Unit mounted display is standard.

5 volt DC output for control circuit.

Lock and Unlock tamperproof feature.

Motor and switching suitable for 10 fan speed settings.

Programmable fan start and fan stop.

Programmable settings for all user controlled options.

Adjustable time delay from 0 to 10 minutes.

Five preset and three customizable programs.

Fan fail lockout.

Built-in capillary style thermostat for heated units

Two heating modes, one or heat and one for fan and heat.

Emergency stop.

Clock with lighted display

\*\* NOTE TO SPECIFIER \*\* Select display type require and delete the one not required.

Unit mounted display.

Remote mounted display with 20 foot (6.1 m) cable.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if an automatic door switch is required. An automatic door switch automatically activates unit when door opens and deactivates unit when door closes. Select the type required and delete those not required.

Door Switch:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic style door switch.

\*\* NOTE TO SPECIFIER \*\* Select the following remote control option with Intelliswitch digital programmable controller if required.

Remote Control: Infrared controller for use with Intelliswitch digital programmable controller.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric heated units.

Thermostat: For remote mounted sensing to prevent the operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

Disconnect Switch: Provide lockable remote mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Series Architectural Recessed 16 air curtains (a.k.a. air doors) for applications where unit cabinet will mount up in the ceiling leaving the decorative bottom exposed to sit flush with finished ceiling. Suitable for opening heights up to; 16 feet (487.7 cm) for environmental separation; and 14 feet (426.72 cm) for insect control. Can only be suspended from ceiling. Electric heated units are installed indoors only and requires a minimum clearance of; 6 feet (182.9 cm) between bottom of the unit and floor; 1 inch (2.5 cm) between top and ceiling; and 1 inch (2.5 cm) between sides and any combustible material.

* + 1. Berner Architectural Recessed 16 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model ARC16 Ambient.
			2. Model ARC16 Electric Heated.
			3. Model ARC16 Hot Water Heated.
			4. Model ARC16 Steam Heated.
			5. Cabinet:
				1. Dimensions: Not to exceed 15.25 inches (38.7 cm) high by 26.25 inches (66.7 cm) deep.
				2. Material: Minimum 16-gage aluminized steel cabinet, welded construction with:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs. Delete the ones not required.

White on white polyester painted aluminum bottom cover with 16-gage steel white powder coated screen

Brushed finish stainless steel bottom cover with mill aluminum screen

Powder coated aluminum bottom cover and screen color as selected.

* + - * 1. Mounting:

Suspended mounting type.

* + - * 1. Service Access: Hinged removable screen and removable bottom access panel.
			1. Motor: 1 HP, 1680 RPM, single phase, 3 speed, ODP, direct drive.
			2. Fans: Curved type, double inlet, with formed air inlet venturis. Wheels and housings galvanized steel.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 3.5 inch (9 cm) slot by width of air curtain.
			4. Vanes: 1.5 inch (3.8 cm) minimum height; constructed of airfoil-shaped aluminum extrusions; adjustable plus or minus 20 degrees to deflect airflow.
			5. Inlet: Bottom location with perforated metal screen of same material finish used for the cabinet.
			6. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter clips.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
			2. Controls:
				1. Controller: UL listed, industrial type, pre-wired, with solid-state control switch.

Factory-mounted Intelliswitch digital programmable controller featuring:

\*\* NOTE TO SPECIFIER \*\* ALC08 units are supplied standard with an Intelliswitch digital programmable controller. Unit mounted display is standard.

5 volt DC output for control circuit.

Lock and Unlock tamperproof feature.

Motor and switching suitable for 10 fan speed settings.

Programmable fan start and fan stop time.

Programmable settings for all user controlled options.

Adjustable time delay from 0 to 10 minutes.

Five preset and three customizable programs.

Fan fail lockout.

Built-in capillary style thermostat for heated units.

Two heating modes, one for heat and one for fan and heat.

Emergency stop.

Clock with lighted display

\*\* NOTE TO SPECIFIER \*\* Select display type require and delete the one not required.

Unit mounted display.

Remote mounted display with 20 foot (6.1 m) cable.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if an automatic door switch is required. An automatic door switch automatically activates unit when door opens and deactivates unit when door closes. Select the type required and delete those not required.

Door Switch:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic style door switch.

\*\* NOTE TO SPECIFIER \*\* Select the following remote control option with Intelliswitch digital programmable controller if required.

Remote Control: Infrared controller for use with Intelliswitch digital programmable controller.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric heated units.

Thermostat: For remote mounted sensing to prevent the operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

Disconnect Switch: Provide lockable remote mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* 1. COMMERCIAL AIR CURTAINS

\*\* NOTE TO SPECIFIER \*\* Berner Commercial Low Profile 8 Series air curtains (a.k.a. air doors) designed for low door to ceiling clearance or pass thru window applications. Suitable for openings up to; 8 feet (243.8 cm) high for environmental separation; and 7 feet (213.4 cm) high for insect control. Can be wall or ceiling mounted. Electric heated units are installed indoors only and require a minimum clearance of; 6 feet (182.9 cm) between bottom of unit and floor; 4 inches (10.2 cm) between top and ceiling; and 1 inch (2.5 cm) between sides and any combustible material.

* + 1. Berner Commercial Low Profile 8 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model CLC08 Ambient.
			2. Model CLC08 Electric Heated.
			3. Model CLC08 Hot Water Heated.
			4. Model CLC08 Steam Heated.
			5. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Not to exceed 8.5 inches (21.6 cm) high by 13.5 inches (34.3 cm) deep.
				3. Material: Aluminum base frame with stainless steel riveted construction with cover of:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs. Delete the one not required.

Aluminized steel cabinet with stainless steel riveted construction and powder coated finish with color as selected.

Stainless steel cabinet with stainless steel riveted construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen and removable bottom access panel.
			1. Motor: 1/5 HP, 1680 RPM, single phase, variable speed, ODP, direct drive.
			2. Fans: Curved cross flow tangential type, with flexible hubs.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 2.375 inches (6 cm) slot by width of air curtain.
			4. Vanes: 1.5 inch (6 cm) minimum height; airfoil-shaped aluminum extrusions.
			5. Inlet: Location: Front location. Screen with aluminum and extruded aluminum frame of same finish used for cabinet.

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Delete if not required.

* + - 1. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter clips.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
			2. Controls:

\*\* NOTE TO SPECIFIER \*\* Select the location of the control switches. Unit mounted switches are standard.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs for use with unheated and steam/hot water heated models.

Manual Factory installed: "Fan On-Off" and "High-Med-Low" switches.

Manual Remote mount: 4 position rotary cam Off-High-Med-Low switch.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs for use with electric heated models.

Manual Switch Factory installed: "Fan-Off-Fan & Heat" and "High-Med-Low" switches.

Manual Switch Remote mount: 7 position rotary cam "Low-Med-High-Off-Hi & Heat-Med & Heat-Low & Heat" switch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 Control paragraphs and delete the others. Basic control package can be used on both heated and unheated units.

* + - * 1. Basic Control: Air curtain on when door is opened and off when door is closed.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Deluxe control package can be used on both heated and unheated units.

* + - * 1. Deluxe Control: Air curtain on when door is open and off when door is closed.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control: With switch and factory-installed time delay

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric heated units and when thermostat is not included in a control package.

* + - * 1. Thermostat: For remote mounted sensing to prevent the operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

* + - * 1. Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Commercial High Performance 10 Series (air curtains (a.k.a. air doors) for use at customer entry and service entry doors. Suitable for opening heights up to; 10 feet (304.8 cm) for environmental separation; and 8 feet (243.8 cm) for insect control. Can be wall mounted or suspended from ceiling. Electric heated units are installed indoors only and requires a minimum clearance of at least; 6 feet (182.9 cm) between the bottom of unit and floor; 8 inches (20.3 cm) between top and ceiling; and 1 inch (2.5 cm) between sides and combustible materials.

* + 1. Berner Commercial Low Profile 10 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model CLC10 Ambient.
			2. Model CLC10 Electric Heated.
			3. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Not to exceed 14.25 inches (36.2 cm) high by 15 inches (38.1 cm) deep.
				3. Material: Aluminum base frame with stainless steel riveted construction with cover of:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs. Delete the one not required.

Aluminized steel cabinet with stainless steel riveted construction and powder coated finish with color as selected.

Stainless steel cabinet with stainless steel riveted construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen and removable bottom access panel.
			1. Motor: 1/2 HP, 1680 RPM, single phase, variable speed, ODP, direct drive.
			2. Fans: Curved type, double inlet, with formed air inlet venturis. Wheels and housings galvanized steel.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 3.5 inch (9 cm) slot by width of air curtain.
			4. Vanes: 1.5 inch (6 cm) minimum height; of airfoil-shaped aluminum extrusions.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for all unheated and heated units installed above the ceiling. Select Material and Discharge required and delete those not required.

* + - 1. Nozzle Extension:
				1. Unpainted aluminized steel 21 inches (53.3 cm) high for field cutting to length.
				2. Clear anodized aluminum 6 inches (15.2 cm) high fixed.
				3. Discharge vanes, airfoil shaped 1.5 inch (3.8 cm) aluminum.
				4. Discharge grille, multi-blade 0.875 inch (2.2 cm) white aluminum.
			2. Inlet:
				1. Location: Front location with aluminum and extruded aluminum frame screen of same finish used for cabinet.

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Delete if not required.

* + - 1. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter clips.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
			2. Controls:

\*\* NOTE TO SPECIFIER \*\* Select the location of the control switches. Unit mounted switches are standard.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs for use with unheated and steam/hot water heated models.

Manual Factory installed: "Fan On-Off" and "High-Med-Low" switches.

Manual Remote mount: 4 position rotary cam Off-High-Med-Low switch.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs for use with electric heated models.

Manual Switch Factory installed: "Fan-Off-Fan & Heat" and "High-Med-Low" switches.

Manual Switch Remote mount: 7 position rotary cam "Low-Med-High-Off-Hi & Heat-Med & Heat-Low & Heat" switch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 Control paragraphs and delete the others. Basic control package can be used on both heated and unheated units.

* + - * 1. Basic Control: Air curtain on when door is open and off when door is closed.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Deluxe control package can be used on both heated and unheated units.

* + - * 1. Deluxe Control Package: Air curtain on when door is open and off when door is closed, unit remains on until set delay time expires.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control: With switch and factory-installed time delay

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph only if 3 speed electric, steam or hot water heated units are required.

* + - * 1. Comfort Plus 24 Volt Control Package: Provides supplemental heat when door is closed and allows air curtain to run at speed selected to protect the opening when door is opened. Air curtain shuts off after door is closed and set delay time expires. When door is closed and temperature drops below set point air curtain runs at low speed with supplemental heat until thermostat is satisfied.

\*\* NOTE TO SPECIFIER \*\* Select door switch type from the following paragraphs and delete those not required.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric heated units and when thermostat is not included in a control package.

* + - * 1. Thermostat: For remote mounted sensing to prevent the operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

* + - * 1. Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Drive-Thru Unit 3 Series air curtains (a.k.a. air doors) for indoor use on drive-thru windows. Suitable for openings to 26 inches (66.0 cm) wide in single modules (tandem mount for wider openings), with window heights to 36 inches (91.4 cm) for environmental separation and insect/fume control. Can be wall or ceiling mounted with "Mount Anywhere" bracket system. Electric heated units are installed indoors only and require a clearance of 18 inches (45.7 cm) between the bottom of unit and the counter and 4 inches (10.2 cm) between sides and top of the unit and any combustible material.

* + 1. Berner Commercial Drive-Thru Unit 3 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model DTU03 Ambient.
			2. Model DTU03 Electric Heated.
			3. Cabinet:
				1. Dimensions: Not to exceed 6 inches (15.2 cm) high by 7.75 inches (19.7 cm) deep.
				2. Material: Aluminum base frame with silver powder coated finish.
				3. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen.
			1. Motor: 1/12 HP, 2950 RPM, single phase, single speed, ODP, direct drive.
			2. Fans: Curved type, double inlet. Wheels and housings galvanized steel.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 1.125 inch (2.9 cm) slot by width of air curtain.
			4. Vanes: 0.25 inch (.06 cm) minimum height; constructed of airfoil-shaped.
			5. Inlet: Location: Front location with staggered perforated pattern aluminum screen.
			6. Air Inlet Filter: Recleanable type of aluminum with "No Tool" filter removal.
			7. Adjustment Hardware: Standard mount hardware that enables unit rotation a minimum of plus or minus 20 degrees to direct airflow for proper operation.
			8. Electrical Connection: Factory-installed cord and plug standard.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
			2. Controls:

\*\* NOTE TO SPECIFIER \*\* Select location of control switches. Unit mounted switches are standard.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs for use with unheated and steam/hot water heated models.

Manual Factory installed: "Fan On-Off" switch rated 120 volt single phase.

Manual Remote mount: "Fan On-Off-Fan & Heat" switch rated 120 volt single phase.

* 1. SANITATION CERTIFIED AIR CURTAINS

\*\* NOTE TO SPECIFIER \*\* Berner Sanitation Certified Low Profile 7 Series air curtains (a.k.a. air doors) designed to be mounted inside or outside on exterior doors customer entry and service entry doors with low ceiling clearance or pass thru windows and meet ANSI/NSF Std 37 for opening heights up to 7 foot (213.4 cm) high for insect control.

* + 1. Berner Sanitation Low Profile 7 Series air curtain:
			1. Model SLC08 Ambient.
			2. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Not to exceed 8.5 inches (21.6 cm) high by 8.5 inches (21.6 cm) deep.
				3. Material: Aluminum base frame with stainless steel riveted construction with cover of:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs. Delete the one not required.

Aluminized steel cabinet with stainless steel riveted construction and powder coated finish with color as selected.

Stainless steel cabinet with stainless steel riveted construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen and removable bottom access panel.
			1. Motor: 1/5 HP, 1680 RPM, single phase, single speed, TEOA, direct drive.
			2. Fans: Curved cross flow tangential type, aluminum with flexible hubs.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 2.375 inches (6 cm) slot by width of air curtain.
			4. Vanes: 1.5 inch (6 cm) minimum height; airfoil-shaped aluminum extrusions.
			5. Inlet: Front location with perforated pattern screen of the same material and finish used for cabinet.

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Delete if not required.

* + - 1. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter brackets.
			2. Controls:

\*\* NOTE TO SPECIFIER \*\* Switches are not included with the unit and a provision for remote mounting is standard. Optional switches are available for remote or unit mounting.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs.

Manual Factory installed: "Fan On-Off" and "High-Med-Low" switches.

Remote Wall mounted Fan On-Off switch.

Remote mounted rotary cam HAND-OFF-AUTOMATIC Switch (Allows manual on-off operation or operation controlled by automatic door switch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 Control paragraphs and delete the others. Basic control package can be used on both heated and unheated units.

* + - * 1. Basic Control: Air curtain on when door is open and off when door is closed.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

120 Volt Control: NEMA 4 Magnetic Reed door switch.

* + - * 1. Deluxe Control: Air curtain on when door is open and off when door is closed, unit remains on until set delay time expires.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control: With switch and factory-installed time delay

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

* + - * 1. Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Sanitation Certified High Performance 7 Series air curtains (a.k.a. air doors) designed to be mounted inside or outside on exterior customer entry and service entry doors. Meets ANSI/NSF Standard 37 for opening heights to 7 feet (213.4 cm) for insect control.

* + 1. Berner Sanitation High Performance 7 Series air curtain:
			1. Model SHC07 Ambient.
			2. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Not to exceed 14.25 inches (36.2 cm) high by 15 inches (38.1 cm) deep.
				3. Material: Aluminum base frame with stainless steel riveted construction with cover of:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs. Delete the one not required.

Aluminized steel cabinet with stainless steel riveted construction and powder coated finish with color as selected.

Stainless steel cabinet with stainless steel riveted construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

* + - * 1. Service Access: Removable screen and removable bottom access panel.
			1. Motor: 3/4 HP, 1725 RPM, single phase, single speed, TEOA, direct drive.
			2. Fans: Curved type, double inlet, with ormed air inlet venturis. Wheels and housings galvanized steel.
			3. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 3.5 inches (9 cm) slot by width of air curtain.
			4. Vanes: 1.5 inch (6 cm) minimum height; of airfoil-shaped aluminum extrusions.
			5. Inlet: Location: Front location with perforated pattern screen of same material and finish used for cabinet.

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Delete if not required.

* + - 1. Air Inlet Filter: Flat faced fire-rated re-cleanable aluminum with integral filter brackets.
			2. Controls:

\*\* NOTE TO SPECIFIER \*\* Switches are not included with the unit and a provision for remote mounting is standard. Optional switches are available for remote or unit mounting.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs.

Manual Factory installed: "Fan On-Off" and "High-Med-Low" switches.

Remote Wall mounted Fan On-Off switch.

Remote mounted rotary cam HAND-OFF-AUTOMATIC Switch (Switch allows manual on-off operation or operation controlled by automatic door switch that activates when door opens and deactivates when closes.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 Control paragraphs and delete the others. Basic control package can be used on both heated and unheated units.

* + - * 1. Basic Control: Air curtain on when door is open and off when door is closed.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control:

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

120 Volt Control: NEMA 4 Magnetic Reed door switch.

* + - * 1. Deluxe Control: Air curtain on when door is opened and off when door is closed, unit remains on until set delay time expires.

\*\* NOTE TO SPECIFIER \*\* Select Line Voltage Control or 24V Control and door switch type from the following paragraphs and delete those not required.

Line Voltage Control: With switch and factory-installed time delay

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

24 Volt Control: With switch, factory-installed time delay and factory-installed transformer.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph if a disconnect switch is required to simplify power shut-off when servicing air curtain.

* + - * 1. Disconnect Switch: Provide lockable factory mounted non-fused toggle disconnects based on number of power supplies required.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	1. INDUSTRIAL AIR CURTAINS

\*\* NOTE TO SPECIFIER \*\* Berner Series Industrial Direct Drive 12 air curtains (a.k.a. air doors) for industrial service or dock door applications. Suitable for opening heights up to; 12 feet (365.8 cm) for environmental separation; and 10 feet (304.8 cm) for insect control. Can be wall mounted or suspended from the ceiling. Electric heated units are installed indoors only and require a minimum clearance of; 6 feet (182.9 cm) between the bottom of the unit and the floor; 8 inches (20.3 cm) between top and ceiling; and 1 inch (2.5 cm) between sides and combustible material.

* + 1. Berner Industrial Direct Drive 12 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model IDC12 Ambient.
			2. Model IDC12 Electric Heated.
			3. Model IDC12 Hot Water Heated.
			4. Model IDC12 Steam Heated.
			5. Model IDC12 Positive Indirect Gas Heated.
			6. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Cabinet, not including external heating options, not to exceed 15 inches (38.1 cm) high by 18 inches (45.7 cm) deep.
				3. Material:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Minimum 16-gage aluminized steel with powder coated finish base frame with mill aluminum inlet screen and access panels welded construction. Color as selected.

Minimum 16-gage stainless steel base frame, access panels and screen, welded construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

Vertical mounting type.

Vertical tandem mounting type.

* + - * 1. Service Access: Removable screen and removable top and bottom access panels.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

* + - 1. Motor: 1/5 HP, 1680 RPM, 1 or 3 speed, ODP, direct drive.
			2. Motor: 1/5 HP, 1680 RPM, 1-speed, TEAO, direct drive.
			3. Fans: Curved centrifugal type, double inlet, with air inlet venturis. Wheels and housings galvanized steel.
			4. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 3.5 inches (9 cm) slot by width of air curtain.
			5. Vanes: 1.5 inch (3.8 cm) minimum height; of aluminum extrusions.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for all unheated and heated units installed above the ceiling. Select Material and Discharge required and delete those not required.

* + - 1. Nozzle Extension:
				1. Unpainted aluminized steel 1.5 inch (3.8 cm) aluminum discharge vanes.
				2. Clear anodized aluminum 1.5 inch (3.8 cm) aluminum discharge vanes.
				3. Discharge grille, multi-blade 0.875 inch (2.2 cm) white aluminum.
			2. Inlet:
				1. Location:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Front.

Top.

* + - * 1. Screen:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Perforated pattern mill aluminum with border.

Perforated pattern stainless steel with border.

* + - 1. Air Inlet Filter:

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Select type required and delete those not required.

* + - * 1. Flat-faced re-cleanable aluminum with screen.
				2. Flat-faced re-cleanable aluminum without screen.
				3. Flat-faced re-cleanable polyester with screen.
				4. Flat-faced re-cleanable polyester without screen.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				4. Indirect Gas Heater and Duct Transition:

CSA listed.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Fuel Type: Provide orifices for natural gas.

Fuel Type: Provide orifices for LP gas.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Heat Exchanger and Burner: Aluminum

Heat Exchanger and Burner: Stainless steel.

* + - 1. Controls:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 Control paragraphs and delete the others. Basic control package can be used on both heated and unheated units.

* + - * 1. Control Panel: UL listed, industrial type, pre-wired, with components consisting of motor starter, terminal strip, and control transformer.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraphs and delete the one not required.120V control voltage is standard, 24V is optional except for electric heated units where 24V is standard. Motor overloads are only available for three phase motors.

120V Fused secondary.

24 Volt fused secondary.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

* + - * 1. Multiple power supply.
				2. Single power supply.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following if disconnect switch is required to simplify power shut-off when servicing air curtain. Delete if not required. Panel mounted rotary disconnect only available for control panels with a single circuit

* + - * 1. Disconnect Switch:

Provide lockable remote mounted non-fused toggle disconnects based on number of power supplies required.

Provide lockable panel mounted through the door rotary fused disconnect.

Provide lockable panel mounted through the door rotary non-fused disconnect.

Provide lockable panel mounted through the door rotary fused disconnect.

Provide lockable panel mounted through the door rotary non-fused disconnect.

\*\* NOTE TO SPECIFIER \*\* For electric heated units refer to paragraph Electric Control Packages specifically designed for electric heated sequences. For all other units continue with the following paragraphs for individual component selection.
\*\* NOTE TO SPECIFIER \*\* Time delay relay is standard for units with gas heaters and recommended for doors that have frequent opening and closing cycles. Turns on when door is open and shuts off after it is closed and set delay time expires. Delete if not required.

* + - * 1. Time Delay Relay: Adjustable from 0.1 second to 10 hour delay.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if an activation device is required in the panel on a project. Remote mounted is standard, factory installed is optional. START-STOP is not available in conjunction with door switch or time delay.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs.

HAND-OFF-AUTOMATIC Switch: Panel mounted switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

START-STOP Switch: Panel mounted switch for manual start-stop push button operation.

ON-OFF Switch: Panel mounted switch for manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph to lockout heat on electric or gas heated units.

HEAT ON-OFF/SUMMER-WINTER Switch: Panel mounted switch to manually lock out heat operation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraphs for indirect gas fired heated units requiring single point power supply. Remote mounting is standard, unit mounted is available. Delete if not required.

* + - 1. Remote mounted Dry-type distribution transformer.
			2. Unit mounted Dry-type distribution transformer.
			3. Remote Activation Devices:

\*\* NOTE TO SPECIFIER \*\* Select the Remote Activation Devices required from the following paragraphs and delete those not required.

* + - * 1. Automatic Door Switch: Switch automatically activates unit when door opens and deactivates unit when door closes.
				2. HAND-OFF-AUTOMATIC Switch: Switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

\*\* NOTE TO SPECIFIER \*\* START-STOP switch is not available in conjunction with either the door switch or time delay option.

* + - * 1. START-STOP Switch: Provides manual start-stop push button operation.
				2. ON-OFF Switch: Provides manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Retain the following subparagraph to lockout heat on electric or gas heated units

* + - * 1. HEAT ON-OFF / SUMMER-WINTER]Switch: Provides manual lock out for heat operation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following three electric control paragraphs and delete the other two. Can only be used on electric heated models.

* + - 1. Electric Control Packages:
				1. Basic 24V Control: Air curtain on when door is open and off when door is closed.

24 Volt Control: With switch and factory-installed time delay.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 paragraphs and delete the other two.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

* + - * 1. Deluxe 24V Control: Air curtain on when door is open and off when door is closed, unit remains on until set delay time expires.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 paragraphs and delete the other two.

24 Volt Control: With switch and factory-installed time delay.

NEMA 1 plunger style door switch and factory-installed time delay.

NEMA 4 plunger style door switch and factory-installed time delay.

NEMA 1 roller style door switch and factory-installed time delay.

Magnetic reed and factory-installed time delay.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph only for use with three speed electric heated units.

* + - * 1. Comfort Plus 24 Volt Control Package: Provides supplemental heat when door is closed and allows air curtain to run at the speed selected when door is opened. Air curtain shuts off after door is closed and set delay time expires. When door is closed and temperature drops below set point, air curtain runs at low speed providing supplemental heat until thermostat is satisfied.

Provide package complete with door switch, factory-installed transformer, time delay and thermostat.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 paragraphs and delete the other two.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric or gas heated units. Delete the following subparagraph if this option is not required.

* + - * 1. Thermostat: Prevents operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Series Industrial Direct Drive 14 air curtains (a.k.a. air doors) are for industrial service or dock doors applications. Suitable for opening heights up to; 14 feet (426.7 cm) for environmental separation; and 12 feet (365.8 cm) for insect control. Can be wall mounted or suspended from ceiling. Electric heated units shall be installed indoors only and require a minimum clearance of; 6 feet (182.9 cm) between the bottom of unit and floor; 8 inches (20.3 cm) between top and ceiling; and 1 inch (2.5 cm) between sides and any combustible material.

* + 1. Berner Industrial Direct Drive 14 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model IDC14 Ambient.
			2. Model IDC14 Electric Heated.
			3. Model IDC14 Hot Water Heated.
			4. Model IDC14 Steam Heated.
			5. Model IDC14 Positive Indirect Gas Heated.
			6. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Cabinet, not including external heating options, not to exceed 15 inches (38.1 cm) high by 18 inches (45.7 cm) deep.
				3. Material:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Minimum 16-gage aluminized steel with powder coated finish base frame with mill aluminum inlet screen and access panels welded construction. Color as selected.

Minimum 16-gage stainless steel base frame, access panels and screen, welded construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

Vertical mounting type.

Vertical tandem mounting type.

* + - * 1. Service Access: Removable screen and top and bottom access panels.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

* + - 1. Motor: 1 HP, 1680 RPM, 1 or 3 speed, ODP, direct drive.
			2. Motor: 1 HP, 1680 RPM, 1 or 2 speed, TEAO, direct drive.
			3. Fans: Curved centrifugal type, double inlet, with formed air inlet venturis. Wheels and housings galvanized steel.
			4. Discharge Nozzle: Provide uniform velocity across width of air curtain. Aperture is 3.5 inches (9 cm) slot by width of air curtain.
			5. Vanes: 1.5 inch (3.8 cm) minimum height; of airfoil-shaped aluminum extrusions.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for all unheated and heated units installed above the ceiling. Select Material and Discharge required and delete those not required.

* + - 1. Nozzle Extension:
				1. Unpainted aluminized steel 1.5 inch (3.8 cm) aluminum discharge vanes.
				2. Clear anodized aluminum 1.5 inch (3.8 cm) aluminum discharge vanes.
				3. Discharge grille, multi-blade 0.875 inch (2.2 cm) white aluminum.
			2. Inlet:
				1. Location:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Front.

Top.

* + - * 1. Screen:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Perforated pattern mill aluminum with border.

Perforated pattern stainless steel with border.

* + - 1. Air Inlet Filter:

\*\* NOTE TO SPECIFIER \*\* Filter is optional. Select type required and delete those not required.

* + - * 1. Flat-faced re-cleanable aluminum with screen.
				2. Flat-faced re-cleanable aluminum without screen.
				3. Flat-faced re-cleanable polyester with screen.
				4. Flat-faced re-cleanable polyester without screen.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				4. Indirect Gas Heater and Duct Transition:

CSA listed.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Fuel Type: Provide orifices for natural gas.

Fuel Type: Provide orifices for LP gas.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Heat Exchanger and Burner: Aluminum

Heat Exchanger and Burner: Stainless steel.

* + - 1. Controls:
				1. Control Panel: UL listed, industrial type, pre-wired, with components consisting of motor starter, terminal strip, and control transformer.

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraphs and delete the one not required.120V control voltage is standard, 24V is optional except for electric heated units where 24V is standard. Motor overloads are only available for three phase motors.

120V Fused secondary.

24 Volt fused secondary.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

* + - * 1. Multiple power supply.
				2. Single power supply.

\*\* NOTE TO SPECIFIER \*\* Select the Type 4X enclosure in areas subject to corrosive or wash-down type conditions and delete the one not required.

* + - * 1. Enclosure: Oil-tight and dust-tight NEMA Type 4/12 enclosure with neoprene door gasket.
				2. Enclosure: Oil-tight and dust-tight corrosion resistant NEMA 4X enclosure with neoprene door gasket.

\*\* NOTE TO SPECIFIER \*\* Select the location of the control panel. Unit mounted control panels are standard on all units.

* + - * 1. Mounting: Remote mounted as indicated on Drawings.
				2. Mounting: Unit mounted right end.
				3. Mounting: Unit mounted left end.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following if a disconnect switch if required to simplify power shut-off when servicing air curtain. Delete if not required. Panel mounted rotary disconnect only available for control panels with a single circuit

* + - * 1. Disconnect Switch:

Provide lockable remote mounted non-fused toggle disconnects based on number of power supplies required.

Provide lockable panel mounted through the door rotary fused disconnect.

Provide lockable panel mounted through the door rotary non-fused disconnect.

Provide lockable panel mounted through the door rotary fused disconnect.

Provide lockable panel mounted through the door rotary non-fused disconnect.

\*\* NOTE TO SPECIFIER \*\* For electric heated units refer to paragraph Electric Control Packages specifically designed for electric heated sequences. For all other units continue with the following paragraphs for individual component selection.
\*\* NOTE TO SPECIFIER \*\* Time delay relay is standard for units with gas heaters and recommended for doors that have frequent opening and closing cycles. Air curtain turns on when door is opened and shuts off after door is closed and set delay time expires. Delete if not required.

* + - * 1. Time Delay Relay: Adjustable from 0.1 second to 10 hour delay.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if an activation device is required in the panel on a project. Remote mounted is standard, factory installed is optional. START-STOP is not available in conjunction with door switch or time delay.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs.

HAND-OFF-AUTOMATIC Switch: Panel mounted switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

START-STOP Switch: Panel mounted switch for manual start-stop push button operation.

ON-OFF Switch: Panel mounted switch for manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Select the following subparagraph to lockout heat on electric or gas heated units.

HEAT ON-OFF/SUMMER-WINTER Switch: Panel mounted switch to manually lock out heat operation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraph for indirect gas fired heated units requiring single point power supply. Remote mounting is standard, Delete if not required.

* + - 1. Remote mounted Dry-type distribution transformer.
			2. Unit mounted Dry-type distribution transformer.
			3. Remote Activation Devices:

\*\* NOTE TO SPECIFIER \*\* Select the Remote Activation Devices required from the following paragraphs and delete those not required.

* + - * 1. Automatic Door Switch: Switch automatically activates unit when door opens and deactivates unit when door closes.
				2. HAND-OFF-AUTOMATIC Switch: Switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

\*\* NOTE TO SPECIFIER \*\* START-STOP switch is not available in conjunction with either the door switch or time delay option.

* + - * 1. START-STOP Switch: Provides manual start-stop push button operation.
				2. ON-OFF Switch: Provides manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph to lockout heat on electric or gas heated units

* + - * 1. HEAT ON-OFF / SUMMER-WINTER]Switch: Provides manual lock out for heat operation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following three electric control paragraphs and delete the other two. Can only be used on electric heated models.

* + - 1. Electric Control Packages:
				1. Basic 24V Control: Air curtain on when door is open and off when closed.

24 Volt Control: With switch and factory-installed time delay.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 options and delete the other two.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

Magnetic reed.

* + - * 1. Deluxe 24V Control: Air curtain on when door is open and off when closed, unit remains on until set delay time expires.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 4 options and delete the other two.

24 Volt Control: With switch and factory-installed time delay.

NEMA 1 plunger style door switch and factory-installed time delay.

NEMA 4 plunger style door switch and factory-installed time delay.

NEMA 1 roller style door switch and factory-installed time delay.

Magnetic reed and factory-installed time delay.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph only for use with three speed electric heated units.

* + - * 1. Comfort Plus 24 Volt Control Package: Provides supplemental heat when door is closed and allows air curtain to run at the speed selected when door is opened. Air curtain shuts off after door is closed and set delay time expires. When door is closed and temperature drops below set point, air curtain runs at low speed providing supplemental heat until thermostat is satisfied.

Provide package complete with door switch, factory-installed transformer, time delay and thermostat.

\*\* NOTE TO SPECIFIER \*\* Select one of the following options and delete the other two.

NEMA 1 plunger style door switch.

NEMA 4 plunger style door switch.

NEMA 1 roller style door switch.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric or gas heated units. Delete the following subparagraph if this option is not required.

* + - * 1. Thermostat: Prevents operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Series Industrial Direct Drive 16 and Industrial Belt Drive 16 air curtains (a.k.a. air doors) for industrial service and dock doors applications. Suitable for opening heights up to; 16 feet (487.7 cm) for environmental separation and; 14 feet (426.7 cm) for insect control. Can be wall mounted or suspended from the ceiling. Electric heated units are installed indoors only and require a minimum clearance of; 6 feet (182.9 cm) between the bottom of unit and floor; 8 inches (20.3 cm) between top and ceiling and; 1 inch (2.5 cm) between sides and any combustible material.

* + 1. Berner Industrial Direct Drive 16 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model IDC16 Ambient, Direct Drive.
			2. Model IDC16 Electric Heated, Direct Drive.
			3. Model IDC16 Hot Water Heated, Direct Drive.
			4. Model IDC16 Steam Heated, Direct Drive.
			5. Model IDC16 Positive Indirect Gas Heated, Direct Drive.
			6. Model IBC16 Ambient, Belt Drive.
			7. Model IBC16 Electric Heated, Belt Drive.
			8. Model IBC16 Hot Water Heated, Belt Drive.
			9. Model IBC16 Steam Heated, Belt Drive.
			10. Model IBC16 Positive Indirect Gas Heated, Belt Drive.
			11. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Cabinet, not including external heating options, not to exceed 21 inches (53.3 cm) high by 32.25 inches (81.9 cm) deep.
				3. Material:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Minimum 14-gage aluminized steel with powder coated finish, welded construction. Color as selected.

Minimum 14-gage stainless steel, welded construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the those not required.

Wall mounting type.

Suspended mounting type.

Vertical mounting type.

Vertical tandem mounting type.

* + - * 1. Service Access: Removable lower blower section with top or front access panels constructed from same material as cabinet.
			1. Motors: Number and horsepower of motors shall be as scheduled

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

* + - * 1. Direct Drive: 1160 RPM, three phase, 1-speed, totally enclosed air over (TEAO).
				2. Belt Drive: 1750 RPM, three phase, 1-speed, totally enclosed fan cooled (TEFC).
			1. Fans: Curved centrifugal type, double inlet, double width design with welded hubs, with aerodynamically formed air inlet venturis. Wheels and housings galvanized steel.
				1. Drive blower wheels with flexible couplings.
			2. Discharge Nozzle: Includes air volume control damper of same material as cabinet.
				1. Provide uniform velocity across width of air curtain.
				2. Mount on continuous piano hinge to allow deflection of air stream +/- 20 degrees without loss of discharge velocity or opening area.
				3. Aperture: 4.5 inches (11.4 cm) slot by width of air curtain.
				4. Vanes: 3.5 inch (8.9 cm) minimum height; constructed of airfoil-shaped aluminum extrusions.
			3. Inlet:
				1. Location:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Front.

Top.

* + - * 1. Screen: Expanded metal with welded frame of same material used in cabinet.
			1. Air Inlet Filter:

\*\* NOTE TO SPECIFIER \*\* Select the type required and delete those not required. Flat-faced filter rack is not available for disposable or polyester media.

* + - * 1. Flat-faced type, re-cleanable aluminum filters and hinged inlet screen.
				2. V-Bank type, disposable filters and hinged inlet screen.
				3. V-Bank type, re-cleanable polyester filters and hinged inlet screen.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				4. Indirect Gas Heater and Duct Transition:

CSA listed.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Fuel Type: Provide orifices for natural gas.

Fuel Type: Provide orifices for LP gas.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Delete the one not required.

Heat Exchanger and Burner: Aluminum

Heat Exchanger and Burner: Stainless steel.

* + - * 1. Direct Gas Fired Heater:

Fuel Type: Provide orifices for natural gas.

Gas Manifold (Train): As required by ANSI and FM and industrial risk insurance IRI.

Spark ignited intermittent pilot.

* + - 1. Controls:
				1. Control Panel: UL listed, industrial type, pre-wired, with components consisting of motor starter, terminal strip, and control transformer.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraphs and delete the one not required.120V control voltage is standard, 24V is optional.

120V Fused secondary.

24 Volt fused secondary.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraphs and delete the one not required. Single power supply is standard on unheated and hot water/steam heated units. Electric heated units have single or multiple power supplies based on voltage and kW rating. Indirect gas heated units have standard multiple power supplies (one per air curtain and one for each heater), single point power supply is available.

* + - * 1. Multiple power supply.
				2. Single power supply.

\*\* NOTE TO SPECIFIER \*\* Select the Type 4X enclosure in areas subject to corrosive or wash-down type conditions and delete the one not required.

* + - * 1. Enclosure: Oil-tight and dust-tight NEMA Type 4/12 enclosure with neoprene door gasket.
				2. Enclosure: Oil-tight and dust-tight corrosion resistant NEMA 4X enclosure with neoprene door gasket.

\*\* NOTE TO SPECIFIER \*\* Select location of control panel. Unit mounted control panels are standard.

* + - * 1. Mounting: Remote mounted as indicated on Drawings.
				2. Mounting: Unit mounted right end.
				3. Mounting: Unit mounted left end.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following if a disconnect switch is required to simplify power shut-off when servicing air curtain. Delete if not selected.

* + - * 1. Disconnect Switch:

Provide fused disconnect.

Provide non-fused disconnect.

\*\* NOTE TO SPECIFIER \*\* Time delay relay is standard for units with gas heaters and recommended for doors that have frequent opening and closing cycles. Air curtain turns on when door is opened and shuts off after door is closed and set delay time expires. Delete if not required.

* + - * 1. Time Delay Relay: Adjustable from 0.1 second to 10 hour delay.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if an activation device is required in the panel on a project. Remote mounted is standard, START-STOP is not available in conjunction with door switch or time delay.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs.

HAND-OFF-AUTOMATIC Switch: Panel mounted switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

START-STOP Switch: Panel mounted switch for manual start-stop push button operation.

ON-OFF Switch: Panel mounted switch for manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Select the following subparagraph to lockout heat on electric or gas heated units.

HEAT ON-OFF/SUMMER-WINTER Switch: Panel mounted switch to manually lock out heat operation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraph for indirect gas fired heated units requiring single point power supply. Remote mounting is standard, Delete if not required.

* + - 1. Remote mounted Dry-type distribution transformer.
			2. Unit mounted Dry-type distribution transformer.
			3. Remote Activation Devices:

\*\* NOTE TO SPECIFIER \*\* Select the Remote Activation Devices required from the following paragraphs and delete those not required.

* + - * 1. Automatic Door Switch: Switch automatically activates unit when door opens and deactivates unit when door closes.
				2. HAND-OFF-AUTOMATIC Switch: Switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

\*\* NOTE TO SPECIFIER \*\* START-STOP switch is not available in conjunction with either the door switch or time delay option.

* + - * 1. START-STOP Switch: Provides manual start-stop push button operation.
				2. ON-OFF Switch: Provides manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Retain the following subparagraph to lockout heat on electric or gas heated units

* + - * 1. HEAT ON-OFF / SUMMER-WINTER Switch: Provides manual lock out for heat operation.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric or gas heated units. Delete if not required.

* + - * 1. Thermostat: Prevents operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Series Industrial Belt Drive 20 air curtains (a.k.a. air doors) for industrial service and dock doors applications. Suitable for opening heights up to; 20 ft (609.6 cm) for environmental separation; and 18 ft (548.6 cm) for insect control. Can be wall mounted or suspended from the ceiling.

* + 1. Berner Industrial Direct Drive 20 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model IBC20 Ambient, Belt Drive.
			2. Model IBC20 Electric Heated, Belt Drive.
			3. Model IBC20 Hot Water Heated, Belt Drive.
			4. Model IBC20 Steam Heated, Belt Drive.
			5. Model IBC20 Positive Indirect Gas Heated, Belt Drive.
			6. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Air curtain cabinet (not including external heating options) not to exceed 21 inches (53.3 cm) high by 32.25 inches (81.9 cm) deep.
				3. Material:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete the one not required.

Minimum 14-gage aluminized steel with powder coated finish, welded construction. Color as selected.

Minimum 14-gage stainless steel, welded construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

Vertical mounting type.

Vertical tandem mounting type.

* + - * 1. Service Access: Removable lower blower section with top or front access panels constructed from same material as cabinet.
			1. Motors: Number and horsepower of motors shall be as scheduled
				1. Belt Drive: 1750 RPM, three phase, 1-speed, totally enclosed fan cooled (TEFC).
			2. Fans: Curved centrifugal type, double inlet, double width design with welded hubs, with aerodynamically formed air inlet venturis. Wheels and housings galvanized steel.
				1. Drive blower wheels with flexible couplings.
			3. Discharge Nozzle: Includes air volume control damper of same material as cabinet.
				1. Provide uniform velocity across width of air curtain.
				2. Mount on continuous piano hinge to allow deflection of air stream +/- 20 degrees without loss of discharge velocity or opening area.
				3. Aperture: 4.5 inches (11.4 cm) slot by width of air curtain.
				4. Vanes: 3.5 inch (8.9 cm) minimum height; constructed of airfoil-shaped aluminum extrusions.
			4. Inlet:
				1. Location:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs and delete the one not required.

Front.

Top.

* + - * 1. Screen: Expanded metal with welded frame of same material used in cabinet.
			1. Air Inlet Filter:

\*\* NOTE TO SPECIFIER \*\* Select the type required and delete those not required. Flat-faced filter rack is not available for disposable or polyester media.

* + - * 1. Flat-faced type, re-cleanable aluminum filters and hinged inlet screen.
				2. V-Bank type, disposable filters and hinged inlet screen.
				3. V-Bank type, re-cleanable polyester filters and hinged inlet screen.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				4. Indirect Gas Heater and Duct Transition:

CSA listed.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs and delete the one not required.

Fuel Type: Provide orifices for natural gas.

Fuel Type: Provide orifices for LP gas.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs and delete the one not required.

Heat Exchanger and Burner: Aluminum

Heat Exchanger and Burner: Stainless steel.

* + - * 1. Direct Gas Fired Heater:

Fuel Type: Provide orifices for natural gas.

Gas Manifold (Train): As required by ANSI and FM and industrial risk insurance IRI.

Spark ignited intermittent pilot.

* + - 1. Controls:
				1. Control Panel: UL listed, industrial type, pre-wired, with components consisting of motor starter, terminal strip, and control transformer.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraphs and delete the one not required. 120V control voltage is standard, 24V is optional.

120V Fused secondary.

24 Volt fused secondary.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraphs and delete the one not required. Single power supply is standard on unheated and hot water/steam heated units. Electric heated units have single or multiple power supplies based on voltage and kW rating. Indirect gas heated units have standard multiple power supplies (one per air curtain and one for each heater), single point power supply is available.

* + - * 1. Multiple power supply.
				2. Single power supply.

\*\* NOTE TO SPECIFIER \*\* Select the Type 4X enclosure in areas subject to corrosive or wash-down type conditions and delete the one not required.

* + - * 1. Enclosure: Oil-tight and dust-tight NEMA Type 4/12 enclosure with neoprene door gasket.
				2. Enclosure: Oil-tight and dust-tight corrosion resistant NEMA 4X enclosure with neoprene door gasket.

\*\* NOTE TO SPECIFIER \*\* Select the location of the control panel. Unit mounted control panels are standard on all units, remote mounting is optional.

* + - * 1. Mounting: Remote mounted as indicated on Drawings.
				2. Mounting: Unit mounted right end.
				3. Mounting: Unit mounted left end.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following if a disconnect switch is required to simplify power shut-off when servicing air curtain. Delete if not required.

* + - * 1. Disconnect Switch:

Provide fused disconnect.

Provide non-fused disconnect.

\*\* NOTE TO SPECIFIER \*\* Time delay relay is standard for units with gas heaters and recommended for doors that have frequent opening and closing cycles. Air curtain turns on when door is opened and shuts off after door is closed and set delay time expires. Delete if not required.

* + - * 1. Time Delay Relay: Adjustable from 0.1 second to 10 hour delay.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if an activation device is required in the panel on a project. Remote mounted is standard, factory installed is optional. START-STOP is not available in conjunction with door switch or time delay.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs.

HAND-OFF-AUTOMATIC Switch: Panel mounted switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

START-STOP Switch: Panel mounted switch for manual start-stop push button operation.

ON-OFF Switch: Panel mounted switch for manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph to lockout heat on electric or gas heated units.

HEAT ON-OFF/SUMMER-WINTER Switch: Panel mounted switch to manually lock out heat operation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraph for indirect gas fired heated units requiring single point power supply. Remote mounting is standard, Delete if not required.

* + - 1. Remote mounted Dry-type distribution transformer.
			2. Unit mounted Dry-type distribution transformer.
			3. Remote Activation Devices:

\*\* NOTE TO SPECIFIER \*\* Select the Remote Activation Devices required from the following paragraphs and delete those not required.

* + - * 1. Automatic Door Switch: Switch automatically activates unit when door opens and deactivates unit when door closes.
				2. HAND-OFF-AUTOMATIC Switch: Switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

\*\* NOTE TO SPECIFIER \*\* START-STOP switch is not available in conjunction with either the door switch or time delay option.

* + - * 1. START-STOP Switch: Provides manual start-stop push button operation.
				2. ON-OFF Switch: Provides manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Retain the following subparagraph to lockout heat on electric or gas heated units

* + - * 1. HEAT ON-OFF / SUMMER-WINTER Switch: Provides manual lock out for heat operation.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric or gas heated units. Delete the following subparagraph if this option is not required.

* + - * 1. Thermostat: Prevents operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Berner Series Industrial Belt Drive 30 air curtains (a.k.a. air doors) for industrial service and dock door applications. Suitable for opening heights to; 30 ft (914.4 cm) for environmental separation; and 28 ft (853.44 cm) for insect control. Suspension mounted.

* + 1. Berner Industrial Direct Drive 30 Series air curtain:

\*\* NOTE TO SPECIFIER \*\* Select one of the following Models below and delete those not required.

* + - 1. Model IBC30 Ambient, Belt Drive.
			2. Model IBC30 Electric Heated, Belt Drive.
			3. Model IBC30 Hot Water Heated, Belt Drive.
			4. Model IBC30 Steam Heated, Belt Drive.
			5. Model IBC30 Positive Indirect Gas Heated, Belt Drive.
			6. Cabinet:
				1. Tamper-resistant construction; parts cannot be disassembled without special tool provided by manufacturer.
				2. Dimensions: Air curtain cabinet (not including external heating options) not to exceed 39 inches (99.1 cm) high by 30 inches (76.2 cm) deep.
				3. Material:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete the one not required.

Minimum 14-gage aluminized steel with powder coated finish, welded construction. Color as selected.

Minimum 14-gage stainless steel, welded construction.

* + - * 1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Select the mounting required and delete the one not required.

Wall mounting type.

Suspended mounting type.

Vertical mounting type.

Vertical tandem mounting type.

* + - * 1. Service Access: Removable lower blower section with top or front access panels constructed from same material as cabinet.
			1. Motors: Number and horsepower of motors shall be as scheduled
				1. Belt Drive: 1750 RPM, three phase, 1-speed, totally enclosed fan cooled (TEFC).
			2. Fans: Curved centrifugal type, double inlet, double width design with welded hubs, with aerodynamically formed air inlet venturis. Wheels and housings galvanized steel.
				1. Drive blower wheels with flexible couplings.
			3. Discharge Nozzle: Includes air volume control damper of same material as cabinet.
				1. Provide uniform velocity across width of air curtain.
				2. Mount on continuous piano hinge to allow deflection of air stream +/- 20 degrees without loss of discharge velocity or opening area.
				3. Aperture: 8 inches (20.3 cm) slot by width of air curtain.
				4. Vanes: 7.125 inch (18.1 cm) minimum height; constructed of airfoil-shaped aluminum extrusions.
			4. Inlet:
				1. Location:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete the one not required.

Front.

Top.

* + - * 1. Screen: Expanded metal with welded frame of same material used in cabinet.
			1. Air Inlet Filter:

\*\* NOTE TO SPECIFIER \*\* Select the type required and delete those not required. Flat-faced filter rack is not available for disposable or polyester media.

* + - * 1. Flat-faced type, re-cleanable aluminum filters and hinged inlet screen.
				2. V-Bank type, disposable filters and hinged inlet screen.
				3. V-Bank type, re-cleanable polyester filters and hinged inlet screen.

\*\* NOTE TO SPECIFIER \*\* Heating elements are optional. Select type required. Delete if not required.

* + - 1. Heating Elements:
				1. Electric Heating Coil: UL-approved, factory-mounted, factory-wired, thermally protected, in galvanized steel frame.
				2. Steam Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins.
				3. Hot Water Coil: Certified in accordance with ARI 410; 16-gage galvanized steel casing, 5/8-inch (15.8 mm) outside diameter copper tube with aluminum fins and seamless copper headers.
				4. Direct Gas Fired Heater:

Fuel Type: Provide orifices for natural gas.

Gas Manifold (Train): As required by ANSI and FM and industrial risk insurance IRI.

Spark ignited intermittent pilot.

* + - 1. Controls:
				1. Control Panel: UL listed, industrial type, pre-wired, with components consisting of motor starter, terminal strip, and control transformer.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following two paragraphs and delete the one not required.120V control voltage is standard, 24V is optional.

120V Fused secondary.

24 Volt fused secondary.

* + - * 1. Single power supply.

\*\* NOTE TO SPECIFIER \*\* Select the Type 4X enclosure in areas subject to corrosive or wash-down type conditions and delete the one not required.

* + - * 1. Enclosure: Oil-tight and dust-tight NEMA Type 4/12 enclosure with neoprene door gasket.
				2. Enclosure: Oil-tight and dust-tight corrosion resistant NEMA 4X enclosure with neoprene door gasket.

\*\* NOTE TO SPECIFIER \*\* Select the location of the control panel. Unit mounted control panels are standard on all units, remote mounting is optional.

* + - * 1. Mounting: Remote mounted as indicated on Drawings.
				2. Mounting: Unit mounted right end.
				3. Mounting: Unit mounted left end.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following if a disconnect switch is required to simplify power shut-off when servicing air curtain. Delete if not selected.

* + - * 1. Disconnect Switch:

Provide fused disconnect.

Provide non-fused disconnect.

\*\* NOTE TO SPECIFIER \*\* Time delay relay is standard for units with gas heaters and recommended for doors which have frequent opening and closing cycles. Air curtain turns on when door is opened and shuts off after door is closed and the set delay time expires. Delete if this option if not required.

* + - * 1. Time Delay Relay: Adjustable from 0.1 second to 10 hour delay.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if an activation device is required in the panel on a project. Remote mounted is standard, factory installed is optional. START-STOP is not available in conjunction with door switch or time delay.

* + - * 1. Switching:

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs.

HAND-OFF-AUTOMATIC Switch: Panel mounted switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

START-STOP Switch: Panel mounted switch for manual start-stop push button operation.

ON-OFF Switch: Panel mounted switch for manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Select the following subparagraph to lockout heat on electric or gas heated units.

HEAT ON-OFF/SUMMER-WINTER Switch: Panel mounted switch to manually lock out heat operation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraphs for indirect gas fired heated units requiring single point power supply. Remote mounting is standard, unit mounted is available. Delete if not required.

* + - 1. Remote mounted Dry-type distribution transformer.
			2. Unit mounted Dry-type distribution transformer.
			3. Remote Activation Devices:

\*\* NOTE TO SPECIFIER \*\* Select the Remote Activation Devices required from the following paragraphs and delete those not required.

* + - * 1. Automatic Door Switch: Switch automatically activates unit when door opens and deactivates unit when door closes.
				2. HAND-OFF-AUTOMATIC Switch: Switch allows manual on-off operation or operation controlled by automatic door switch that activates unit when door opens and deactivates unit when door closes.

\*\* NOTE TO SPECIFIER \*\* START-STOP switch is not available in conjunction with either the door switch or time delay option.

* + - * 1. START-STOP Switch: Provides manual start-stop push button operation.
				2. ON-OFF Switch: Provides manual on-off operation.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph to lockout heat on electric or gas heated units

* + - * 1. HEAT ON-OFF / SUMMER-WINTER Switch: Provides manual lock out for heat operation.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph when specifying electric or gas heated units. Delete the following subparagraph if this option is not required.

* + - * 1. Thermostat: Prevents operation of heater when inside air temperature exceeds desired temperature.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph and insert text describing coordinating operational sequence of air curtain controls if required.

* + - * 1. Sequencing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	1. MOUNTING ACCESSORIES
		1. Provide brackets and other mounting accessories as required permitting installation and functioning of air door to meet project conditions of use.
		2. Mounting accessories
			1. Painted, aluminized or galvanized steel.
			2. Stainless steel.
		3. Mount Type:

\*\* NOTE TO SPECIFIER \*\* Use the following paragraph when top mounting is required.

* + - 1. Top mounting brackets constructed of steel with white painted enamel finish.

\*\* NOTE TO SPECIFIER \*\* For vertical installation only.

* + - 1. Floor Brackets.

\*\* NOTE TO SPECIFIER \*\* Use when support is not available for top mounting holes. Extends mounting holes 12 inches on either side of unit.

* + - 1. Extension Brackets.

\*\* NOTE TO SPECIFIER \*\* Use when opening exceeds 12 feet and multiple units are required-not exceeding 16 Feet combined.

* + - 1. Tandem Brackets.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until openings have been properly prepared.
		2. Verify required utilities are in correct location and of correct capacities for specified products.
		3. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. INSTALLATION
		1. Install air door/air curtain components in accordance with approved shop drawings and manufacturer's printed installation instructions.
		2. Install air doors plumb, level, and as close as practical to top of opening and face of wall.
		3. Install switches where indicated.

\*\* NOTE TO SPECIFIER \*\* Select the options required in the following paragraphs for the air curtain(s) specified and delete those not required.

* + 1. Connection of hot water supply to heater used in air curtains as specified in Division 15 - Plumbing:.
		2. Connection of steam supply to heater used in air curtains as specified in Division 15 - Heating, Ventilating, and Air-Conditioning (HVAC).
		3. Connection of electrical service and controls as specified in Division 16 - Electrical:
	1. CLEANING
		1. Clean prior to startup.
		2. Repair or repaint damage to finishes on exposed-to-view surfaces.
	2. FIELD QUALITY CONTROL
		1. Test and operate air door to be sure that it performs as intended.
		2. Adjust discharge nozzles as required for each opening.
	3. DEMONSTRATION
		1. Demonstrate the adjustment, operation, and maintenance of air curtains to Owner's personnel.
	4. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

\*\* NOTE TO SPECIFIER \*\* Use an Air Door Schedule to list requirements for each size, type, HP and power requirements of air door(s) required. For your convenience, a tabular Air Door Schedule can be downloaded at [www.berner.com/schedule](http://www.berner.com/schedule) , which can be inserted into drawings or appended to the specification. Delete if not required.

* 1. SCHEDULE
		1. Refer to Air Door Schedule appended to this section.

END OF SECTION