

FIRE DOOR LISTING PROGRAM

Customer: BASF SE
 Class: Fire Doors
 Location: Frankenthal, Germany
 Website: www.basf.com

Listing No. F411-1
 Project No. F411-1 Edition 8

Effective Date: October 12, 2012
 Last Revised Date: November 12, 2020

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| Standards: | CAN/ULC S104 UL 10B UL 10C NFPA 252 | Standard Method for Fire Tests of Door Assemblies. Fire Tests of Doors Assemblies. Fire Tests of Doors Assemblies. Standard Methods of Fire Tests of Door Assemblies. |
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Product: 90 min Rated Positive Pressure Fire Doors

Markings: See [FD001 - Fire Door Labeling requirements](#)

Models **90-MINUTE LAMINATED CORE PANEL AND FLUSH DOORS**

MAXIMUM DOOR SIZES:

Minimum 1-3/4" Thickness

| Swing Type: | Maximum Dimensions | | Panel Type: | Latching: |
|---------------------|--------------------|-------------------|----------------|-------------------|
| | Width: | Length: | | |
| Single Swing | 3'6" (1067 mm) | 9'0" (2743 mm) | Flat or Raised | Single or 2 Point |
| | 4'0" (1219 mm) | 7'0" (2134 mm) | | |
| Standard Pairs | 7'0" (2134 mm) | 8'0" (2438 mm) | Flat or Raised | 3 or 4 Point |
| | 8'0" (2438 mm) | 7'0" (2134 mm) | | |
| | 7'0" (2134 mm) | 9'0" (2743 mm) | Flush only | |
| Double Egress Pairs | See Below | | | |

Minimum 2-1/4" Thickness

| Swing Type: | Maximum Dimensions | | Panel Type: | Latching: |
|-------------|--------------------|---------|-------------|-----------|
| | Width: | Length: | | |
| | | | | |

| | | | | |
|----------------------------|-------------------|--------------------|----------------|---------|
| Single Swing | 4'0" (1219 mm) | 10'0" (3048 mm) | Raised only | 2 point |
| | 3'0 (914 mm) | 8'0" (2438 mm) | Flat or Raised | 2 Point |
| Standard Pairs | 8'0" (2438 mm) | 10'0" (3048 mm) | Raised only | 4 point |
| | 6'0" (1829 mm) | 8'0" (2438 mm) | Flat or Raised | 4 Point |
| Double Egress Pairs | 8'0" (2438 mm) | 10'0" (3048 mm) | Raised only | 4 point |

Note: All door constructions can be built as flush doors using flush faces, and flush doors can be V-Grooved as per Mfg Specifications. Door thickness may be increased to 2" or 2 1/4" by adding face material. All door constructions can be made as shallow arch construction.

Temperature rise

- @30 min = 250°F MAX where lights do not exceed 100 in²
- @60 min = 450°F MAX where lights do not exceed 100 in²

LATCHING METHODS

Single Point Latching – Cylindrical or Mortise latches and deadbolts, or rim type fire exit hardware for single swing doors, or active leaf of pairs when permitted.

Two Point Latching – Surface mount or Concealed vertical rod exit devices for single swing doors. Concealed vertical rod exit devices requires special door construction (see manufacturing specifications).

Three Point Latching – Single point latch for active leaf of standard pairs, Surface mount manual, or Mortise type or manual or automatic flush bolts, or surface mount vertical rod exit devices for inactive leaf of standard pairs.

Four Point Latching - Surface mount or concealed vertical rod exit devices for both leaves of pairs. Concealed vertical rod exit devices requires special door construction (see manufacturing specifications).

COMPONENTS (SEE APPENDIX B AND UL DIRECTORY FOR APPROVED HARDWARE):

Latch Sets (Listed and labeled for use in composite doors rated for 90 minutes, evaluated to UL 10C)

- Cylindrical Latches
 - Maximum 2-1/8" diameter bore
 - Maximum 2-3/4" backset

- Minimum ½” Throw
- Mortised Latch
 - Mortise pocket must be lined with Interdens intumescent on both sides of mortise case.
 - Cardlocks – see Appendix A
- **Deadbolts** (Listed and labeled for use in composite doors rated for 90 minutes, evaluated to UL 10C)
 - Maximum 2-1/8” diameter bore
 - Maximum 2-3/4” backset
 - Located a minimum of 3-1/2” center-line to center-line above the latch set
 - Interconnected Deadbolts are allowed

Hinges (Listed and labeled for rated opening)

- Hinges as per NFPA 80, Table 6.4.3.1.

Fire Exit Devices (Listed and labeled for use in composite doors and evaluated to UL 10C)

- Surface Mounted Vertical Rod Fire Exit Device.
- Rim Type Fire Exit Devices.
- Through-bolts are required.
- Concealed Vertical Rod [see Figure 5]:
 - Permitted in 2-1/4” thick flat or raised panel doors with Palusol SWR 90-2 core only.
 - Maximum door pairs size 72” x 96” (width x height).
 - Stiles: Palusol SWR 90-1 Core on both sides (minimum 5” wide).
 - Laminated rails and stiles are reinforced with the use of 5 through-bolts per slab.
 - Maximum allowable rod channel size : 7/8” x 7/8”.

Door Closers (Listed and labeled for rated opening)

- Surface Mounted Door Closers are required to be mounted with through-bolts
- Concealed Door Closers - Closer track only permitted in doors, [Not permitted in Double Egress Doors] [See Figures 3-4]. Concealed closers that mount in the door hinge edge permitted.

Surface Mounted Protection Plates

- Max 12” High.

Louvers

- Listed Louvers permitted to be installed in 1 ¾” door section thickness, and below latch level.

Metal Edges/Astragals (Listed and labeled for rated opening)

- Metal edges and Z-Astragal set for meeting edges of pairs (not required).

Viewers (Listed and labeled for rated opening)

- Maximum size of 1" diameter.
- Multiple viewers located a minimum of 12" on center.
- Viewers located a minimum 5-1/2" away from edges of doors
- Installed in 1 3/4" door section thickness.

Glass Lights

- Glazing material shall be listed and labeled for rated opening, light kit and door type.
- Glazing installed in accordance with NFPA 80, and the listed light kit frame installation instructions.
- Maximum 1080 sq. in. area (Max. Dimension of 36") with Listed Steel Lite Kit (Listed for use in composite doors and evaluated to UL 10C), using Listed ceramic glazing [See Figure 1].
- Maximum 600 sq. in. area (Max. Dimension of 30") with Listed 'Z' channel using Listed ceramic glazing [See Figure 1].

Plant-Ons

- MDF or solid wood plant-on moldings may be applied to one or both sides of a door.
- Adhesive and/or mechanical fasteners with a maximum penetration of 3/4".
- Moulding may not be applied closer than 3-1/2" to edge of door, edge of light or edge of hardware cutout.

Electric Raceway

- Allowed (Refer to F411-90-1-MFG Specification).

Concealed Vertical Rod

- Permitted in 2-1/4 inch door thickness only (Refer to F411-90-1-MFG Specification)

Door Bottoms Seals [Double Egress Doors - Surface mounted only]

- Surface Mounted Snap-In in dual durometer vinyl with bulb and fins or with all fins
- Semi-mortised, or full-mortised bottom seals may be used [See Figure 2].
- Cutout dimensions are restricted to 1" wide and 1-3/4" deep x full width of the door.

Door Flush Bolts (Listed and labeled for rated opening)

- Concealed manual or automatic flush bolts.
- Cutout dimensions limited to 1" wide x 8-1/2" long x 2" deep [See Figure 6].
- One layer of BASF Palusol SW 20-1 on each side of the flush bolt pocket [See Figure 6].

Surface Mounted Hardware

- Permitted

Notes: *Refer to QAI evaluation report F411-1 and the applicable test reports for test assembly configurations used for fire endurance testing.*

Refer to the [QAI FD002 - Fire Door Guidelines for general guidelines of fire door assemblies](#)

Final acceptance of the product in the intended application is to be determined by the authority having jurisdiction (AHJ).

Product is to be installed in accordance with the manufacturer's published installation instructions by qualified installing personnel.

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