

## FIRE DOOR LISTING PROGRAM

Customer: BASF SE  
 Class: Fire Doors  
 Location: Frankenthal, Germany  
 Website: [www.basf.com](http://www.basf.com)

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

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

Standards: CAN/ULC S104	<i>Standard Method for Fire Tests of Door Assemblies.</i>
UL 10B	<i>Fire Tests of Doors Assemblies.</i>
UL 10C	<i>Fire Tests of Doors Assemblies.</i>
NFPA 252	<i>Standard Methods of Fire Tests of Door Assemblies.</i>

Product: 45 min Rated Positive Pressure Fire Doors

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

Models: **45-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)	Flush, Flat or Raised, Glazed	Single point or 2 point
	4'0" (1219 mm)	8'0" (2438 mm)		
Full Arched Top Single Swing	3'6" (1067 mm)	9'0" (2743 mm)	Flush, Flat or Raised	3 or 4 point
Standard Pairs†	7'0" (2134 mm)	8'0" (2438 mm)	Flush, Flat or Raised, Glazed	
	8'0" (2438 mm)	7'0" (2134 mm)		
Double Egress Pairs	7'0" (2134 mm)	8'0" (2438 mm)	Flush, Flat or Raised	4 point, Concealed or Surface Mounted

†Standard Pairs require a mid-rail

**Note:** 1 3/4" thick doors can be increased to 2" or 2 1/4" by adding face material thickness

**Minimum 2-1/4” Slab Thickness**

Swing Type:	Maximum Dimensions		Panel Type:	Latching:
	Width:	Length:		
Single Swing	4'0" (1219 mm)	10'0" (3048 mm)	Flat or Raised	2 point, (surface mounted)
Standard Pairs	8'0" (2438 mm)	10'0" (3048 mm)	Flat or Raised	4 point, (surface mounted)
Double Egress Pairs	7'0" (2134 mm)	8'0" (2438 mm)	Flat or Raised	4 point, Concealed or Surface Mounted

**Temperature rise**

- @30 min = 250°F MAX where lites do not exceed 100 in<sup>2</sup>

**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 and is acceptable per the manufacturing specifications.

**Three Point Latching** – Single point latch for active leaf of standard pairs, Surface mounted manual, or Mortise type or manual or automatic flush bolts, or surface mount fire exit hardware 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 and is acceptable per the manufacturing specifications.

**Communicating Doors installed in a communicating Frame**

Two 1 3/8” thick doors shall be installed into the same communicating door frame to achieve 45 min rating.

Swing Type:	Maximum Dimensions		Panel Type:	Latching:
	Width:	Length:		
Single Swing Only	3'0" (914 mm)	7'0" (2134 mm)	Flush only	Single Point

**CATEGORY “A” AND “B” DOORS**

**CATEGORY “A” DOORS** CONTAIN INTUMESCENT IN THE DOOR VERTICAL EDGES AND HEADER. THE TOP OF DOOR WILL BE MARKED “CATEGORY A” OR “CATEGORY B”.

**CATEGORY “B” DOORS** AND DOORS CONFORMING TO CAN/ULC S 104 DO NOT REQUIRE THE DOOR EDGE INTUMESCENT FOR SINGLE SWING DOOR APPLICATIONS, INTUMESCENT IS OPTIONAL. FOR DOORS SWINGING IN PAIRS, INTUMESCENT IS REQUIRED AT THE MEETING EDGES ONLY.



## **Latch Sets** (Listed and labeled for wood and composite doors, 45 minute rated, and UL 10C)

- Cylindrical Latches
  - Maximum 2-1/8" diameter bore
  - Maximum 2-3/4" backset
  - Minimum 1/2" throw
  - Assa Abloy Hospitality AS – Vingcard Hardware
    - "VingCard 810" with 1/2 in. latch bolts.
- Mortised Latch
  - See Appendix B for Listed cardlock type units
  - Mortise locks and latches shall be Listed for use in wood or composite doors, at least 45 minute fire rated and evaluated to UL10C.

## **Deadbolts** (Listed and labeled for wood and composite doors, 45 minute rated and 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
- Mortised Deadbolt – see Mortised Latch Set section above

## **Hinges** (Listed and labeled for use in wood and composite doors)

- Hinges as per NFPA 80, Table 6.4.3.1
- Concealed hinges – see Figure 10

## **Fire Exit Devices** (Listed and labeled for rated opening)

- Surface Mounted Vertical Rod Fire Exit Device
- Concealed Vertical Rod Fire Exit Device [See Figure 8]
- Rim Type Fire Exit Devices
- Through-bolts are required unless optional reinforcements are noted on the marking top of the door

## **Door Veneers and Inlays (Optional)**

### **Flush Doors:**

- Plastic Laminate (up to 1/16" thick).
- Wood Veneer (up to 1/16" thick).
- Metal Foil (up to 1/16" thick).
- Paper Finish (up to 1/16" thick).
- Fiberglass Reinforced Polymer (FRP) (up to 1/16" thick).
- Vinyl (up to 1/16" thick).
- Lead (up to 1/32" thick).

### **Recessed Panel Doors:**

- Plastic Laminate (up to 1/16" thick).
- Wood Veneer (up to 1/16" thick).
- Metal Foil (up to 1/16" thick).
- Paper Finish (up to 1/16" thick).
- Glass Mirror (up to 1/8 1/4" thick).

### Face Grooves

- Permitted for flush doors.

### Door Closers (Listed and labeled for rated opening)

- Surface Mounted Door Closers are required to be mounted with through-bolts
- Concealed Door Closers [See Figures 6 and 7]

### Surface Mounted Protection Plates

- Permitted

### Louvers

- Listed louvers are permitted when installed below the latch elevation

### Metal Edges/Astragals – Optional

- Listed and labeled for rated opening
- Metal edges not permitted for positive pressure “Category A” applications
- Surface applied astragals are optional for all applications

### 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.
- Viewers shall be installed in 1 3/4” thick door section

### Glass Lights (Listed and labeled for rated opening)

- 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. See Figures 1 to 4 for glazing assembly limitations.

### Glazing Options

#### Steel Lite Kit (45 minute rated door construction, singles or pairs except double egress)

- Maximum 1296 sq. in. area (Max Dimension of 54”) with Listed Steel Lite Kit or ‘Z’ channel using Listed ceramic and wire glazing [See Figure 3].
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- **BASF SE Glazing Clip System (60 minutes rated door construction, singles or pairs except double egress)**
  - Maximum 1296 sq. in. area (Max Dimension of 54”) using Listed wire glazing [See Figure 1].
  - Maximum 2656 sq. in. area (Max Dimension of 83”) using Listed 3/16” ceramic glazing [See Figure 1].
    - Maximum 9/16” x 9/16” Square wood stops made MDF or solid wood with specific gravity  $\geq 0.44$  @ 12% MC. (27 PCF density) (Stops can be made of any profile that fits within the 9/16” x 9/16” square dimension).
    - Single layer of PVC encapsulated Palusol 100 (Between the stop and the glass).
    - Applied Grills are permitted with PVC encapsulated Palusol 100 behind the grill.



- Maximum 2752 sq. in. area (Max Dimension of 86") using Listed 3/16" ceramic glazing [See Figure 2].
  - Maximum 9/16" x 9/16" Square wood stops made MDF or solid wood with specific gravity  $\geq 0.44$  @ 12% MC (27 PCF density). (Stops can be made of any profile that fits within the 9/16" x 9/16" square dimension).
  - Single layer of PVC encapsulated Palusol 100 (Between the stop and the glass and between the stop and the door).
  - Applied Grills are permitted with PVC encapsulated Palusol 100 behind the grill.

#### 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

#### Door Bottoms Seals (Listed and labeled for use with 45 minute wood doors)

- 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 5 for details]
- Cutout dimensions are restricted to 1" wide and 1-3/4" deep x full width of the door.

#### Electric Raceway

- Permitted (Refer to F411-45-1-MFG Specification)

#### Concealed Vertical Closer

- Permitted (Refer to F411-45-1-MFG Specification)

#### Door Flush Bolts (Listed and labeled for use with 45 minute wood doors)

- Mortise manual flush bolts
- Mortise automatic flush bolts. Cutout dimensions limited to 1" wide x 8-1/2" long x 2" deep. [See Figure 9].
- Top bolt extension rods are acceptable, with rod channels as per CVR construction (Door shall be specially constructed for flush bolt extensions per F411-45-1-MFG Specification).

#### Surface Mounted Hardware

- Permitted

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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.*



# LABORATORIES

CERTIFICATION TESTING INSPECTION

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WASHINGTON, DC: 540.636.9445 ph. | 540.636.9414 fx.  
TULSA, OK: 918.437.8333 ph. | 918.437.8487 fx.  
TORONTO, ON: 416.550.9280  
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