

Design Guidelines:

Application

Composite core type fire doors for use in locations rated up to 90 minutes. For use in any "Category C-Standard" frame. These doors may also be installed in frames listed in "Category C-Proprietary" in accordance with the door manufacturer's installation instructions. Field-applied Edge Seal System is not required except in Category B door systems described in the Manufacturing section of this report.

Doors labeled for positive pressure applications must include installation instructions to be furnished by the door labeler. Unless otherwise noted in the door's installation instructions all intumescent materials and smoke/draft control gasketing used in the assembly are to be installed per their respective manufacturer's instructions.

Limitations

- All doors shall be flush type with a minimum thickness of 1-3/4" ($\pm 1/16$ ")
- Core thickness 1-1/2" ($\pm 1/16$ ") nominal
- Max 5 piece core single swing, 3 per leaf pairs
- Single swing stiles minimum 2" wide + Palusol P-100 + 0.090" FRP edge
- Standard pairs stiles minimum 2" hinge stile, 3" meeting stile + Palusol P-100 + 0.090" FRP edge
- Top rail minimum 6" + Palusol P-100 + 0.090" FRP edge, bottom rail minimum 4-1/2" + 0.090" FRP edge
- Vision Lite Kits: 20 to 45 min. rated doors max 616 in.² D.L.O. each lite, max 1232 in.² total D.L.O., 60 & 90 min. rated doors max 100 in.² D.L.O when using wired glass, max 704 in.² D.L.O. when using Fire Rated Ceramic Type Glass.
- Glass over 100 in.² voids temperature rise requirements per NFPA 80.
- Stainless steel edge guard optional
- Rated for a maximum temperature rise - < 250 °F at 30 minutes
- Rated for a maximum temperature rise - < 450 °F at 60 minutes

Plant-ons

Not allowed

Hardware

Preparation shall be made in accordance with NFPA 80, Paragraph 1-3.4. Only hardware listed and labeled for use with **WOOD** fire doors may be installed.

- **Hinges**
 - Per NFPA 80, Table 2-4.3.1
 - Continuous Hinges
 - Spring hinges per NFPA 80
- **Latchsets**
 - Min. latch bolt throw shall be 3/4" unless otherwise noted
 - **Cylindrical**
 - Max bore: 2-1/8", Max backset 5"
 - **Mortise**
 - Max cutout 1-1/16" wide x 4-1/2" deep x 6" long
 - **Fire Exit Devices**
 - Surface-mounted vertical rod
 - Less bottom rod 45 min. or lower durations with door to door or door to floor fire pen on both leaves
 - Rim-type surface-mounted
- **Deadlock**
 - Cylindrical with a max 2-1/8" diameter bore located a minimum of 5" above latch cutout
 - Mortise deadlock is allowed (refer to Mortise Latchset for cutout) located a minimum of 5" above latch cutout

Design Guidelines (cont.):

- **Door Bolts**
 - Surface-mounted manual
 - Active leaf may possess only bottom surface-mount bolt as long as 4-point latching is maintained
- **Automatic Door Bottoms**
 - Surface-mounted
 - Mortise door bottoms permitted when a minimum 4" tectonite bottom rail is used
- **Closing Devices**
 - Surface-mounted installed with through bolts or wood screws may be used
- **Viewers**
 - Listed viewers may be used
- **Protection Plates**
 - Plates of brass, bronze, steel, aluminum, polycarbonate or decorative laminate may be installed on one or both sides of the door. Maximum 12" in height or dimension of bottom rail.
- **Astragal**
 - Not required, wood astragal may be added if desired.

Vision Lites

- 60 to 90 min.
 - Max Area (D.L.O.): 704 in²
 - Max Height (D.L.O.): 32"
 - Max Width (D.L.O.): 22"
- 20 to 45 min.
 - Max Area (D.L.O.) Each Lite: 616 in²
 - Max Total Area (D.L.O.): 1232 in²
 - Max Height (D.L.O.): 28"
 - Max Width (D.L.O.): 22"
- Wired Glass
 - Max Area (D.L.O.): 100 in²
 - Max Height (D.L.O.): 10"
 - Max Width (D.L.O.): 10"

Multiple lites are allowed when the sum of the areas do not exceed the tested maximum area or the maximum height and width limitations. No lite cutout may come within 5" of the door edge or the edge of any other cutout in the door. Only fire-rated glazing installed in fire-rated vision lites, listed and labeled for use in wood fire doors shall be used. The glass shall be installed in accordance with NFPA 80 and the vision lite installation instructions.

Edge-Sealing System

Pemko HSS 2000xS88 (or listed and labeled equivalent) is field-applied to jambs and head. Pemko S771 (or listed and labeled equivalent) smoke seal is applied to meeting edges.

Louvers

Max width: 24", Max Height: 24", Max Area: 576 in²

Raceways

- Maximum size 3/8" x 3/8" bore.
- Raceways to be centered in the door core thickness no more than 40" above the bottom of the door edge.
- Raceways must be installed by certified raceway installer or core manufacturer.

EPT Units

• Electrical power transfer units are allowed between the top and middle hinge locations. A maximum of 1/16" clearance (per side) is allowed when mortising into the tectonite stile for EPT unit location. Unit location will be placed to coordinate with EPT raceway. EPT units are limited to maximum 60 min. positive pressure and neutral pressure applications. Intumescent caulk or strips are required on bottom, top, and side of EPT device.

Design Guidelines (cont.):

Clearances

- A maximum 1/8" clearance between the frame and the door is allowed.
- A maximum 3/16" clearance between the leaves of pairs is allowed.

Final Checklist:

Single swing or standard pair

D.O. is $\leq 48" \times 96"$ for single door or $\leq 96" \times 96"$ for double doors

Undercut $\leq 3/4"$

Hinge clearance $\leq 1/8"$ unless otherwise specified by hardware manufacturer

Lock clearance $\leq 1/8"$ (3/16" between pairs)

Head clearance $\leq 1/8"$

Rim x Rim w/listed mullion (90 min.), 4-point latching (90 min.) or separating mullion

Raceways horizontal from device to hinge or EPT and $\leq 40"$ from bottom of door

Vision Lites sized correctly

Face sheet is Pebble FRP, Sandstone Texture FRP, Contemporary Woodgrain FRP, or Rustic Woodgrain FRP

Louvers sized correctly

ESTIMATOR

DETAILER

PRODUCTION