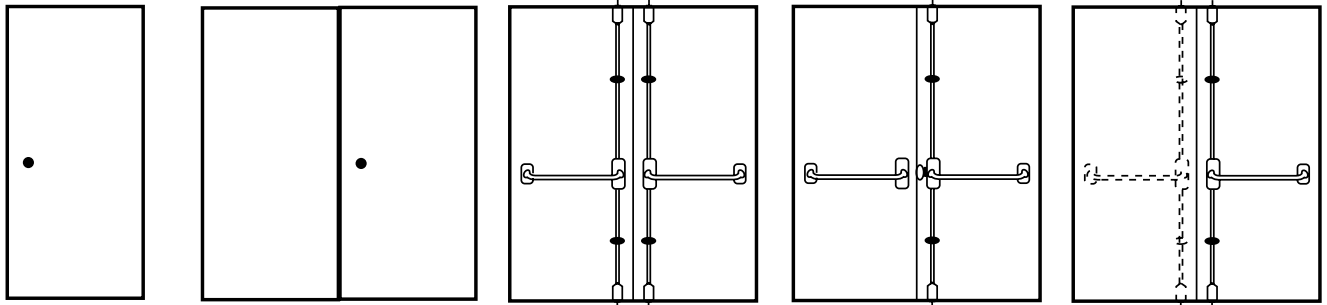


STEELCRAFT®

FIRE RATED DOORS

Typical Elevations



FIRE RATED STEEL DOORS:

Doors covered in this section have been tested in accordance with UBC 7-2 1997 and UL 10C, and listed by either Underwriters Laboratories Incorporated (UL) or Warnock Hersey (WH). The ratings and sizes available are shown on the following pages.

Listed Steelcraft doors are for all commercial building applications. Variations in hardware and glass lites must be considered in the selection of the correct door construction.

LITES AND LOUVERS:

Fire rated doors can be prepared for glass lites. The required hourly rating will dictate the approved glass lites available. All glass used in fire rated doors must be listed glass, and be either 1/4" wire or other listed material. Basic guidelines on glass are as follows:

- 3 hour** - flush door, no glass. (See Note 1)
- 1½ hour** - 100 sq. in. per door leaf max. (See Note 2)
- ¾ hour** - 1296 sq. in. per lite with neither dimension exceeding 54", unless listed otherwise. (See Note 3)
- 20 minute** - 1296 sq. in. per lite with neither dimension exceeding 54", unless listed otherwise

Fire rated doors can be prepared for one listed fusible link louver, and are available in ¾ hour and 1½ hour listings.

DOOR LITE DESIGNS:

Fire rated doors are available in the following door designs:

- F = Flush door** with no glass cutout. 3 hour maximum listing.
- V = Vision lite** with a nominal 100 sq. in. located in the upper half of the door. 1½ hour maximum listing.
- N3, N4, N5 = Narrow lite variations**, which are 100 sq. in. exposed glass area, and located at eye level, near the lock edge. 1½ hour maximum listing.
- N = Narrow lite** varies with the door height, exceeds 100 sq. in. of exposed glass area, and is located near the lock edge. ¾ hour or 20 min. maximum listing.
- G = Half glass lite** (size will vary with the door size) located in the upper half of the door. ¾ hour or 20 min. maximum listing.
- FG = Full glass** 20 minute w/o hose stream.
- FG2/FG3 = Full glass with multiple lites** (size will vary with the door size). ¾ hour or 20 min. maximum listing.

TEMPERATURE RISE RATINGS:

In accordance with the products listed for UBC 7-2 1997, all Fire Doors must carry a temperature rise rating. The Steelcraft doors are rated for temperature rise as follows:

250°F or 450°F temperature rise = T-Series

Over 650°F temperature rise = L, B, CE, A and AN-Series

APPROVED DOOR SERIES:

Doors covered in this section are L, CE, B, T, A, and AN-Series. Regardless of the door series being used, all doors must be installed with labeled hardware, and into labeled frames and firewalls.

LISTING INFORMATION COVERED:

All listings covered in this section are for reference and assistance in developing overall parameters of approvals. Several variables such as glass lites, hardware, wall construction and application will effect the fire ratings. Individual manufacturer's listings will take precedence.

All listings shown in this section conform to the requirements of UBC 7-2 1997 and UL 10C.

INSTALLATION:

Installation of all Steelcraft doors shall conform to the published Steelcraft installation instructions, SDI 105 *Recommended Installation Instructions for Steel Frames* and ANSI/DHI A115-IG *Installation Guide for Doors and Hardware*. All fire rated frames must be installed in accordance with NFPA Pamphlet 80, and/or the local *Authority Having Jurisdiction*.

NOTES:

1. 100 square inches (.06 square meters) maximum of glass is permitted on 3 hour L, B, & T series doors if Fire Lite glazing material is used. Maximum width of 12" (305 mm) or height of 33" (838mm).
2. 1296 square inches (.84 square meters) maximum of glass is permitted on 1½ hour L & B series doors if Fire Lite glazing material is used. Maximum width of 36" (914 mm) or height of 54" (1372mm).
3. ¾ hour doors may have multiple lites provided the limits of 1296 square inches and 54 inches are not exceeded.

Details are subject to change without prior notice.

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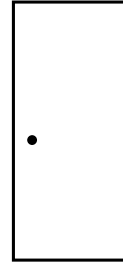
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Spec Manual
Rev. 5/2002

FR3-1

SINGLE DOORS WITH SINGLE POINT LOCKS AND LATCHES

Door Series	Maximum Rating	Maximum Door Size		
		UL	WH	
L20	3 hour	3'0" x 7'2"	3'0" x 7'2"	
L18, L16	3 hour	4'0" x 8'0"	4'0" x 8'0"	
L14	3 hour	4'0" x 8'0"	4'0" x 7'2"	
B18, B16	3 hour	4'0" x 10'0"	Not listed	
B14	3 hour	4'0" x 8'0"		
CE20	3 hour	3'0" x 7'0"		
CE18	3 hour	3'8" x 7'0" / 3'0" x 8'0"		
CE16	3 hour	3'0" x 8'0"		
T18, T16, T14	3 hour	4'0" x 8'0"		
T20	3 hour	3'0" x 8'0"		
CE20	1½ hour	3'0" x 8'0"		
L18, L20	1½ hour	4'0" x 8'0"		4'0" x 9'0"
L20	1½ hour	3'0" x 8'0"		3'0" x 8'0"
B14	1½ hour	4'0" x 10'0"	Not listed	
A16 ²	¾ hour	4'0" x 8'0"		
A16	20 Min w/o hose stream	4'0" x 8'0"		



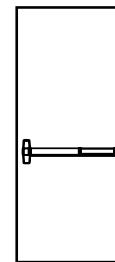
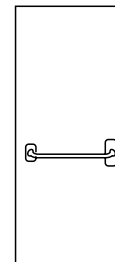
Minimum hardware requirements:

- Single point lock/latch
- Closer
- Approved hinges

NOTE: 1. L-Series door construction with honeycomb or polystyrene core.
2. A-Series are available in FG2 and FG3 designs.

SINGLE DOORS WITH MORTISE OR RIM FIRE EXIT HARDWARE

Door Series	Maximum Rating	Maximum Door Size		
		UL	WH	
L20	3 hour	3'0" x 7'2"	3'0" x 7'2"	
L18, L16	3 hour	4'0" x 8'0"	4'0" x 8'0"	
L14	3 hour	4'0" x 8'0"	Not listed	
B18, B16	3 hour	4'0" x 10'0"		
B14	3 hour	4'0" x 8'0"		
CE20	3 hour	3'0" x 7'0"		
CE18	3 hour	3'8" x 7'0" / 3'0" x 8'0"		
CE16	3 hour	3'0" x 8'0"		
T18, T16, T14	3 hour	4'0" x 8'0"		
T20	3 hour	3'0" x 8'0"		
L18, L16	1½ hour	4'0" x 8'0"		4'0" x 9'0"
B14	1½ hour	4'0" x 10'0"		Not listed
A16 ²	¾ hour	4'0" x 8'0"		
AN16 ^{2,3}	¾ hour	4'0" x 8'0"		
A16	20 Min w/o hose stream	4'0" x 8'0"		
AN16 ³	20 Min w/o hose stream	4'0" x 8'0"		



Rim Fire Exit Device Mortise Fire Exit Device

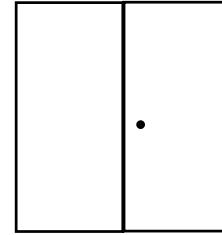
Minimum hardware requirements:

- Rim or mortise Fire Exit Hardware
- Closer
- Approved hinges

NOTES: 1. L-Series door construction with honeycomb or polystyrene core.
2. A and AN-Series are available in FG2 and FG3 designs.
3. AN-Series with rim Fire Exit Hardware only.

PAIRS WITH ASTRAGAL – ACTIVE LEAF WITH SINGLE POINT LOCK OR LATCH

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16	3 hour	8'0" x 8'0"	8'0" x 8'0"
L14	3 hour	8'0" x 8'0"	8'0" x 7'2"
B18, B16, B14	3 hour	8'0" x 8'0"	Not listed
B18, B16, B14	1½ hour	8'0" x 10'0"	
CE18	3 hour	7'4" x 7'0"	
CE16, 18	3 hour	6'0" x 8'0"	
T18, T16, T14	3 hour	8'0" x 8'0"	
T20	3 hour	6'0" x 8'0"	
L18, L16	1½ hour	8'0" x 8'0"	
L20	1½ hour	6'0" x 7'2"	6'0" x 7'2"
CE20	1½ hour	6'0" x 7'0"	Not listed
A16 ²	¾ hour	8'0" x 8'0"	
A16	20 Min	8'0" x 8'0"	



Minimum hardware requirements:

Active leaf

- Single point lock/latch
- Closer
- Approved hinges

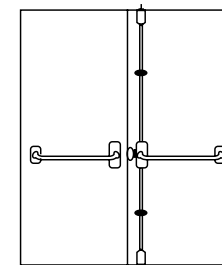
Inactive leaf

- Strike preparation
- Flush, surface or auto bolts
- Approved hinges

- NOTES:** 1. L-Series door construction with honeycomb or polystyrene core.
2. A-Series are available in FG2 and FG3 designs.

PAIRS WITH ASTRAGAL – ACTIVE LEAF WITH MORTISE FIRE EXIT HARDWARE INACTIVE LEAF WITH VERTICAL ROD FIRE EXIT HARDWARE

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16	3 hour	8'0" x 8'0"	8'0" x 8'0"
B18, B16, B14	3 hour	8'0" x 8'0"	Not listed
CE18	3 hour	7'4" x 7'0"	
CE16, 18	3 hour	6'0" x 8'0"	
T18, T16, T14	3 hour	8'0" x 8'0"	
T20	3 hour	6'0" x 8'0"	
L14	3 hour	8'0" x 8'0"	
L20	1½ hour	6'0" x 7'2"	6'0" x 7'2"
L18, L16	1½ hour	8'0" x 8'0"	8'0" x 9'0"
CE20	1½ hour	6'0" x 7'0"	Not listed
B18, B16, B14	1½ hour	8'0" x 10'0"	
A16 ²	¾ hour	8'0" x 8'0"	



Minimum hardware requirements:

Active leaf

- Mortise fire exit hardware
- Closer
- Approved hinges

Inactive leaf

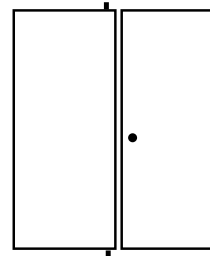
- Surface or concealed vertical rod fire exit hardware
- Strike preparation
- Closer
- Approved hinges

Coordinator is required

- NOTES:** 1. L-Series door construction with honeycomb or polystyrene core.
2. A-Series are available in FG2 and FG3 designs.

PAIRS WITHOUT ASTRAGAL – ACTIVE LEAF WITH SINGLE POINT LOCK OR LATCH

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16	1½ hour	8'0" x 7'2"	8'0" x 7'2"
B18, B16, B14	1½ hour	8'0" x 8'0"	Not listed
CE18	1½ hour	7'4" x 7'0"	
CE16	1½ hour	6'0" x 7'0"	



NOTE: 1. L-Series door construction with honeycomb or polystyrene core.

Minimum hardware requirements:

Active leaf

- Single point lock/latch
- Closer
- Approved hinges

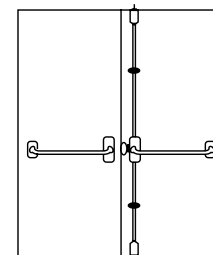
Inactive leaf

- Strike preparation
- Flush, surface or auto bolts
- Approved hinges

Coordinator is required

PAIRS WITHOUT ASTRAGAL – ACTIVE LEAF WITH MORTISE FIRE EXIT HARDWARE INACTIVE LEAF WITH VERTICAL ROD FIRE EXIT HARDWARE

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16	1½ hour	8'0" x 7'2"	Not listed
CE18	1½ hour	7'4" x 7'0"	
CE16	1½ hour	6'0" x 7'0"	



NOTES: 1. L-Series door construction with honeycomb or polystyrene core.

Minimum hardware requirements:

Active leaf

- Mortise fire exit hardware
- Closer
- Approved hinges

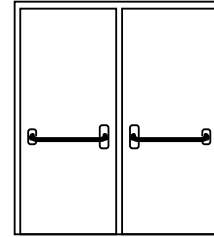
Inactive leaf

- Surface or concealed vertical rod fire exit hardware
- Open back strike preparation
- Closer
- Approved hinges

Coordinator is required if an open back strike is not used

DOUBLE DOORS – WITH REMOVABLE MULLIONS

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16	3 hour	8'0" x 8'0"	8'0" x 8'0"
L14	3 hour	8'0" x 8'0"	8'0" x 7'2"
B18, B16	3 hour	8'0" x 10'0" ⁶	Not listed
B14	3 hour	8'0" x 8'0"	
CE18	3 hour	7'4" x 7'0"	
CE16, 18	3 hour	6'0" x 8'0"	
T18, T16, T14	3 hour	8'0" x 8'0"	
L18, L16	1½ hour	8'0" x 8'0"	
T20	3 hour	6'0" x 8'0"	Not listed
L20	1½ hour	6'0" x 7'2"	6'0" x 7'2"
B14	1½ hour	8'0" x 10'0" ⁶	Not listed
CE20	1½ hour	6'0" x 7'0"	
A16 ^{2,3}	¾ hour	8'0" x 8'0"	
AN16 ^{2,3}	¾ hour	8'0" x 8'0"	
A16	20 Min w/o hose stream	8'0" x 8'0"	
AN16 ³	20 Min w/o hose stream	8'0" x 8'0"	



Minimum hardware requirements:

Both leaves

- Rim Fire Exit Hardware (alternate listed lock/latch)
- Closers
- Approved hinges

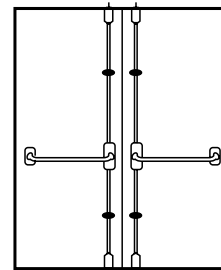
Removable mullion

- Hardware mullion, 3 hour maximum
- Steelcraft mullion, 1½ hour maximum

- NOTES:**
1. L-Series door construction with honeycomb or polystyrene core.
 2. A and AN-Series are available in FG2 and FG3 designs.
 3. AN-Series with rim Fire Exit Hardware only.
 4. For door with fixed mullions, refer to single door listings.
 5. Steelcraft removable mullions are listed for 1½ hour maximum, and maximum 8'0" door height.
 6. Check hardware manufacturers listings for maximum rating and height.

PAIRS WITHOUT ASTRAGAL – VERTICAL ROD FIRE EXIT HARDWARE

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16	1½ hour	8'0" x 8'0"	8'0" x 9'0"
B18, B16, B14	1½ hour	8'0" x 10'0"	Not listed
CE18	1½ hour	7'4" x 7'0"	
CE18, CE16	1½ hour	6'0" x 8'0"	
A16 ⁴	¾ hour	8'0" x 8'0"	
AN16 ⁴	¾ hour	8'0" x 8'0"	
A16 ²	20 Min w/o hose stream	8'0" x 8'0"	
AN16 ²	20 Min w/o hose stream	8'0" x 8'0"	
T18 ³ , T16 ³	1½ hour	8'0" x 8'0"	



Minimum hardware requirements:

Both leaves

- Surface or concealed vertical rod Fire Exit Hardware
- Closers
- Approved hinges

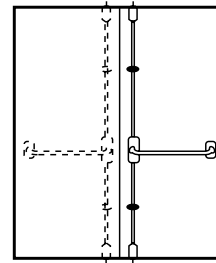
NOTE: Astragals cannot be used on these assemblies

- NOTES:**
1. L-Series door construction with honeycomb or polystyrene core.
 2. A and AN-Series are available in FG, FG2 and FG3 designs.
 3. 450° Temperatures rise at 30 minutes.
 4. A and AN-Series are available in FG2 and FG3 designs.

DOUBLE EGRESS DOORS

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16 ²	3 hour	8'0" x 8'0"	8'0" x 7'2"
B18, B16 ²	3 hour	8'0" x 8'0"	Not listed
L18, L16	1½ hour	8'0" x 8'0"	8'0" x 8'0"
L20 ³	1½ hour	6'0" x 7'2"	Not listed
B18, B16 ⁴	1½ hour	8'0" x 10'0"	

- NOTES:**
1. L-Series door construction with honeycomb core.
 2. Astragal is required on 3 hour openings.
 3. Astragal is required on all hourly ratings/L20 series.
 4. Astragal is required for over 8'0".



Minimum hardware requirements:

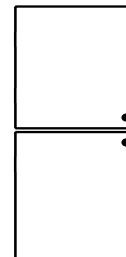
Both leaves

- Surface or concealed vertical rod Fire Exit Hardware
- Closer
- Approved hinges

DUTCH DOORS

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L18, L16	3 hour	4'0" x 7'2"	4'0" x 7'2"

- NOTES:**
1. L-Series door construction with honeycomb or polystyrene core.
 2. Maximum exposed glass lite of 100 square inches for 1½ hour or less.
 3. Bottom leaf approved with either cylindrical or mortise type locks.
 4. Dutch door shelf is optional. ½ shelf only
 5. Top leaf must include a listed cylindrical lock or latch.
 6. Top leaf may latch into strike jamb or bottom leaf.



Minimum hardware requirements:

Top leaf

- Listed cylindrical lock/latch
- Closer
- Approved hinges

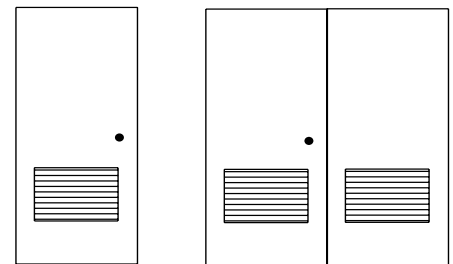
Bottom leaf

- Listed lock/latch

FUSIBLE LINK LOUVER DOORS

Door Series	Maximum Rating	Maximum Door Size	
		UL	WH
L20	1½ hour	3'0" x 8'0"	3'0" x 8'0"
L18, L16	1½ hour	4'0" x 8'0"	4'0" x 8'0"
L14	1½ hour	4'0" x 8'0"	4'0" x 8'0"
B18, B16, B14	1½ hour	4'0" x 10'0"	Not listed
L20	1½ hour	6'0" x 8'0"	6'0" x 7'2"
L18, L16	1½ hour	8'0" x 8'0"	8'0" x 7'2"
B18, B16, B14	1½ hour	8'0" x 10'0"	Not listed
L14	1½ hour	8'0" x 8'0"	8'0" x 7'2"

- NOTES:**
1. L-Series door construction with honeycomb or polystyrene core.
 2. Louver must be a listed fusible link louver.
 3. Hardware is limited to single point lock/latch.
 4. Maximum louver size is 24" x 24" (607mm x 607mm) *per door leaf*.
 5. Doors with fusible link louvers cannot be used with Fire Exit Hardware.
 6. Doors with fusible link louvers cannot have glass lites
 7. Louver must be located at the bottom of the door. (one per door)
 8. Pairs require an Astragal.



Minimum hardware requirements:

Single door or active leaf

- Single point lock/latch
- Closer
- Approved hinges

Inactive leaf

- Strike preparation
- Flush, surface auto bolts
- Approved hinges