Fleming Door Series Descriptions
BR-Series Fully Welded, Welded Vertical Steel Stiffeners and Fiberglass Core, Bullet-Resistant Reinforced Face Door
CW-Series Fully Welded, Seamless Edge, Honeycomb, Polystyrene or Polyisocyanurate Core Door
D-Series Lock Seam, Honeycomb, Polystyrene or Polyisocyanurate Core Door
DSS-Series Lock Seam, Polystyrene Core, Stainless Steel Door
E-Series Lock Seam, Polystyrene Core, 6 Panel Embossed Face Sheet Door
H-Series Fully Welded, Seamless Edge, Welded Vertical Steel Stiffeners and Fiberglass Core Door
LD-Series Lock Seam, Honeycomb and Lead-Lined Composite Core Door
S-Series Fully Welded, Welded Vertical Steel Stiffeners and Fiberglass Core Detention Security Door
SD-Series Lock Seam, Composite Sound Core Door
SL-Series Visible Center Seam, Polystyrene Core, Textured Wood Grain, Stained Face Sheet Door
SLE-Series Visible Center Seam, Polystyrene Core, Textured Wood Grain, Stained 6 Panel Embossed Face Sheet Door
TR-Series Lock Seam, Temperature Rise Rated Core Door
TRE-Series Lock Seam, Temperature Rise Rated Core, 6 Panel Embossed Face Sheet Door
TRSL-Series Visible Center Seam, Temperature Rise Rated Core, Textured Wood Grain, Stained Face Sheet Door
INTRODUCTION

Fleming’s "Fire Labeling Specifications" is intended to assist design, specification and related professionals involved in commercial, industrial, institutional and detention security construction throughout North America. It provides a definitive source of information regarding fire labeled steel doors and frame product. The information contained in this publication has been compiled from testing authority listings, procedures and policies, NFPA 101, the "Life Safety Code", NFPA 80, "Fire Doors and Windows", industry and National Standards.

This document was first published in 1983. This 2004 edition, the 10th revision, has been updated extensively to reflect the evolution of code and test requirements, as well as the products now available to meet these demands.

Sections have been added to review and clarify Code and Listing Organization fire test methods, Fleming’s UL and WHI distributor In-Plant Labeling Programs (IPLP) and Fleming’s labels. As well, several tables have been incorporated to detail the requirements and the availability of labeled glazing materials permitted in Fleming’s products.

Finally, a new section, devoted entirely to hardware, as it relates to fire doors and frame product, has been included.

GENERAL REQUIREMENTS - FIRE DOOR ASSEMBLIES

Over-View, Code and Listing Organization Requirements

1. Although applicable to all steel doors and frames, for the purposes of this publication, the requirements detailed in this section are intended to be specific to Fleming labeled product only, regardless of construction, size, rating or listing authority and are applicable in all North American jurisdictions.

Definitions

2. For fire-rated doors, frame product, hardware, glazing materials and other "opening" related accessories, the following terms are defined:

- Listed - A product tested or evaluated for reasonably foreseeable risks associated with the product.
- Classified - A product tested or evaluated for; a specific risk (or risks); performance under specified conditions; or regulatory codes.
- Labeled - A product ‘Listed’ or ‘Classified’ by an accredited organization and bearing the Mark, Logo or Symbol of that organization as verification of on-going inspection and compliance with the required Standard performance criteria.
- Listings - A published directory (printed or electronic), detailing products 'Listed' or 'Classified' by an accredited organization, acceptable to the 'Authority Having Jurisdiction'. UL's "Fire Resistance Directories", and WHI's "Directory of Listed Products", are examples of 'Listings'. Neither this document nor manufacturer’s catalogues are considered ‘Listings’.
- Authority Having Jurisdiction - The individual or entity responsible for approving equipment, installation or procedure and/or enforcement of code, by-law or other regulatory requirements.
- Fire Door Assembly - The combination of labeled components; door, frame product, hardware, glazing trim, glazing materials, accessories and their installation, used to protect an opening in a wall. Building codes and regulatory organizations have developed other terms to describe this concept, such as ‘closures’ or ‘opening-protectives’.
- Frame Product - The term used to describe as a single group; frames, transom, sidelight and window assemblies. See Page 16 for descriptions of each.
- Non-Rated - No fire protection rating.

Wall Versus Fire Door Assembly Ratings

3. The fire protection rating of a fire door assembly is determined by the fire resistance rating of the wall in which it will be installed and the regulatory requirements of the governing building code. Code requirements are based on the uses or ‘occupancies’ within the building, the specific location in the building and the potential fire hazards in that particular area.

4. NFPA 101, the "Life Safety Code", outlines the typical relationship between opening location, fire resistance rating of the wall and fire protection rating required for the fire door assembly, as shown in Table 1. See NFPA 101, Article 8.2.3.2.3. Building codes and local by-laws may have different requirements, which supersede NFPA-101.

Table 1

<table>
<thead>
<tr>
<th>Opening Location</th>
<th>Fire Resistance Rating - Wall</th>
<th>Fire Protection Rating - Fire Door Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openings which separate buildings or divide a single building into fire areas</td>
<td>4 Hours</td>
<td>3 Hours</td>
</tr>
<tr>
<td>Openings in; enclosures of vertical communication (stairwells or elevator shafts) or; exterior walls subject to severe fire exposure from outside the building</td>
<td>2 Hours</td>
<td>1-1/2 Hours</td>
</tr>
<tr>
<td>Openings between occupancies</td>
<td>1 Hour</td>
<td>1 Hour</td>
</tr>
<tr>
<td>Openings in; corridor and room partitions or; exterior walls subject to light to moderate fire exposure from outside the building</td>
<td>1 Hour</td>
<td>3/4 Hour</td>
</tr>
<tr>
<td>Openings where smoke control is the primary consideration or; between a habitable room and a corridor when the wall has a fire resistance rating not more than 1 hour or; across corridors where a smoke partition is required</td>
<td>1 Hour</td>
<td>1/3 Hour (No Hose Stream - US) (With Hose Stream - Canada)</td>
</tr>
</tbody>
</table>

Comments on this publication are gratefully appreciated.
5. The governing building code specifies both the fire protection rating (FPR) and any temperature rise rating (TRR) that may be required on doors. Required ratings include:
- 1/3, 1/2, 3/4, 1, 1-1/2, 2 and 3 hour FPR, with no TRR required (ie; the TRR is greater than 650°C (343°C) at 30 Minutes)
- 3/4, 1-1/2 and 3 hour FPR with 250°F (121°C), 450°F (232°C) or 650°F (343°C) at 30 Minutes TRR (for the US only)
- 3/4 and 1-1/2 hour FPR with 250°C (482°C) at 30 Minutes TRR (for Canada only)
- 1-1/2 and 3 hour FPR with 250°C (482°C) at 60 Minutes TRR (for Canada only)

6. The project Architect is responsible for building compartmentalization and the determination and scheduling of:
- Fire test methodology (traditional/negative versus positive pressure)
- Fire protection ratings
- Temperature rise ratings
- Smoke and draft control ratings

7. Distributors must ensure the product, as specified, detailed and/or scheduled by the Architect, is eligible prior to ordering factory labeling, or applying labels themselves. Ineligible product cannot be labeled. See Page 32, Item 616 for additional information.

8. Enforcement of building code, by-law or other regulatory requirements are the responsibility of the Authority Having Jurisdiction.

Assembly Rating Requirements

9. A fire door assembly's rating requires that each of its components (door, frame product, hardware and when specified, glazing trim, glazing materials, louvers and any other accessories) is fire labeled, installed and maintained in accordance with their individual listings. NFPA 101 and NFPA 80. If a required component is omitted, is not labeled, or is not installed or maintained in accordance with its listing, NFPA 101 or NFPA 80, it renders the entire assembly non-rated.

10. Fleming fire door and frame product labels may be applied only at the factory, or the facilities of UL or WHI approved distributors in Fleming's In-Plant Labeling Program (IPLP). See Page 4, Items 28 to 32 for additional information.

11. The field application of fire door or frame product labels or the field modification of labeled doors or frame product is not permitted except under UL or WHI Special Field Inspection Programs. See the Fleming Technical Manual or contact Fleming Technical Services - Ajax, for additional information on these Programs.

12. The following are not considered field modifications and are therefore permitted to be performed on site:
- Drilling of function holes for locks and fire exit devices
- Drilling of 3/4” (19) diameter holes (maximum) for labeled door viewers
- Drilling and tapping required to mount labeled hardware
- The installation of astragals, labeled hardware, gaskets, glazing materials and other labeled accessories
- The installation of labeled fire door louvers in prepared door openings as described on Page 8, Items 120 to 134
- The installation of labeled 3rd party glazing kits in prepared door openings as described on Page 7, Items 94 to 101

Fire Test Methods

13. Two types of fire tests for fire door assemblies are recognized in North America; ‘traditional/negative’ and ‘positive’ pressure.

14. Fleming fire doors and frame product are labeled for compliance to both types and all of the Standards referenced in Items 15 and 16.

15. US codes requiring traditional/negative pressure testing specify Test Standards; UL10B, UL9, NFPA 252 and/or NFPA 257. Canadian codes; CAN4-S104 and/or CAN4-S106.

16. US codes requiring compliance with positive pressure testing reference UL10C, UBC 7-2 (1997) and/or UBC 7-4 (1997). (These test methods are not used in Canada.)

17. A category system has been developed jointly by UL and WHI to differentiate product types by application and the requirements for use in positive pressure jurisdictions. All Fleming labeled doors are Category A - “Fire Doors Not Requiring Additional Components” to be positive pressure labeled. Fleming doors and frame product do not require gaskets of any kind for positive pressure compliance. Refer to the Fleming Technical Manual for additional details on the category system.

18. Hollow metal frame products have also been evaluated for positive pressure and have been found to have no affect on the performance of the assembly under these test methods. Frame products are therefore not required to be labeled for positive pressure.

19. As well, the following products have also been evaluated and found to not adversely affect fire protection performance under positive pressure testing. Labels applied to them are not required to include any reference to the positive pressure test standards;
- Hinges (except as described in Page 34, Item 630)
- Electric strikes (See Pg 35, Items 675 and 676)
- Single-point locks or latches (See Pg 34, Items 643 - 648)
- Fire exit devices (See Pgs 34 & 35, Items 652 - 667)
- Flush or surface bolts (See Pgs 34 & 35, Items 649, 650, 668-671)

20. In the US, fire doors may also be tested and labeled for ‘Smoke and Draft Control’. These are separate tests and requirements from fire testing. The test methods used are UL1784, UBC 7-2 Part 2 (1997) or NFPA 105.

21. Fire door labels certifying compliance with these Standards must include the symbol [S].

22. Fleming fire doors, like all others, must utilize Category H - “Labeled Smoke and Draft Control Gaskets”, and be installed in UL or WHI labeled steel frame product to comply with the smoke and draft control requirements. Frame product must utilize positive pressure labeled doors. Doors and frame product must be installed in accordance with their 'Installation Instructions'. For Fleming products, one (1) copy should be provided with each set of submittal/shop drawings and another copy must be included with the Bill of Lading with each shipment. See the Fleming Technical Manual for Installation Instructions.

23. Smoke and draft control performance is a function of the door and gaskets, not the hollow metal frame product. Therefore hollow metal frame products are not required to be labeled for smoke and draft control.

24. For detailed descriptions of these Test Standards, refer to the Fleming Technical Manual.

25. Products labeled for positive pressure fire testing also comply with and are eligible for labeling to the traditional/negative pressure fire test standards.

26. Products labeled only to the traditional/negative pressure standards, except as noted in Item 19, are not eligible in positive pressure applications.

27. When positive pressure doors by others are required for Fleming frame product, they must be:
- UL or WHI labeled Category ‘A’ or ‘B’ fire doors
- Installed in accordance with the installation instructions provided with the door, and
- Any Category G - “Edge Sealing” systems required for the door must be installed.
28. Fleming distributors authorized by UL and/or WHI under this program, order eligible doors, frame components, anchors and accessories from the factory. These may then be modified and/or assembled at the distributor’s shop within the program limitations and the specified label then applied. Only those "Constructions" identified with the "IPLP" suffix on Pages 4 and 5 (for doors) and 16 to 18 (for frame product) are eligible under this program.

29. Distributors under this program are subject to unannounced on-going inspections by UL and/or WHI to verify compliance with the program requirements.

30. Permitted door modifications include:
   - Preparation and/or installation of Fleming glazing kits
   - Preparation for and/or installation of labeled 3rd party glazing kits and fire door louvers
   - Tack-welding of vertical edge seams
   - Conversion from visible to seamless edge seams
   - Preparation and installation of Fleming internal lock edge reinforcing channels for double egress applications
   - Preparation and installation of approved alternate lock, strike, hinge and other hardware reinforcing
   - Installation of in-fill panels

31. Permitted frame modifications are:
   - Assembly of combinations of jambs, heads, Mullions, center rails, corner posts and sills into finished product
   - Welding-in of captive anchors (as required)
   - Welding-in of closer reinforcing
   - Preparation for field splices
   - Preparation for and installation of panels and glazing stops
   - Preparation and installation of approved alternate hinge, strike and other hardware reinforcing

32. Constructions not included in this program must be provided from the factory:
   - Prepared for all hardware
   - With fire label applied
   - For doors:
     - Fleming glazing kits installed, or
     - Prepared for labeled 3rd party glazing kits
     - Prepared for labeled fire door louvers
   - For frame product:
     - Factory assembled (if SUW required)

33. Permitted door modifications include:
   - Installation of flush steel top and bottom caps
   - Under-sizing of doors to suit non-standard heights

Tables 2 and 3 provide detail relating to maximum nominal door sizes for Fleming fire doors by rating and construction. The sizes indicated are those permitted by UL and WHI respectively and the limitations indicated in Item 44, Page 6.

### Table 2

<table>
<thead>
<tr>
<th>Typical Door Elevations</th>
<th>Construction</th>
<th>Series Gage</th>
<th>Maximum Rabbet Sizes (43-45)</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>UL</td>
<td>WHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Singles</td>
<td>Pairs</td>
</tr>
<tr>
<td>Standard (IPLP)</td>
<td>CW14</td>
<td>36&quot; x 120&quot;</td>
<td>72&quot; x 120&quot; (900 x 3050)</td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
</tr>
<tr>
<td></td>
<td>D16, CW16</td>
<td>48&quot; x 108&quot;</td>
<td>(1250 x 2750)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td></td>
<td>D18,CW18</td>
<td>48&quot; x 108&quot;</td>
<td>(1250 x 2750)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td></td>
<td>D20</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>E18</td>
<td>44&quot; x 84&quot;</td>
<td>88&quot; x 84&quot; (1150 x 2150)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>E20</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>D18/20-8 (1-3/8&quot;)</td>
<td>36&quot; x 84&quot; (900 x 2150)</td>
<td>72&quot; x 84&quot; (1800 x 2150)</td>
<td>-</td>
</tr>
<tr>
<td>Standard (IPLP)</td>
<td>H12,H14</td>
<td>48&quot; x 120&quot;</td>
<td>72&quot; x 120&quot; (900 x 3050)</td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
</tr>
<tr>
<td></td>
<td>H16</td>
<td>96&quot; x 120&quot;</td>
<td>(1250 x 3050)</td>
<td>96&quot; x 120&quot; (2450 x 2450)</td>
</tr>
<tr>
<td></td>
<td>SL16,SL18</td>
<td>48&quot; x 96&quot;</td>
<td>96&quot; x 96&quot; (1250 x 2450)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td></td>
<td>SL20</td>
<td>48&quot; x 96&quot;</td>
<td>(1250 x 2450)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td></td>
<td>SLE18</td>
<td>36&quot; x 84&quot;</td>
<td>72&quot; x 84&quot; (1800 x 2150)</td>
<td>72&quot; x 94&quot; (1250 x 2150)</td>
</tr>
<tr>
<td></td>
<td>SLE20</td>
<td>36&quot; x 84&quot;</td>
<td>(1800 x 2150)</td>
<td>72&quot; x 94&quot; (2450 x 2450)</td>
</tr>
<tr>
<td>Temperature Rise Rated</td>
<td>TR18</td>
<td>44&quot; x 84&quot;</td>
<td>88&quot; x 84&quot; (1150 x 2150)</td>
<td>88&quot; x 84&quot; (2250 x 2150)</td>
</tr>
<tr>
<td></td>
<td>TRSL16</td>
<td>48&quot; x 96&quot;</td>
<td>(1250 x 2450)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
</tbody>
</table>

Notes (See Pages 6-12 and 31-33) (Items in ( ) are applicable to all Constructions unless noted)

- Installation of flush steel top and bottom caps
- Under-sizing of doors to suit non-standard heights

### Double Egress

- Installation of flush steel top and bottom caps
- Under-sizing of doors to suit non-standard heights

### Security

- Installation of flush steel top and bottom caps
- Under-sizing of doors to suit non-standard heights

---

Continue →
<table>
<thead>
<tr>
<th>Typical Door Elevations (33-39)</th>
<th>Construction (IPLP)</th>
<th>Series Gage</th>
<th>Maximum Rabbet Sizes (43-45)</th>
<th>Notes (See Pages 6-12 and 31-33)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Materials (43-47, 49)</td>
<td>Edges (47, 51)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ASTRAGALS (45-55)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LATCHES (40-56, 64)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GLAZING (76-119)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Specific Notes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard (IPLP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CW41</td>
<td></td>
<td>36&quot; x 120&quot; (900 x 3050)</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>D16, CW16</td>
<td></td>
<td>48&quot; x 108&quot; (1250 x 2750)</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>D18, CW18</td>
<td></td>
<td>96&quot; x 108&quot; (2450 x 2750)</td>
<td>651</td>
</tr>
<tr>
<td></td>
<td>D20</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E18</td>
<td></td>
<td>44&quot; x 84&quot; (1150 x 2150)</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>E20</td>
<td></td>
<td>42&quot; x 84&quot; (1100 x 2200)</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>D18/20-8 (1-3/8&quot;)</td>
<td></td>
<td>36&quot; x 84&quot; (900 x 2150)</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Standard H12</td>
<td></td>
<td>48&quot; x 120&quot; (1250 x 3050)</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>H14, H16</td>
<td></td>
<td>96&quot; x 120&quot; (2450 x 3050)</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>SL16, SL18</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>SL20</td>
<td></td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>SLE18</td>
<td></td>
<td>36&quot; x 84&quot; (900 x 2150)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLE20</td>
<td></td>
<td>72&quot; x 84&quot; (1800 x 2150)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRE18</td>
<td></td>
<td>44&quot; x 84&quot; (1150 x 2150)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TR18</td>
<td></td>
<td>88&quot; x 84&quot; (2250 x 2150)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRSL16, TRSL18</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless Steel</td>
<td>DSS18</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clad H12, H14, H16</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D16, CW16, D80W18</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acoustic SD16</td>
<td></td>
<td>36&quot; x 96&quot; (900 x 2450)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lead-Lined LD16</td>
<td></td>
<td>72&quot; x 96&quot; (1800 x 2450)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>48&quot; x 86&quot; (1800 x 2450)</td>
<td></td>
<td>36&quot; x 96&quot; (900 x 2450)</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>48&quot; x 86&quot; (1800 x 2450)</td>
<td></td>
<td>36&quot; x 96&quot; (900 x 2450)</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Bullet-Resistant BR16</td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>-</td>
<td>262</td>
</tr>
<tr>
<td></td>
<td>S12, S14</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>S14</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Double Egress (IPLP)</td>
<td>CW14</td>
<td>72&quot; x 120&quot; (1800 x 3050)</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>D16, CW16, D80W18</td>
<td></td>
<td>or 96&quot; x 108&quot; (2450 x 2750)</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>H12, H14, H16</td>
<td></td>
<td>72&quot; x 120&quot; (1800 x 3050)</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>SL16, SL18, SL20</td>
<td></td>
<td>or 96&quot; x 108&quot; (2450 x 2750)</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>SLE18, SLE20</td>
<td></td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Door with Panel Above</td>
<td>D16, CW16, D80W18</td>
<td>48&quot; x 112&quot; (1250 x 2850)</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>H12, H14, H16</td>
<td></td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>SL16, SL18</td>
<td></td>
<td>72&quot; x 96&quot; (1800 x 2450)</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>D20</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>E18</td>
<td></td>
<td>44&quot; x 84&quot; (1150 x 2150)</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>D16, CW16, D80W18</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>S12, S14</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>D20</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>E18</td>
<td></td>
<td>44&quot; x 84&quot; (1150 x 2150)</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>D16, CW16</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>D80W18</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>D20</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>E18</td>
<td></td>
<td>44&quot; x 84&quot; (1150 x 2150)</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>SL16, SL18</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>D16, CW16, D80W18</td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>D20</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>75</td>
</tr>
</tbody>
</table>

Table 3
1/3 (With or Without Hose Stream), 1/2, 3/4, 1 and 1-1/2 Hour Fleming Fire Doors

Notes (See Pages 6-12 and 31-33)
33. Items 34 to 151 and 272 to 283 are applicable to all Fleming labeled doors unless indicated otherwise.
34. 'Standard' construction refers to single doors or pairs of doors (swinging in the same direction) applications only.
35. The factors determining whether a door is considered a Fleming 'Standard' construction (or not) are; specialized applications; performance based features; or the use of materials that affect fire performance.
36. Preparations for hardware, glass lights, louvers, door thickness or fire test methodology do not determine construction type.
37. Refer to the Fleming Technical Manual for standard and optional features provided or available for each door Series.
38. Those constructions not considered 'Standard' include:
   · Specialized applications; double egress, dutch or door with panel above
   · Performance based; temperature rise, sound, lead-lined, bullet-resistant, or detention security
   · Material based; stainless steel or clad
39. All Standard construction doors are intended for use with all Fleming frames, transom and sidelight frames, unless indicated otherwise.

**Face Sheet Material**
40. Standard material for all Constructions/series/Gages; A40 galvanneal (except DSS-Series). Galvanaled (G90) is available, except for E and TRE-Series doors.
41. Standard material for DSS-Series; Type 304, 'XL Blend S' (brushed) Finish. Type 304, 'XL Buff' (mirror) and Type 316, with 'XL Blend S' and 'XL Buff' Finishes available.
42. Standard material for SL, SLE and TRSL-Series is a textured wood grain, A40 galvanneal with factory-applied stain and UV-resistant clear coat. Galvanaled (G90) is not available.

**Sizes**
43. The sizes indicated on Pages 4 and 5, Tables 2 and 3, reflect the maximums permitted by UL and WHI, prepared for hardware as detailed on Pages 34 to 36, Items 619 to 697 and within the following recommendations.
44. D16, D18, E18, E20 and CW-Series doors are eligible for labeling up to 48” x 120” (1250 x 3050) nominal leaf size. From a recommended application stand-point however, the following are suggested and reflected on Pages 4 and 5; D and CW-Series doors greater than 36” (915) nominal leaf width should not exceed 108” (2750) height. Due to material availability, E and TRE-Series doors are limited to 44” x 84” (1150 x 2150) leaf size. Due to material availability, SLE-Series doors are limited to 36” x 96” (900 x 2430).
45. There are no minimum nominal leaf sizes imposed from a fire-labeling standpoint. However, NFPA 101, the "Life Safety Code", limits doors in a 'means of egress' to a minimum of 32” x 60” (800 x 2030). (See NFPA 101, Articles 7.15, 7.2.1.2 and Annex A.7.2.1 for further reference.) From a manufacturing perspective, the following minimum nominal leaf sizes apply:
   · E and SLE-Series; 32” x 80” (815 x 2030)
   · All other Series; 12” x 24” (305 x 610).
46. Codes and bylaws may impose additional limitations.
47. Maximum undercut on all hollow metal fire doors, standard for all Fleming doors (except acoustic doors) and minimum for SLE-Series; 3/4” (19).
48. Minimum undercut on all hollow metal fire doors, except SLE-Series, recommended undercut on Fleming doors in 4-sided frame product and Acoustic doors; 1/4” (6.4).

**Thickness**
49. Standard door thickness; 1-3/4” (44.4) except H12 Series, which are 1-7/8” (47.6) and S-Series which are 2” (50.8).
50. UL D18 and D20 Series doors are available 1-3/8” (35) thick. See Page 34, Item 642 for additional information.
51. H14 and H16 Series doors are available 1-7/8” (47.6) and 2” (50.8) thick. UL H and S-Series doors are also available 2-1/8” (54) and 2-1/4” (57.2) thick.
52. H12 Series are available at 1-3/4” (44.4) thick.

**Core Materials**
53. For all D and CW-Series fire doors, kraft paper honeycomb is the standard core. Polystyrene (R 6/RSI 1.06) is available.
54. Only polystyrene is available for E, DSS, SL and SLE-Series doors.
55. Only vertical stiffeners with fiberglass batt insulation are permitted for S or H-Series fire doors.
56. All other Constructions/Series/Gages (TR, TRE, TRSL, lead-lined, bullet-resistant and acoustic) utilize proprietary cores to achieve their specific performance based requirements.

**Vertical Edge Seam Construction**
57. Hinge and lock edges are beveled 1/8” in 2” (3 in 50) standard, except SL, SLE and TRSL-Series. Optional square edges are permitted.
58. SL, SLE and TRSL-Series are provided with beveled lock edge and square hinge edge, standard. Bevel on both edges is available on SL and TRSL-Series only.
59. All Fleming Standard construction D and DSS-Series doors up to 96” (2450) height, E, TRE, TR-Series and doors with panel above are provided with exposed mechanical interlocking seams at both vertical edges.
60. Labeled D and DSS-Series doors over 96” (2450) height and all labeled SD and LD-Series doors, must have both vertical edge seams tack-welded top and bottom, above and below each edge cutout and at 12” (305) on center maximum.
61. Bullet-resistant, H, CW and S-Series doors are provided standard as fully welded and seamless at both vertical edges.
62. SL, SLE and TRSL-Series are provided with an exposed center seam on both vertical door edges, standard. Not available as seamless vertical edge construction.
63. For 1-1/2 hour maximum pairs provided without astragal, tack-welded lock edge seams are required. See Page 8, Items 138 to 140 for additional information.
64. Seamless vertical edges on labeled D, E, TR, TRE, LD, doors with panel above and LD-Series doors are available. Seams are tack-welded top and bottom, above and below each edge cutout and at 12” (305) on center, body-filled, ground smooth and touched-up.
65. Rabbeted lock edge pairs, not in a 'means of egress', prepared for surface vertical rod fire exit devices only, are permitted, except on SL, SLE and TRSL-Series.

**Hardware Preparations**
66. See the Fleming Technical Manual for standard and optional hardware locations and preparations provided or available for each door series.
67. As a minimum, each labeled door must be prepared for hinges, labeled self-latching and self-closing devices. Refer to Pages 34 to 36, Items 619 to 697 for detailed information on hardware requirements.
68. All Fleming doors, (except 1-3/8” (35)), are provided with 4-1/2” (114) standard weight (0.134”/3.4) hinge reinforcing, distributor convertible to heavy weight (0.180”/4.6).
69. All doors exceeding 96” (2450) height must be prepared for 4-1/2” (114) heavy weight hinges (minimum).
70. Unless indicated otherwise, Fleming labeled doors can be prepared for all UL and WHI labeled self-latching devices.

71. Concealed or inset type vertical rod fire exit devices are not available on SLE-Series doors.

72. Electro-Lynx wiring harness (or approved conduit) are permitted in Fleming fire doors 1-3/4" (44.4) or thicker, for use with fire labeled electric or electronic hardware, up to the limitations of the hardware manufacturer’s listings.

73. Open-back strikes are permitted in the inactivated leaf of 1-1/2 hour pairs of;
   · Standard construction H, CW, D18, D18, SL16 and SL18 Series doors up to 96" x 96" (2450 x 2450)
   · Standard construction E18 Series doors
   · Standard construction SLE Series doors
   · Standard construction WHI D20 Series doors up to 96" x 96" (2450 x 2450)
   · Standard construction WHI E20 Series doors

74. Maximum height of edge cutout for open-back strike is 5-1/4" (133.4). Lock edge seam only on D and E-Series doors must be tack-welded top and bottom, immediately above and below each edge cutout and at 6" (150) on center (maximum).

75. Reinforcing for surface mounted closers is provided standard in all Fleming doors. See Page 35, Items 678 to 682 for additional information.

**Fleming Glazing Kits**

76. Fleming snap-in glazing kits are provided standard for 1-3/4" (44.4) thick D, E, CW and SLE-Series doors and are for use with labeled glazing materials not exceeding 5/16" (8) thickness.

77. Fleming snap-in kits are eligible for use in both traditional/negative and positive pressure applications.

78. Fleming snap-in steel glazing kits exceeding nominal widths of 30" (765) or nominal heights of 36" (915) must have removable stops screw-fixed at 8" (200) on center; 2" (50) maximum from each end, with #6 x 1-1/2" (38) sheet metal screws.

79. Minimum nominal light width for Fleming snap-in glazing kits; 4-1/2" (114).

80. Textured wood grained light kits, stained to match door, are secured with #6 oval head sheet metal screws.

81. For applications not covered in Items 76 or 80, Fleming 'thermal glazing kits' (THGLZ), with glazing space as specified by distributor, are provided standard. Trimming with internal perimeter reinforcing channels (INCNL option) for 3rd party labeled glazing kits.

82. All Fleming glazing kit sizing and locations are based on the 'nominal glass rabbet opening', not the 'exposed glass size'.

83. Minimum recommended nominal lighted door dimensions;
   · Stile widths and center rail heights; 6" (150)
   · Top rail height; 7" (180)
   · Bottom rail height; 6-1/3/16" (175)

84. No maximums are imposed for stile widths or rail heights.

85. Fleming glazing kits are permitted in UL labeled 'French-Door' type applications. See the Fleming Technical Manual for details.

86. Refer to the Fleming Technical Manual for other approved optional Fleming glazing kits.

87. 'Bridged cutout only' (BRCO) and 'cutout only' (CO) factory options are available for distributors authorized under Fleming’s In-Plant Labeling Program (IPLP). When BRCO and CO options are ordered the distributor is responsible for internal perimeter reinforcing channels that may be required for Fleming or 3rd party glazing kits.

88. Distributors not in Fleming’s In-Plant Labeling Program must order doors labeled, with factory installed;
   · Fleming glazing kits or,
   · Cut-out with internal perimeter reinforcing channels (INCNL option) for 3rd party labeled glazing kits

89. Double egress, temperature rise rated, labeled non-metallic clad and detention security door constructions have specific glazing limitations. Refer to the information provided for each construction for details.

90. Glass lights may be provided in operable or fixed doors.

91. Glazing is not permitted in labeled dutch, louvered, non-metallic clad, acoustic or bullet-resistant doors.

92. Round or radiused Fleming glazing kits are not available.

93. Fleming glazing kits are considered 'part of the door' and are therefore not labeled separately.

3rd Party Glazing Kits

94. Only UL labeled glazing kits, approved for use in hollow metal fire doors are permitted in Fleming UL labeled doors. UL or WHI labeled glazing kits approved for use in hollow metal fire doors may be used in Fleming WHI labeled doors.

95. For distributors in Fleming’s In-Plant Labeling Program, Bridged Cutout Only (BRCO), Cutout Only (CO), or Inner Channel Reinforcing (INCNL) factory options may be specified for doors with 3rd party glazing kits. See Item 87 for details. Doors may also be ordered as slab, with all required preparations and reinforcing by the distributor.

96. For distributors not in the In-Plant Labeling Program, doors for 3rd party glazing kits must be factory ordered as labeled, complete with Inner Channel Reinforcing (INCNL) option.

97. 3rd party glazing kits are usually sized based on 'exposed glass size' rather than 'nominal glass rabbet opening'. Distributors should take this into consideration when ordering or preparing Fleming doors for such kits.

98. 3rd party glazing kits under the joint UL and WHI identification system for positive pressure applications are Category F - "Labeled Light Kits", and must be labeled as such to indicate compliance.

99. Category F labeled light kits are also permitted in traditional/negative pressure jurisdictions.

100. Labeled 3rd party glazing kits may be installed on site, in openings prepared at the factory or prepared by IPLP approved distributors.

101. Labeled 3rd party glazing kits are not provided or installed by Fleming.

**Glazing Materials**

102. Glazing materials are investigated to the same test standards as fire door and window assemblies for fire protection only, unless specifically indicated otherwise in their individual listings.

103. UL labeled glazing materials are required in UL labeled doors. UL or WHI labeled glazing materials may be used in WHI labeled doors.

104. Labeled glazing materials must have a fire protection rating at least equal to that of the door in which it will be installed.
105. Except as indicated in Item 91, refer to Table 4, Pages 12 to 15 for a summary of labeled glazing materials eligible for use in Fleming's UL and WHI fire doors.

106. Labeled glazing materials up to 5/16" (8) thick can be used with Fleming snap-in glazing kits, unless indicated otherwise in the glazing manufacturer's listings.

107. When labeled glazing materials exceeding 5/16" (8) thickness are specified, Fleming's 'thermal glazing kits' (THGLZ) are provided, except on SL, SLE and TRSL-Series doors, unless distributor ordered otherwise or required by the glazing manufacturer's listings.

108. When other than 7/16" (11.1) glazing space for 5/16" (8) maximum glazing is required, distributor must specify glazing space requirements.

109. Specific glazing compounds or other installation components may be required for individual glazing materials. Refer to the glazing material manufacturer's listings for such.

110. As indicated in their listings, labeled glazing materials may require specific 3rd party glazing kits, or stop heights greater than the 3/4" (19) provided standard on Fleming's kits. For taller stop heights, custom Fleming glazing kits can be provided (except for snap-in).

111. For Fleming fire doors up to 3/4 hour rating, double glazed lights with 1 piece of labeled 1/4" (6) GWG + 1 piece of 1/4" (6) tempered glazing, are also permitted.

112. Each piece of glazing material used in fire doors must be labeled.

113. Glazing materials to be installed in positive pressure fire doors must be labeled as such to indicate compliance.

114. Glazing materials that have been evaluated to UL 263, "Fire Tests of Building Construction and Materials", are intended for installation as 'walls' and unless indicated otherwise in their individual listings, are not permitted in fire doors.

115. Glazing materials for use in fire door assemblies, labeled for both fire protection and bullet-resistance (UL 752, "Bullet-Resisting Equipment") are not currently available.

116. Glazing materials are not supplied or installed by Fleming.

117. Factory or IPLP approved distributor installed in-fill panels are permitted in lieu of labeled glazing materials.

118. Minimum in-fill panel construction for:
   - 1, 1-1/2, 2 and 3 hour doors; 1 sheet of 20 gauge steel laminated to each face of 3/8" (9.5) thick inorganic cement board, nominal density ~ 110pcf (1760 kg/m³)
   - 1/3, 1/2 and 3/4 hour doors; 1 sheet of 20 gauge steel laminated to each face of 1/2" (12.7) thick non-rated gypsum wall board

119. Fleming 'thermal glazing kits' (THGLZ) are used for securing in-fill panels.

**Fire Door Louvers and Preparations**

120. Except as indicated in Item 132, labeled louvers are permitted in all 1-1/2 hour maximum Fleming fire doors, to the sizes indicated on Pages 4 and 5, Tables 2 and 3, for each Construction/Series/Gage.

121. Fire door louvers must be UL labeled, installed within the lower 40" (1020) of the assembly for positive pressure applications, and in accordance with the louver manufacturer’s templates and installation instructions.

122. Maximum labeled louver size; 24" x 24" (610 x 610).

123. Minimum stile width; 5-27/32" (148), minimum bottom rail height; 8" (203) (actual front skin dimension).

124. No maximum imposed for stile widths.

125. Only one (1) louver per fire door assembly is permitted. This limits their use to 1 louver per leaf and 1 leaf per pair.

126. Louvers are permitted in fixed or operable doors.

127. Perimeter of louver cutout must be provided with internal reinforcing channels. See the Fleming Technical Manual for additional information.

128. Fleming fire doors may be prepared for labeled louvers by the factory or distributors under Fleming's In-Plant Labeling Program (IPLP).

129. Distributors not included in the Fleming In-Plant Labeling Program must order labeled doors complete with factory prepared louver cutout and inner perimeter reinforcing channels (INCNL option) installed.

130. Louvers may be installed by the distributor or in the field when the door is prepared and labeled as indicated in Items 120 to 132.

131. Fire door louvers complying with positive pressure test requirements must be labeled to indicate such.

132. Louvers are not permitted in:
   - 2 and 3 hour doors or 1/3 hour (no hose stream) doors
   - Doors with lights
   - Doors prepared for fire exit devices
   - Acoustic doors
   - Lead-lined doors
   - Dutch doors
   - TR, TRE or TRSL doors
   - Clad doors
   - Bullet-resistant doors
   - Stainless steel doors
   - Doors in 'a means of egress'
   - Smoke and draft control doors

133. Fire door louvers are not provided or installed by Fleming.

134. Except as indicated in Item 132, Fleming Standard construction louvered fire doors are permitted in all Fleming frames, transom and sidelight frames.

**Fleming Astragals (Flat Bar and Z Types)**

135. Astragals are required on:
   - 3 hour pairs
   - 3 hour double egress pairs
   - Pairs of TR-Series doors over 86" (2200) in height
   - Pairs of positive pressure TRSL-Series doors
   - Top leaf of dutch door
   - Bottom of flush (non-rabetted) panel above a door in frame without transom mullion
   - Pairs of LD and SD-Series doors

136. See Page 35, Items 663 to 666 for additional information on 3 hour doors in a 'means of egress'.

137. The following pairs and double egress doors up to 1-1/2 hour maximum, are provided standard without astragals;
   - H-Series up to 96" x 120" (2450 x 3050)
   - CW, SL and SLE-Series
   - TRSL-Series traditional pressure doors.

138. Pairs of 1-1/2 hour maximum, D, E, DSS, TR and TRE-Series, Standard, Double Egress and Clad construction doors are available without astragal. See Items 139 to 140 for details.

139. For the Series and Constructions detailed in Item 138, the lock edge seam of each leaf, if provided without an astragal, must be tack-welded top and bottom, immediately above and below each edge cutout and at 12" (305) on center (maximum) for;
   - D and DSS-Series doors up to 96" (2450) height
   - E-Series doors
   - TR and TRE-Series up to 86" (2200) height

140. The hinge and lock edge seams on each leaf of D-Series, Standard and Double Egress construction pairs over 96" (2450) height, if provided without an astragal, must be tack-welded top and bottom, immediately above and below each edge cutout and at 12" (305) on center (maximum).
141. D, CW and H-Series. Standard construction UL pairs up to 3 hour rating, with rabbeted lock edges may be provided without an astragal when:
   · Not in a 'means of egress', and
   · Both leaves are prepared for surface vertical rod fire exit devices, and
   · The inactive leaf is provided with a labeled coordinator, and
   · The provisions for lock edge seams in Items 139 and 140 are met

142. Where an astragal is required for a pair or double egress doors, flat bar type is provided standard, for screw fixing to the front (pull-side) of the active leaf, or the back (push-side) of the inactive leaf.

143. Where an astragal is required for pairs of SL, SLE or TRSL-Series doors, custom 'h-shaped' textured wood grain astragals are provided standard. Astragals are factory stained to match doors. Astragals are available with integral ASA and flush bolt reinforcing, or blank only, for screw fix mounting to lock edge of inactive leaf.

144. Z astragals, prepared to clear lock edge hardware preparations, or with integral lock edge hardware reinforcing, are available, for screw fixing to the edge of the inactive leaf of pairs, except for SL, SLE and TRSL-Series.

145. Security type Z astragals, prepared to clear active leaf lock edge hardware, are also available, for screw fixing to the edge of the active leaf of pairs, except for SL, SLE and TRSL-Series.

146. Flat bar type astragal is provided standard for screw fixing to the back (push-side) of a flush panel above a door.

147. See Item 179 for requirements on dutch doors, Page 11, Item 230 for LD-Series and Page 11, Item 240 for SD-Series doors.

148. All Fleming astragals are shipped loose for installation by others on site.

149. Fleming flat bar and Z astragals may be tack-welded to door at the factory or approved distributor's shop. Not available for SL, SLE or TRSL-Series 'h-shaped' astragals.

150. Labeled 3rd party, surface mounted weather, sound or light sealing type astragals are permitted;
   · In conjunction with Fleming’s flat bar astragal on all Fleming doors up to 3 hour rating, or
   · As a stand-alone astragal when the requirements on Page 8, Items 137 to 140 are met. (Exception: Acoustic doors. See Page 11, Items 240 to 242 for details)

151. See Page 36, Items 689 to 697 for details on 3rd party astragals.

NON-STANDARD DOOR CONSTRUCTIONS

Double Egress (D/E) Doors

152. All D and E-Series double egress construction doors must utilize Fleming’s internal lock edge reinforcing channel.

153. All D and E-Series double egress doors must have lock edge seam tack-welded top and bottom and at 12” (305) on center maximum.

154. D-Series double egress doors exceeding 96” (2450) height must have lock and hinge edge seams of both leaves tack-welded top and bottom and at 12” (305) on center maximum.

155. The requirements in Items 152 to 154 may be incorpo-rated in Standard construction D or E-Series doors, for conversion to double egress, at distributor locations included in Fleming’s In-Plant Labeling Program.

156. Double egress pairs are restricted to vertical rod fire exit device applications, surface or concealed types, with or without bottom rod.

157. 3 hour double egress must be provided with an astragal.

158. Astragals are not required on double egress pairs up to 1-1/2 hour rating for the following Series. See items 138, 140, 142 and 148 for details;
   · D or CW-Series up to 96” (2450) height
   · E, H, SL and SLE-Series

159. Glass lights in labeled double egress doors are limited to exposed sizes not exceeding 100 in² (0.60m²) area, 12” (305) width or 33” (840) height per leaf, for all ratings. Refer to Table 4, Pages 12 to 15 for glazing material availability. Also see Pages 7 and 8, Items 76 to 119.

160. D20 and E20 Double Egress doors are available with WHI label only.

161. D and CW-Series double egress doors are honeycomb core standard. Polystyrene and TRR cores are available.

162. E-Series double egress doors are polystyrene core standard, with TRR core available.

163. H-Series available with vertical stiffeners/fiberglass core only.

164. Double egress construction with honeycomb and polystyrene cores are included in Fleming’s distributor In-Plant Labeling Program (IPLP).

165. For use with Fleming Double Egress construction frames and Fleming UL transom frames and sidelight assemblies.

Door with Rabbatted Top Cap

166. Available in single door applications only.

167. Minimum door top cap rabbet height: 3/4” (19)

168. D and CW-Series doors provided with honeycomb core standard, polystyrene optional. Not available for TRR applications.

169. E-Series doors are provided only with polystyrene cores.

170. Glass lights are permitted in rabbetted top cap doors. Refer to Table 4, Pages 12 to 15 for glazing material types, sizes and ratings. Also see Pages 7 and 8, Items 76 to 119.

171. This construction not included in In-Plant Labeling Program.

172. For use in Fleming Frame with Panel Above Door construction frames only, with Fleming fixed or removable hollow metal panel above door (no transom mullion). Panel is considered and labeled as part of the frame in this application. See Page 23, Items 441 to 455 for additional information on frame and panel.

Dutch Doors

173. Available in single door applications only.

174. Top leaf may latch into either the strike jamb or the bottom leaf using a labeled self-latching device.

175. Cylindrical latches or automatic flush bolts are permitted to latch top leaf into bottom leaf.

176. Bottom leaf must latch into strike jamb.
190. TR and TRE-Series doors are provided with exposed me-
189. Fleming TRR labels indicate the maximum TRR required by
187. Temperature rise ratings are in addition to a door's fire
183. Lighted or louvered dutch doors are not permitted.
182. D and CW-Series dutch doors are included in Fleming's
181. SL-Series dutch doors available only with polystyrene
180. D and CW-Series dutch doors are provided with honey-
comb core standard and are available with polystyrene.
178. Optional 8" (200) maximum deep shelf on 1 side of door
only is permitted. Shelf and support brackets are not avail-
able in textured wood grain. Shelf and shelf support brack-
ets are shipped loose for site installation by others. Top leaf
must be provided with steel astragal (supplied loose for site
installation). Flat bar type required for dutch doors without
shelf, special off-set type required with shelf.
180. D and CW-Series dutch doors are provided with honey-
comb core standard and are available with polystyrene.
181. SL-Series dutch doors available only with polystyrene
cores.
182. D and CW-Series dutch doors are included in Fleming's
distributor IPLP.
183. Lighted or louvered dutch doors are not permitted.
184. D20 dutch doors are available with WHI label only.
185. Dutch doors are intended for use in all Fleming single
frames and transom frames only.
Temperature Rise Rated (TR, TRE and TRSL-Series)
186. Temperature rise rating (TRR) is a measure of the average
temperature rise, above ambient, on the unexposed door face
during the initial 30 minutes (or 60 minutes in Canada) of the
fire test. The lower the TRR, the better the performance.
187. Temperature rise ratings are in addition to a door's fire
protection rating.
188. Available in TR18, TRE18 and TRSL-Series constructions
for single, pairs and double egress applications, with a pro-
prietary, solid, asbestos-free, core system in lieu of honey-
comb or polystyrene for both traditional/negative and posi-
tive pressure jurisdictions.
189. Fleming TRR labels indicate the maximum TRR required by
code and attained by the door construction; 250°F (121°C)
at 30 Minutes for US requirements and 250°C (482°F) at 60
Minutes for Canada.
190. TR and TRE-Series doors are provided with exposed me-
chanical interlocking seam standard, with seamless edge
available.
191. TRSL-Series are available only with exposed center seam
on both vertical edges.
192. Astragal required on TR18 or TRE18 Series pairs exceed-
ing 86° (2200) height or 1-1/2 hour rating and all positive pres-
ture TRS-S-Series pairs. See Page 8, Items 135 to 139 and
Page 9, Items 142 to 151 for additional information.
193. Unless specifically listed otherwise, maximum exposed la-
beled glazing material sizes are limited to 100 in² (0.06m²)
area, 12" (305) width and 33" (840) height per leaf. See
Table 4, Pages 12 to 15 for labeled glazing materials avail-
able beyond these limitations, which also maintain the tem-
perature rise rating of the fire door. Also see Pages 7 and 8,
Items 76 to 119.
194. Doors with an average unexposed surface temperature ex-
ceeding 650°F (343°C) after 30 minutes of fire test expo-
sure are considered non-temp rise.
195. 1/3, 1/2, 1 and 2 hour fire protection ratings are not recog-
nized in building codes for TRR applications.
196. TR, TRE and TRSL construction doors are not included in
Fleming's distributor In-Plant Labeling Program (IPLP).
197. TRR doors may be used in all Standard, Double Egress,
Contra-Swing and Multi-Opening construction frames. TRR doors are not permitted in transom or sidelite frames.

Stainless Steel (DSS-Series) Doors
198. Face sheets are fabricated from stainless steel in lieu of
galvanneal. Standard material for DSS-Series; Type 304,
‘XL Blend S’ (brushed) Finish. Type 304, ‘XL Buff’ (mirror)
and Type 316 with ‘XL Blend S’ or ‘XL Buff’ Finishes are avail-
able. Acid etched patterns, logos, etc., are permitted.
199. Pairs up to 1-1/2 hour without astragal are available. See
Page 8, Items 138 to 140 for additional information.
200. Glass lights are permitted in DSS-Series doors. Refer to
Table 4, Pages 12 to 15 for glazing materials, sizes and rat-
ings. See Pages 7 and 8, Items 76 to 119 for additional
information.
201. Polystyrene is the standard core material. TRR applica-
tions are not available.
202. Louvers are not permitted in labeled stainless steel doors.
203. Stainless steel construction doors are not included in
Fleming's distributor In-Plant Labeling Program (IPLP).
204. DSS-Series doors are for use in Standard or Stainless Steel
construction frames, transom and sidelite frames.

Clad Doors
205. Metallic claddings are permitted on 1-3/4" (44.4) thick, D,
CW and H-Series singles and UL H, CW and D-Series pairs.
206. Metallic cladding must be a factory installed non-com-
bustible material such as brass, bronze, aluminum or stain-
less steel (except Type 302), with a maximum thickness of 1/16" (1.6), secured to the front and edges and/or
back of door.
207. Base door widths are adjusted to meet NFPA 80 required
clearances between finished door and adjacent door and/
or frame.
208. Maximum door thickness (including cladding); 1-7/8" (47.6).
209. Dan D-CW-Series doors provided with honeycomb core
standard. Polystyrene and TRR are available.
210. H-Series provided with vertical stiffener/fiberglass core only.
211. Pairs up to 1-1/2 hour are available without astragal.
212. The lock edge seam of each leaf, when provided without
an astragal, must be tack-welded top and bottom, imme-
diately above and below each edge cutout and at 12" (305)
on center (maximum).
213. Glass lights are permitted in metallic-clad construction
doors. Refer to Table 4, Pages 12 to 15, for eligible la-
beled glazing materials, sizes and ratings. Also see Pages
7 and 8, Items 76 to 119.
214. Fleming steel glazing kits are clad to match door (Excep-
tion; Fleming kits are fabricated from stainless steel for stain-
less steel clad doors).
215. Clad or stainless Fleming snap-in kits are not available.
216. Labeled louvers are not permitted in clad construction doors.
217. Metallic claddings are permitted in traditional/negative and
positive pressure jurisdictions.
218. Metallic clad construction doors are not included in Fleming's
distributor In-Plant Labeling Program (IPLP).
219. UL and WHI labeled non-metallic claddings, full door or pro-
tective plate type applications, are also permitted on labeled
Standard and Double Egress construction fire doors, to the
lesser of the size and rating for the Construction/Series/
Gage on used, or the limits of the cladding manufacturer’s
individual listings.
220. For positive pressure jurisdictions, non-metallic claddings
must be labeled as such for compliance and are limited to use on 1/3 hour (no hose stream) doors only, unless cladding is listed otherwise.
221. Labeled non-metallic claddings may be installed by the
manufacturer's listings and installation instructions.
222. Astragals are as per the base door requirements.
223. Glass lights or louvers are not permitted in Fleming non-metallic clad doors.
224. Labeled non-metallic claddings are not provided or installed by Fleming.
225. Metallic and labeled non-metallic clad doors are for use in all Fleming frames, transom and sidelight frames.

**Lead-Lined (LD-Series) Doors**
226. Available with composite honeycomb and lead-lined core.
227. Lead lining is secured to the inside of the front (pull-side) face sheet and door edges.
228. Lead-lining is specified by thickness or weight. Lead-linings available are:
   - 1/32" / 2 psf (0.8 / 9.8kg/m²)
   - 3/64" / 3 psf (1.2 / 14.6kg/m²)
   - 1/16" / 4 psf (1.6 / 19.5kg/m²)
229. Both vertical edge seams must be tack-welded top and bottom, above and below each edge cutout and at 12" (305) on center maximum.
230. Composite lead/steel flat bar astragal, shipped loose for installation on site by others, is required on all pairs for radiation shielding purposes.
231. Each leaf must be prepared for 4-1/2" (114) heavy weight hinges (minimum).
232. Labeled 1/4" (6) thick lead-loaded georgian wired glass (GWG), to the sizes and ratings indicated in Table 4, Page 12 for standard labeled 1/4" GWG, is permitted.
233. Fleming lead-lined glazing kits, similar to thermal glazing (THGLZ) are required.
234. Lead-lined doors are not included in Fleming's distributor In-Plant Labeling Program (IPLP).
235. For use with SUW Standard or Lead-Lined frames only.

**Acoustic (SD-Series) Doors**
236. Available in SD16 Series acoustic construction only, utilizing Fleming's proprietary sound attenuating core system.
237. Maximum acoustic rating; STC 46.
238. Both vertical edge seams must be tack-welded top and bottom, above and below each edge cutout and at 12" (305) on center maximum.
239. Each leaf supplied with Fleming surface mounted, adjustable automatic door bottom.
240. Pairs of doors are supplied with Fleming acoustic astragal, surface mounted on the back (push-side) of the inactive leaf and a steel flat bar astragal mounted on the front (pull-side) of the active leaf.
241. Automatic doors bottoms and astragals are shipped loose for installation on site by others.
242. Substitutions with other door bottoms or astragals will void the STC rating, as unit is tested as an assembly.
243. Each leaf must be prepared for 4-1/2" (114) heavy weight hinges (minimum).
244. Special back-set locks/latches are not required. Minimum back-set; 2-3/4" (69.9).
245. ASA/NL strike (due to astragal requirements) and flush bolts are required on the inactive leaf of all pairs.
246. Minimum recommended undercut on acoustic doors; 1/4" (6).
247. When fire protection rating and factory acoustic certification are both required, fire exit devices and glass lights are not permitted.
248. If factory acoustic certification is not required, doors may be prepared for fire exit devices.
249. SD-Series doors are not included in Fleming's distributor In-Plant Labeling Program (IPLP).
250. For use with Fleming acoustic frames and gasketing system only.

**Detention Security (S-Series) Doors**
251. Meets NAAMM HMMA 863-90 static load, impact load, rack and removable glazing stop test requirements.
252. Doors may be prepared for all labeled mortised, pocket or jamb mounted self latching devices.
253. S-Series doors are 2" (50.8) thick standard. UL S-Series are available 2-1/8" (54) and 2-1/4" (57.2) thick.
254. Each leaf must be prepared for 4-1/2" (114) heavy weight hinges minimum.
255. Security glazing materials for use in swinging hollow metal fire doors are permitted. See Pages 7 and 8, Items 102 to 119 and Table 4, Pages 12 to 15 for additional information.
256. Only Fleming's detention security glazing kits are permitted.
257. Glass lights in all S-Series doors are restricted to maximum exposed glass size per leaf of 100 in² (0.68m²) area, with neither the exposed width nor height exceeding 10" (250).
258. S-Series doors are not included in Fleming's distributor In-Plant Labeling Program (IPLP).
259. For use with Fleming Detention Security frames only.

**Bullet-Resistant Doors (BR-Series)**
260. Level 3 (44 magnum revolver) rating to UL 752.
261. Only proprietary vertically stiffened core is available in fire labeled bullet-resistant doors.
262. Doors are provided with bullet-resistant face reinforcing on the 'pull-side', which must be designated by the project Architect.
263. Edges are beveled 1/8" in 2" (3 in 50) standard, with square edges available.
264. Seamless (tack-welded, body filled and ground smooth) vertical edge seams are standard.
265. Doors are prepared for 4-1/2" (114) heavy weight (0.180"/4.57) hinges, minimum up to 36" x 84" (900 x 2150), 5" (127) extra-heavy weight (0.190"/4.8) over 36" x 84" (900 x 2150).
266. Only labeled mortise locks or latches, or mortise fire exit devices are permitted. Only those function holes specifically required for the latching hardware are permitted in the door.
267. As Bullet-Resistant Glazing Materials, evaluated from a fire protection rating standpoint are not currently available, glass lights are not permitted in fire labeled bullet-resistant doors.
268. Louvers are not permitted in bullet-resistant doors.
269. Bullet-resistant door construction is not included in the Fleming In-Plant Labeling Program.
270. Pairs are not available.
271. For use only with labeled Fleming bullet-resistant frames.

**Other Restrictions and Requirements**
272. Items 273 to 283 apply to all Fleming labeled doors regardless of Construction/Series/Gage.
273. Polyurethane, phenolic, polyisocyanurate or other core materials are not permitted in Fleming labeled door constructions.
274. Non-labeled facings, claddings, finishes, protective plates or plant-ons are not permitted (ie: wood veneers, plastic, paper or fabric). See Page 10, Items 205 to 225 for details of approved metallic and labeled, non-metallic claddings permitted for Fleming Clad construction doors.
275. WHI labeled D, CW and E-Series doors are available 1-3/4" (44.4) thick only.
276. Each leaf in a communicating frame assembly must be labeled and equal in fire protection rating to the frame product.

277. Unequal leaf pairs are permitted. Widest leaf of a pair may not exceed the largest single leaf width permitted for the Construction/ Series/ Gage used.

278. The use of Fleming H- Series doors is not recommended in Fleming DW or A- Series frames.

The following Table summarizes the maximum exposed areas, widths and heights of labeled glazing material permitted in Fleming’s fire doors. Each piece of glazing must be labeled by the glazing manufacturer or their UL and/or WHI approved distributor. The information presented was current at time of publication. Readers are advised to consult UL’s “Fire Resistance Directory”, or WHI’s “Directory of Listed Products”, for additional or up-dated information. These charts must be read in conjunction with Page 7, Items 76 to 93 (Fleming Glazing Kits), Items 94 to 101 (3rd Party Glazing Kits) and Items 102 to 119 (Glazing Materials).

<table>
<thead>
<tr>
<th>Labeled Glazing Material</th>
<th>Rating and Maximum Exposed Area x Width x Height</th>
<th>Manufacturer / Distributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” (6)</td>
<td>Up to 4 Lights each 552 in² (0.36m²)</td>
<td>UL WHI</td>
</tr>
<tr>
<td>1/2” (13)</td>
<td>Gypsum Board with 20 Gage Face Sheets</td>
<td>UL WHI</td>
</tr>
<tr>
<td>3/8” (10)</td>
<td>Up to 4 Lights each 552 in² (0.36m²)</td>
<td>UL WHI</td>
</tr>
<tr>
<td>1/4” (6)</td>
<td>Georgean Wired Glass (GWG)</td>
<td>(f)</td>
</tr>
<tr>
<td>1/2” (13)</td>
<td>Gypsum Board with 20 Gage Face Sheets</td>
<td>(g)</td>
</tr>
<tr>
<td>3/8” (10)</td>
<td>Up to 4 Lights each 552 in² (0.36m²)</td>
<td>(h)</td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
<tr>
<td>WHI -</td>
<td>WHI -</td>
<td></td>
</tr>
</tbody>
</table>
### Labeled Glazing Materials For Use In Fleming Fire Doors

<table>
<thead>
<tr>
<th>Manufacturer / Distributor</th>
<th>‘Trade Name’ Description</th>
<th>Lab</th>
<th>2 &amp; 3 Hr&lt;sup&gt;(a,b)&lt;/sup&gt;</th>
<th>1-1/2 Hr&lt;sup&gt;(b)&lt;/sup&gt;</th>
<th>1 Hr&lt;sup&gt;(b)&lt;/sup&gt;</th>
<th>1/3, 1/2 &amp; 3/4 Hr&lt;sup&gt;(i)&lt;/sup&gt; (WHS&lt;sup&gt;(c)&lt;/sup&gt;)</th>
<th>1/3 Hr&lt;sup&gt;(i)&lt;/sup&gt; (NHS&lt;sup&gt;(d)&lt;/sup&gt;)</th>
<th>3/4 &amp; 1-1/2 Hr&lt;sup&gt;(i)&lt;/sup&gt; TRR Doors&lt;sup&gt;(b)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interedge or Glaverbel</td>
<td>Pyroedge-20’</td>
<td>UL</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3154 in²&lt;sup&gt;(2.04m²)&lt;/sup&gt;</td>
<td>34-3/4” (855) 90-3/4” (2305)</td>
</tr>
<tr>
<td></td>
<td>1/4” or 3/8”</td>
<td></td>
<td>(6 or 10) Tempered Glazing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2747 in²&lt;sup&gt;(1.77m²)&lt;/sup&gt;</td>
<td>58-3/4” (1490) 58-3/4” (1490)</td>
</tr>
<tr>
<td></td>
<td>5/8” (16) Non-Wired Laminated Glazing&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3855 in²&lt;sup&gt;(2.49m²)&lt;/sup&gt;</td>
<td>3855 in²&lt;sup&gt;(2.49m²)&lt;/sup&gt;</td>
<td>3855 in²&lt;sup&gt;(2.49m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Pyrobel 60-25’</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1243 in²&lt;sup&gt;(0.80m²)&lt;/sup&gt;</td>
<td>1243 in²&lt;sup&gt;(0.80m²)&lt;/sup&gt;</td>
<td>1243 in²&lt;sup&gt;(0.80m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>1’ (25) Non-Wired Laminated Glazing&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td></td>
<td>45” (1140)</td>
<td>45” (1140)</td>
<td>45” (1140)</td>
<td>1080 in²&lt;sup&gt;(0.70m²)&lt;/sup&gt;</td>
<td>36” (915) 36” (915)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pyrobel 90-37’ 1-1/2’ (37) Non-Wired Laminated Glazing&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1080 in²&lt;sup&gt;(0.70m²)&lt;/sup&gt;</td>
<td>36” (915) 36” (915)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pyrostop 45-200’ 3/8” (10) Non-Wired Glazing&lt;sup&gt;(h)&lt;/sup&gt;</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3724 in²&lt;sup&gt;(2.4m²)&lt;/sup&gt;</td>
<td>3724 in²&lt;sup&gt;(2.4m²)&lt;/sup&gt;</td>
<td>3724 in²&lt;sup&gt;(2.4m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Pyrostop 45-200’ 3/4” (19) Non-Wired Glazing&lt;sup&gt;(g,h)&lt;/sup&gt; (1” Stop Ht Req’d)</td>
<td>UL</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1080 in²&lt;sup&gt;(0.70m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Pyrostop 60-101’ 7/8” (22) and Pyrostop 60-201’ 1-1/16” (27) Non-Wired Glazing&lt;sup&gt;(g,h)&lt;/sup&gt; (1” Stop Ht Req’d)</td>
<td>UL</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1080 in²&lt;sup&gt;(0.70m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Pyrostop 60-251, 60-281 60-351, 60-361’ 1-5/8” (41) Non-Wired Glazing&lt;sup&gt;(g,h)&lt;/sup&gt; (1” Stop Ht Req’d)</td>
<td>UL</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1080 in²&lt;sup&gt;(0.70m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Pyrostop 90-102’ 1-7/16” (37) Non-Wired Glazing&lt;sup&gt;(g,h)&lt;/sup&gt;</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1080 in²&lt;sup&gt;(0.70m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Pyrostop 90-102’ 1-7/16” (27) Pyrostop120-104’ 2-1/8” (64) and Pyrostop120-202’ 1-9/16” (40) Non-Wired Glazing&lt;sup&gt;(g,h)&lt;/sup&gt;</td>
<td>UL</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>3724 in²&lt;sup&gt;(2.4m²)&lt;/sup&gt;</td>
<td>3724 in²&lt;sup&gt;(2.4m²)&lt;/sup&gt;</td>
<td>3724 in²&lt;sup&gt;(2.4m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>’Superlite I-W’ 1/4” (6) Non-Wired Laminated Glazing</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>552 in²&lt;sup&gt;(0.36m²)&lt;/sup&gt;</td>
<td>552 in²&lt;sup&gt;(0.36m²)&lt;/sup&gt;</td>
<td>2856 in²&lt;sup&gt;(1.84m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>’Superlite I-20’ 1/4” , 3/8” or 1/2” (6, 10 or 13) Non-Wired Laminated Glazing&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>WHI</td>
<td>-</td>
<td>12 (305) 48” (1170)</td>
<td>-</td>
<td>1485 in²&lt;sup&gt;(0.96m²)&lt;/sup&gt;</td>
<td>1485 in²&lt;sup&gt;(0.96m²)&lt;/sup&gt;</td>
<td>3341 in²&lt;sup&gt;(2.16m²)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>’Superlite I-XL’ 1/4” (6) Non-Wired Laminated Glazing</td>
<td>WHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3289 in²&lt;sup&gt;(2.12m²)&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

### Notes
- Not Positive Pressure compliant (UL10C, UBC 7-2 1997, UBC 7-4 1997)
- Where permitted by the Authority Having Jurisdiction
- Maximum area per door leaf
- Maximum area per door light
- NHS - No Hose Stream; for 1/3 Hour doors in the US only
- WHS - With Hose Stream; for 1/3 Hour doors in Canada only
- With or without a 2nd layer of tempered glass at 1/3, 1/2 & 3/4 Hour only
- Requires non-standard glazing kit due to glazing manufacturer's stop height requirements and/or glazing thickness
- See Page 8, Item 110 for additional information
- Each glazed opening must meet all 3 criteria: area, width and height
- 3/4 Hour fire protection rating maximum (1 & 1-1/2 Hour not available)
- 1 Hour fire protection rating maximum (1-1/2 Hour not available)
<table>
<thead>
<tr>
<th>Manufacturer / Distributor</th>
<th>'Trade Name' Description</th>
<th>Lab</th>
<th>Rating and Maximum Exposed Area x Width x Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 &amp; 3 Hr (a), 1-1/2 Hr (b), 1 Hr (b), 1/3, 1/2 &amp; 3/4 Hr (WHS) (c), 1/3 Hr (NHS) (d), 3/4 &amp; 1-1/2 Hr (TRR) Doors (e)</td>
</tr>
<tr>
<td>Vetrotech</td>
<td>'Superlite II-20' 21/32&quot; (17) Non-Wired Laminated Glazing (7/8&quot; Stop Ht Req'd)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Superlite II-45' 1-1/2&quot; (38) Non-Wired Laminated Glazing (1-1/4&quot; Stop Ht Req'd)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Superlite II-XL' 3/4&quot; (19) Non-Wired Laminated Glazing (g)</td>
<td>UL</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Superlite II-NT' 1-1/2&quot; (38) Non-Wired Laminated Glazing (g)</td>
<td>UL</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Pyrowiss' 3/16&quot; (5) Tempered Non-Wired Glazing</td>
<td>UL</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Pyrowiss G' 5/16&quot; 3/8&quot; 1/2&quot; &amp; 3/4&quot; (8.10.13 &amp; 19) Tempered Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Swissflam-45 N2' 5/8&quot; and 3/4&quot; (16 and 19) Laminated Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Swissflam-60 N2' 1&quot; (25) Laminated Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Swissflam-60 N2' 1-1/8&quot; (29) Laminated Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Swissflam-90 N2' 1-3/8&quot; (35) Laminated Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Keralite FR-R' 3/16&quot; (5) Laminated Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Keralite FR-L' 5/16&quot; (8) Laminated Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'Keralite FR-L' 3/8&quot; (10) Laminated Non-Wired Glazing (g)</td>
<td>WHI</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes:
- (a) : Where permitted by the Authority Having Jurisdiction
- (b) : Maximum area per door leaf
- (c) : Maximum area per door light
- (d) : NHS - No Hose Stream; for 1/3 Hour doors in the US only
- (e) : WHS - With Hose Stream; for 1/3 Hour doors in Canada only
- (f) : With or without a 2nd layer of tempered glass at 1/3, 1/2 & 3/4 Hour only
- (g) : Requires non-standard glazing kit due to glazing manufacturer's stop height requirements and/or glazing thickness
- (h) : See Page 8, Item 110 for additional information
- (i) : Each glazed opening must meet all 3 criteria; area, width and height
- (j) : 3/4 Hour fire protection rating maximum (1 & 1-1/2 Hour not available)
- (k) : 1 Hour fire protection rating maximum (1/2 Hour not available)

[Continue → 14]
### Table 4 (Continued): Labeled Glazing Materials For Use In Fleming Fire Doors

<table>
<thead>
<tr>
<th>Manufacturer / Distributor</th>
<th>‘Trade Name’ Description</th>
<th>Lab</th>
<th>Rating and Maximum Exposed Area x Width x Height [i]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 &amp; 3 Hr (a,b)</td>
</tr>
<tr>
<td>Viracom or Sieracin/Trans Tech</td>
<td>‘Omnilite’ 13/16” (21) Non-Wired Laminated Glazing (g) (WHI: 1” Stop Ht Req’d)</td>
<td>UL WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>‘Omnilite’ 13/16” (21) Wired-Laminated Glazing (g) (WHI: 1” Stop Ht Req’d)</td>
<td>UL WHI</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>‘Omnilite FR-45’ 13/16” (21) Wired-Laminated Glazing (g) (WHI: 7/8” Stop Ht Req’d)</td>
<td>UL WHI</td>
<td>-</td>
</tr>
</tbody>
</table>

**Notes:**

- Not positive pressure compliant (UL10C, UBC 7-2 1997 or UBC 7-4 1997)
- (a) : Where permitted by the Authority Having Jurisdiction
- (b) : Maximum area per door leaf
- (c) : Maximum area per door light
- (d) : NHS = No Hose Stream; for 1/3 hr doors in the US only
- (e) : WHS = With Hose Stream; for 1/3 hr doors in Canada only
- (f) : With or without a 2nd layer of tempered glass at 1/3, 1/2 & 3/4 Hr only
- (g) : Requires non-standard glazing kit due to glazing manufacturer’s stop height requirements and/or glazing thickness
- (h) : See Page 8, Item 110 for additional information
- (i) : Each glazed opening must meet all 3 criteria - area, width and height
- (j) : 3/4 hour fire protection-rating maximum (1 & 1-1/2 hour not available)
- (k) : 1 hour fire protection rating maximum (1-1/2 hour not available)

### HANDING TERMINOLOGY

- **Left Hand (L)**
- **Right Hand (R)**
- **Pair (PR)**
- **Right/Left (R/L)**
- **Contra-Swing - Right Hand (C/S R)**
- **Left Hand Reverse (LHR)**
- **Right Hand Reverse (RHR)**
- **Double Egress - Right Hand (D/E R)**
- **Right/Right (R/R)**
- **Contra-Swing - Left Hand (C/S L)**
- **Communicating Single (Com)**
- **Double Acting Single (D/A) (Non-Labeled Only)**
- **Double Egress - Left Hand (D/E L)**
- **Left/Left (L/L)**
- **Double Acting Pair (D/A Pr) (Non-Labeled Only)**
Frames
Grouped in this category are units that contain single or multiple door openings without horizontal transom mullions. Frames may be 3 or 4 sided. Units that contain flush or rabbetted panels above the doors are considered frames. Frames are available tack, face or profile-welded, knocked-down or knocked-down drywall (slip-on).

Transom Frames
This category includes units that contain single or multiple doors with single or multiple openings above, separated from the doors with a horizontal mullion. The openings above the doors are called ‘transoms’. Transoms may be filled with glazing materials, panels or louvers (non-labeled only). Labeled transom frames are available only as face or profile-welded.

Sidelight Frames
This category includes units that contain single or multiple doors with adjacent openings for glazing materials, panels or louvers (non-labeled only), separated by vertical mullions. The openings for glazing materials, etc. are called ‘sidelights’. Sidelight frames may also incorporate single or multiple transoms. Labeled sidelight frames are available only as profile-welded.

Window Frames
This group includes units that contain single or multiple openings for glazing materials and/or panels but not containing doors. A window that contains only one opening is also referred to as a ‘borrowed light’ or ‘view window’. Non-labeled borrowed lights are available in tack, face or profile-welded, knocked-down or knocked-down drywall (slip-on) construction. Labeled configurations are available as profile-welded only.

Tables 5, 6 and 7 provide detail relating to maximum frame rabbet opening sizes for Fleming labeled frame product by rating, construction, gage and assembly method. The sizes indicated are those permitted by UL and WHI, and reflect the limitations indicated in Item 294, Page 19.

Table 5

<table>
<thead>
<tr>
<th>Product</th>
<th>Typical Elevation and/or Plan</th>
<th>Construction (284-290)</th>
<th>Gage</th>
<th>Assembly Method (317-335)</th>
<th>UL and WHI Maximum Rabbet Sizes (293,294)</th>
<th>Material</th>
<th>Profile</th>
<th>Anchorage (307-345)</th>
<th>Existing</th>
<th>Glazing or Panels</th>
<th>Construction Specific Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frames</td>
<td>Standard (IPLP)</td>
<td>SUW 12, 14, 16 KD</td>
<td>12</td>
<td></td>
<td>48” x 120” (1250 x 3050) 96” x 120” (2450 x 3050)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>323, 331, 333-335</td>
<td>-</td>
</tr>
<tr>
<td>Frames</td>
<td>Stainless (IPLP)</td>
<td>SUW KD 14, 16</td>
<td>18</td>
<td></td>
<td>42” x 86” (1100 x 2200) 84” x 86” (2150 x 2200)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>323, 331, 333-335</td>
<td>-</td>
</tr>
<tr>
<td>Frames</td>
<td>Clad</td>
<td>SUW 14, 16</td>
<td>18</td>
<td></td>
<td>36” x 86” (950 x 2200) 72” x 86” (1850 x 2200)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>323, 331, 333-335</td>
<td>-</td>
</tr>
<tr>
<td>Frames</td>
<td>Lead-Lined (IPLP)</td>
<td>SUW 12, 14, 16</td>
<td>12</td>
<td></td>
<td>48” x 96” (1250 x 2450) 96” x 96” (2450 x 2450)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>323, 331, 333-335</td>
<td>-</td>
</tr>
<tr>
<td>Frames</td>
<td>Detention Security</td>
<td>SUW 10, 12, 14</td>
<td>12</td>
<td></td>
<td>42” x 86” (1100 x 2200) 96” x 120” (2450 x 3050)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>511, 351, 353, 357-360</td>
<td>508-518</td>
</tr>
<tr>
<td>Frames</td>
<td>Double Egress (IPLP)</td>
<td>SUW 12, 14, 16</td>
<td>12</td>
<td></td>
<td>-</td>
<td>96” x 120” (2450 x 3050)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>399-401</td>
</tr>
<tr>
<td>Frames</td>
<td>Transom (539, 658-665)</td>
<td>SUW 12, 14, 16</td>
<td>12</td>
<td></td>
<td>48” x 120” (1250 x 3050) 96” x 120” (2450 x 3050)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>323, 331, 333-335</td>
<td>540-558</td>
</tr>
</tbody>
</table>

Notes (See Pages 19-27 and 31-33) (Items in () apply to all Constructions unless noted otherwise)
<table>
<thead>
<tr>
<th>Product</th>
<th>Typical Elevation and/or Plan</th>
<th>Construction (284-290)</th>
<th>Gage</th>
<th>Assembly Method (377-385)</th>
<th>UL and WHI Maximum Rabbet Sizes (293,294)</th>
<th>Notes (See Pages 19-27 and 31-33) (Items in () apply to all Constructions unless noted otherwise)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard (IPLP)</td>
<td></td>
<td>12</td>
<td>SUW</td>
<td>KD</td>
<td>48&quot; x 120&quot; (1250 x 3050)</td>
<td>96&quot; x 120&quot; (2450 x 3050)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14, 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
<td>SUW</td>
<td>KD</td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>84&quot; x 86&quot; (2150 x 2200)</td>
</tr>
<tr>
<td>Stainless (IPLP)</td>
<td></td>
<td>14, 16</td>
<td>SUW</td>
<td>KD</td>
<td>48&quot; x 120&quot; (1250 x 3050)</td>
<td>96&quot; x 120&quot; (2450 x 3050)</td>
</tr>
<tr>
<td>DW-Series (IPLP)</td>
<td></td>
<td>16</td>
<td>KD-DW</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td>84&quot; x 86&quot; (2150 x 2200)</td>
</tr>
<tr>
<td>Adjustable (IPLP)</td>
<td></td>
<td>16</td>
<td>SUW</td>
<td>KD</td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td>Clad</td>
<td></td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead-Lined (IPLP)</td>
<td></td>
<td>12, 14</td>
<td>SUW</td>
<td></td>
<td>36&quot; x 96&quot; (900 x 2400)</td>
<td>72&quot; x 96&quot; (1800 x 2400)</td>
</tr>
<tr>
<td>Lead-Lined (IPLP)</td>
<td></td>
<td>16</td>
<td></td>
<td></td>
<td>48&quot; x 86&quot; (1250 x 2200)</td>
<td></td>
</tr>
<tr>
<td>Acoustic</td>
<td></td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detention Security</td>
<td></td>
<td>10, 12, 14</td>
<td></td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td></td>
</tr>
<tr>
<td>Flush or Rabbeted Panel</td>
<td></td>
<td>16, 18</td>
<td></td>
<td></td>
<td>48&quot; x 118&quot; (1250 x 3000)</td>
<td></td>
</tr>
<tr>
<td>Dutch (IPLP)</td>
<td></td>
<td>14, 16</td>
<td>SUW</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>16, 18</td>
<td>KD-DW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contra-Swing (IPLP)</td>
<td></td>
<td>14, 16</td>
<td></td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td>Multi-Opening (IPLP)</td>
<td></td>
<td>12, 14</td>
<td>SUW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Egress (IPLP)</td>
<td></td>
<td>14, 16</td>
<td></td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td></td>
</tr>
<tr>
<td>Standard (IPLP)</td>
<td></td>
<td>12, 14</td>
<td></td>
<td></td>
<td>48&quot; x 120&quot; (1250 x 3050)</td>
<td>96&quot; x 120&quot; (2450 x 3050)</td>
</tr>
<tr>
<td>Standard (IPLP)</td>
<td></td>
<td>14, 16</td>
<td>SUW</td>
<td></td>
<td>48&quot; x 120&quot; (1250 x 3050)</td>
<td>96&quot; x 120&quot; (2450 x 3050)</td>
</tr>
<tr>
<td>Stainless (IPLP)</td>
<td></td>
<td>14, 16</td>
<td></td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td>Dutch (IPLP)</td>
<td></td>
<td>14, 16</td>
<td>SUW</td>
<td></td>
<td>42&quot; x 86&quot; (1100 x 2200)</td>
<td></td>
</tr>
<tr>
<td>Contra-Swing (IPLP)</td>
<td></td>
<td>14, 16</td>
<td></td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td>96&quot; x 96&quot; (2450 x 2450)</td>
</tr>
<tr>
<td>Multi-Opening (IPLP)</td>
<td></td>
<td>12, 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Egress (IPLP)</td>
<td></td>
<td>14, 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contra-Swing (IPLP)</td>
<td></td>
<td>14, 16</td>
<td></td>
<td></td>
<td>48&quot; x 96&quot; (1250 x 2450)</td>
<td></td>
</tr>
<tr>
<td>Product</td>
<td>Typical Elevation and/or Plan</td>
<td>Construction (284-290)</td>
<td>Gage</td>
<td>Assembly Method (37-383)</td>
<td>UL and WHI Maximum Rabbet Sizes (293, 294)</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------</td>
<td>-------------------------</td>
<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Frames</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stand.</td>
<td>(IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DW-Series (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustable (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clad</td>
<td>14,16</td>
<td>SUW KD</td>
<td>12</td>
<td>42” x 86”</td>
<td>30” x 86” (3000 x 2100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead-Lined (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acoustic</td>
<td>14</td>
<td>SUW</td>
<td>12</td>
<td>36” x 96”</td>
<td>30” x 96” (3000 x 2100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detention Security</td>
<td>10</td>
<td>SUW</td>
<td>12</td>
<td>42” x 86”</td>
<td>30” x 86” (3000 x 2100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flush or Rabbetted Panel</td>
<td>16,18</td>
<td>SUW KD</td>
<td>12</td>
<td>48” x 96”</td>
<td>30” x 96” (3000 x 2100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>(IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contra-Swing (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Opening (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Egress (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transom Frames (530-539, 556-576)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clad</td>
<td>14</td>
<td>SUW KD</td>
<td>12</td>
<td>48” x 120” (1250 x 3050)</td>
<td>30” x 120” (3000 x 2100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>(IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contra-Swing (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Opening (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Egress (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sidelights &amp; Windows (556-576)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless (IPLP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes (See Pages 19-27 and 31-33) (Items in () apply to all Constructions unless noted otherwise)
**FLEMING FIRE DOOR FRAME PRODUCT REQUIREMENTS**

**STANDARD FRAME PRODUCT CONSTRUCTIONS**

284. Items 285 to 389 are applicable to all Fleming frame products, unless indicated otherwise.

285. ‘Standard’ construction refers to frame, transom frame and sidelight assemblies with single doors or pairs of doors (swinging in the same direction) and window applications only.

286. The factors determining whether frame product is considered a Fleming 'Standard' construction (or not) are; specialized applications, performance based features, or the use of materials that affect fire performance.

287. Preparations for hardware, lights, panels, profile, assembly type or fire test methodology do not determine construction type.

288. Refer to the Fleming Technical Manual for standard and optional features provided and available for each frame series.

289. Those constructions not considered ‘Standard’ include;

- Specialized applications; double egress, dutch, adjustable, multi-opening or panel-over door
- Performance based; sound, lead-lined, bullet-resistant, or detention security
- Material based; stainless steel or clad

290. All Standard Construction frame products are intended for use with all Fleming doors, unless indicated otherwise.

**Frame Material**

291. Standard material for all Constructions/Gages/Series; A40 galvanneal, except when stainless steel is specified. Galvanized (G90) is permitted and available.

292. Standard for stainless steel; Type 304, ‘XL Blend S’ (brushed) Finish. Type 304, ‘XL Buff’ (mirror), Type 316 ‘XL Blend S’ and ‘XL Buff’ Finishes are available.

**Sizes**

293. The sizes indicated on Pages 16 to 18, Tables 5, 6 and 7, reflect the maximums permitted by UL and WHI, prepared for hardware as detailed on Pages 34 to 36, Items 619 to 697 and within the following limitations.

294. Fleming door sizes may limit the maximum frame rabbet opening permitted. E-Series doors are available up to 44” x 84” (1150 x 2150) maximum leaf size. Lead-lined, dutch and clad frames are also limited by the Fleming doors used in them. See Page 6, Items 44 and 45 regarding minimum door sizes.

**Hardware Preparations**

295. See the Fleming Technical Manual for standard and optional hardware locations, preparations provided and available for each frame series.

296. As a minimum, each door opening in labeled frame product must be prepared for hinges, labeled self-latching and self-closing devices. Refer to Pages 34 to 36, Items 619 to 697 for detailed information on hardware requirements.

297. All Fleming frame products, (except those for 1-3/8” (35) doors), are provided with 4-1/2” (114) standard weight (0.134”/3.4) hinge reinforcing, distributor convertible to heavy weight (0.180”/4.6), unless noted otherwise.

298. All door openings exceeding 96” (2450) height must be prepared for 4-1/2” (114) heavy weight hinges (minimum).

299. Frame product must be prepared for the strikes indicated on the labeled self-latching device manufacturer's templates.

300. Fire labeled electric or electronic hardware is permitted in all Fleming frame product prepared for 1-3/4” (44.4) or thicker doors with Electro-Lynx wiring harnesses or approved conduit.

301. Each door opening must be reinforced for a separate self-closing device for each leaf, except as noted below.

302. Reinforcing for self-closing device is not mandatory;

- On inactive leaf of pairs in mechanical equipment rooms
- With labeled floor closers ( pivots )
- When labeled spring hinges are used

303. When labeled spring hinges are used, a minimum of 2 per door leaf are required. See Page 34, Items 636 and 637 and Page 35, Items 679 and 680 for additional information.

304. Labeled gaskets, weather stripping and door seals are permitted on all Fleming labeled frame products. Such products are supplied and installed by others. See Page 36, Items 689 to 697 for additional information.

305. If doors are by others, hardware preparations in Fleming frame product are governed by the door manufacturer’s listings.

306. Also see Pages 34 to 36, Items 619 to 697, "Hardware Requirements for Fleming Fire Doors and Frame Product".

**Anchorage**

307. Items 308 to 344 apply to all Fleming frame products and ratings, unless noted otherwise.

308. Each jamb of frame product must be provided with anchorages to suit the partition in which it will be installed. See the Fleming Technical Manual for details of anchors provided for fire rated frame products.

309. All frame product, except DW-Series and frames with faced-dimpled anchors, may be installed to wrap or butt the adjacent partition.

310. DW-Series frames and face-dimpled anchors are designed for wrap applications only.

311. Wall anchors (except faced-dimpled or snap-in drywall types) are positioned inside the jamb profile directly above or below each hinge preparation and directly opposite on the strike jamb.

312. Except as noted, the quantity of anchors per jamb must be as per Table 8.

<table>
<thead>
<tr>
<th>Table 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Over-All Unit Height</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>62” (1575)</td>
</tr>
<tr>
<td>92” (2340)</td>
</tr>
<tr>
<td>122” (3100)</td>
</tr>
<tr>
<td>144” (3660)</td>
</tr>
</tbody>
</table>

(*1): Except face-dimpled or snap-in type drywall anchors

313. Jambs in the same assembly may be provided with different anchor types (ie; unit masonry at one jamb, drywall at the other), but must be secured to the partition. They may not be anchored to an adjacent frame product.

314. Although recommended (to add rigidity and for its sound deadening properties), grouting of jambs at cast-in place concrete and new or existing unit masonry is not required to maintain the validity of the fire rating.

315. Grouting of jambs in drywall partitions is not recommended.

316. Grouting of 'closed' sections is not recommended.

317. Floor anchors are provided on jambs terminating at the floor.

318. When a jamb is prepared for EWA guides, face-dimpled or snap-in drywall type anchors, the floor anchor is not required and may be omitted.

319. Mullions adjacent to door openings are supplied with loose, 12 gage floor anchors, screw fixed through the face and bolted to the floor.

320. Concrete or drywall screws, bolts or expansion shells, required for floor or wall anchorage, are not supplied or installed by Fleming.
321. Exposed screw heads of wall anchors may be body-filled, ground smooth and touched-up, by others after installation.

**New Unit Masonry Partitions**

322. Loose masonry wall anchors (wire or T-strap) are permitted on the following:
- Standard and stainless steel construction, 1-1/2 hour frames up to;
- 48” x 96” (1250 x 2450) singles
- 96” x 96” (2450 x 2450) pairs
- Double egress, 1-1/2 hour frames to 96” x 96” (2450 x 2450)
- Multi-opening frames up to 100” (2540) O/A width and 96” (2450) rabbet height
- Contra-swing frames
- Dutch door frames
- Frames with rabbeted or flush hollow metal panels
- Sidelight and window assemblies up to 3/4 hour rating, with over-all unit sizes up to;
  - 100” (2540) width, and
  - 98” (2490) height

323. Captive (welded to jamb) masonry anchors (bridge and strap type) are required on:
- 3 hour frames
- All frames over 96” (2450) rabbet height
- Transom frames, lead-lined, acoustic, bullet-resistant and detention security frames
- Multi-opening frames over 100” (2540) O/A width
- Sidelight and window assemblies exceeding:
  - 3/4 hour rating
  - 100” (2540) width or
  - 98” (2490) height

324. For A-Series frames, jamb and head faces are pierced and dimpled for 1/4” diameter x 2-1/4” long (6.4 x 57), flat head Tapcon concrete screws.

325. A-Series frame jambs up to 86” (2200) rabbet height require 3 dimples per face, and up to 96” (2450) rabbet height require 4 per face. Jamb face dimples are located 4” (100) from top and bottom, with intermediate dimples equally spaced between.

326. A-Series single frame heads require 2 dimples per face, located 4” (100) from each end. Heads for pairs require an additional dimple in each face at the mid-point of the rabbet width.

**Existing Partitions: Cast-In Place Concrete, Structural Steel and Unit Masonry Walls**

327. Frame product jamb soffits are pierced and dimpled for 1/4” (6.4) diameter, flat head Tapcon concrete screws or 3/8” (9.5) diameter machine bolts and steel expansion shell anchors. Distributor **must** specify required diameter.

328. Existing Wall Anchor (EWA) guides, welded in place, are provided for all sizes, constructions and ratings.

329. Preparations are located 6” (150) maximum from the top and bottom of the jamb, with intermediate preparations equally spaced between.

330. For machine bolt applications, steel expansion shell anchors are installed in cast-in place concrete and existing unit masonry. Structural steel must be drilled and tapped.

331. Quantity of anchors per jamb must be as per Table 8.

332. For A-Series frames see Items 324 to 326.

**Drywall Partitions**

333. Steel Stud Anchors (SSA), 1 or 2-piece Combination Stud Anchors (CSA) and Wood Stud Anchors (WSA) are permitted in all frame products within the following limitations:
- 2 or 3 Hour:
  - KD or SUW standard or stainless steel frames
  - SUW double egress frames
  - SUW standard or stainless steel transom frames
  - All other ratings;
  - All frame product

334. Steel stud anchors and wood stud anchors must be captive (welded to jamb).

335. Combination stud anchors may be shipped loose on frames up to 1-1/2 hour rating, but **must** be captive on 3 hour frames and on all contra-swing, lead-lined, transom frame, sidelight and window assemblies.

336. For buttled applications in drywall partitions, Existing Wall Anchor (EWA) guides are welded in place at each preparation. Preparations are located 6” (150) maximum from the top and bottom of the jamb and head, with intermediate preparations spaced at 24” (600) on center. SUW frame products have jamb and head soffits pierced and dimpled for 1/4” (6.4) diameter, #8 x 3-1/2” (89) flat head bugle type drywall screws;
- Up to 1-1/2 hour rating
- Not exceeding;
  - 100” (2550) unit width, or
  - 120” (3050) unit height

337. Welded-in custom, ‘deep off-set’ steel stud anchors may also be used for buttled applications in drywall partitions. See Table 8 for quantity of anchors per jamb.

338. Face-dimpled wall anchors, described in Items 324 to 326 are permitted in A-Series frame wrap applications. Drywall screws, #8 x 2-1/4” (57) flat head bugle type, secure the frame to the partition.

339. Face-dimpled base anchors and adjustable tension anchors are provided standard on DW-Series construction frames only.

340. Face-dimples, 1/4” (6.4) diameter, are required in each face of hinge and strike jambs of DW-Series frames at their base to secure the jambs to the board and studs with #8 x 2-1/4” (57) flat head bugle type drywall screws.
341. Snap-in type drywall wall anchors required in the face of:
- Each strike jamb, above the strike reinforcement
- Each head, centered on the opening, for pairs only

342. In lieu of face-dimpled type base anchors, DW-Series jambs may be provided with snap-in type.

343. Snap-in type anchors are available with 1/2" (12.7) off-sets for mounting on the face of the wall board, or 1" (25.4) for mounting between wall board and studs. Snap-in type drywall anchors are shipped loose.

344. Each DW-Series jamb is also provided with a welded-in, adjustable tension anchor, located 5" (125) from top of jamb.

345. Rough stud opening sizes for Fleming 'after wall' wrap application frames are as indicated in Table 9. Tolerances are + 1/4" (6) / - 0.

### Table 9

<table>
<thead>
<tr>
<th>Fleming Frame Series</th>
<th>Rough Opening Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frame Rabbet Width</td>
</tr>
<tr>
<td></td>
<td>Frame Rabbet Height</td>
</tr>
<tr>
<td>DW-Series</td>
<td>+ 1-7/8&quot; (48)</td>
</tr>
<tr>
<td></td>
<td>+ 3/4&quot; (19)</td>
</tr>
<tr>
<td>A-Series</td>
<td>+ 1-5/8&quot; (41)</td>
</tr>
<tr>
<td></td>
<td>+ 13/16&quot; (21)</td>
</tr>
</tbody>
</table>

346. Unless noted otherwise, Items 348 to 376 apply to all frame components; jambs, heads, sills, center rails, corner posts and mullions. Detention, bullet-resistant, DW, A-Series and double egress construction frames have specific restrictions for various profile elements. Refer to each for details.

347. Refer to the Fleming Technical Manual for standard profiles for each frame Series.

### Profile Requirements

348. Jamb Depths (A)
- Minimum (also see Items 361 and 362)
  - Single Rabbet (also see Item 349)
    - UL: 2-1/2" (63.5)
    - WHI
      - Sidelights and windows: 4" (101.6)
      - All other frame product: 3" (76.2)
  - Double Rabbet
    - WHI sidelights and windows: 4" (101.6)
    - All other frame product: 3-1/2" (88.9)
- Maximum
  - Frames and transoms: 14-1/2" (368)
  - Sidelights and windows: 10-1/2" (267)

349. Door Rabbet (B)
- For doors
  - 1-3/4" thick; 1-15/16" (49.2)
  - 1-3/8" thick; 1-9/16" (39.7)
  - All others; door thickness + 3/16" (4.8)
- For glazed or paneled openings
  - Standard; 1-15/16" (49.2)
  - Minimum; Glazing space + 7/8" (22.2)

350. Soffit (C)
- Minimum
  - Frames; 3/16" (4.8)
  - All other frame product; 1" (25)
  - Maximum; none

352. Opposite Rabbet (D)
- Minimum (single rabbet); 0
- Standard (double rabbet); 1-9/16" (39.7)
- Maximum; None

353. Stop Heights (E)
- Minimum
  - At doors and paneled openings; 5/8" (16)
  - At glazed openings, unless labeled glazing material manufacturer's listings indicate otherwise; 5/8" (16)
(See Table 11, Pages 28 to 31 for specific requirements.)

354. Face Widths (F)
- Minimum
  - Single Rabbet
    - JD less than 4" (100); 2" (50)
    - JD 4" (100) and larger
      - At perimeter of doors; 1-1/4" (32)
      - Not at perimeter of doors; 1" (25)
  - Double Rabbet
    - At perimeter of doors; 1-1/4" (32)
    - Not at perimeter of doors; 1" (25)
- Maximum (Also see Item 355)
  - Jambs, heads and mullions
    - Sidelights and windows exceeding 3/4 hour rating; 4" (102)
    - All others; 12" (305)
  - Sills and center rails; 12" (305)

355. The face width appearance of a section may be increased by constructing a 4-sided opening, installing an approved construction in-fill panel and a 20 gage fascia sheet tack-welded into the opening, flush with the surrounding section faces. Alternately, for UL labeled frame product, 1-3/4" (44.4) thick panels may be used. See Page 26, Items 548 to 550, 554 and 557 for in-fill and panel constructions. Exposed face joints may be body filled and ground smooth.

356. All sills with face widths exceeding 4" (100) are supplied with 2" (50) wide, 16 gage channel clips, welded in place at 14" (350) on center maximum.

357. Returns (G)
- Minimum; 0 (1/4" (6.4) when a return is specified)
- Maximum; 3/4" (19.1)
375. Fleming hollow removable mullions are considered part of Fleming behind door mullion fronts and backs are assembled. For contra-swing removable mullion details see Page 23. Fleming between door removable mullion fronts and backs are assembled; Maximum individual rabbet opening size on either side of Fleming hollow metal removable mullions between doors are permitted in Standard construction SUW frames up to 1-1/2 hour rating. Fleming acoustic frames

376. Doors may not be hinged off removable mullions.

Assembly Methods

377. For frames noted as KD (knocked-down) or KD-DW on Pages 16 to 18, Tables 5, 6 and 7, components are provided unassembled to the project with the contractor responsible for installation assembling them in accordance with the Installation Instructions provided.

378. KD frames can be provided for conversion to SUW construction with the Punch Miter Only (PMO) option.

379. SUW (set-up and welded) is a term used to describe frame product assembled by the factory or UL/WHI approved distributor. Unless indicated otherwise for a specific frame series, the following are the minimum SUW assembly methods required for fire rating:

- Standard construction frames; tack-welded (TW)
- Non-standard construction frames and all transom frames; face-welded (FW)
- Sidelight and window frames;
  - Not exceeding 3/4 hour rating; profile-welded (PW)
  - Exceeding 3/4 hour rating; see Page 26, Item 568
- WHI Standard and Contra-Swing construction frames, transoms and sidelights up to 1-1/2 hour rating
- WHI; 2-1/2" (64) with combined Shadow-Line Return (J) and Return (G) not to exceed 3" (76)

380. Tack-Welded (TW); Interior of each corner joint to be tacked in 3 places, 2 at each face and 1 at each return. A hairline joint is visible. Used to convert standard construction KD frames to SUW.

381. Face-Welded (FW); Exposed intersecting face joints are continuously welded, body filled and ground smooth, presenting seamless faces. Welds are on the interior of the profile for open sections, exterior for all others.

382. Profile-Welded (PW); Exposed intersecting face joints continuously welded, body filled and ground smooth, presenting seamless faces. Interior welds for open sections, exterior welds for all others. For open sections, intersecting rabbits, soffits and returns have continuous interior welds.

383. Fixed mullion, center rail and corner post fronts and backs are assembled;

- With 1-piece mullion clip, or
- With 2-piece mullion clips, spot-welded 2" (50) from each end and at 12" (300) on center, or
- Without clips, plug welded 2" (50) from each end and at 18" (450) on center

Available Options

384. Communicating frame products are permitted up to the maximum rabbit sizes noted for each Construction/Series/Gage. Each leaf in a communicating frame assembly must be labeled and equal in fire protection rating to the frame product.

385. 4-sided frame products are permitted up to the maximum rabbit size noted for each Construction/Series/Gage. Sills in 4-sided assemblies may have an integral door stop or may be cased open type section.

386. Standard undercut on Fleming doors in 4-sided frames; 1/4" (6.4)

387. 4-sided assemblies are restricted to use with Fleming labeled doors only and are not permitted in floors or ceilings (horizontal applications).

388. Split (2 piece) frames for wrapping existing partitions are permitted up to 3 hour rating in:

- 12, 14 or 16 gage SUW Standard construction frames
- 48" x 96" (1250 x 2450) singles
- 96" x 96" (2450 x 2450) pairs

389. Frame product with unequal leaf width pairs are permitted. Widest leaf of the pair cannot exceed the largest single leaf width permitted for the Construction/Series/Gage of door used.
Contra-swing mullion fronts and backs are assembled with contra-swing mullions may be fixed or removable. Contra-swing removable mullions are included in the Fleming Contra-swing frame products are included in the Fleming Contra-swing face-welded construction frames and transom Construction frames are included in the Fleming’s In-Plant Labeling Program (IPLP). DW-Series frames are intended for use with all Fleming D, E, CW, SL, SLE, TR, TRE and TRSL-Series doors and labeled hollow or solid core wood doors. H-Series doors are not recommended with DW-Series frames. DW-Series transom and sidelights are not available. Double Egress (D/E) Head profile at door opening may be single rabbet or 'double stopped' (like D/E jambs). Face widths (F): · Minimum: 1-1/4" (32) · Maximum: 4" (102) All other profile requirements see Page 21, Items 346 to 368. Anchorage - See Pages 19 and 20, Items 307 to 337. Profile requirements - See Page 21, Items 346 to 376. Anchorage - See Pages 19 and 20, Items 307 to 337. Frame product may incorporate combinations of; · Singles, Pairs · Double egress · Contra-swing · Fixed or removable mullions between the doors Doors may not be hinged off removable mullions. Multi-Opening construction not available KD or KD-DW. Multi-Opening frame products are included in the Fleming In-Plant Labeling Program (IPLP). Multi-Opening assemblies are restricted to use with D, E, CW, SL or SLE-Series doors Dutch Door Dutch door construction frames are available KD, tuck-welded and in DW-Series. Dutch door construction transom frames are face-welded. Profile requirements - See Page 21, Items 346 to 368. Anchorage - See Pages 19 to 21, Items 307 to 344. Strike jamb must be prepared for 1 strike for self-latching device in bottom leaf. Strike jamb may be prepared for 2 strikes when both leaves latch into frame. Closer reinforcing in head of frame may be omitted when top leaf utilizes labeled spring hinges. See Page 34, Items 636 and 637 for additional information. Dutch door frame products are included in the Fleming In-Plant Labeling Program (IPLP). Pairs of dutch doors are not eligible for fire labeling. Dutch doors are not permitted in labeled sidelight frames. For use with Fleming’s labeled dutch doors only. Multi-Opening (Banks of Doors) Face-welded multi-opening frames and transom frames, and profile-welded sidelight assemblies are required. Maximum over-all unit width for frames up to 3/4 hour; 154" (3900) in drywall, 162" (4100) in all other partitions. For 1-1/2 hour frames; 154" (3900) in all partitions. For transom and sidelight sizes see Table 10, Page 25. Maximum individual door leaf size; 48" x 96" (1250 x 2450). Number of door openings is not restricted. Profile requirements - See Page 21, Items 346 to 376. Anchorage - See Pages 19 and 20, Items 307 to 337. Frame product may incorporate combinations of; Face widths (F); Head profile at door opening may be single rabbet or ‘double stopped’. DW-Series transom and sidelight frames are available in Fleming’s In-Plant Labeling Program (IPLP). DW-Series frames are provided standard. Snap-in type base anchors are permitted. See Page 20, Items 338 to 343 for anchor requirements. See Page 21, Table 9 for rough stud opening sizes. DW-Series frames prepared for 1-3/8" (35) doors are permitted up to 36" x 84" (915 x 2150) prepared for 3-1/2" (88.9) or 4" (101.2) templated, standard weight (0.134"/3.4) hinges and small ASA strike (ANSI A115.3). See Page 34, Item 642 for additional information. DW-Series frames are included in the Fleming’s In-Plant Labeling Program (IPLP). DW-Series frames are intended for use with all Fleming D, E, CW, SL, SLE, TR, TRE and TRSL-Series doors and labeled hollow or solid core wood doors. H-Series doors are not recommended with DW-Series frames. DW-Series transom and sidelights are not available. Double Egress (D/E) Head profile at door opening may be single rabbet or ‘double stopped’ (like D/E jambs). Face widths (F): · Minimum: 1-1/4” (32) · Maximum: 4” (102) All other profile requirements see Page 21, Items 346 to 368. Anchorage - See Pages 19 and 20, Items 307 to 337. Profile requirements - See Page 21, Items 346 to 376. Anchorage - See Pages 19 to 21, Items 307 to 344. Strike jamb must be prepared for 1 strike for self-latching device in bottom leaf. Strike jamb may be prepared for 2 strikes when both leaves latch into frame. Closer reinforcing in head of frame may be omitted when top leaf utilizes labeled spring hinges. See Page 34, Items 636 and 637 for additional information. Dutch door frame products are included in the Fleming In-Plant Labeling Program (IPLP). Pairs of dutch doors are not eligible for fire labeling. Dutch doors are not permitted in labeled sidelight frames. For use with Fleming’s labeled dutch doors only. Frame with Panel Above Door Maximum door/panel rabbet opening height; 118” (3000) Nominal panel size; · 1-3/4” (44.4) thick only · 32” (815) height maximum · 6” (150) height minimum · 1344 in^2 (.87m^2) area maximum Panel face sheets; 16, 18 or 20 gage (matching door gage) Panels may be fixed or removable Bottom of panel may be rabbed or flush. Rabbeted panel bottom height; 3/4” (19) minimum Flush type requires flat bar astragal affixed to back (push-side) of panel. Astragals are shipped loose for installation on site by others. Core material; kraft honeycomb standard, polystyrene optional. TRR construction not available. Removable panels are provided with mylar “Component for Field Assembled Listed Fire Frame Frame” label, Fleming part number 52097, installed in the top end channel. Fixed panels do not require this label. Face-welded assembly minimum.
471. All SUW Standard construction frames and transom frames are intended for use with all Stainless steel frame products are included in the Fleming In-Plant Labeling Program (IPLP).

472. Metallic cladding may be applied to the door side and/or opposite side of the frame profile.

473. Removable glazing stops are clad to match the transom frame. Exception; Glazing stops for stainless steel clad transom frames are fabricated from stainless steel.

474. Hardware back-sets and door rabbet size of the base frame are adjusted from 1-15/16" (49.2), to suit cladding thickness.

475. Frame rabbet opening widths are not adjusted. Doors are undersized to suit cladding applied to the door and/or frame.

476. Metallic cladding frame product is not included in the Fleming In-Plant Labeling Program (IPLP).

477. Metallic clad frame and transom frames are intended for use with Fleming Standard, Clad, Lead-Lined, TR, TRE, TRSL and DSS-Series doors only.

478. UL and WHI labeled non-metallic cladding are permitted on Fleming labeled Standard construction frames and transom frames, to the lesser of the size and rating of the Frame Construction/series/Gage used, or the limits of the cladding manufacturer’s individual listings. Not permitted for sidelite or window frames. Such materials are classified as to fire protection only.

479. For positive pressure jurisdictions, non-metallic cladding must be labeled as such for compliance and are limited to use on 1/3 hour (no hose stream) frames only, unless listed otherwise.

480. Labeled non-metallic cladding may be installed by the distributor or in the field, in accordance with the cladding manufacturer’s listings and installation instructions.

481. Labeled non-metallic cladings are not provided or installed by Fleming.

482. Base frame and transom frame profile requirements with either metallic or non-metallic cladings - See Page 21, Items 346 to 368.

483. Anchorages with either metallic or non-metallic cladings - See Pages 19 and 20, Items 307 to 337.

484. All Standard construction frames are available with factory installed lead-lining.

485. Lead-lined frames are profile-welded.

486. Lead-lining thickness or weight must be specified. Available lead-linings are:
   - 1/32" / 2psf (0.8 / 9.8kg/m²)
   - 3/64" / 3 psf (1.2 / 14.6kg/m²)
   - 1/16" / 4 psf (1.6 / 19.5kg/m²)

487. Lead-lining is secured to the inside of the frame section from the stop/soffit intersection to the end of the return, on the door side only.

488. Frame lead-lining may also be installed by others as part of the wall construction. The lead-lining provided in the partition is extended into the frame profile and secured to the inside of the soffit as shown below.

489. Lead lined frames must be prepared for 4-1/2" (114) heavy weight hinges (minimum).

490. Profile requirements - See Pages 21 and 22, Items 346 to 368.

491. Anchorages - See Pages 19 and 20, Items 307 to 337.

492. Sanitary bases are not permitted on lead-lined frames.
Acoustic (SF-Series)

Maximum rating; STC 46.
Available in SF14 Series frames only.

Acoustic frames are profile-welded.

Profile requirements - See Pages 21 and 22, Items 346 to 364

Captive anchors are required in all types of partitions.

Anchorage - See Pages 19 and 20, Items 307 to 337 for additional information.

Sanitary bases are not permitted on acoustic frames.

Frames supplied with factory installed Fleming surface mounted gasket/stop system. Substitutions of other doors or gasketing systems will void the STC rating as unit is tested as an assembly.

When fire protection rating and factory acoustic certification are required, fire exit devices are not permitted.

If factory acoustic certification is not required, frames may be prepared for fire exit devices.

Detention Security

Assembly meets NAAMM HMMA 863-90 static load, impact load, rack and removable glazing stop test requirements.

Available in 14 gage frames only.

Detention security frames are profile-welded.

Profile requirements:
- Jamb Depth (A)
  - Minimum; 4" (100)
  - Maximum; 14-1/2" (368)
- Door Rabbet (B): 2-3/16" (55.6) standard
- Stop Height (E); 3-3/4" (19) standard
- Face Width (F)
  - Minimum; 2" (50)
  - Maximum; 6" (152)
- All other elements - See Page 21, Items 351 & 357 to 360

Detention security frames are not permitted in drywall partitions.

Captive anchors are required in all other types of partitions.

Anchorage - See Pages 19 and 20, Items 307 to 332.

Frame must be prepared for 4-1/2" (114) heavy weight hinges (minimum).

Frames may be prepared for all labeled mortised, pocket or jamb mounted self-latching devices or strikes.

Detention security frame construction is not included in the Fleming In-Plant Labeling Program (IPLP).

For use with S-Series (Detention Security) doors only.

Bullet-Resistant (BR-Series)

Available with Level 3 (.44 Magnum revolver) rating maximum, in accordance with UL 752.
Available in single frame applications only.

Face widths:
- 2" (50) minimum
- 4" (100) maximum

For all other profile requirements, see Page 21, Items 346, 348, 350 and 351 to 357.

Bullet-resistant frames are face-welded construction.

Frame internally reinforced on 'threat side' only. For 'pull-side' threat, full door side face bullet-resistant reinforcing provided. For 'push-side' threat, bullet-resistant reinforcing required:
- Single rabbet; full opposite face
- Double rabbet; full opposite face and stop side

Available with welded-in anchorage to suit cast-in-place, new or existing unit masonry partitions only. See Pages 19 and 20, Items 307 to 331 for detailed information.

Bullet-resistant frames must be prepared for 4-1/2" (114) heavy weight hinges, 5" (127) extra heavy over 36" x 84" (900 x 2150). Continuous, labeled, full surface, geared hinges are permitted.

Only ASA strikes are permitted for mortise lock or mortise fire exit devices.

Bullet-resistant frames are not included in the Fleming In-Plant Labeling Program (IPLP).

Labeled bullet-resistant frames are for use only with Fleming bullet-resistant labeled doors

TRANSOM, SIDELIGHT AND WINDOW ASSEMBLIES

Maximum over-all transom, sidelight and window unit widths, heights, areas and ratings available are detailed in Table 10.

<table>
<thead>
<tr>
<th>Over-All Unit Sizes: Width x Height x Area (If Applicable) (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall(4) Fire Protection Ratings</td>
</tr>
<tr>
<td>2 and 3 Hr</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Drywall 52&quot; (1350)</td>
</tr>
<tr>
<td>Other 52&quot; (1350)</td>
</tr>
<tr>
<td>Drywall 100&quot; (2550)</td>
</tr>
<tr>
<td>Other 100&quot; (2550)</td>
</tr>
<tr>
<td>Drywall -</td>
</tr>
<tr>
<td>Other -</td>
</tr>
<tr>
<td>Stainless Steel</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Stainless Steel A40 Galvanneal</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

1: Must comply with all 3 criteria: width, height and area (if applicable)
2: Transom frame widths are based on 2" (50) face components and 48" (1250) leaf widths
3: With or without hose stream test
4: A unit is considered 'in drywall' when either the jambs, head or sill contact a drywall and steel or wood stud partition

Table 10

<table>
<thead>
<tr>
<th>Transom Frames</th>
<th>Stainless Steel</th>
<th>All</th>
<th>Pair Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>A40 Galvanneal</td>
<td>All</td>
<td>Drywall -</td>
<td>120&quot; (3050)</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>Other -</td>
<td>144&quot; (3650)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sidelights and Windows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless Steel</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*1: Must comply with all 3 criteria; width, height and area (if applicable)
*2: Transom frame widths are based on 2" (50) face components and 48" (1250) leaf widths
*3: With or without hose stream test
*4: A unit is considered 'in drywall' when either the jambs, head or sill contact a drywall and steel or wood stud partition

Unit Width | Unit Width | Unit Width | Unit Width
531. The quantity of door openings, lights and/or panels in a sidelight or window unit is not limited except by the dimensional restrictions outlined in Table 11, Pages 28 to 31, "Labeled Glazing Materials for Transoms, Sidelights and Windows".

532. Approved panel constructions and labeled glazing materials may be utilized in the same assembly.

533. Profile requirements - See Pages 21 and 22, Items 346 to 376

534. Anchorage - See Pages 19 and 20, Items 307 to 337 and Page 26, Item 572 to 574.

535. Only square or rectangular glazed or paneled openings are permitted in WHI labeled transoms, sidelights or windows. Removable transom mullions are not permitted.

536. Operable transoms or sidelights are not permitted.

537. Louvers or dampers are not permitted in labeled transom, sidelight or window rabbet openings, except as a component in an operable or fixed labeled door leaf.

538. Labeled split transoms, sidelights or windows not available.

539. Labeled glazing materials and/or approved panels are permitted in all Fleming labeled doors.

540. UL labeled glazing materials are required in UL frame product. UL or WHI labeled glazing materials may be used in WHI frame product.

541. Except as indicated in Item 546, refer to Table 11, Pages 28 to 31 for labeled glazing materials eligible for use in Fleming's UL and WHI transom, sidelight and window assemblies.

542. Labeled glazing materials must have a fire protection rating at least equal to that of the frame product in which it will be installed.

543. Specific glazing compounds or other installation components may be required for individual glazing materials. Refer to the glazing material manufacturer's listings for such requirements.

544. Each piece of glazing material must be labeled.

545. Glazing materials to be installed in positive pressure assemblies must be labeled as such to indicate compliance.

546. Glazing materials evaluated to UL 263, "Fire Tests of Building Construction and Materials", are tested as 'walls' and unless indicated otherwise in their individual listings, are not permitted in labeled frame product.

547. Glazing materials are not supplied or installed by Fleming.

548. All panel constructions in Items 549 to 557 must be installed at the labeling facility. As such they are considered part of the frame product and the frame label covers both the frame product and its panels.

549. Minimum in-fill panel construction for;
   · 1, 1-1/2, 2 and 3 hour frame product; 1 sheet of 20 gage steel laminated to each face of 3/8" (9.5) thick inorganic cement board, nominal density - 110pcf (1760 kg/m³)
   · 1/3, 1/2 and 3/4 hour frame product; 1 sheet of 20 gage steel laminated to each face of 1/2" (12.7) thick non-rated gypsum wall board

550. In-fill panels are secured in openings with 3/4" wide x 5/8" tall (19 x 16) screw fixed, removable glazing stops.

551. For UL labeled frame product, panels constructed as 1-3/4" (44.4) thick D, H or SL18 Series doors, tack-welded into 3 or 4-sided rabbet openings (3 places per vertical edge), are permitted. For vertical edge seam construction requirements, see Page 6, Items 57 to 69.

552. Size of 1-3/4" (44.4) door panel construction limited to;
   · Minimum; 12" x 24" (305 x 610)
   · Maximum
     · D20 Series; 42" x 86" (1100 x 2200)
     · SL18 Series; 48" x 96" (1250 x 2450)
     · D16, D18, H16, CW-Series; 48" x 120" (1250 x 3050)

553. Cores for 1-3/4" (44.4) 'door' construction panels;
   · D and CW-Series; honeycomb std, polystyrene optional
   · H-Series; vertical stiffeners and fiberglass only
   · SL-Series; polystyrene only

554. Fixed 1-3/4" (44.4) panels constructed as a door, may be provided with glass lights or louver. See Page 7, Items 76 to 119 for lights, Page 8, Items 120 to 134 for louveres.

555. For UL labeled transom, sidelight and window frames only, 1-3/4" (44.4) panels, tack-welded into 4-sided rabbet openings (2 places per vertical edge), are permitted. Panels are Fleming tack-welded 'inner/outer' construction.

556. Honeycomb is standard core, with polystyrene available.

557. See Table 11, Page 28 for size limitations.

2 and 3 Hour Transom Frames

558. Only approved panels are permitted in Fleming UL or WHI 2 and 3 hour transom frames. See Items 548 to 557 and Table 11, Page 28 for approved panel constructions.

559. Labeled in-fill panels are secured with #6 x 1-1/4" (32) oval head sculux self-drilling SMS, 2" (50) from the end of each glazing stop and at 6" (150) on center.

560. Labeled 2 and 3 hour transom frames are face-welded construction minimum.

561. Labeled glazing materials are currently limited to 2 hour fire protection rating, therefore glazed 3 hour transoms are not permitted.

562. Profile requirements - See Page 21 and 22, Items 346 to 376

563. Anchorage - See Pages 19 and 20, Items 307 to 337 and Items 572 to 574.

564. 2 and 3 hour transom frames are included in the Fleming In-Plant Labeling Program (IPLP).

565. 2 and 3 hour transom frame are intended for use with all Fleming labeled doors.

1 and 1-1/2 Hour Transom, Sidelight and Window Frames

566. Labeled glazing materials and/or approved panels are permitted in all Fleming 1 and 1-1/2 hour frame products. See Table 11, Pages 28 to 31 for eligible labeled glazing materials and Items 548 to 557, for approved panel constructions.

567. Labeled glazing materials and/or in-fill panels are secured with #6 x 1-1/4" (32) oval head sculux self-drilling SMS, 2" (50) from the end of each removable glazing stop and at 6" (150) on center.

568. Multi-opening transom frames, sidelights and windows exceeding 3/4 hour rating are profile-welded and intersecting external soffit joints at Mullions and center rails are continuously welded, ground smooth.

569. Labeled transom frame applications are face-welded.

570. Profile requirements - See Page 21 and 22, Items 346 to 372

571. Anchorage - See Pages 19 and 20, Items 307 to 337 and Item 572 to 574.

572. Heads of 1 and 1-1/2 hour sidelight and window frames must be punched and dimpled for Existing Wall Anchor (EWA) guides as detailed on Page 20. Items 327, 328 and 330, welded in place at 16" (400) on center (maximum), 16" (400) from each end. Tapcon concrete screws or machine bolts and steel expansion shell anchors are required for cast in-place concrete, structural steel and new or existing unit masonry. For drywall applications, #8 x 3-1/2" (89) flat head, bugle type drywall screws are used.

573. Heads of 1 and 1-1/2 hour sidelight and window frames must have the faces continuously reinforced with 3/4" x 3/4" (19 x 19) x 12 gage angles, tack-welded in place at 24" (600) on center (maximum).
Sills in sidelights and windows exceeding 3/4 hour rating are reinforced with continuous 16 gage floor channels, notched to fit between the vertical members extending to the floor. Channels are shipped loose and secured to the floor.

1 and 1-1/2 hour transom frames, sidelight and window frames are included in the Fleming In-Plant Labeling Program (IPLP).

1 and 1-1/2 hour transom frames, sidelight and window frames are intended for use with all Fleming labeled doors. 1/3 (With or Without Hose Stream), 1/2 and 3/4 Hour Transom, Sidelight and Window Frames

Labeled glazing materials and/or approved panels are permitted in all Fleming 1/3, 1/2 and 3/4 hour frame products. See Table 11, Pages 28 to 31, for eligible labeled glazing materials and Items 548 to 557, for approved panel constructions.

Also refer to Testing Authority listings for addition information on individual glazing material manufacturer's products.

Labeled glazing materials and/or in-fill panels are secured with #6 x 1-1/4" (32) oval head sculux self-drilling SMS, 2" (50) from the end of each removable glazing stop and at 12" (300) on center.

Labeled single door and pairs of doors transom frames, not exceeding 3/4 hour rating, are face-welded.

Labeled multi-opening transoms and all sidelights and windows, not exceeding 3/4 hour rating, are profile-welded.

Profile requirements - See Page 21 and 22, Items 346 to 376

Anchorage - See Pages 19 and 20, Items 307 to 337.

Sidelight and window frames not exceeding 3/4 hour rating in all partition types, may incorporate vertical 2, 3 and 4-way hollow metal corner posts. Typical profiles are shown below.

Individual 'segments lengths' (shown as '*' on the plan views at right) may not exceed the over-all 'unit widths' detailed in Table 10, Page 25.

Over-all assembly height may not exceed the 'unit heights' detailed in Table 10, Page 25.

The number of segments in an assembly is not restricted, except by building code. Codes may restrict the maximum area of an assembly within a separation. (ie; not to exceed 25%). This must be determined by the project architect during the design process.

Angle between adjacent segments is not limited.

Segmented elements are permitted in plan only. Corner posts used as horizontal components are not permitted.

Special reinforcing or grouting of corner-posts is not required or recommended.

Corner posts are not permitted in stainless steel construction.

Field splices are permitted in sidelight and window frames not exceeding 3/4 hour rating.

Field splice alignment channels and/or clips are welded to one segment at the labeling facility. Contractor responsible for installation must:
- Assemble the field spliced sections over the alignment channels and/or clips
- Continuously weld the butted outside face joints
- Body fill, grind smooth, touch-up with zinc-rich primer

Field splices may be used in conjunction with hollow metal corner posts and segmented sidelight and window frames.

1/3, 1/2 and 3/4 hour transom frames, sidelight and window frames are included in the Fleming In-Plant Labeling Program (IPLP).

1/3, 1/2 and 3/4 hour transom frames and sidelight frames are intended for use with all Fleming labeled doors.

Other Restrictions and Requirements

Only rectangular door openings are permitted in any Fleming labeled frame product.

Doors may not be hinged off removable mullions

 Hollow metal removable mullions, between or behind door applications, are not permitted in 3 hour fire product.

Non-labeled facings; claddings, finished, protective plates or plant-ons are not permitted (ie; wood veneers, plastics, paper or fabric). Refer to Page 24, Items 471 to 483 for details of metallic and labeled non-metallic claddings permitted.

Fleming Therma-Frame, Trimwall and Replacement (R-Series) frame products are not eligible for labelling

Double acting fire door assemblies are not permitted

The use of Fleming H-Series doors is not recommended in Fleming DW or A-Series frames.

Transom, sidelight and window frames are not permitted in openings requiring a temperature rise rating (TRR).

Fire door assemblies are not permitted in floors or ceilings (horizontal applications).
The following Table summarizes the maximum exposed areas, widths and heights of labeled glazing material permitted in Fleming's fire labeled transom, sidelight and window frames. Each piece of glazing must be labeled by the glazing manufacturer or their UL and/or WHI approved distributor.

The information presented was current at time of publication. Readers are advised to consult UL's "Fire Resistance Directory", or WHI's "Directory of Listed Products", for additional or up-dated information.

### Table 11: Labeled Glazing Materials For Use In Fleming Transoms, Sidelights and Windows

<table>
<thead>
<tr>
<th>Labeled Glazing Material</th>
<th>Rating and Maximum Individual Exposed Light Area x Width x Height</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asahi, Central or Pilkington</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4&quot; (6) Georgian Wired Glass (GWG) (d)</td>
<td>UL WHI</td>
<td>1296 in² (0.84m²) 110-3/8&quot; (2800)</td>
</tr>
<tr>
<td>1/4&quot; (6) Georgian Wired Glass (GWG) with Specified Glazing Compound (d)</td>
<td>UL WHI</td>
<td>4608 in² (2.97m²) 96&quot; (2450)</td>
</tr>
<tr>
<td>3/8&quot; (10) Cement Board with 20 Gage Face Sheets In-Fill Panel</td>
<td>UL WHI</td>
<td>3456 in² (2.23m²) 96&quot; (2440)</td>
</tr>
<tr>
<td>1-3/4&quot; (44) Inner/Outer Construction Panel</td>
<td>UL</td>
<td>5760 in² (3.72m²) 120&quot; (3050)</td>
</tr>
<tr>
<td>3/8&quot; (10) Cement Board</td>
<td>UL WHI</td>
<td>2627 in² (1.69m²) 46-1/2&quot; (1180) 95&quot; (2415)</td>
</tr>
<tr>
<td>Anemostat, Mestek, Nippon Electric or Technical Glass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'Firelite' or 'Firelite NT'</td>
<td>UL WHI</td>
<td>3325 in² (2.15m²) 54&quot; (1370)</td>
</tr>
<tr>
<td>'Firelite Plus'</td>
<td>WHI</td>
<td>2721 in² (1.76m²) 54&quot; (1370)</td>
</tr>
<tr>
<td>'Fireglass 20'</td>
<td>UL</td>
<td>6272 in² (4.05m²) 106-1/2&quot; (2705)</td>
</tr>
<tr>
<td>CGI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'Pyroguard'</td>
<td>UL</td>
<td>1288 in² (0.83m²) 28&quot; (710)</td>
</tr>
<tr>
<td>GE Polymers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'Insulgard' 13/16&quot; (21) Wired-Laminated Glazing (3/4&quot; Stop Ht Req'd)</td>
<td>UL</td>
<td>1156 in² (0.75m²) 34&quot; (865) 34&quot; (865)</td>
</tr>
<tr>
<td>Globe-Amerada</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'FRP-100 Inferno-Lite' 13/16&quot; (21) Wired-Laminated Glazing (3/4&quot; Stop Ht Req'd)</td>
<td>UL</td>
<td>1296 in² (0.84m²) 42&quot; (1070)</td>
</tr>
<tr>
<td>Interedge or Glaverbel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'Pyrodege-20' 1/4&quot; or 3/8&quot; (6 or 10) Tempered Glazing</td>
<td>UL WHI</td>
<td>3698 in² (2.39m²) 90-3/4&quot;</td>
</tr>
<tr>
<td>'Pyrobel 45-16' 5/8&quot; (16) Non-Wired Laminated Glazing (d)</td>
<td>WHI</td>
<td>4608 in² (2.97m²) 96&quot; (2440)</td>
</tr>
<tr>
<td>'Pyrobel 90-37' 1-1/2&quot; (37) Non-Wired Laminated Glazing (d)</td>
<td>WHI</td>
<td>3419 in² (2.11m²) 82-3/8&quot; (2090)</td>
</tr>
</tbody>
</table>

Notes:
- (a): Where permitted by the Authority Having Jurisdiction
- (b): NHS - No Hose Stream; for 1/3 Hour doors in the US only
- (c): WHS - With Hose Stream; for 1/3 Hour doors in Canada only
- (d): With or without a 2nd layer of tempered glass at 1/3, 1/2 & 3/4 Hour only
- (e): Requires non-standard glazing kit due to glazing manufacturer's stop height requirements and/or glazing thickness
- (f): Each glazed opening must meet all 3 criteria; area, width and height
- (g): 2 Hour fire protection rating maximum (3 Hour not available)
Table 11 (Continued): Labeled Glazing Materials For Use In Fleming Transoms, Sidelights and Windows

<table>
<thead>
<tr>
<th>Manufacturer / Distributor</th>
<th>Trade Name' Description</th>
<th>WHI</th>
<th>UL</th>
<th>WHI</th>
<th>UL</th>
<th>2 Hour (a,g)</th>
<th>1-1/2 Hour</th>
<th>1 Hour</th>
<th>1/3, 1/2 &amp; 3/4 Hour (WHS)(c)</th>
<th>1/3 Hour (NHS)(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilkington or Technical Glass</td>
<td>'Pyrostop 45-200' 3/8&quot; (10) Non-Wired Glazing (e)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1860 in² (1.20m²)</td>
<td>47-1/4&quot; (1200)</td>
</tr>
<tr>
<td></td>
<td>'Pyrostop 45-200' 3/4&quot; (19) and 45-250, 45-350, 45-360 1-5/16&quot; (33) Non-Wired Glazing (e)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5605 in² (3.62m²)</td>
<td>5605 in² (3.62m²)</td>
<td>5605 in² (3.62m²)</td>
<td>5605 in² (3.62m²)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Pyrostop 60-101' 7/8&quot; (22) and 'Pyrostop 60-201' 1-1/16&quot; (27) Non-Wired Glazing (1&quot; Stop Ht Req'd) (e)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4290 in² (2.77m²)</td>
<td>4290 in² (2.77m²)</td>
<td>4290 in² (2.77m²)</td>
<td>4290 in² (2.77m²)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Pyrostop 60-251, 60-261 60-351,60-361 1-5/8&quot; (41) Non-Wired Glazing (1&quot; Stop Ht Req'd) (e)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5605 in² (3.62m²)</td>
<td>5605 in² (3.62m²)</td>
<td>5605 in² (3.62m²)</td>
<td>5605 in² (3.62m²)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Pyrostop 90-102' 1-7/16&quot; (37), Non-Wired Glazing (e)</td>
<td>-</td>
<td>-</td>
<td>3724 in² (2.40m²)</td>
<td>3724 in² (2.40m²)</td>
<td>3724 in² (2.40m²)</td>
<td>3724 in² (2.40m²)</td>
<td>3724 in² (2.40m²)</td>
<td>3724 in² (2.40m²)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Pyrostop 120-104, 120-262, 120-362 2-1/8&quot; (54) 'Pyrostop 120-202' 1-9/16&quot; (40) and 'Pyrostop 120-201' 2-13/64&quot; (56) Non-Wired Glazing (e)</td>
<td>1860 in² (1.20m²)</td>
<td>1860 in² (1.20m²)</td>
<td>1860 in² (1.20m²)</td>
<td>1860 in² (1.20m²)</td>
<td>1860 in² (1.20m²)</td>
<td>1860 in² (1.20m²)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Superlite I-20' 1/4&quot;, 3/8&quot; or 1/2&quot; (6, 10 or 13) Non-Wired Laminated Glazing (e)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3965 in² (2.56m²)</td>
<td>3965 in² (2.56m²)</td>
<td>3965 in² (2.56m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Superlite I-W' 1/4&quot; (6) Non-Wired Laminated Glazing (e)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4608 in³ (2.97m³)</td>
<td>4608 in³ (2.97m³)</td>
<td>4608 in³ (2.97m³)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Superlite I-XL' 1/4&quot; (6) Non-Wired Laminated Glazing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3341 in² (2.16m²)</td>
<td>3341 in² (2.16m²)</td>
<td>3341 in² (2.16m²)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- : Not Positive Pressure compliant (UL10C, UBC 7-2 1997, UBC 7-4 1997)
(a) : Where permitted by the Authority Having Jurisdiction
(b) : NHS - No Hose Stream; for 1/3 Hour doors in the US only
(c) : WHS - With Hose Stream; for 1/3 Hour doors in Canada only
(d) : With or without a 2" layer of tempered glass at 1/3, 1/2 & 3/4 Hour only
(e) : Requires non-standard glazing kit due to glazing manufacturer's stop height requirements and/or glazing thickness
(f) : Each glazed opening must meet all 3 criteria; area, width and height
(g) : 2 Hour fire protection rating maximum (3 Hour not available)
### Table 11 (Continued) : Labeled Glazing Materials For Use In Fleming Transoms, Sidelights and Windows

<table>
<thead>
<tr>
<th>Labeled Glazing Material</th>
<th>'Trade Name' Description</th>
<th>Lab</th>
<th>Rating and Maximum Individual Exposed Light Area x Width x Height (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Hour (a-g) 1-1/2 Hour 1 Hour 1/3, 1/2 &amp; 3/4 Hour (WHS) (f) 1/3 Hour (NHS)</td>
</tr>
</tbody>
</table>

**Notes**

- Not Positive Pressure compliant (UL10C, UBC 7-2 1997, UBC 7-4 1997)
- Where permitted by the Authority Having Jurisdiction
- Requires non-standard glazing kit due to glazing manufacturer's stop height requirements and/or glazing thickness
- Each glazed opening must meet all 3 criteria: area, width and height
- 2 Hour fire protection rating maximum (3 Hour not available)
316. Listing authorities, UL and WHI, have developed inde-
For UL frames, transom frames and sidelight frames, fire protection ratings are stamped or scribed into metal labels or classification marks may be of metal, paper, or plastics, or may be stamped or die cast into them.” Therefore, all Fleming labels, metal, mylar or embossed type, are in full compliance with all code requirements and should not be rejected by an AHJ based on their ‘material’.

**FLEMING FIRE LABELS**

606. Listing authorities, UL and WHI, have developed independent policies regarding the information required and the format of their labels.

607. Mylar labels are pre-printed with all required information. Factory labeled WHI products are available only with mylar labels. Factory labeled UL products are provided with mylar labels standard, metal type available when specified.

608. Fire protection ratings are stamped or scribed into metal labels by the approved labeling facility.

609. For UL frames, transom frames and sidelight frames, Fleming also utilizes an ‘embossed’ label. The embossment is provided standard on all eligible components prepared for hinges. The embossment is a bona-fide UL label, recognized in NFPA 80. See the Fleming Technical Manual for additional information on the embossed label program.

610. Labels are applied between the two upper hinge preparations. If continuous hinges are provided, metal or mylar labels must be applied to;
- The inside of the top end channel or top of steel top cap, at the hinge end, on doors
- The hinge end of the head/transom Mullion door rabbot, on frame product. (Only 1 fire label is required per frame.)

611. Each UL Fleming jamb and head provided KD or KD-DW, hollow metal removable panels, hollow metal removable Mullions and field spliced frame product, must bear a Fleming “Component for Field Assembled Listed Fire Door Frame” label, Part Number 52097, applied by the labeling facility to the inside of each component.

612. Fleming’s UL labels are eligible for use in all North American jurisdictions.

613. Fleming’s WHI labels are used in all traditional/negative test jurisdictions in North America. For WHI positive pressure and/or smoke and draft control compliance, Fleming’s supplemental labels, Part Numbers 52072, 52073, 52074 or 52075, must also be provided on fire doors adjacent to the fire door label. This label contains additional information required in these jurisdictions. Although not mandatory, distributors may apply Part Numbers 52072 or 52073 to frame product as well.

614. Tables 12 and 13 detail, by Fleming Part Number, the appropriate label to be used for each fire endurance, temperature rise rating and product category. See Pages 32 and 33 for facsimiles of Fleming’s UL and WHI fire door and frame labels.

615. An AHJ should not reject a label if it references multiple Standards, so long as it specifically indicates compliance with the Standards mandated in their governing code. As well, NFPA 80 specifically includes the statement, “Labels or classification marks may be of metal, paper, or plastics, or may be stamped or die cast into them.” Therefore, all Fleming labels, metal, mylar or embossed type, are in full compliance with all code requirements and should not be rejected by an AHJ based on their ‘material’.

---

**Table 11 (Continued) : Labeled Glazing Materials For Use In Fleming Transoms, Sidelights and Windows**

<table>
<thead>
<tr>
<th>Manufacturer / Distributor</th>
<th>'Trade Name' Description</th>
<th>Lab</th>
<th>2 Hour (a,g)</th>
<th>1-1/2 Hour</th>
<th>1 Hour</th>
<th>1/3, 1/2 &amp; 3/4 Hour (WHI)</th>
<th>1/3 Hour (NHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trans Tech</td>
<td>'Keralite FR-R' or 'FR-F' 3/16’ (5) Laminated Non-Wired Glazing (b)</td>
<td>WHI</td>
<td>1763 in(^2) (1.14m(^2))</td>
<td>60-1/4’ (1530)</td>
<td>60-1/4’ (1530)</td>
<td>60-1/4’ (1530)</td>
<td>60-1/4’ (1530)</td>
</tr>
<tr>
<td>St-Gobain</td>
<td>'Keralite FR-R' or 'FR-F' 3/16’ (5) Laminated Non-Wired Glazing (b)</td>
<td>WHI</td>
<td>1763 in(^2) (1.14m(^2))</td>
<td>60-1/4’ (1530)</td>
<td>60-1/4’ (1530)</td>
<td>60-1/4’ (1530)</td>
<td>60-1/4’ (1530)</td>
</tr>
<tr>
<td>Vetrotech</td>
<td>'Keralite FR-L' 5/16’ (8) Laminated Non-Wired Glazing (b)</td>
<td>WHI</td>
<td>490 in(^2) (0.32m(^2))</td>
<td>26-1/2’ (675)</td>
<td>26-1/2’ (675)</td>
<td>26-1/2’ (675)</td>
<td>26-1/2’ (675)</td>
</tr>
<tr>
<td></td>
<td>'Keralite FR-L' 3/8’ (10) Laminated Non-Wired Glazing (b)</td>
<td>WHI</td>
<td>1665 in(^2) (1.07m(^2))</td>
<td>60’ (1525)</td>
<td>60’ (1525)</td>
<td>60’ (1525)</td>
<td>60’ (1525)</td>
</tr>
<tr>
<td></td>
<td>'Omnilitre' 13/16’ (21) Non-Wired Laminated Glazing (e) (1’ Stop Ht Req’d)</td>
<td>UL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>360 in(^2) (0.23m(^2))</td>
</tr>
<tr>
<td></td>
<td>'Omnilitre' 27/32’ (22) Wired-Laminated Glazing (e)</td>
<td>UL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>500 in(^2) (0.32m(^2))</td>
</tr>
<tr>
<td></td>
<td>'Omnilitre' 27/32’ (22) Wired-Laminated Glazing (e) (3/4’ Stop Ht Req’d)</td>
<td>UL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>880 in(^2) (0.57m(^2))</td>
</tr>
</tbody>
</table>

Notes:
- (a): Where permitted by the Authority Having Jurisdiction
- (b): WHS - With Hose Stream; for 1/3 Hour doors in Canada only
- (c): WHS - With Hose Stream; for 1/3 Hour doors in the US only
- (d): With or without a 2” layer of tempered glass at 1/3, 1/2 & 3/4 Hour only
- (e): Requires non-standard glazing kit due to glazing manufacturer’s stop height requirements and/or glazing thickness
- (f): Each glazed opening must meet all 3 criteria; area, width and height
- (g): 2 Hour fire protection rating maximum (3 Hour not available)
616. If a door or frame product is not eligible for fire rating, a fire label cannot and will not be applied. However, a factory Letter of Certification, covering construction only, may be provided. Such Certifications are project and opening specific, and will detail the reason(s) for ineligibility. Acceptance of a Letter of Certification is at the sole discretion of the Authority Having Jurisdiction. Contact Fleming Technical Services - Ajax, for further information.

617. The field application of fire labels, except under UL or WHI Special Field Inspection Programs, is not permitted. See the Fleming Technical Manual or contact Technical Services - Ajax, for additional information on these Programs.

618. Fleming products are also available with Factory Mutual Research (FM) labels and certification to British Standards Institute (BSI) requirements. Contact Fleming Technical Services – Ajax, for additional information.

---

**Table 12**

**FLEMING FIRE DOOR LABELS**

<table>
<thead>
<tr>
<th>Fire Endurance Rating</th>
<th>Temperature Rise Rating</th>
<th>Fleming Label Part Number</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or 3 Hour</td>
<td>250°F, 450° or 650°F at 30 Minutes</td>
<td>52093, 52096</td>
<td>Metal Mylar</td>
</tr>
<tr>
<td>1 or 1-1/2 Hour</td>
<td>250°F, 450° or 650°F at 30 Minutes</td>
<td>52094, 52095</td>
<td>Metal Mylar</td>
</tr>
<tr>
<td>3/4 Hour</td>
<td>250°F, 450° or 650°F at 30 Minutes</td>
<td>52068, 52085, 52038, 52037, 52036, 52035, 52034</td>
<td>Metal Mylar</td>
</tr>
</tbody>
</table>

\(^{*}1\): Required hourly rating stamped or scribed onto label by labeling facility.

\(^{*}2\): For positive pressure and/or smoke and draft control jurisdictions, Fleming’s Supplemental mylar labels are required, in addition to the standard WHI mylar label. For Positive Pressure compliance only, use Pt. # 52072. For Positive Pressure and Smoke and Draft Control compliance, use Pt. # 52073.

\(^{*}3\): 250°C required for Canadian Code compliance only.

\(^{*}4\): Temperature Rise Rated labels are applied only by the factory. TRR not included in Distributor IPLP Program.

\(^{*}5\): When Temperature Rise Rating and Positive Pressure compliance are specified, supplemental label, Pt. # 50274 is also applied. For TRR, Positive Pressure and Smoke and Draft Control, supplemental label, Pt. # 50275 is also applied.

---

**Metal - Pt N2 52084**

**SUPPLEMENTAL LABEL**

PRODUCT ALSO CONFORMS TO UBC 7-2(1997) AND UL10C
TEMPERATURE RISE EXCEEDS 650ºF AT 30 MINUTES
SEE INSTALLATION INSTRUCTIONS

**Mylar - Pt N2 52093**

**SUPPLEMENTAL LABEL**

PRODUCT ALSO CONFORMS TO UBC 7-2(1997) AND UL10C
TEMPERATURE RISE EXCEEDS 650ºF AT 30 MINUTES
SEE INSTALLATION INSTRUCTIONS

**Metal - Pt N2 52094**

**SUPPLEMENTAL LABEL**

PRODUCT ALSO CONFORMS TO UBC 7-2(1997) AND UL10C
TEMPERATURE RISE EXCEEDS 650ºF AT 30 MINUTES
SEE INSTALLATION INSTRUCTIONS

**Mylar - Pt N2 52095**

**SUPPLEMENTAL LABEL**

PRODUCT ALSO CONFORMS TO UBC 7-2(1997) AND UL10C
TEMPERATURE RISE EXCEEDS 650ºF AT 30 MINUTES
SEE INSTALLATION INSTRUCTIONS

**Mylar - Pt N2 52096**

**SUPPLEMENTAL LABEL**

PRODUCT ALSO CONFORMS TO UBC 7-2(1997) AND UL10C
TEMPERATURE RISE EXCEEDS 650ºF AT 30 MINUTES
SEE INSTALLATION INSTRUCTIONS

---

32
Table 13

<table>
<thead>
<tr>
<th>Fleming Frame Product Labels</th>
<th>Fleming Label Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td><strong>Fire Endurance Rating</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 or 3 Hour</td>
</tr>
<tr>
<td>Frames</td>
<td>1/3, 3/4, 1 or 1-1/2 Hour</td>
</tr>
<tr>
<td>All Other Frames</td>
<td>2 or 3 Hour</td>
</tr>
<tr>
<td></td>
<td>1/3, 3/4, 1 or 1-1/2 Hour</td>
</tr>
<tr>
<td></td>
<td>2 Hour</td>
</tr>
<tr>
<td></td>
<td>3/4 or 1/3 Hour</td>
</tr>
<tr>
<td></td>
<td>2 or 3 Hour</td>
</tr>
<tr>
<td></td>
<td>1/3, 3/4, 1 or 1-1/2 Hour</td>
</tr>
<tr>
<td></td>
<td>1 or 1-1/2 Hour</td>
</tr>
<tr>
<td></td>
<td>1/3 or 3/4 Hour</td>
</tr>
<tr>
<td></td>
<td>1 or 1-1/2 Hour</td>
</tr>
<tr>
<td></td>
<td>1/3 or 3/4 Hour</td>
</tr>
<tr>
<td></td>
<td>1-1/2 Hour</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
</tr>
<tr>
<td></td>
<td>1/3 or 3/4 Hour</td>
</tr>
</tbody>
</table>

*1: Required hourly rating stamped or scribed onto label by labeling facility.

**Metal - Pt No 52080**

**FIRE DOOR FRAME**

**FIRE RATING:** 3 HR

ISSUE NUMBER: A-2043

PRODUCT CONFORMS TO UL10B, UL10C

UBC 7-10 (1997) AND CAN4-S104

SEE INSTALLATION INSTRUCTIONS

**Mylar - Pt No 52081**

**FIRE DOOR FRAME**

**FIRE RATING:** 1-1/2 HR

ISSUE NUMBER: A-2043

PRODUCT CONFORMS TO UL10B, UL10C

UBC 7-10 (1997) AND CAN4-S104

SEE INSTALLATION INSTRUCTIONS

**Mylar - Pt No 52082**

**FIRE WINDOW FRAME**

**FIRE RATING:** 3/4 HR

ISSUE NUMBER: A-2043

PRODUCT CONFORMS TO UL10B, UL10C

UBC 7-10 (1997) AND CAN4-S104

SEE INSTALLATION INSTRUCTIONS

Provided standard on all eligible frame components prepared for hinges

Component for Field Assembled Frame Label

Applied inside UL KD and KD-DW Assembly Method frame components, removable hollow metal panels (above door applications), hollow metal removable mullions and field spliced frame product
HARDWARE REQUIREMENTS FOR FLEMING FIRE DOORS AND FRAME PRODUCT

General

619. To be eligible for use on Fleming product, hardware must be:
   · Labeled for fire protection on swinging hollow metal doors and to the size and rating required for the assembly in which it will be installed.

620. Exception: Hinges - See Items 629 to 631 for additional information.

621. UL labeled doors and frame product must be prepared for UL labeled hardware. WHI labeled doors and frame product may be prepared UL or WHI labeled hardware.

622. Fire door hardware and accessories must comply with the requirements of NFPA 101, the "Life Safety Code", and NFPA 80, "Fire Doors and Fire Windows".

623. Door and frame preparations must be in accordance with the hardware manufacturer’s listings, templates and installation instructions.

624. UL labeled doors and frame product must be prepared for UL labeled hardware. WHI labeled doors and frame product may be prepared UL or WHI labeled hardware.

625. Electrically or electronically operated/controlled hardware must be labeled for both Fire and Electrical Protection.

626. Only low voltage devices are permitted. Electrical compliance is based on National Electrical Code Class 1 or 2 Circuit requirements.

627. Refer to Testing Authority listings for limitations on individual hardware manufacturer’s products.

628. As a minimum, each labeled fire door and frame product must be prepared for hinges, labeled self-latching and self-closing devices.

Hinges & Pivots

629. For all ratings, door and frame product sizes, hinges and pivots (except spring hinges) must be steel, mortise or surface, ball bearing type.

630. Hinges or pivots other than ball bearing type are permitted if they meet the requirements of ANSI A156.1, "Standard for Butts and Hinges", and are labeled for fire protection.

631. Hinges as described in Item 630, when used in positive pressure jurisdictions, must be labeled as complying with these standards.

632. For all ratings, 1 pair of hinges is required on each door leaf up to 60" (1525) rabbet height and 1 additional hinge for each additional 30" (760) of height or fraction of thereof. See the Fleming Technical Manual for standard hinge location information.

633. For all ratings, doors 1-3/4" (44.4) and thicker, and their frames up to 96" (2450) rabbet height; 4-1/2" (114) standard weight (0.134’/3.4 thick) hinges are required minimum, except as noted below.

634. For all ratings, doors 1-3/4" (44.4) and thicker, and their frames exceeding 96" (2450) rabbet height, for S, SD, LD Series, and Bullet-Resistant doors not exceeding 36" x 84" (900 x 2150); 4-1/2" (114) heavy weight (0.180’/4.57 thick) hinges are required minimum.

635. Electric hinges of equivalent height and weight to those detailed in Items 633 and 634 are permitted.

636. For all ratings, doors 1-3/4" (44.4) and thicker, and their frames up to 36" (915) width or 84" (2150) height; 4" (101.6), 0.105" (2.67) thick, labeled spring hinges are permitted, unless indicated otherwise in their listings. Where labeled spring hinges are used, a minimum of 2 per door leaf are required. For door openings exceeding 60" (1525) height using labeled spring hinges, a 3rd hinge is required, either:
   · Another labeled spring hinge, or
   · A steel, mortise or surface, ball bearing type hinge matching the height and weight of the spring hinge.

637. Where labeled spring hinges (as specified in Item 636) or pivot floor closers are used, they are also considered self-closing devices. See Page 35, Item 667 for additional information.

638. Full length, labeled continuous hinges are permitted, within the size and rating limitations of their individual listings. Reinforcing requirements and mounting methods are as per the hinge manufacturer’s listings, templates and installation instructions.

639. For doors 1-3/4" (44.4) and thicker, and their frames up to 38” (965) width or 96” (2450) height, up to 1-1/2 hour rating; steel, olive knuckle or paumelle type hinges, 6” (152.4) height and 0.225" (5.72) thickness minimum are permitted, unless smaller sizes are indicated in the hinge manufacturer's listings.

640. For all ratings, doors 1-3/4" (44.4) and thicker, and their frames up to 48” x 120” (1250 x 3050); steel, top, bottom and intermediate pivot sets, 4" (101.6) minimum height and 0.225" (5.72) thickness, are permitted.

641. Labeled pivot sets, including pocket pivot type, other than described in Item 640, are permitted, except on SLE-Series doors, within the size and rating limitations of their individual listings.

642. For all ratings, UL labeled 1-3/8" (35) thick doors and their frames, up to 36” (915) width or 84” (2150) height; 3-1/2" (88.9) or 4" (101.2) height, 0.123" (2.12) thick, steel, mortise or surface, ball bearing hinges are permitted. Due to mounting screw interference, templated hinges exceeding 4” (101.6) height are not compatible with 1-3/8” (35) thick Fleming doors.

Self-Latching Devices and Strikes

643. All labeled self-latching devices are permitted on Fleming labeled doors and frame product to the maximum size and rating indicated on Pages 4 and 5 for doors and 16, 17 and 18 for frame product, for each Construction/Series/Gage, except as indicated below. Also see Item 619.

644. Self-latching devices include:
   · Single-point locks/latches (cylindrical/mortise)
   · Flush bolts (automatic, self-latching or manual types)
   · Surface bolts (manual type)
   · Fire exit devices (rim, mortised, surface or concealed vertical rod types [with or without bottom rod] or mortise with top rod only [surface or concealed])
   · 2 or 3-point locks/latches

645. Minimum latch throw for single-point latches, unless indicated otherwise in the latch manufacturer’s listings;
   · Singles up to 96” (2450) height; 1/2” (12.7)
   · Singles over 96” (2450) and for all pairs; 3/4” (19)

646. All labeled, manually operated single-point latches comply with the requirements for positive pressure testing and need not be labeled for such compliance.

647. Electrically or electronically operated single-point latches used in positive pressure applications must be fire labeled as such to verify compliance.

648. Self-latching devices with other than 2-3/4” (69.9) backsets, to a maximum of 5” (127), or as indicated in the individual latch manufacturer’s listings, are permitted.

649. Minimum latch throw for flush or surface bolts; 3/4” (19).

650. All labeled, flush or surface bolts comply with the requirements for positive pressure and need not be labeled for such compliance.

651. Roller latches are not permitted as self-latching device on fire door assemblies.

652. Fire door assemblies in a required 'means of egress' having an ‘occupancy load’ of 100 persons or more, must be equipped with fire exit devices.
653. Fire exit devices are labeled for both panic (cycle, exit and exit loading) and for fire protection.
654. Fire exit devices comply with the requirements of positive pressure and need not be labeled for such compliance.
655. Fire exit device styles permitted, as indicated in the listings of each device manufacturer may include:
   · Crash-bar
   · Touch-bar
   · Inset-touch bar
656. Rim type fire exit devices are permitted on pairs of labeled doors only when used with a;
   · Labeled removable hardware mullion
   · Fixed hollow metal mullion
   · Fleming labeled removable hollow metal mullion
657. Hardware mullions are for behind the door applications only.
658. Fleming hollow metal mullions are available for both between and behind the door applications.
659. See Page 22, Items 369 to 376 for additional information on Fleming's labeled removable hollow metal mullions.
660. Only vertical rod type fire exit devices are permitted as the self-latching device on labeled double egress assemblies.
661. Vertical rod type fire exit devices, except mortise fire exit devices with integrated top rod only, are not permitted for single door applications.
662. When both leaves of a pair are required for exiting purposes;
   · Each may be prepared for fire exit devices, or
   · The inactive leaf may be prepared for a vertical rod fire exit device and open-back strike, with the active leaf prepared for a mortise fire exit device or a single-point latch
663. Pairs and double egress doors within a 'means of egress' may not be equipped with astragals, door edges or projecting latches that inhibit the free use of either leaf. See Item 683 for additional information.
664. For 3 hour pairs within a 'means of egress', vertical rod fire exit device (surface or concealed) with ASA type strike on one leaf and mortise fire exit device with coordinator and a 'push-side' mounted astragal on the other are permitted.
665. For 3 hour pairs within a 'means of egress', each prepared for rim fire exit devices and a removable 'behind the doors' hardware mullion are permitted and an astragal is not required. The provisions for lock edge seam requirements of Page 8, Items 138 to 141 apply.
666. For 3 hour applications, when 2 leaves are required for exiting purposes in a 'means of egress' and the movement of equipment is not an issue, a L/R configuration, (2 single doors with a fixed hollow metal 'between the doors' mullion), with either rim or mortise fire exit devices, may be used. The provisions for lock edge seam requirements of Page 8, Items 138 to 141 apply.
667. Panic exit devices are not permitted on labeled fire doors.
668. Where the inactive leaf of a pair is not required for 'exiting purposes', it may be prepared for automatic or self-latching top and bottom flush bolts, or 2-point locks.
669. Where the inactive leaf of a pair is not required for 'exiting purposes', it may be prepared for manually operated flush or surface top and bottom bolts when;
   · The room is not normally occupied by humans, and
   · Acceptable to the AHJ
670. The use of 3-point locks on single doors and the active leaf of pairs is permitted.
671. For pairs using 3-point locks, the inactive leaf must be prepared for 2-point locks. Flush or surface bolts are not permitted in lieu of the 2-point lock.
672. 2 and 3-point locks or latches are not labeled as and cannot be used where fire exit devices are required.
673. Frame product must be prepared for the strike (or strikes) indicated in the self-latching device manufacturer's listings and templates.
674. Open-back strikes are permitted in the inactive leaf of 1-1/2 hour pairs of:
   · Standard construction H, CW, D16, D18, SL16 and SL18 Series doors up to 96" x 96" (2450 x 2450)
   · Standard construction E16 Series doors
   · Standard construction SLE Series doors
   · Standard construction WHI D20 Series doors up to 96" x 96" (2450 x 2450)
   · Standard construction WHI E20 Series doors
675. Labeled electric strikes, electromagnets (also called maglocks), door position switches and electric power transfer units are permitted in all Fleming fire door assemblies, 1-3/4" (44.4) and thicker, within the size and rating limitations of the individual hardware manufacturer’s listings.
676. All labeled electric strikes comply with the requirements for positive pressure and need not be labeled for such compliance.
677. Labeled deadbolts, (also called auxiliary locks) may be provided in addition to a self-latching device when;
   · Permitted by the AHJ in doors not in a 'means of egress', or
   · Interconnected with the active-latch, retracting with the operation of the self-latching device
678. This group includes labeled;
   · Swinging door closers
   · Door holders (for use with automatic detection equipment and self-closing door closers)
   · Combination closer/holders (surface or floor mounted, concealed or semi-concealed - for use with labeled automatic fire detectors)
   · Spring hinges
679. Each leaf and door opening must be prepared for a self-closing device. Exceptions; dutch doors, where a closer is required for the top leaf only; and the inactive leaf of pairs in mechanical equipment rooms.
680. If closers with through bolt mountings, labeled spring hinges, or floor closers (pivots) are used, closer reinforcing is not mandatory. (Note; All Fleming doors are provided with closer reinforcing as a standard feature.)
681. Labeled combination door closers and holders with integral latches are permitted in single door applications up to 1 1/3 hour (without hose stream) only, and do not require any additional latching.
682. Labeled fire door operators with automatic closers are permitted for use in pairs of hollow metal, Standard or Double Egress construction doors and frame product with concealed vertical rod fire exit devices only.
683. Labeled coordinators are required for all pairs of doors in a 'means of egress' where an astragal, door edge or projecting latch will inhibit the free use of either leaf by preventing the inactive leaf from closing and latching prior to the active leaf.
684. Coordinators are not required for pairs of doors where each leaf closes and latches independently.
685. Labeled door viewers are permitted on all Fleming doors up to a maximum rating of 1-1/2 hours.
686. Door viewers used in positive pressure jurisdictions must be labeled as such to verify compliance.
687. Each leaf may be prepared for a maximum of 2 viewers.
688. Door may be prepared at factory, distributor’s shop or in the field. See Page 3, Item 12 for additional information.
3rd Party Astragal, Gaskets, Weatherstrip, Door Seals and Door Bottoms

689. These products are investigated to ensure that they do not adversely affect the rating of the fire door assembly and are classified for fire protection only.

690. Labeled products within this group are permitted for use with all Fleming labeled doors and frame product (except acoustic assemblies) to the size and rating limitations of the individual hardware manufacturer's listings.

691. Products used at the meeting edges of pairs are not intended to replace a required astragal, nor to alter the clearances between pairs of doors specified in NFPA 80. See Page 8, Item 135 for additional information.

692. Labeled 3rd party, surface mounted weather, sound or light sealing type astragals are permitted:
   - In conjunction with Fleming's flat bar astragal on all Fleming doors up to 3 hour rating, or
   - As a stand-alone astragal when the requirements of Page 8, Items 137 to 140 are met

693. For positive pressure and smoke and draft control compliance, a category system has been jointly developed by UL and WHI to differentiate between the types of products, by application. Under this system, all Fleming fire doors are Category A - "Fire Doors Not Requiring Additional Components" to be positive pressure labeled and do not require gaskets of any kind for compliance.

694. For smoke and draft control compliance, all Fleming doors (and all other swinging doors) must be used with Category H - "Labeled Smoke and Draft Control Gaskets". Category H products must be labeled and bear the "S" symbol.

695. Also permitted for use with all Fleming labeled doors and frame product are Category J - "Labeled Gasket Materials", such as gaskets, weather stripping, door bottoms, thresholds and other similar products. These have been positive pressure fire tested, but are not intended to assist an assembly in attaining either positive pressure or smoke and draft control compliance.

696. All Category J products are eligible for use with Fleming labeled doors and frame product in traditional/negative pressure jurisdictions.

697. Labeled 3rd party products are not supplied or installed by Fleming.

REFERENCED STANDARDS AND PUBLICATIONS

List of Equipment and Materials, Volume II, Building Construction

Standard Method for Fire Tests of Door Assemblies
Publication Number: CAN4-S104-M80

Standard Method of Fire Tests of Windows and Glass Block Assemblies
Publication Number: CAN4-S106-M80

Available From: Underwriters Laboratories of Canada
7 Crouse Road, Toronto, ON M1R 3A9
Tel: 416-757-3611
Web: www.ul.com

Directory of Listed Products

Available From: Intertek Testing Services (Warnock Hersey, Inc.)
3933 US Route 11, Courtland, NY 10345
Tel: 607-758-6234
Web: www.etlsemko.com

Standard for Fire Doors and Fire Windows
Publication Number: NFPA 80-1999

Life Safety Code
Publication Number: NFPA 101-2000

Recommended Practice for the Installation of Smoke-Control Door Assemblies
Publication Number: NFPA 105-1999

Available From: National Fire Protection Association
1 Batterymarch Park, Quincy, MA 02269
Tel: 617-770-3000
Web: www.nfpa.org

Fire Resistance Directory - Volume 3

Outline of Investigation for Fire Door Frames, Issue # 4
Publication Number: UL-63

Fire Test of Window Assemblies, 7th Edition
Publication Number: ANSI/UL9-00

Fire Tests of Door Assemblies, 9th Edition
Publication Number: ANSI/UL10B-01

Positive Pressure Fire Tests of Door Assemblies, 1st Edition
Publication Number: ANSI/UL10C-01

Air Leakage Tests of Door Assemblies, 3rd Edition
Publication Number: UL1784-01

Available From: Underwriters Laboratories, Inc.
333 Pfingsten Road, Northbrook, IL 60062
Tel: 847-272-8800
Web: www.ul.com

DHI Installation Guide
Publication Number: ANSI/DHI A115-IG

Available From: Door and Hardware Institute
14150 Newbrook Drive, Chantilly, VA 20151
Tel: 703-222-2010
Web: www.dhi.org

Fire Tests of Door Assemblies
Publication Number: ICBO UBC 7-2 (1997)

Fire Tests of Window Assemblies
Publication Number: ICBO UBC 7-4 (1997)

Available From: International Code Council
5380 Workman Mill Road, Whittier, CA 90601
Tel: 562-692-4226
Web: www.icbo.org
For additional information contact

Your local authorized Fleming distributor

Fleming
Door Products

ASSA ABLOY

101 Ashbridge Circle, Woodbridge, Ontario L4L 3R5 Canada
T: 416.749.2111 | 800.263.7515
www.flemingdoor.com

All conditions not covered on Pages 4 to 15 must comply with UL file Number R8930 and WHI Reference Number L14896 for Hollow Metal Fire Doors and must be installed in accordance with NFPA 80. All Conditions not covered on Pages 16 to 31 must comply with UL File Number R8931 and WHI Reference Number L14896 for Fire Door Frames, Transoms, Sidelights and Windows, the Standard for Fire Door Frames, UL 63, and must be installed in accordance with NFPA 80. Constructions designated with “IPLP” (In-Plant Labelling Program) may be labeled by either Fleming Door Products Ltd. or Authorized Fleming Distributors under Follow-Up Service Procedures or Factory Audit Manuals issued by Underwriters Laboratories or Warnock Hersey. Constructions not carrying the IPLP designation must be factory labeled by Fleming Door Products Ltd., Ajax. Field application of fire door or frame product labels is not permitted except under UL or WHI Special Field Inspection Programs. Contact Technical Services, Ajax, for further information. This publication, developed by Fleming Door Products Ltd. to provide guidance on the fire rating of commercial steel door and frame products, contains advisory information only and is provided as a public service. A continuous Research and Development Program is in place, therefore Fleming Door Products Ltd. reserves the right to incorporate changes at any time, without notice and disclaims all liability of any kind for the use or adaptation of the materials contained herein.

Revision 10

All materials are copyright protected and cannot be copied or reproduced without the express consent of the author.