Directory of Listed Products

**FIRE DOOR LISTING PROGRAM**

**Class:** Fire Door and Frame Machiner

**Customer:** Crown Door Corp.

**Location:** Abbotsford, BC

**Listing No.:** F409-1

**Effective Date:** June 15, 2012

**Last Revised:** February 14, 2013

**Expires:** N/A

**Standards:**
- UL10 (b) (2008) - Fire Tests of Doors Assemblies
- UL10 (c) (2001) - Fire Tests of Doors Assemblies (Category "B")
- UBC-7-2 (1994) - Uniform Building Code
- UBC-7-2 (1997) - Uniform Building Code

**Product:** Fire Door and Frame Machining

**Markings:**

Each container of the subject product, as delivered to the customer, is suitably marked using Permanent label stock with permanent adhesive with the following:

1. QAI logo with 'c' and 'us' indicator
2. Manufacturers name or trademark
3. City and state of manufacture
4. Model/Listing number or product description
5. QAI file number (F409)
6. Traceability Information: date of manufacture or serial number
7. Standards: See above
8. Applicable Ratings: See below

**Marking Method:**

Permanent label stock fastened with pins or permanent adhesive.

**Marking Details:**

Each product is marked with a permanent label that is readily visible after installation within the top 1/3 of the hinge stile:

For wood edged doors:
- The certification label shall be applied with screw-type nails (min. 5/8" (15.9 mm), or minimum 18 gauge staple with 1/4" (6.4 mm) crown and 5/8" (15.9 mm) length). Two staples (one at each end of the label) shall be applied parallel to the edge of the label.

For steel edged doors:
- The certification label shall be applied to the hinge edge of the door with either 1/8" (3.2 mm) diameter rivets or talk welds or adhesive

**Exception 1:**
- When a continuous hinge is applied to the assembly, the certification label shall be attached to the top of the door.

**Exception 2:**
- When a continuous hinge is applied to the assembly and a concealed closer arm is used the certification label shall be attached within the top 1/3 of the door to the face of the door near the hinge edge of the door.

**Models:**

**Approved Door Slabs for Machining:**

(Refer to appendix A of F409-1 – Evaluation Report for Slab Details)

**20-Minute Wood/Insulation Core Door Slabs:**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Swing Type</th>
<th>Panel Type</th>
<th>Skin</th>
<th>Core</th>
<th>Thickness Width</th>
<th>Maximum Size Height</th>
</tr>
</thead>
</table>

Neutral Pressure:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Swing Type</th>
<th>Panel Type</th>
<th>Skin</th>
<th>Core</th>
<th>Thickness</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeld-Wen</td>
<td>Single</td>
<td>Profiled or Flush</td>
<td>Hardboard</td>
<td>Wood</td>
<td>1.69”</td>
<td>36”</td>
<td>80”</td>
</tr>
<tr>
<td>Jeld-Wen</td>
<td>Single</td>
<td>Profiled or Flush</td>
<td>Wood</td>
<td>Wood</td>
<td>1.75”</td>
<td>36”</td>
<td>96”</td>
</tr>
<tr>
<td>Jeld-Wen</td>
<td>Double</td>
<td>Profiled or Flush</td>
<td>Wood</td>
<td>Wood</td>
<td>1.75”</td>
<td>72”</td>
<td>96”</td>
</tr>
<tr>
<td>Jeld-Wen</td>
<td>Single</td>
<td>Profiled or Flush</td>
<td>1/16” Fiberglass</td>
<td>Celotex 18 pcf</td>
<td>1.75”</td>
<td>36”</td>
<td>80”</td>
</tr>
<tr>
<td>Jeld-Wen</td>
<td>Single</td>
<td>Profiled or Flush</td>
<td>“Environ” 27 pcf</td>
<td>“Environ” 27 pcf</td>
<td>1.75”</td>
<td>36”</td>
<td>80”</td>
</tr>
<tr>
<td>Masonite</td>
<td>Single</td>
<td>Profiled or Flush</td>
<td>Hardboard</td>
<td>Wood Particleboard</td>
<td>1.75”</td>
<td>36”</td>
<td>96”</td>
</tr>
<tr>
<td>Masonite</td>
<td>Double</td>
<td>Profiled or Flush</td>
<td>Hardboard</td>
<td>Wood Particleboard</td>
<td>1.75”</td>
<td>72”</td>
<td>84”</td>
</tr>
</tbody>
</table>

Positive Pressure:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Swing Type</th>
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<th>Skin</th>
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<tr>
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<td>Masonite</td>
<td>Double</td>
<td>Profiled or Flush</td>
<td>Hardboard</td>
<td>Wood Particleboard</td>
<td>1.75”</td>
<td>72”</td>
<td>84”</td>
</tr>
</tbody>
</table>

20-Minute Steel-Faced/Foam Core/Wood Edged Door Slabs:

Neutral Pressure:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Swing Type</th>
<th>Panel Type</th>
<th>Skin</th>
<th>Core</th>
<th>Thickness</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeld-Wen</td>
<td>Single</td>
<td>Flush</td>
<td>Steel</td>
<td>Foam</td>
<td>1.75”</td>
<td>36”</td>
<td>80”</td>
</tr>
<tr>
<td>Jeld-Wen</td>
<td>Double</td>
<td>Profiled or Flush</td>
<td>24 ga Steel</td>
<td>1.0 pcf Expanded Polystyrene Foam</td>
<td>1.75”</td>
<td>36”</td>
<td>80”</td>
</tr>
<tr>
<td>Masonite</td>
<td>Single</td>
<td>Profiled or Flush</td>
<td>Steel</td>
<td>Polyurethane</td>
<td>1.75”</td>
<td>36”</td>
<td>84”</td>
</tr>
</tbody>
</table>

Positive Pressure:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Swing Type</th>
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<th>Skin</th>
<th>Core</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Jeld-Wen</td>
<td>Single</td>
<td>Flush</td>
<td>Steel</td>
<td>Foam</td>
<td>1.75”</td>
<td>36”</td>
<td>80”</td>
</tr>
<tr>
<td>Jeld-Wen</td>
<td>Double</td>
<td>Profiled or Flush</td>
<td>24 ga Steel</td>
<td>1.0 pcf Expanded Polystyrene Foam</td>
<td>1.75”</td>
<td>36”</td>
<td>80”</td>
</tr>
<tr>
<td>Masonite</td>
<td>Single</td>
<td>Profiled or Flush</td>
<td>Steel</td>
<td>Polyurethane</td>
<td>1.75”</td>
<td>36”</td>
<td>84”</td>
</tr>
</tbody>
</table>

45-Minute Hollow Metal with EPS Foam Insulation Fire Door Slabs:

Neutral Pressure:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Swing Type</th>
<th>Panel Type</th>
<th>Skin</th>
<th>Core</th>
<th>Thickness</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artek</td>
<td>Double</td>
<td>Flush</td>
<td>18 Gauge Steel</td>
<td>Expanded Polystyrene (EPS)</td>
<td>1.75”</td>
<td>48”</td>
<td>96”</td>
</tr>
</tbody>
</table>

90-Minute Hollow Metal with EPS Foam Insulation Fire Door Slabs:

Neutral Pressure:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Swing Type</th>
<th>Panel Type</th>
<th>Skin</th>
<th>Core</th>
<th>Thickness</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artek</td>
<td>Double</td>
<td>Flush</td>
<td>18 Gauge Steel</td>
<td>Expanded Polystyrene (EPS)</td>
<td>1.75”</td>
<td>48”</td>
<td>96”</td>
</tr>
</tbody>
</table>
Approved Door Frame Details for Machining:

Steel or Wood Frames that meet ANSI A155.1/UL 63/ULC S105 or as per the following:

Neutral Pressure Wood Frames:

Maximum Sizes:

<table>
<thead>
<tr>
<th></th>
<th>20 Minute:</th>
<th>45/90 Minute:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single Swing</td>
<td>Pair</td>
</tr>
<tr>
<td></td>
<td>See Table Above</td>
<td>See Table Above</td>
</tr>
</tbody>
</table>

Frame Cross Section Dimensions:

Wood Frame:
- Minimum Stop Depth: 1/2”
- Minimum Rabbet: 1-13/16” (Non-Kerfed Frames)
  1-15/16” (Kerfed Frames)
- Minimum Soffit: 1-13/16”
- Minimum Face Width: 11/16” (Door Side)
  1-3/16” (Soffit Side)

Maximum Kerf for Weather-stripping: 1/8” x 1/2”

Note: Kerf is optional all labeled frames

Expandable Artek Steel Frame:
- Rebate Width: 96”
- Rebate Height: 96”
- Metal Gauge: 18 gauge Satin Coat Galvanized Steel
- Face Length: 2”
- Back Bends: 1/2”
- Stop Height: 5/8”

Material:

20 minute Wood Frames:
Solid Wood (Grade 1 or better) with a minimum specific gravity of 0.36 at 12% moisture content (Sugar Pine)

45/90 minute Artek Steel Frames:
- Hinge Reinforcements: 10 gauge, 9-1/4” x 1-1/4”
- Closer Reinforcement: 16 gauge, 12” x 1-1/2”
- Corner Connection Tabs: 20 gauge, spot welded to the jambs
- Slides: 16 gauge stamped interlocking sliders, welded to frame with four spot welds, four sliders per jamb for headers, 4-1/2” from ends and 30” on centers.
- Anchoring: Screws are installed in the prepared holes in the face of the frame (four per jamb and for the header)

Positive Pressure Wood Frames:

Maximum Sizes:

<table>
<thead>
<tr>
<th></th>
<th>Single Swing</th>
<th>Pair</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40” wide by 90” high</td>
<td>80” wide by 90” high</td>
</tr>
<tr>
<td>Minimum Jamb Depth</td>
<td>3-3/4”</td>
<td></td>
</tr>
</tbody>
</table>

Frame Cross Section Dimensions:

<table>
<thead>
<tr>
<th></th>
<th>Minimum Stop Depth</th>
<th>Minimum Rabbet</th>
<th>Minimum Soffit</th>
<th>Minimum Face Width</th>
<th>Maximum Kerf for Weather-stripping</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2”</td>
<td>1-13/16” (Non-Kerfed Frames)</td>
<td>1-13/16” (Kerfed Frames)</td>
<td>11/16” (Door Side)</td>
<td>1-3/16” (Soffit Side)</td>
</tr>
</tbody>
</table>
Note: Kerf is optional all labeled frames

Material:
Frames up to 36" wide by 80" high:
Solid Wood (Grade 1 or better) with a minimum specific gravity of 0.36 at 12% moisture content (Sugar Pine)
Frames larger than 46" wide by 80" high:
Solid Wood (Grade 1 or better) with a minimum specific gravity of 0.47 at 12% moisture content (Sugar Pine)

Door & Frame Components:
Refer to Appendix A of F409-1 – Evaluation Report for allowable components and modifications for each listed door slab.

Latch Sets (Listed and labeled for rated opening)
- Cylindrical Latches
  - Maximum 2-1/8" diameter bore
  - Maximum 2-3/4" backset
  - Minimum ½" Throw
- Mortised Latch

Deadbolts (Listed and labeled for rated opening)
- Maximum 2-1/8" diameter bore
- Maximum 2-3/4" backset
- Located a minimum of 3-1/2" center-line to center-line above the latch set
  - Interconnected Deadbolts are allowed

Hinges (Listed and labeled for rated opening)
- Hinges as per NFPA 80, Table 6.4.3.1

Fire Exit Devices (Listed and labeled for rated opening)
- Surface Mounted Vertical Rod Fire Touch Bar Exit Device
- Rim Type Fire Exit Devices
- Through-bolts are required unless optional reinforcements are noted on the marking top of the door

Weather-Stripping (Listed and labeled for rated opening)
- Category "B" doors are eligible to bear the "S" (for smoke and draft assemblies) if a listed Category "H" smoke and draft control gasket has been applied to the assembly. Please refer to the individual gasket manufacturer's listings.
- Gaskets must be listed for use with either wood or steel frames or both and for the type of door being installed.
- In Canada, weather-stripping is required

Surface Mounted Closers (Listed and labeled for rated opening)
- Through-bolts are required unless optional reinforcements are noted in marking on the top of the door

Surface Mounted Protection Plates
- Plates of brass, bronze, steel, aluminum, polycarbonate or decorative laminate may be installed to the bottom face on one or both sides of a door.
- Top of plate shall be located a maximum height of 16" above the door bottom
- The plate shall be applied with sheet metal screws, spaced maximum of 6" o.c. around the perimeter of the plate

Louvers
- Not permitted

Metal Edges/Astragals (Listed and labeled for rated opening)
- Metal edges and Z-Astragal set is required for meeting edges of pairs

Viewers [Flush Panel Doors only] (Listed and labeled for rated opening)
- Maximum size of 1" diameter
- Multiple viewers located a minimum of 12" on center
- Viewers located a minimum 5-1/2" away from edges of doors

Glass Lights (Listed and labeled for rated opening)
- Glazing material shall be listed and labeled for rated opening, light kit and door type
- Glazing installed in accordance with NFPA 80, and the listed light kit frame installation instructions
- 20 min wood doors
  - Maximum 1296 sq. in. area (see details in Slab Preparation Section)
- 45 Min Steel Doors
  - Square/Rectangular Lites
    - Maximum 1296 sq. in. area (see details in Slab Preparation Section)
Round Lites
- Maximum 15 in Diameter
- Maximum area of 707 sq. in.

90 Min Steel Doors
- Maximum 100 sq. in. area
- Rectangular or Square only

Plant-Ons (Wood & Composite Slabs only)
- Solid wood plant-on moldings may be applied to one or both sides of a door
- Maximum 1-3/4" with and not to exceed 20% face area of door
- Adhesive and/or mechanical fasteners with a maximum penetration of 3/4"
- Moulding may not be applied closer than 3-1/2" to edge of door, edge of light or edge of hardware cutout

Door Bottoms Seals (Wood & Composite Slabs only)
- Surface Mounted, semi-mortised, or full-mortised bottom seals may be used when door construction includes 3” or larger bottom rail of lumber or LSL.
- Cutout dimensions are restricted to 15/16" wide and 1-15/16" deep x full width of the door.

Door Bottoms
- Surface mounted or Snap-In in dual durometer vinyl with bulb and fins or with all fins

Electric Raceway
- Not permitted

Installation Instructions:
Installation instructions shall be provided to the installer by the licensed machiner. The instructions may be attached to the door with stapled or with adhesive-backed label (refer also to "labeling")

The instructions shall contain at least the following information:
- Trimming for height may be done on the bottom rail only (per NFPA 80, maximum trim of 3/4”/19.0mm allowed on-site).
- Trimming for height is not allowed for Steel Doors.
- Surface mounted hardware must be attached with throughbolts unless interior blocking is provided.
- A maximum 1/8” (3.2mm) clearance between the top leaf and the bottom leaf of dutch door, or transom and door, or between leaves of pairs, is allowed

Note: Refer to QAI evaluation report F409-1 and the applicable test reports for test assembly configurations used for fire endurance testing.
Final acceptance of the product in the intended application is to be determined by the authority having jurisdiction (AHJ).