NFPA 80 – 2007
Fire Doors and the Codes

DHI North Central Chapter
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NFPA 80

• NFPA 80 “Standard for Fire Doors and Other Opening Protectives” is a key standard that is sited in numerous locations in the codes.
NFPA 80 and Fire Doors and the Codes

- What does the 2007 version of NFPA 80 state about annual maintenance inspections of Fire Doors?
- How does it affect you?
- What do the codes require for Fire Doors?
5.2* Inspections.

- 5.2.1* Fire door assemblies shall be inspected and tested not less than annually, and a written record of the inspection shall be signed and kept for inspection by the AHJ.
5.2.2* Performance-Based Option.

- 5.2.2.1 As an alternate means of compliance with 5.2.1, subject to the AHJ, fire door assemblies shall be permitted to be inspected, tested, and maintained under a written performance-based program.

- 5.2.2.2 Goals established under a performance-based program shall provide assurance that the fire door assembly will perform its intended function when exposed to fire conditions.
5.2.2* Performance-Based Option.

- 5.2.2.3 Technical justification for inspection, testing, and maintenance intervals shall be documented.

- 5.2.2.4 The performance-based option shall include historical data acceptable to the AHJ.
5.2.3 Functional Testing.

- 5.2.3.1 Functional testing of fire door and window assemblies shall be performed by individuals with knowledge and understanding of the operating components of the type of door being subject to testing.

- 5.2.3.2 Before testing, a visual inspection shall be performed to identify any damaged or missing parts that can create a hazard during testing or affect operation or resetting.
5.2.4 Swinging Doors with Builders Hardware or Fire Door Hardware.

• 5.2.4.1 Fire door assemblies shall be visually inspected from both sides to assess the overall condition of door assembly.

• 5.2.4.2 As a minimum, the following items shall be verified:
5.2.4 Swinging Doors with Builders Hardware or Fire Door Hardware.

- (1) No open holes or breaks exist in surfaces of either the door or frame.
- (2) Glazing, vision light frames, and glazing beads are intact and securely fastened in place, if so equipped.
- (3) The door, frame, hinges, hardware, and noncombustible threshold are secured, aligned, and in working order with no visible signs of damage.
- (4) No parts are missing or broken.
5.2.4 Swinging Doors with Builders Hardware or Fire Door Hardware.

• (5) Door clearances at the door edge to the frame, on the pull side of the door, do not exceed clearances listed in 4.8.4 and 6.3.1.

• (6) The self-closing device is operational, that is, the active door completely closes when operated from the full open position.

• (7) If a coordinator is installed, the inactive leaf closes before active leaf.

• (8) Latching hardware operates and secures the door when it is in the closed position.
5.2.4 Swinging Doors with Builders Hardware or Fire Door Hardware.

- (9) Auxiliary hardware items that interfere or prohibit operation are not installed on the door or frame.
- (10) No field modifications to the door assembly have been performed that void the label.
- (11) Gasketing and edge seals, where required, are inspected to verify their presence and integrity.
5.2.5 Horizontally Sliding, Vertically Sliding, and Rolling Doors.
5.2.6 Inspection shall include an operational test for automatic-doors and windows to verify that the assembly will close under fire conditions.
5.2.7 Assembly shall be reset after a successful test.
5.2.8 Resetting of the release mechanism shall be done in accordance with manufacturer’s instructions.
5.2.9 Hardware shall be examined, and inoperative hardware, parts, or other defects shall be replaced without delay.
5.2.10 Tin-clad and kalamein doors shall be inspected for dryrot of the wood core.
5.2.11 Chains or cables employed shall be inspected for excessive wear and stretching.
5.2.12 Lubrication and Adjustments.

- 5.2.12.1 Guides and bearings shall be kept well lubricated to facilitate operation.
- 5.2.12.2 Chains or cables on biparting, counterbalanced doors shall be checked and adjustments shall be made to ensure latching and to keep the doors in proper relation to the opening,
5.2.13 Prevention of Door Blockage.

• 5.2.13.1 Door openings and the surrounding areas shall be kept clear of anything that could obstruct or interfere with the free operation of the door.

• 5.2.13.2 Where necessary, a barrier shall be built to prevent the piling of material against sliding doors.

• 5.2.13.3 Blocking or wedging of doors in the open position shall be prohibited.
5.2.14 Maintenance of Closing Mechanisms.

- 5.2.14.1 Self-closing devices shall be kept in working condition at all times.
- 5.2.14.2 Swinging doors normally held in the open position and equipped with automatic-closing devices shall be operated at frequent intervals to ensure operation.
- 5.2.14.3 All horizontal or vertical sliding and rolling fire doors shall be inspected and tested annually to check for operation and full closure.
5.2.14 Maintenance of Closing Mechanisms.

• 5.2.14.3.1 Resetting of the release mechanism shall be done in accordance with the manufacturer’s instructions.

• 5.2.14.3.2 A written record shall be maintained and shall be made available to the AHJ.

• 5.2.14.3.3 When conducting the annual test for operation and full closure, rolling steel fire doors shall be drop tested twice.
5.2.14 Maintenance of Closing Mechanisms.

- 5.2.14.3.4 The first test shall be to check for operation and full closure.
- 5.2.14.3.5 A second test shall be done to verify that the automatic-closing device has been reset.
5.2.14 Maintenance of Closing Mechanisms.

- 5.2.14.4 Fusible links or other heat-actuated devices and release devices shall not be painted.

- 5.2.14.5* Paint shall be prevented from accumulating on any movable part.
6.3.1.7 Clearances

- 6.3.1.7.1 The clearances between the top and vertical edges of the door and the frame, and the meeting edges of doors swinging in pairs, shall be 1/8 in. +/- 1/16 in. (3.18 mm +/- 1.59 mm) for steel doors and shall not exceed 1/8 in. (3.18 mm) for wood doors.

- 6.3.1.7.2 Clearances are measured from the pull face of the door.
4.8.4 Clearance

• 4.8.4.1 The clearance under the bottom of the door shall be a maximum of ¾ inch (19 mm).

• 4.8.4.2 Where the bottom of the door is more than 38 in. (965 mm) above the finished floor, the maximum clearance shall not exceed 3/8 inch (9.5 mm) or as specified by the manufacturer’s label service procedure.
Your Responsibility

- Label Service – certify that the door assembly meets the test criteria
- If you are an inspector – note all items noted in previous slides; You are not certifying the door assembly
- If you are a building owner – once there is found some problem correct the problem
- Door, Frame, and/or Hardware supplier – business as usual – help the costumer meet the requirements by providing the best door, frame, hardware, and service you can
- AHJ – Authority Having Jurisdiction – Final Judge
Door Modifications

• If there are any modifications to the door assembly the label service is to be notified.

• Under the 2007 NFPA 80 There are two options:
  – Field Inspection required
  – Label service writes an approval letter to be kept on file
The ICC

- The International Code Council is a cooperative arrangement of the three model code groups that has produced an integrated set of codes. The “I” Codes.
  - International Building Code
  - International Residential Code
  - International Plumbing Code
  - International Mechanical Code
  - ICC Electrical Code
  - International Fire Code
  - International Fuel Gas Code
  - International Energy Conservation Code
  - International Zoning Code
  - International Property Maintenance Code
  - International Private Sewage Disposal Code
What Does the IBC Say?

• “715.3.1 Side-hinged or pivoted swinging doors. Side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL10C. After 5 minutes into the NFPA 252 test the neutral pressure level in the furnace shall be established at 40 inches (1016 mm) or less above the sill.”
What Does the IBC Say?

- “715.3.2 Other types of doors. Other types of doors, including swinging elevator doors, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.”
<table>
<thead>
<tr>
<th>TYPE OF ASSEMBLY</th>
<th>REQUIRED ASSEMBLY RATING (hours)</th>
<th>MINIMUM OPENING PROTECTION ASSEMBLY (hours)</th>
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<td>Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour</td>
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<td>3</td>
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<td>Fire barriers of 1-hour fire-resistance-rated construction:</td>
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<td>Other fire barriers</td>
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<td>Fire partitions:</td>
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<tr>
<td></td>
<td>0.5</td>
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<td>Other fire partitions</td>
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<td>2</td>
<td>1 ½</td>
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<td></td>
<td>1</td>
<td>¾</td>
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</tbody>
</table>
The International Residential Code - IRC

- Only mention of Fire Door is for garage to living space.
- Allows solid wood or steel minimum 1 3/8” thick doors OR labeled 20 minute fire door.
- Does not require fire rated frame, hardware or closers.
The International Residential Code - IRC

• We do not consider this application to be a fire rated opening. However, use of a labeled fire door in the garage to home opening does comply with the code. Therefore, we have no restrictions that apply to this situation.

• You can always use fire rated components in openings that don’t have to be fire rated per NFPA 80!
4 *Almost* Identical Standards.

- ASTM - E2074
  - Replaces E152
  - Includes “Positive Pressure”
- NFPA - NFPA 252 allows for “Positive Pressure” option.
- UL 10C - Published in 1998.
- Part I of UBC 7-2-1997.
Fire Test Basics – “Acceptance Criteria”

- No “through penetrations” (holes).
- No sustained flaming on unexposed (non-fire) face.
- Deflection limited to 1.5 times door thickness.
- Must withstand fire hose impact test without developing through openings.
- Must remain latched and separation between pairs is limited (3/8”).
Why we do what we do!
QUESTIONS – COMMENTS
DISCUSSION