

Fire Door Assemblies

Top Ten Deficiencies

The following items are the most commonly observed deficiencies found on swinging fire doors with builders hardware:

1. Painted or missing fire door labels
2. Poor clearance dimensions around the perimeter of the door in the closed position
3. Kick down door holders
4. Auxiliary hardware items that interfere with the intended function of the door (*barrel bolts and dead bolts, etc.*)
5. Fire doors blocked to stay in the open position
6. Area surrounding the fire door assembly blocked by furniture, equipment and/or boxes
7. Broken, defective or missing hardware items (*latch bolts and/or strike plated, closer arms, cover plates, etc*)
8. Fire exit hardware installed on doors that are not labeled for use with fire exit hardware
9. Missing or incorrect fasteners
10. Bottom flush bolts that do not project ½" into the strike

Eight Steps to Performing Visual Inspections of Fire Door Assemblies

Step One: Check Door Leaf for Label

- ✓ Label should be attached to the hinge edge of the door, just below the top hinge (the label might be attached to the top edge of the door on some assemblies)
- ✓ Read the information on the label and make note
- ✓ Check the label to see if it requires fire exit hardware to be installed on the door

Step Two: Check Frame for Label

- ✓ Verify the label on the frame
- ✓ Read the information on the label

Step Three: Inspecting the Frame: Pull Side

- ✓ Start on the pull side of the assembly
- ✓ Verify that the frame is securely anchored to the wall construction
- ✓ Watch for obvious signs of field modification that might have compromised the fire rating of the frame
- ✓ Check for signs of rust-through on hollow metal frames
- ✓ Look for significant dents that prevent the doors from completely closing and/or positively latching
- ✓ Verify that caulking is present and seals the gap between the backend of the frame and the wall construction
- ✓ Inspect the face of the frame head from left to right
- ✓ Inspect the face of the side jambs
- ✓ Inspect sill and mullion sections of sidelight/panel frames
- ✓ Inspect transom light/panel frames

Step Four: Inspecting the Door: Pull Side

- ✓ Look for open holes from fasteners of hardware items that may have been removed or replaced
- ✓ Look for significant dents or deflections of the door that prevent it from closing completely and/or positively latching

- ✓ Check for delamination of the door skin or face and other through-hole penetrations (e.g., rust-through)
- ✓ Watch for obvious signs of field modifications that might have compromised the fire-rating of the door
- ✓ Check vision light frames to ensure they are secured
- ✓ Verify that the face of the door is flush (or slightly inset) with the face of the door frame
- ✓ Check the alignment of the door(s) in the frame.
- ✓ Verify that plant-ons and overlays have not caused the face of the door to extend beyond the face of the frame
- ✓ Verify clearances around the perimeter of the door
- ✓ Verify clearance between meeting stiles of paired doors without overlapping astragals

Step Five: Inspecting Vertical Edges of Doors

- ✓ Open the door and inspect the hinge and lock stiles
- ✓ Look for signs of delamination of the door skin or face and other through-hole damage (e.g. rust-through on hollow metal doors)
- ✓ Look for open holes from fasteners of hardware items that may have been removed or replaced
- ✓ Look for wear signs that indicate the door is rubbing on the frame or opposing door leaf (a sign of misalignment and poor clearance)
 - **For Wood Fire Doors:**
- ✓ Check vertical edges for signs of field modifications (e.g. planed edges)
- ✓ Check for split stiles from installing fasteners without pilot holes

Step Six: Inspecting the Frame: Push Side

- ✓ Start on the push side of the assembly
- ✓ Inspect the face of the frame head from left to right

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2. Poor clearance dimensions around the perimeter of the door in the closed position
3. Kick down door holders
4. Auxiliary hardware items that interfere with the intended function of the door (*barrel bolts and dead bolts, etc.*)
5. Fire doors blocked to stay in the open position
6. Area surrounding the fire door assembly blocked by furniture, equipment and/or boxes
7. Broken, defective or missing hardware items (*latch bolts and/or strike plated, closer arms, cover plates, etc*)
8. Fire exit hardware installed on doors that are not labeled for use with fire exit hardware
9. Missing or incorrect fasteners
10. Bottom flush bolts that do not project ½" into the strike

Eight Steps to Performing Visual Inspections of Fire Door Assemblies—*continued*

- ✓ Inspect the face of the side jambs
- ✓ Inspect sill and mullion sections of sidelight/panel frames
- ✓ Inspect transom light/panel frames

Step Seven: Inspecting the Door: Push Side

- ✓ Look for open holes from fasteners of hardware items that may have been removed or replaced
- ✓ Look for significant dents or deflections of the door that prevent it from closing completely and/or positively latching
- ✓ Check for delamination of the door skin or face and other through-hole penetrations
- ✓ Check vision list frames to ensure they are secured
- ✓ Verify that the door and the frame are properly aligned
- ✓ Verify clearance between meeting stiles and paired doors with overlapping astragals

Step Eight: Inspecting Hardware

Sequence for Inspecting Builders Hardware

- Hang the Door
- Secure the Door
- Control the Door
- Protect the Door

■ Hang the Door

- ✓ Verify the hinges or pivots are listed or labeled
Note: Conventional steel and stainless steel, ball bearing hinges are listed and will not have a visible label
- ✓ Verify that concealed bearing hinges, pivots, and continuous hinges are labeled
Note: Spring hinges—A minimum of two are required, the third hinge (if not a spring hinge) is required to be anti-friction or ball bearing
- ✓ Look for label on concealed floor door closers

■ Secure the Door

- ✓ Verify that flush bolts and surface bolts are labeled
- ✓ Verify that top and bottom bolts project a minimum of ½" into strikes
- ✓ Verify that locks and latches are labeled and that minimum latch throw dimensions are met

- ✓ Verify that fire exit hardware devices are labeled
- ✓ Verify that the label on the door requires fire exit hardware to be installed on the door
- ✓ Verify that devices are securely fastened to doors
- ✓ Verify that strikes are present, properly aligned, and securely fastened to the frame
- ✓ Verify that latch bolts move freely when extended and retracted and fully engage strikes
- ✓ Verify that fasteners are present and securely tightened
- ✓ Verify that all end caps and covers are securely attached
- ✓ Verify that top and bottom rods are present and secured to the doors where surface vertical rods or concealed vertical rods are present
Note: Subject to approval of AHJ, the bottom rod of a vertical rod fire exit hardware device is not required, provided it is replaced with a fire pin
- ✓ Verify auxiliary locks are labeled—Permissible for fire doors not in the path of egress i.e. dead bolts on storage closet

■ Control the Door

- ✓ Verify that door closers are labeled
- ✓ Verify door closers are not bent or leaking fluids
- ✓ Verify that coordinators are labeled and functioning properly
- ✓ Verify that overhead stops are labeled

■ Protect the Door

- ✓ Verify that the top edge of the kick plate is not more than 16" from the bottom edge of door. More than 16"—look for the UL and/or WH symbols
- ✓ Verify that gasketing forms a continuous (unbroken) seal along the vertical sides and top edge(s) of the door(s)
- ✓ Verify that fasteners are present and securely tightened
- ✓ Verify that gasketing material creates a "light-proof" seal to the door and does not interfere with the closing of the door