Our mission is to promote secure and safe openings that enhance life safety, through outreach efforts that include awareness and education within the building design, code authority, and facility management communities.
A noted veteran in the door and hardware industry, Mr. Baillargeon is a certified Architectural Hardware Consultant (AHC) and Fire and Egress Door Assembly Inspector (FDAI), both of which are programs of the Door and Hardware Institute (DHI). Mr. Baillargeon has been involved in the distribution and installation of doors and hardware since 1970, was a Field Inspector for Intertek Testing Services for eight years, an instructor for DHI’s Education Program and a member of their Education Council.
Today’s Agenda

• Introduction to NFPA 80 and the role and responsibilities of the fire door inspector.

• General overview of the fire door inspection process.

• Introduction to DHI’s Fire Door Assembly Inspector training program.

• Review opportunities to increase your business offerings by performing Fire Door Inspections.
How are Fire Door Assemblies determined in Building Occupancies?

- NFPA 80 defines products that provide the fire-protection

- Building, fire, and life safety codes are the documents designed to establish the level of fire protection ratings. The codes ensure that buildings are constructed and properly maintained to protect the lives and property of occupants within all types of residential, commercial, industrial, institutional and recreational building and facilities.
NFPA 80 INFORMATION

• The 2007 edition was the first edition to require annual inspections of fire door assemblies and written records of all inspections.

• It is important to note that the building owners are responsible for maintaining the fire door assemblies in accordance with NFPA 80 standards.

• For the purposes of this seminar, we will be citing the 2013 edition of NFPA 80 as the main reference publication.
What is the Role and Function of Fire Door Assemblies?

Doors and hardware play a significant role in life safety. The fire door assemblies, which are part of the building barriers, are essential elements in

- containing fire and smoke
- providing safe areas of refuge within the building,
- allowing the building occupants and rescue personnel time to safely enter and egress the buildings in times of emergency.
Actual Fire-none fire side
Actual Fire-room side
Inspector’s Role and Responsibilities

• Inspectors are responsible for visual inspections and functional testing of fire door assemblies

• Providing documentation and reporting their findings.
Fire Door Assemblies

- Swinging doors with builder’s hardware are the most common type of fire door assembly, and are among the most complex due to the myriad of materials and products that are used to create them.
- These assemblies often provide accessibility, security and life safety functions in addition to their fire safety protection, also increasing their complexity.
- Inspectors must thoroughly understand the dynamics of these assemblies to correctly evaluate them in the field.
Keep These Points in Mind

✓ Fire doors are mechanical equipment that is subject to wear and tear

✓ Failure to properly maintain fire door assemblies in good operating condition is the action that violates code
Who is qualified to perform the fire door assembly inspection?

• Inspectors of swinging doors with builders hardware need to be able to recognize which components can or cannot be used on specific assemblies, which requires training and experience on behalf of the persons performing the inspections. Additionally AHJs need to be able to rely on the competency, expertise, experience, and knowledge of the fire door inspectors in their jurisdiction. (A.5.2.3.1) NFPA 80 2013
What are the requirements of NFPA 80 annual fire door assembly inspection?

• Confirm that all the components of the assembly are labeled or listed.

• Confirm that all the components furnished are installed in accordance with manufacturer’s instructions and comply with NFPA 80 standard.

• Confirm that no field modification on the labeled components have been performed other than what's allowed by NFPA 80.

• Create a written record of each individual door assembly inspected, to be signed and kept for inspection by the AHJ.
DHI’S Sequence for Fire Door Assembly Inspections

Check the following frame and door applications:

• **Hanging Devices** - inspect the proper installation of the hanging devices.
• **Security** - verify the locking/latching devices.
• **Control** - verify the products controlling the operation of the door assembly.
• **Protection** - verify protections products on the door.
WHAT SHALL BE INSPECTED?

• Swinging Fire Door Assemblies with Builders Hardware are Comprised of:
  – Labeled door frames:
    – Steel Frames
    – Wood Frames
    – Aluminum Frames
    – Stainless Steel Frames
  – Labeled door(s):
    – Wood Doors
    – Steel Doors
    – Aluminum Doors
    – Stainless Steel Doors
    – FRP & Composite Doors
Additional Inspections Items

– Labeled or Listed Door Hardware Products
  • Hinges and Pivots
  • Locks and Latches
  • Door Closers and Coordinating Devices
  • Fire Exit Hardware
  • Door Attachments
  • Protection Plates
  • Louvers
  • Astragals
  • Gasketing
  • Glazing
  • Application, Installation, Adjustments
  • Field Modifications
Rated Steel Door Frames

- Properly Labeled
- Properly sized.
- Securely attached.
- Manufactured per Industry Standards SDI, NAAMM
- In accordance with NFPA 80 Standard
Rated Steel Door Frames

No-rust through on frame.

No open holes or breaks in the frame faces.
Rated Steel Doors

• Properly Labeled

• No broken welds on rails or stiles of steel doors.

• No holes in faces and edges of steel doors.

• Verify face of door for delaminating of face skins from core of door.
Rated Wood Doors

- Properly Labeled
- No holes, cracks, or splits in faces, stiles, and rails of doors
- No delaminating of door face to core of doors
Hanging Devices - Hinges, Continuous
Hinges, Pivots

• Labeled or listed.
• Steel hinges and pivots.
• Ball Bearing hinges.
• Spring Hinges (must be labeled on fire doors)
Hanging Devices-Hinge review

- Hinge reinforcements secured to frame
- No rust on hinges/screws, reinforcements
- Steel shims
- No missing/loose screws
- Use of steel hinge fillers (at hardware retrofits)
Secure the Door-Locks/Latches

- Labeled or Listed
- Latchbolt Projection
- Latchbolt Engagement
- Strikes
Secure the Door-Fire Exit Hardware

• Labeled
• Latch bolt projects the required distance into the strike
  – 1/2-inch minimum or as required by the manufacturer
• No missing parts
  – lever, knob
  – end caps
  – Strikes
  – bottom rods
  – fire pin
Secure the Door - Latch Fire Exit Hardware Issues
Secure the Door-Electric Strikes

- Labeled
- Verify gap between electric strike and frame is tight and that screws holding strike, in place are tight
- Verify strike is fail secure on fire doors
Secure the Door - Manual Bolts, Automatic & Self Latching Bolts

- Labeled
- Manual flush bolts – limited application on fire doors
- Automatic flush bolts – require door coordinator
- Be aware of egress requirements
Control the Door-Closers

- Fire labeled or listed
- Securely attached
- Non hold-open type
- Functions as intended
Control the Door - Coordinators

- Used for pairs with an active and inactive leaf.
  - Ensures the inactive leaf closes first.
Protect the Door-Protection Plates

• Labeled if installed higher than 16 inches above door bottom.

• Maximum height 48 inches above finished floor.
Protect the door - Astragals

- Labeled

- Must extend 3/4-inch over door edge.

- Astragals shall be full height of doors and securely fastened to door.
FCIA/FDAI Similarities

• Fire and Life Safety Code driven businesses.

• Common Goal-ensure integrity of fire/smoke barriers.

• Requires code and testing laboratory approved materials and systems.

• Required professionally educated trained mechanics.
Similar Business Structures

• Title: FCIA Professional
• Specialty Firestop Contractor
• I Codes/Standards References NFPA 101
• UL Approved Components/Systems
• FM4991, Approved or UL-ULC Qualified Firestop Contractors
• Education/Certification

• Title: FDAI Professional
• Fire Door Assembly Inspector
• I Code/Standard References NFPA 80, NFPA 101, NFPA 105, IBC, IFC
• DHI Certified and Intertek IQP
• UL/SDI/WDMA/BHMA Certified Components
• Education/Certification
Why should I participate in the Fire and Egress Door Assembly Inspection

• Establish credibility in your role as a leader in life safety and security
• Be directly responsible for increasing life safety
• Increase your competitive edge
DHI’s Fire Door Assembly Inspector training program.

- Technical education courses on doors and hardware— in person and online
- Fire Door Inspector Training & credential programs.
- Industry’s leading resource for certified professionals
Resources for the FCIA Members

Door Security & Safety Foundation - www.doorsecuritysafety.org
• Fire Door Inspection Awareness and Education Training Seminars
• Guideline manuals and resource materials for owners, facility personnel and AHJs.
• Complimentary interactive awareness tutorial available online 24/7

Door and Hardware Institute - www.dhi.org
• Technical education courses on doors and hardware—in person and online
• Fire Door Inspector Training & credential programs.
• Industry’s leading resource for certified professionals
Additional Pictures
Door Operation

• Correct operation of doors
  – Swing freely
  – Self-Closing
  – Self-Latching
Door to Frame/Door to Door Clearances

- Clearances at jambs, head, & meeting stiles
  - Hollow Metal Doors: 1/8-inch (+/- 1/16-inch)
  - Wood Doors: 1/8-inch
  - Silencers/mutes installed
Clearance at door bottom

- Proper clearances
  - 3/4-inch maximum clearance between bottom of door and finished floor or threshold
Glazing

- Glazing beads securely fastened/no missing fasteners.
- Labeled light kits secured fastened - no missing fasteners.
- Correctly sized fire rated glazing installed.
Locksets/Latchsets - latchbolt engagements

- Listed or labeled

- Correctly secured with no broken parts or missing fasteners

- Latch bolt projects the required distance into the strike – 1/2-inch minimum or as required by the manufacturer
Gasketing

- Fire rated or listed
- Continuous around perimeter of door; no breaks are allowed
- Gasket material must be in “full contact” with door frame
Door Bottoms

- Fire rated or listed
- Must retract fully and may not rub on floor during opening cycle
- Cannot be used to close a gap greater than 3/4-inch
- Securely attached to door with no missing fasteners
Signage

• Signage attached to doors with adhesive only
  – No screws or nails allowed

• Signage must not exceed 5% of door surface area

• Signage is not permitted to be attached to glass or glazing
Blockage

- Area around door must remain clear of any materials
Door Wedges

• Manual blocking open of doors is not permitted
  – Kick-down door holders
  – Friction door holders
  – Overhead door holders
  – Hold open arms on door closers
  – Furniture, trash cans, fire extinguishers, etc…
Mechanical Hold-Opens

- Not allowed
  - Kick-down stops
  - Stops with hooks
  - Closers with hold-open arms
Decorations

- Decorations can cause premature door failure due to additional fuel added to fire loading of door
Mail Bins or Boxes on Doors

- Fasteners penetrate door skin and product adds fuel to fire door assembly.
Strikes

- Strike pocket in frame filled with miscellaneous materials preventing latch bolt projection
Electrified Hardware

- Must activate, as required, upon activation of the following devices:
  - Card Readers
  - Key Switches
  - Push Buttons
  - Fire Alarm Activation
Electrified Locks

• Locks or unlocks upon request of activation

• Verify whether fail safe or fail secure is required/installed
  
  – Fail safe operation requires power to remain locked condition
  
  – Fail secure operation requires power to remain unlocked condition
Electrified Fire Exit Hardware

• Electric Latch Retraction
  – Latch bolt must project and engage strike(s) under alarm conditions

• Electrified Trim
  – Electric lock (fail safe) and electric unlock (fail secure)

• Delayed Egress
  – Sound local alarm and allows door to open after 15 seconds
  – Allows immediate free egress under alarm conditions
Automatic Closing Doors

- Doors close and latch up on fire alarm
- Single point combination units
- Multi-point hold-opens
- Magnetic holders
Magnetic Hold Open Devices

- Properly thru-bolted to doors
- Correct armature installed
- Chains and other “homemade” armatures not permitted on fire doors
Automatic Operators

• Auto opening and closing function, operates properly under request

• Auto operators deactivated upon actuation of fire alarm