Barrier Management Systems

Abu Dhabi, UAE
May 18, 2014
“DIIM”

• Barriers are for Safety – DIIM
  • Properly *Designed* and Specified
    – *Tested and Listed Systems* – Directories, Tables
  • Professional *Installation* - Companies
  • Properly *Inspected* – Commissioned, Companies
  • *Maintained* –
    – NFPA 101 - 2000 (TJC, CMS)
    – International Fire Code - IFC 2012 - Annually (Local)
“TOTAL FIRE PROTECTION”

• Effective Compartmentation
  – Fire Barriers, Fire Walls/Floors, Smoke Barriers
  – Firestopping, Fire Dampers, Swinging and Rolling Fire Doors, Fire Rated Glazing

• Detection & Alarm Systems

• Sprinkler Suppression Systems

• Education & Egress—
  – Building Owners & Managers, Building Occupants and Firefighters
Building & Fire Code Requirements

- Continuous Fire Resistance
  - Walls / Horizontal Assemblies – Continuity
    - Firestop Products Become Firestop Systems
      - Penetrations
      - Joints – Head / Bottom of Wall – Perimeter Joints
    - Fire & Smoke Damper Duct Systems
    - Fire Doors and Hardware Systems
      - Rolling & Swinging
    - Fire Rated Glazing
Continuity
Effective Compartmentation Features
Barrier Continuity
Products become SYSTEMS

• Fire Rated Systems Directories –
  – UL Fire Resistance Directory
  – Intertek
  – FM Approvals

  Systems Selection & Analysis…Not as easy as it looks…
Barrier Continuity
I – Installation – Listed Systems
I- Installation
Who’s Responsible, How to Choose???
What Contractor Qualifications?

- FM 4991 – Standard for the Approval of Firestop Contractors
- UL Qualified Firestop Contractors
- Other Industries…

- UNDERSTANDS ALL ABOUT SYSTEMS & DOCUMENTATION
Why Contractor Qualifications?

• Accountability
• Built right the first time…
• Documentation
• SYSTEMS Selection, Analysis
  – F, T, H, L, W
  – Tolerances - Annular Space Sizes
  – Gap Sizes - Undercuts - Framing
  – Anchors - Spacing – Hardware
  – Closers - Activation Sensors, more…
Installation & Inspection

Duct w/Pink FBGL

ST23-8a

ST23-8e
I – Inspection – Options

• Contractor Self Inspection
  – Verify Management System validity

• Manufacturer Inspection?
  – Does not exist … Survey, maybe

• Special Inspection/Commissioning
  – Independent 3rd Party
  – Destructive, Non Destructive
  – Specified Frequency
  – Inspection Agency Accreditation – IAS AC 291
Compartmentation for Safety
M – Maintenance (& Management)
Firestop Maintenance

• Maintenance
  – Code Required
  – How??

• How to keep Track – Barrier Management Initiatives
  Paper
  Software
  Labeling
M–Barrier Management Systems

‘When you’re up to you’re a__ in alligators, it’s hard to remember you’re there to drain the swamp.’
Barrier Management Begins when new construction ends...
M–Barrier Management Systems

• NEW Buildings – Specifications Set Stage
  – SYSTEMS Expectations
  – As Built SYSTEMS
  – Testing
  – Installation
  – Inspection

• AS BUILT DOCUMENTATION IN SPECIFICATIONS
M–Barrier Management Systems

• Now it’s your building....

• Gleeson Powers Graphic
WHAT NEEDS TO BE MAINTAINED?

- Fire Resistive Wall Construction
- Fire Doors
- Fire Dampers
- Firestop Systems:
  - Joint Systems
  - Hot and Cold Water Piping
  - Laboratory Waste
  - Medigas Piping
  - Pneumatic Tubing
  - Sprinkler Piping
  - Rigid Electrical Conduits
  - Cable Trays
  - BX Cables
  - Low Voltage Cables
  - and More….
    - Low Voltage!!!!!
Barrier Management Policy Tool
– Rules of Engagement in Contracts

• Internal Contracts -
  – In House Departments similar to Outside Contractors

• External Contracts
  – AIA Contract
  – Marked Fire - Smoke Barrier Actions
  – Barrier Permits
  – Documentation
  – Report
M–Barrier Management Systems

• Methods to Control
  – Paper, Pictures & Files
  – Electronic Pictures & Files
    • ‘Custom’
    • ‘Packages’
M–Barrier Management Systems

• Common Elements
  – Life Safety Drawings
  – Existing Conditions Documented
  – Ongoing Survey Records
  – Deficiency Reports
  – Systems Documentation Control, Retrieval
M–Barrier Management Systems

• Document & Control

• Fire Resistance Rated & Smoke Resistant
  – Barrier Walls, Floors
  – Firestop Systems - Penetrations & Joints
  – Fire Doors – Rolling & Swinging
  – Fire Rated Glazing
  – Fire/Smoke, Combination Dampers
M–Barrier Management Systems

• Electronic Best Practice Elements
  – Action Oriented
    • Projects - Specifications
    • Ongoing Surveys – FCIA RPPS 2010-1
  – Action Reminders
  – In Process Status
  – Record Retrieval
Sample Permit – Area
**Corrective Action Report**

<table>
<thead>
<tr>
<th>Life Safety Type</th>
<th>Firestopping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Safety Sub Type</td>
<td>Through Wall Penetration - Firestop Systems</td>
</tr>
</tbody>
</table>

**Penetration Type:** EVT or Condull  
**Penetration Size:** Max 1"  
**Annular Space:** MIN: 0 to .50", MAX:  
**Wall Rating Type:**

<table>
<thead>
<tr>
<th>Date Completed</th>
<th>May-02-2011</th>
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</thead>
<tbody>
<tr>
<td>Classified System</td>
<td></td>
</tr>
<tr>
<td>Survey #</td>
<td>Survey</td>
</tr>
<tr>
<td>Survey Date</td>
<td></td>
</tr>
</tbody>
</table>

**Deficiency Description:** No firestopping

<table>
<thead>
<tr>
<th>Suggested CA Notes</th>
<th>Install UL Listed Firestopping System at penetration/joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey Notes</td>
<td>CA Notes:</td>
</tr>
</tbody>
</table>

**Corrective Action Photo**

| Side | 1: 3C1 |
| Photo ID | 37296 |

<table>
<thead>
<tr>
<th>Survey Photo</th>
<th>Side: 37296</th>
<th>Photo ID: 37296</th>
</tr>
</thead>
</table>

| Side | 2: 3L1 |
| Photo ID | 37299 |

<table>
<thead>
<tr>
<th>Survey Photo</th>
<th>Side: 37297</th>
<th>Photo ID: 37297</th>
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</table>

**Project Documentation** is submitted as part of Closeout.
Barrier Management
Policy Tool

- Pre Construction Meetings - Education
  - Barrier Markings Mean...
  - Actions when at Barriers Required...
    - Permit required – Above Ceiling, Barrier Hole...
    - Special Structure Needs
    - Facility Rules
Barrier Management Policy Tool
– Barrier Warnings on ASSEMBLIES
Barrier Management Policy Tool

• Violation Consequences
  – In House –
    • 2 strikes & work reassignment to cleaning…
    • Others…
  – Outside Contractors
    • 2 strikes & not allowed to work above ceilings
    • Others…
Barrier Management Policy Tool

• Ongoing Management
  – Engineering Staff Reviews
  – User Staff Reviews
  – Inside Construction
  – Outside Contractor
Barrier Management Policy Tool

- Education - Staff – Simple??
  - Fire Doors & Hardware – Simple things…
    - Close & Latch
    - Holes in Door
  - Ladder = ?? Permit Sticker?
- Fire Rated Walls - Holes
  - Accidental
  - Workers
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Effective Compartmentation is a SYSTEM.
Contacts

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