FCIA DIIM Educational Seminar in the UAE
Le Meridien - Dubai

Firestop Contractors International Association
Hillside, IL USA – +1-708-202-1108 - office
FCIA Info – info @ fcia.org
Bill McHugh – bill @ fcia.org
FCIA in UAE

Firestop DIIM & FM, UL Exam Prep

November 28 & 29, 2012
FCIA Educational Seminar @ UAE

- Fire & Emergency Exits
  - Exits
  - Exit Doors to Parking Lot
  - Assembly Point
- Cell Phones
- Luncheon Location - Falcon
- Rest Rooms
- VISIT SPONSORS!!
FCIA Anti Trust Policy

• Association Do’s and Don’ts – FCIA Outside Counsel
  
  – DON’T discuss the prices your company will charge customers.

  – DON’T discuss discounts, terms and conditions of sale, warrant terms, profits or profit margins, shares of market, bids or the intent to bid, rejection or termination, of customers, sales territories, or markets.

  – DON’T discuss administration or disciplinary action by the Association against a particular member, or enforcement of the Association’s Code of Ethics, in the absence of specific legal guidance.

  – DON’T propose or discuss any proposal, in the absence of specific legal guidance, that the Association sponsors or engage in any activity which may have the effect of producing an adverse economic impact on some competing companies.
Executive Director Welcome
Bill McHugh, FCIA Executive Director
Special Arabic Welcome by Tony Abou Rjeily, STI
Greetings from the FCIA 2012 Board of Directors
FCIA Educational Seminar @ UAE

• Welcome & Thank You!
  – FCIA Members
  – FCIA Guests
    Department of Civil Defence
    Department of Municipal Affairs
    Consultants
    General Contractors
    Architects, Engineers, Specifiers
  Speakers
  FCIA Sponsors
FCIA Educational Seminar @ UAE

• Welcome & Thank You!
  – FCIA UAE Planning Committee
    • Mushtaq Ahmed, Schoeb Fire Fighting Equipment
    • Amir Toma, HILTI, Inc.
    • Vidur Berry, FM Approvals
    • Randy Bosscawen, Multicon Fire Containment
    • Ahmed Eldidi, UL
    • Aedan Gleeson, Gleeson-Powers
    • Tom Hottenroth, Firestop Solutions
    • Bill Hoos, JHC Fire Containment Solutions
    • Kiro Naumov, Firestop Middle East
    • Ravi Subramanyam, Rise & Shine Insulation Co.
    • Charbel Tagher, Tony Abou Rjeily, Specified Technologies, Inc.
    • Saifuddin Taher, Eastern Wings Equipment
  • *Introductions*
FCIA Educational Seminar @ UAE

• Welcome & Thank You!

—**Introductions**
FCIA Educational Seminar @ UAE

- Presentations Outline
  - FCIA & DIIM Story - Total Fire Protection & Effective Compartmentation
  - Testing, Materials to Meet Code Requirements
  - Firestopping Process for Safety
    - *DIIM* Management Systems Protocol
      - Design
      - Installation
      - Inspection
      - Maintenance
  - FCIA Sponsor Tabletop Presentations
  - *Total Fire Protection Systems Concept*...
FCIA Educational Seminar @ UAE

Learning Objectives
Recognize Firestopping Design/Testing, Installation & Inspection, Maintenance & Management Standards

1. Tested and Listed Systems
2. Understand FM 4991 and UL Qualified Firestop Contractor Programs
3. ASTM E 2174 & ASTM E 2393 Inspection Standards, IAS AC 291 Inspection Agency Accreditation Program
4. Maintenance Requirements from International Fire Code, Section 703.1
5. Specification Section 07 84 00++
6. Relationships....
FCIA Educational Seminar @ UAE

• Seminar Speakers
  - Bill McHugh, FCIA Executive Director
  - Tony Abou Rjeily, Specified Technologies, Inc
  - Vidur Berry, FM Approvals
  - Romnish Kapoor, Underwriters Laboratories
  - Amir Toma, HILTI, Inc.
  - FCIA Sponsors
FCIA Educational Seminar @ UAE

FCIA Membership Means ........

- Industry Interest
  - FCIA Seminars
  - FCIA Publications
- Industry Investment
  - FCIA Manual of Practice
  - FCIA Conference Education
  - Committee Membership
    - Return to the industry
- “FCIA Member
  - Specialty Firestop Contractors”
  - Manufacturers, Consultants, Reps, Distributors
- Knowledge, Value, Expertise
FCIA Educational Seminar @ UAE

• **FCIA Means Firestopping for Safety**
• FCIA – Worldwide Association
• FCIA Website Resources - FREE
• FCIA MOP on PDF FREE to Specifiers, Architects, Engineers with Design Firms, Civil Defence, Municipal Affairs
  – www.fcia.org
FCIA Educational Seminar @ UAE
Free Hard Copy Subscription for FCIA Members,
Free Access to PDF - UAE Department of Civil Defence, Department of Municipal Affairs, Architects / Engineers with Design Firms
FCIA Educational Seminar @ UAE

- FCIA Membership Benefits
  - FCIA Committee Participation
  - FCIA.org Website
    - Member Lists
    - FCIA FM, UL, IAS Member Lists
    - Members Only Access
  - FCIA Life Safety Digest, Enews
  - Management System Manual Template
  - FCIA Manual of Practice Updates
  - Relationships ...
FCIA Educational Seminar

• Introducing FCIA – History
  – 1999 – 1st FCIA Meeting – UL Chicago
  – 2000 - FCIA Accreditation Committee & FM Approvals Develop FM 4991 – 1st Firestop Exams
  – 2001 - FCIA Code Consultant - Koffel Associates
  – 2003 - FCIA Inspection idea becomes ASTM E 2174
  – 2004 – MasterSpecs, FM 4991
  – 2005 – Life Safety Digest Launches
  – 2007 – FCIA & UL Qualified Firestop Contractor Program – Apprenticeship
  – 2011 – FCIA in Abu Dhabi, FCIA Firestop MOP Updates
  – 2012 – FCIA in Dubai, more MOP Updates, Apprenticeship Videos
FCIA Educational Seminar @ UAE

• Membership Reflects FCIA’s Activity...
  310 Members...US, Canada, Middle East, Far East
  – Accreditation – FM, UL, ULC & IAS - Reliability
  – Apprenticeship – Workforce Education for Quality
  – Technical & Education – MOP, UL TFPSS
  – Codes – ICC, NFPA, ASTM, IAPMO CAN, UAE
  – Marketing – Relationships, Shows
  – Program – Committee work, Education
  – Legislative – Track, Advocate
  – Standards – ASTM, IAPMO, UL STP’s – For reality and inspection
FCIA Association Report

• Accreditation – FM 4991 & UL-ULC QFC
  – UL / FCIA Strategic Planning Meeting – August 2012
  – FM Auditor Education – Norwood, MA
  – UL Auditors take UL Firestop Exam
  – UL’s Annual Meeting, Fire Council, Fire Safety Forum
FCIA Association Report

• Code
  – FCIA Served on ICC Fire Safety Committee
  – ICC 2018 Cycle
  – NFPA – Adding FM & UL, IAS AC 291 to Appendix
    • Fire Protection Features Committee
  – UAE Fire & Life Safety Code of Practice - Members
FCIA Association Report

• Marketing
  – Social Media goes LIVE !!
    • Facebook Pages
    • LinkedIn
  – Canada
    • CSC Education
    • ULC Firestop Exams
    • French Spec
FCIA Association Report

• FCIA Membership Result of....Teams
  – FCIA Board
  – FCIA Committees
  – FCIA Staff

• **Building Reliability of Installed Firestopping through the ‘DIIM’**
FCIA Members in Middle East

- Al Shadid Tech. Cont. – Sharjah UAE
- Al Swiss Insulation Co., - Sharjah, UAE
- DicoTech, LLC – Abu Dhabi, UAE
- Doormasters Contracting and Trading WLL
- Firestop Middle East – Dubai, UAE
- FSIME Construction, LLC – Dubai, UAE
- Firestop Insulation Technologies, WLL – Doha, Qatar
- INTHERPRO, LLC - Dubai
FCIA Educational Seminar in Dubai, UAE

- FCIA Members in Middle East
  - Narang Projects, WLL – Doha, Qatar
  - National Fire Fighting FZCO – NAFFCO – Dubai, UAE
  - PROCON Emirates LLC – Dubai, UAE
  - Rise & Shine Insulation Contracting Co. – Sharjah, UAE
  - Rise & Shine Trading & Contracting, WLL – Doha, Qatar
  - Shoeb Fire Fighting Equpt. Trdg. – Dubai, UAE
  - Thermofire (Middle East) Limited – Dubai, UAE
  - Vancouver Building Maintenance & Décor – Dubai, UAE
FCIA Educational Seminar
in Dubai, UAE

- FCIA Members in UAE
  - Butler Engineering – Dubai, UAE
  - Eastern Wings Equipment – Dubai/Sharjah, UAE
  - Thomas Bell Wright Consultants – Dubai/Abu Dhabi
FCIA Educational Seminar @ UAE

- Total Fire Protection,
- Effective Compartmentation
- FCIA History
- DIIM Story
  - Mr. Bill McHugh, FCIA Executive Director
FCIA Educational Seminar @ UAE

• “TOTAL FIRE PROTECTION”
• Detection & Alarm Systems
• Sprinkler Suppression Systems
• Education & Egress—
  – Building Managers, Occupants and Firefighters
• Effective Compartmentation /Compartmentalization
  – Fire Barriers, Walls/Floors, Smoke Barriers &
  – Firestopping, Fire Dampers, Swinging and Rolling Fire Doors, Fire Rated Glazing
FCIA Educational Seminar @ UAE

- Compartmentation/Compartmentalization
  - Education
  - Office
  - Mercantile
  - Multi Family Residential
  - Industrial – Insurance influences
  - Institutional – Healthcare
FCIA Educational Seminar @ UAE

- Fire Walls and Floors –
  - Continuous Fire Resistance Rated Assemblies
    - Concrete
    - Concrete Block
    - Plaster
    - Gypsum Block
    - Drywall
    - Floor/Ceiling Assemblies
    - Firestop Systems

“Tested & Listed Wall/Floor Systems”
FCIA Educational Seminar @ UAE
Effective Compartmentation Features

New UL test standards for Life Safety Dampers will take effect in July 2002
FCIA Educational Seminar @ UAE

• **Buildings are Safe Because...**

• Total Fire Protection
  – Detection & Alarms
  – Sprinkler Systems
  – Occupant Education & Egress
  – Compartmentation
    • Fire & Smoke Resistance
FCIA Educational Seminar @ UAE

- **Total Fire Protection History** - 
  North America High Rise

- 11,025 Tall Buildings - 20 + stories
- 70% in NY, SF, LA, CHI, HI, Toronto...
  - 2/3 Canada’s high rise built before 1985
  - 85% of Schools built before 1985

= Compartmentation Primary in Older Structures
  - Chicago, NY, Toronto – Older stock of buildings
  - SF, LA, HON – Earthquakes

  » Source, Emporis.com
FCIA Educational Seminar @ UAE

- **Total Fire Protection**
  - = Safer buildings...

- **Compartmentation**
- **Sprinklers, Alarms,**
- **Egress Strategies**

- **NIST Reports...**
FCIA Educational Seminar @ UAE

- NIST Report - World Trade Center 7 - Chapter 4,
- 4.6, 'Factors that could have mitigated structural collapse'
  - "improved compartmentation in tenant areas to limit the spread of fires"
- ‘But first...DIIM’
FCIA Educational Seminar @ UAE

• Firestopping for Safety – A DIIM Protocol
  – Properly **Designed** and Specified Firestopping – 07-84-00
  – **Tested and Listed Systems** - ASTM E 814 / UL 1479
    - UL 2079, ASTM E2307
  – Professional **Installation** – FCIA Member, FM 4991 Approved, UL Qualified Contractors
  – Properly **Inspected** - ASTM E 2174 / 2393 Protocol
    - IAS AC 291 Accreditation Criteria for Inspection Agencies
  – **Maintained** (Inspected) Annually - FCIA Members
    International Fire Code 703.1,
    UAE Fire and Life Safety Code of Practice
• Compartmentation Codes - **Fire Resistance** – Time, in minutes or hours that materials or assemblies have withstood a fire exposure as determined by tests, methods based on tests, or this code .... NFPA.  **ICC adds...**

“**Systems**”

• Ch. 7 – IBC - **Fire Barrier** – Hourly Rated – IBC
• Ch. 7 IBC - **Fire Wall** – Fire rating, structural independence
• IBC – **Fire Partition** – Rated, not continuous.
• IBC - NFPA - **Smoke Barrier** – Hourly Rated, continuous...
All Codes - Firestopping for *Continuity, Worldwide*

- **International Building Code** – US & Middle East
  - **Fire Barrier** – Continuity; **Fire Wall** – Continuity & Independence
  - **Smoke Barrier** – IBC – Continuity - Hourly Rated, “L” Rating
    - <5cfm/sf (IBC 2006)
    - < 100 cfm, 100sf of Wall Area (IBC 2009)
  - **NFPA** – Similar, no quantified “L” Rating
  - Healthcare Occupancies
  - Building Owner/Manager Preference
- **Fire Partition** – Hourly Rated Assembly
- **Smoke Partition** – “**Common Materials**”
  - IBC – Continuous barrier, not rated...‘retard’.
  - NFPA – Continuous membrane that is designed to form a barrier to limit the transfer of smoke....
FCIA Educational Seminar @ UAE

- Compartmentation and Structural Fire Resistance Construction Tested and Listed – Equivalency
- First, a Fire Resistance Rated Assembly
- ICC Chapter 7 & NFPA Chapter 8

- \textbf{ASTM E 119 or UL 263}
- \textbf{Continuity Maintained}
FCIA Educational Seminar @ UAE

• Firestop Products Become Firestop Systems --
  – “A Specific field erected construction, consisting of an assemblage of materials to prevent the spread of fire through openings in fire rated walls and floors using ASTM E 814 / UL 1479, S-115, UL 2079, E 2307 as the test method...”
  – **Testing** = Suitability statement for use of a firestop product in a specific system application
FCIA Educational Seminar @ UAE
FCIA Educational Seminar @ UAE

- What are Firestop *Systems*?
  - ASTM E814/UL 1479–UL S115 Tested Systems
    - **F Rating** - Flame
    - **T Rating** – Temperature
    - **H Rating** – Hose
    - **L Rating** – Smoke (UL)
    - **W Rating** – Water (ULus)

Graphics – 3M
FCIA Educational Seminar @ UAE
Hose Stream & “W” Rating
FCIA Educational Seminar @ UAE

- **Sealants**
  - Silicone, Latex, Intumescent
- **Wrap Strips**
  - “Thick, Thin, Wide, Less Wide”
- **Putties**
- **Pillows**
- **Composite Sheets**
- **Bricks / Plugs**
- **Pre Fabricated Kits**
- **Mortar**
- **Spray Products**

Graphics, STI, 3M, AD, HILTI, Nelson
FCIA Educational Seminar @ UAE

• **Firestop Systems Materials**

• **Pipes – Cables**
  – Sealants, Wrap strips, Putties, Prefabricated Kits

• **Gaps/Joints/Walltops/Perimeter Joints**
  – Sealants – Sprays – Track Systems

• **“Backing Material”**
  – Mineral Wool, Ceramic Fiber,
  – Backer Rod, Others

Graphics - AD, Nelson, Tremco
Firestopping for Safety

• Effective Compartmentation for Safety
  – *Chemical, Biological, Radiation, Explosion*
    • Standards?
      – R – Nuclear Power Plant Standards
      – E – Blast Strength? *Check with manufacturer* – 2psf
      – C – Which Chemicals? *Check with manufacturer*
      – B – Which Agents? *Check with manufacturer*

  – How to Regulate for Terrorism?
  – Due Diligence
    • Review Required by code?
Firestopping for Safety

• Firestop Systems Directories – ULc, ULus®

  *Systems Selection...Not as easy as it looks...*
U.L. SYSTEM NO. CAJ1155
METAL PIPE THROUGH A SLEEVE IN CONCRETE FLOOR OR WALL

F RATING = 3-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.

1. FLOOR OR WALL ASSEMBLY:
A. MINIMUM 4-1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR.
B. U.L. CLASSIFIED CONCRETE BLOCK WALL (MINIMUM 8" BLOCK).

2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
A. MAXIMUM 20" DIAMETER STEEL PIPE.
B. MAXIMUM 6" DIAMETER COPPER PIPE.
C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
D. MAXIMUM 4" DIAMETER EMT.

3. OPTIONAL: MAXIMUM 22" DIAMETER STEEL PIPE SLEEVE (SCHEDULE 10 OR HEAVIER).
4. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) RECESSED 1/2" FROM TOP OF SLEEVE.
5. MINIMUM 1/2" DEPTH HILTI FS-ONE FIRESTOP SEALANT.
6. A GENEROUS BEAD OF HILTI FS-ONE FIRESTOP SEALANT AROUND OUTER PERIMETER OF STEEL SLEEVE.

NOTES:
1. MAXIMUM DIAMETER OF OPENING = 22".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".
How Installers Select UL Systems

- Wall or Floor Construction Type
- Wall or Floor Thickness
- Penetrating Item, Coverings
- Size, Type, Thickness
- Annular Space, Joint / Gap Sizes
- Backing Materials
- Fill Material(s)
Gypsum Wall assembly running up to concrete over metal deck

HILTI Photos
Firestopping for Safety

• Field or other Variances to Tested and Listed Systems?
  – Annular Space / Gap too large / small
  – Something in the way
  – Oversized penetrating item
  – Oversized Insulation
  – Tolerances??

Fire Stop Technologies, Inc.
Firestopping for Safety
FCIA Educational Seminar @ UAE

- FCIA History & The DIIM Story...
  - Design, Tested and Listed Systems--*And*
  - Installation -- *And*
  - Inspection -- *And*
  - Maintain -- *And*
  - Manage... through Barrier Management Programs

- ...For Reliability and Performance under Fire & Smoke Conditions to protect...

People, Property, Continuity of Operations
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• The DIIM Story – Design & Standards
  – Focus on Perimeter Fire Containment & ASTM E 2307
  – Mr. Tony Abou Rjeily, Specified Technologies, Inc.
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• Break Sponsored by Specified Technologies, Inc. and Eastern Wings Equipment
FCIA Educational Seminar @ UAE

• Welcome & Thank You!

—Introductions
Firestopping for Safety

II Installation

Who’s Responsible, How do I Choose???
Firestopping for Safety
Firestop Contractors & Installation

• Firestopping Industry Installation Methods
• 3 Types
  – All Trades - “He/She who pokes hole, fills hole”
  – Multiple Contracts to Firestop Contractors, Subs, GC/O
  – GC/O - Sub to Single Source Specialty Firestopping Contractor

• Qualifications??
Firestopping for Safety
Firestop Contractors & Installation

• How do I select a specialty firestop contractor?
  – FCIA Member
    • FCIA Firestop Manual of Practice
  – Manufacturer Educated
  – FCIA Member, FM 4991, UL Qualified
Approved or Qualified – Does the Firestop Contractor understand the ZERO TOLERANCE INSTALLATION PROCESS

- “F” Fire & “T” Temperature, “H” Hose
- “L” Smoke
- “W” Water
- Insulation/Integrity
- Movement Capability
- Annular Space Sizes, Gap Sizes
- SYSTEMS DOCUMENTATION
- FM 4991 Approved or UL Qualified Firestop Contractor
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• The FCIA DIIM Story - Installation
  – Mr. Vidur Berry, FM Approvals
FCIA Educational Seminar @ UAE

• FCIA Sponsor Tabletop Presentations
  – DicoTech, LLC
  – Firestop Insulation Technologies, WLL
  – FSIME Construction, LLC – Mr. Sanjay Narang
  – HILTI, Inc. – Hilti Emirates
  – INTHERPRO, LLC – Mr. Joseph Karkour
  – Shoeb Firefighting & Equipment Trading
    Mr. Mushtaq Ahmed
  – Specified Technologies, Inc. & Eastern Wings Equipment
    Mr. Tony Abou Rjeily, Mr. Saifuddin Taher
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• Sponsor Tabletop Exhibitor Presentations & Break
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• The FCIA DIIM Story - Installation
  – Mr. Romnish Kapoor, Underwriters Laboratories, Inc.
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• Break Sponsored by FSIME Construction, LLC
FCIA Educational Seminar @ UAE 
Le Meridien - Dubai

• Mr. Bill McHugh, FCIA –
  – Task Group Chair, ASTM E 2174 & ASTM E 2393 Standards for the Inspection of Firestop Systems
  – Member, International Accreditation Services Board of Directors
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393 - “Standard Practice for On-Site Inspection of Installed Fire Stops – Penetrations - Joints”

• “Standard Inspection Procedure”
  • Special Inspection Firms
  • Fire Marshals & Code Officials
  • Architects
  • Other Qualified Firms
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393 - “Standard Practice for On-Site Inspection of Installed Fire Stops – Penetrations - Joints”
• UAE Life Safety Code of Practice uses DIIM
  – Design – Tested and Listed Systems
  – Installation
  – Inspection
  – Maintenance
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393 -
• UAE Life Safety Code of Practice uses DIIM
  – Submittal – Tested and Listed Systems from Product manufacturer AND Installer
    • Manufacturer to Installer
    • Installer to General Contractor
    • Systems, EJ’s
Every application has its own unique tested assembly which specifies:

- **Hourly Fire Rating**
- **Type of Barrier**
- **Type of Penetrant**
- **Min/Max Hole/Gap Size**
- **Firestop Products**
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393
• UAE Life Safety Code of Practice uses DIIMM – Submittal – Product manufacturer AND Installer
  • Engineering Judgments – (EJ) If allowed...
    1. Not used in lieu of tested systems, when available.
       » Manufacturer Researches systems
    2. Manufacturer produces EJ
    3. Registered Engineer, FPE, Independent Testing Agency that provides listing for firestop & Manufacturer
FCIA Educational Seminar @ UAE

- ASTM E 2174 & ASTM E 2393
- UAE Life Safety Code of Practice uses DIIM
  - Submittal – Product manufacturer AND Installer
    - Engineering Judgments
      - Based on interpolation
      - Communicated actual field conditions
      - ‘Clearly Bracket Conditions’
      - Limited to conditions, configurations
      - Based on ‘reasonable performance expectations’...
      - Jobsite specific
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393
• UAE Life Safety Code of Practice uses DIIM
  – Delivery Storage & Handling of Products
    • Original Containers
    • Storage Conditions
    • Expiration Dates
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393
• UAE Life Safety Code of Practice uses DIIM
  – Examination & Preparation
  – Project Conditions
    • ‘Represent field conditions’
    • Qualifications ??
  – Coordination
  – Inspection
    • ASTM E 2174 & ASTM E 2393
  – Maintenance & Management
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393 - “Standard Practice for On-Site Inspection of Installed Fire Stops – Penetrations - Joints”

  – ICC International Building Code 2012 ...
  – Department of Municipal Affairs Abu Dhabi 2012
FCIA Educational Seminar @ UAE

**IBC 1705.16 Fire-resistant penetrations and joints.** In high-rise buildings or in buildings assigned to *Risk Category III or IV* in accordance with Section 1604.5, special inspections for through-penetrations, membrane penetration firestops, fire resistant joint systems, and perimeter fire barrier systems that are tested and listed in accordance with Sections 714.3.1.2, 714.4.1.2, 715.3 and 715.4 shall be in accordance with Section 1705.16.1 or 1705.16.2.
IBC 1705.16.1 Penetration firestops. Inspections of penetration firestop systems that are tested and listed in accordance with Sections 714.3.1.2 and 714.4.1.2 shall be conducted by an approved inspection agency in accordance with ASTM E 2174.
IBC 1705.16.2 Fire-resistant joint systems. Inspection of fire resistant joint systems that are tested and listed in accordance with Sections 715.3 and 715.4 shall be conducted by an approved inspection agency in accordance with ASTM E 2393.
Firestopping for Safety

- ASTM E 2174 & ASTM E 2393 =
  - IBC Chapter 17 – *Special Inspections*
    - ‘for Buildings 75’ and higher above Fire Department Access’
    - ‘for Occupancy Type III, IV, Chapter 16 Table’
      - Education
      - Healthcare
      - Greater than 500 People
FCIA Educational Seminar @ UAE

• ASTM E 2174 & ASTM E 2393 -
• “Standard Inspection Procedure”
  • Special Inspection Agencies
  • Inspection Firms
  • Architects
  • Other Qualified Firms
  • Fire Marshals & Code Officials
FCIA Educational Seminar @ UAE

- ASTM E 2174/ASTM E 2393 - “Inspector & Firm Requirements”
  - Reference Documents
    - ASTM E 176 Terminology of Fire Standards
    - E 699 – Practice for Evaluation of Agencies
    - E 814 – Test Method for Fire Tests of Penetration Firestop Systems
    - UL 1479-94 – Fire Tests of Through-Penetration Fire Stops
    - UL 2079, ASTM E 2307, ASTM E 1966
    - Other Documents – International Building Code
ASTM E 2174/ASTM E 2393 - “Inspector & Firm Requirements”

- Definitions
- **AA – Authorizing Agency** –
  - Administrate & Enforce ASTM E 2174/2393
- **Inspection Document** – Any info provided inspector by AA
  - Specifications
  - Contract Drawings
  - Listed Designs
  - Judgments (EJ’s)
  - Manufacturerers instructions (Product Data Sheets)
  - Building codes
  - Other documents
FCIA Educational Seminar @ UAE

• ASTM E 2174/ASTM E 2393 - “Inspector & Firm Requirements”
  – Inspection firm NOT Related to Installing firm
    • Distributor, Manufacturer, Competitor, Supplier
  – Inspector Personnel meet at least one criteria.....
    • 2 years experience (Construction, Field), education, and credentials acceptable to AHJ
    • Accredited by AHJ
    • Meet ASTM E699

– NEW Inspector Personnel / Firm Qualification
  • International Accreditation Services IAS AC 291
FCIA Educational Seminar @ UAE

• ASTM E 2174/ASTM E 2393 - Optional..

• IAS Accreditation Criteria AC-291
  – Individual and Company Qualification
    • PASS UL/FM Firestop Exam
    • 1 year Quality Assurance
    Or...
    • PASS UL/FM Firestop Exam, and PE, FPE, Registered Architect, or
    • PASS UL/FM Firestop Exam, and Education by Certified Agency
  – PLUS... Audit SIA Management System
  – Must Specify IAS, not part of ASTM Standards
FCIA Educational Seminar @ UAE

  - Pre Construction Meeting
    - Review Documents – Identify Conflicts
    - Materials - ASTM E 814 or UL 1479-S115 Systems
      - “exactly as Identified on inspection documents”
FCIA Educational Seminar @ UAE

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”

• Pre Construction Meeting
  – Mock Ups
    • Destructive Testing
    • Installation Measurements
  – Discuss Inspection Method

• Required for During/Post Insp. Methods
FCIA Educational Seminar @ UAE

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”

• During Construction Inspection Method
  – Firestop Installation Start
  – Random witness 10%, each type of Firestop
    • No Less than one
FCIA Educational Seminar @ UAE

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”

• Post Construction Method –
  – Destructive Testing
    • Minimum 2%, no less than 1, each type per 10,000 SF of floor area
    • If 10% variance per firestop type
      – Inspection stops
      – Installer inspects, repairs
      – Inspector reinspects
FCIA Educational Seminar @ UAE

• ASTM E 2174/ ASTM E 2393
  “Inspection Process”

• Inspection Forms
  – One for each type of firestop
  – Submit 1 day after inspection to Authorizing Agency
  – Numbered – Controlled

• Required – During/Post Construction Methods
FCIA Educational Seminar @ UAE

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”
• - Final Report – During/Post Inspection Method
  – Name, address, location – project, installer, inspector
  – Type and quantity of firestops inspected
  – Verification method
  – Percentage Deviation
  – Copies of all documents sent to Authorizing Agency
FCIA Educational Seminar @ UAE

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”
• Why ASTM E 2174 / E 2393
  – Quality Process – Install, Inspect
  – Verify Field Installations
  – Management - “Service & Testing”
• Qualifications of Inspectors
  • IAS AC 291 – Accreditation Criteria for Special Inspection Agencies
Quality Assurance Specifications– MF 04 - 07 84 00 ...

– 07 84 00 – Both Pens & Joints – FCIA.org, Spec

– Through Penetration Firestop Systems
  • Pipes, cables, ducts, cable trays, MEP&C Systems

– Fire Resistive Joint Systems
  • Top of Wall
  • Fire Resistance Rated Joints – Soft, Metals & Fire Inserts
  • Perimeter Joints (Floor Slab edge/Exterior Wall)

• Systems and product properties spec...
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

- Break Sponsored by FSIME Construction, LLC
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• The FCIA DIIM Story - Maintenance
• Mr. Amir Toma, HILTI
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

• The FCIA DIIM Story - Summary
  – Mr. Bill McHugh, FCIA Executive Director
FCIA Educational Seminar @ UAE

• Firestopping for Safety – A DIIMM Protocol
  – Properly **Designed** and Specified Firestopping – 07-84-00
  – **Tested and Listed Systems** - ASTM E 814 / UL 1479
    - UL 2079, ASTM E2307
  – Professional **Installation** – FCIA Member, FM 4991 Approved, UL Qualified Contractors
  – Properly **Inspected** - ASTM E 2174 / 2393 Protocol
    - IAS AC 291 Accreditation Criteria for Inspection Agencies
  – **Maintained** (Inspected) Annually - FCIA Members
    – International Fire Code 703.1
  – UAE Fire and Life Safety Code of Practice - DIIMM
FCIA Educational Seminar @ UAE

• Thank You!
  FCIA Members
  FCIA Guests
  Department of Civil Defence
  Department of Municipal Affairs
  Consultants
  Architects, Engineers, Specifiers
FCIA Educational Seminar @ UAE

- Thank You Seminar Speakers
  - Bill McHugh, FCIA Executive Director
  - Tony Abou Rjeily, Specified Technologies, Inc
  - Vidur Berry, FM Approvals
  - Romnish Kapoor, Underwriters Laboratories
  - Amir Toma, HILTI, Inc.
FCIA Educational Seminar @ UAE

• Thank You FCIA Sponsors
  – Al Shadid Technical Contracting
  – DicoTech, LLC
  – FSIME Construction, LLC
  – Firestop Insulation Technologies, WLL
  – Firestop Middle East
  – HILTI, Inc
  – INtherpro, LLC
  – Schoeb Firefighting & Equipment Trading – Mr. Mushtaq Ahmed
  – Specified Technologies, Inc. & Eastern Wings Equipment
    Mr. Tony Abou Rjeily, Mr. Saifuddin Taher
FCIA Educational Seminar @ UAE

• Thank You - FCIA UAE Planning Committee
  • Mushtaq Ahmed, Schoeb Fire Fighting Equipment
  • Hani Adnon, Amir Toma, HILTI, Inc.
  • Vidur Berry, FM Approvals
  • Randy Bosscawen, Multicon Fire Containment
  • Ahmed Eldidi, UL
  • Aedan Gleeson, GleesonPowers
  • Tom Hottenroth, Firestop Solutions
  • Bill Hoos, JHC Fire Containment Solutions
  • Raghavan Manohar, 3M Fire Protection Products
  • Kiro Naumov, Firestop Middle East
  • Ravi Subramanyam, Rise & Shine Insulation Co.
  • Charbel Tagher, Specified Technologies, Inc.
  • Saifuddin Taher, Eastern Wings Equipment
FCIA Educational Seminar @ UAE
Le Meridien - Dubai

Firestop Contractors International Association
Hillside, IL USA – +1-708-202-1108 - office
FCIA Info – info @ fcia.org
Bill McHugh – bill @ fcia.org

©Copyright 11-26-2012