

FCIA Educational Seminar @ UAE

The Yas Hotel, Abu Dhabi

Firestop Contractors International Association

Hillside, IL – 708-202-1108 - office

FCIA Info – info @ fcia.org

Bill McHugh – bill @ fcia.org

© Copyright, Bill McHugh, FCIA, 16/10/2011



FCIA Educational Seminar @ UAE

- Fire & Emergency Exits
 - Exits
 - Exit Doors to Patio
 - Assembly Point
- Cell Phones
- Luncheon Location
- Rest Rooms
- VISIT SPONSORS!!



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
 - 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
 - ***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
 - A 'DIIM' Quality Management Protocol***
 - Design, Installation, Inspection, Maintenance***
 - FCIA Sponsor Tabletop Presentations
 - ***Total Fire Protection Systems Concept...***
 - ***FCIA Education for FM 4991 Approved Contractor or UL Qualified Firestop Contractor Exam***
 - ***Examinations***

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.....

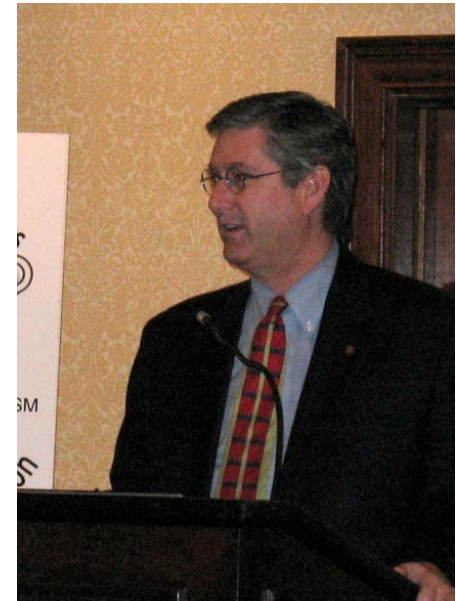
FCIA Educational Seminar @ UAE

- Seminar Speakers
 - Bill McHugh, FCIA Executive Director
 - Tony Abou Rjeily, Specified Technologies, Inc
 - Mike Azimi, Mark Tyrol, FM Approvals
 - Ahmed Eldidi, Underwriters Laboratories
 - Amir Toma, HILTI, Inc.
 - FCIA Sponsors

FCIA Educational Seminar @ UAE

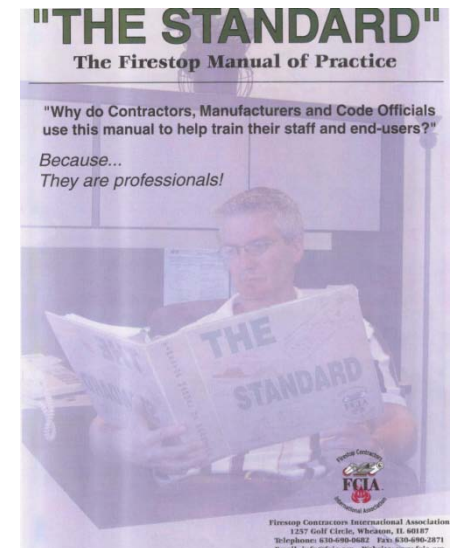
FCIA Membership Means

- 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](http://www.fcia.org)



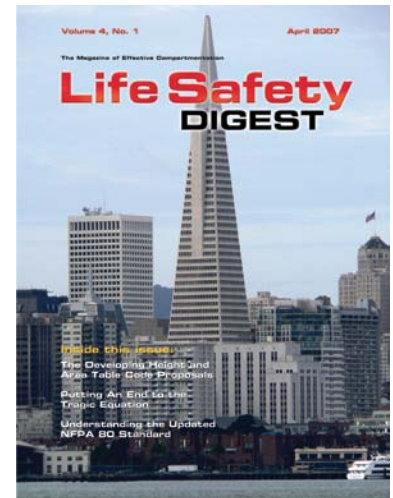
FCIA Educational Seminar @ UAE

Free Hard Copy Subscription for FCIA Members,
Free Access to PDF - UAE 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*
 - *2000 - FCIA Technical Committee – Manual of Practice*
 - *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*
 - *2008 – FCIA & IAS AC 291 – Inspection Agency Accreditation*
 - *2009 & 2010 – FCIA Survey Document, FCIA in UAE twice, ASTM in Code, Total Fire Protection Symposiums*
 - *2011 – FCIA in Abu Dhabi, FCIA Firestop MOP Updates*

FCIA Educational Seminar @ UAE



- **Membership Reflects FCIA's Activity...**

290 Members...US, Canada, Middle East, Far East

- **Accreditation** – FM, UL, ULC & IAS - Growth
- **Apprenticeship** – US Dept. of Labor; CAN Ministry
- **Technical & Education** – MOP, UL TFPSS
- **Codes & Standards** – ICC, NFPA, ASTM, IAPMO
UL STP's
- **Marketing** – Relationships, Shows
- **Program** – Committee work, Education
- **Legislative** – Track, Advocate



FCIA Educational Seminar in Abu Dhabi, UAE

- **FCIA Members in UAE**
 - **Al Shadid Tech. Cont. – Sharjah UAE**
 - **Al Swiss Insulation Co., - Sharjah, UAE**
 - **AWATCO – Abu Dhabi, UAE**
 - **Blue Diamond Fire Protection – Dubai, UAE**
 - **Chronicle Interiors, LLC – Dubai, UAE**
 - **DicoTech, LLC – Abu Dhabi, UAE**
 - **Firestop Middle East – Dubai, UAE**
 - **FSIME Construction, LLC – Dubai, UAE**
 - **Firestop Insulation Technologies, WLL – Doha, Qatar**
 - **INTHERPRO, LLC - Dubai**



FCIA Educational Seminar in Abu Dhabi, UAE

- **FCIA Members in UAE**
 - **Narang Projects, WLL – Doha, Qatar**
 - **N.M. Building Contracting – Ajman, UAE**
 - **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**
 - **Thermofier (Middle East) Limited – Dubai, UAE**



FCIA Educational Seminar in Abu Dhabi, UAE

- **FCIA Members in UAE**
 - **Butler Engineering – Dubai, UAE**
 - **Eastern Wings Equipment – Dubai/Sharjah, UAE**
- **NEW FCIA Member in UAE**
 - **Thomas Bell Wright Consultants – Abu Dhabi, UAE**



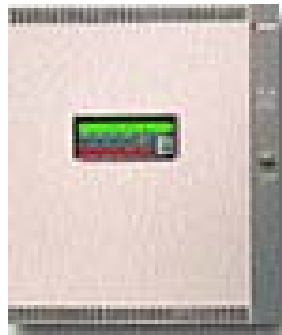
FCIA Educational Seminar @ UAE

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



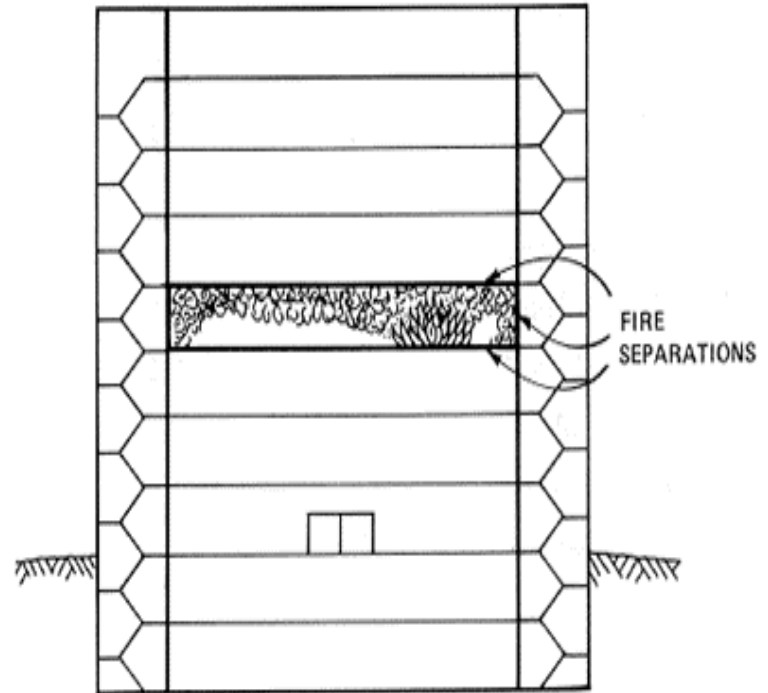
FCIA Educational Seminar @ UAE

- “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...DIIMM'***



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** and Managed (Inspected) Annually - FCIA Members – International Fire Code 703.1

FCIA Educational Seminar @ UAE

- **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...

FCIA Educational Seminar @ UAE

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

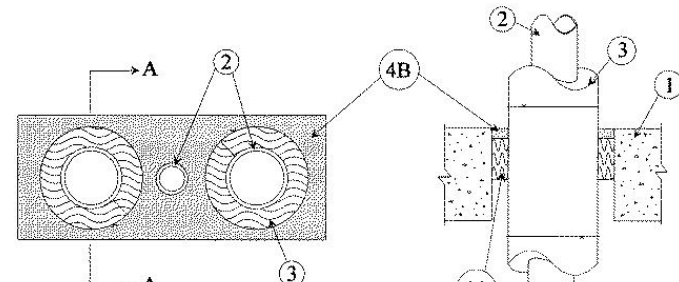
- Compartmentation and Structural Fire Resistance Construction Tested and Listed – Equivalency
- First, a Fire Resistance Rated Assembly
- ICC Chapter 7 & NFPA Chapter 8

• ***ASTM E 119 or UL 263***

• ***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

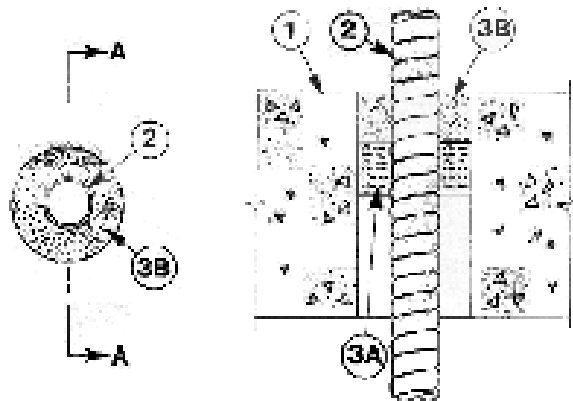


FCIA Educational Seminar @ UAE

System No. C-63-1160

I Rating—2 Hr

T Rating—0 Hr



SECTION A-A

1. Floor or Wall Assembly—Min. 4-1/2 in. thick lightweight or normal weight (100 to 120 pcf) concrete. Will may also be constructed of any UL Classified Concrete Block*. Rise of floor through opening in floor or wall assembly to be 1/4 in. to 1-1/2 in. larger than diam of flexible metal conduit (item 2) installed in through opening. Max diam of opening is 6 in.

See Concrete Block (CB) category in the Fire Resistance Directory for names of manufacturers.

2. Through Penetrating Product**—Max 4 in. diam (or smaller) steel or max 3/4 in. diam (or smaller) aluminum Flexible Metal Conduits. Max one flexible metal conduit to be installed near center of circular through opening in floor or wall assembly. Flexible metal conduit to be rigidly supported on both sides of floor or wall assembly.

Reference Table Comp.

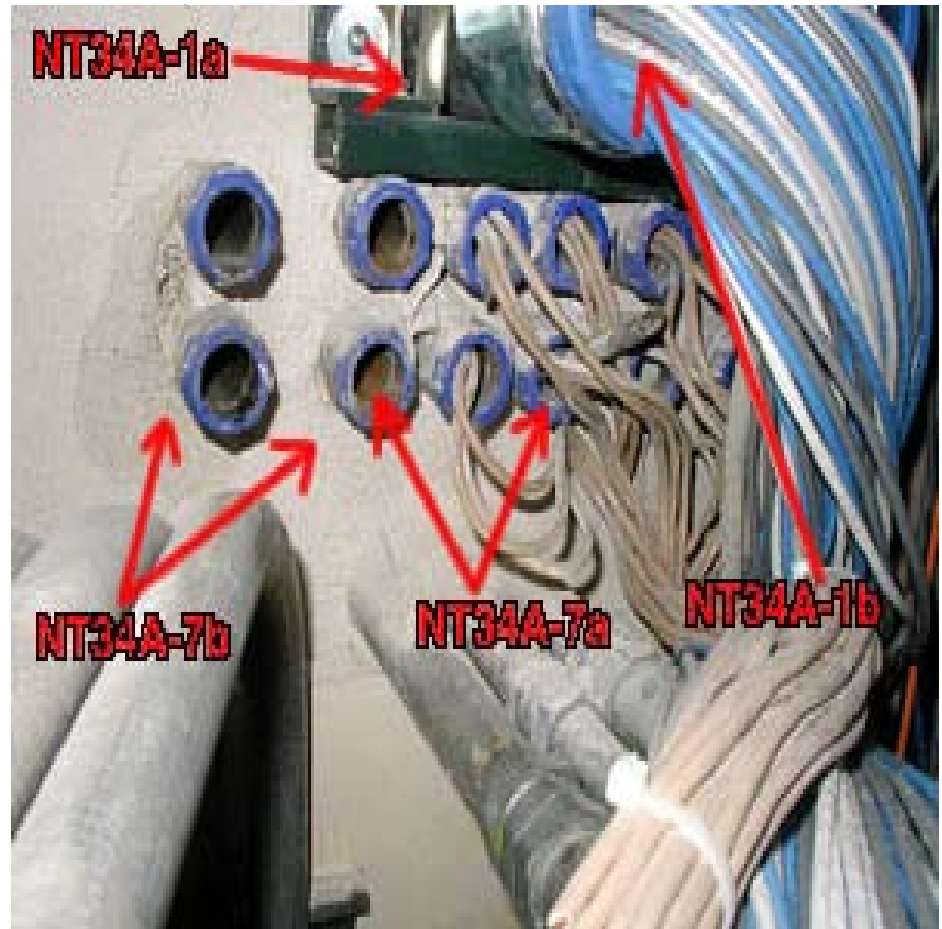
3. Packing Material—Max 1 in. thickness of organic (polyurea slugs) fiber Mat or mineral wool batt insulation. Insulation to be applied in a permanent form. Packing material to be recessed into 1 in. from top surface of floor or from both surfaces of wall.

4. FILL, Void or Cavity Material*—Caulk—Applied to fill the annular space around the flexible metal conduit. In floors, a min 2 in. depth of fill material to be installed flush with top surface of floor. In walls, a min 1 in. depth of fill material to be installed flush with wall surface on both sides of wall assembly.

Minnesota Mining & Mfg. Co.—TF 2700B

*Bearing the UL Classification Marking

†Bearing the UL Listing Mark



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 (CAN-Optional)
 - **L Rating – Smoke (UL)**
 - **W Rating – Water (ULus)**



FCIA Educational Seminar @ UAE

Hose Stream & “W” Rating



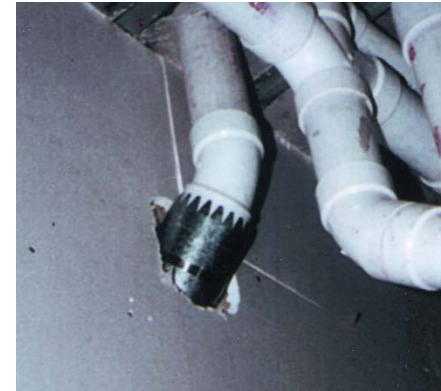
FCIA Educational Seminar @ UAE

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



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



FCIA Educational Seminar @ UAE

- FCIA History & The DIIMM 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



Break Sponsored by FCIA

FCIA Educational Seminar @ UAE

- The DIIM Story – **Design & Standards**
 - Mr. Tony Abou Rjeily, Specified Technologies, Inc.



FCIA Educational Seminar @ UAE



Break Sponsored by FCIA

FCIA Educational Seminar @ UAE

- The FCIA DIIM Story - **Installation**
 - Mr. Bob Azimi, FM Approvals
 - Mr. Mark Tyrol, FM Approvals



FCIA Educational Seminar @ UAE



Break Sponsored by FCIA

FCIA Educational Seminar @ UAE

- FCIA Sponsor Tabletop Presentations
 - Butler ME – Mr. Sajid Raza
 - FSIME Construction, LLC – Mr. Sanjay Narang
 - HILTI, Inc. – Mr. Hussam Droubi – Sales Director – Hilti Emirates
 - INTHERPRO, LLC – Mr. Joseph Karkour
 - Rise & Shine Insulation Cont. Co. – Mr. Diwakar Mahadev Badiger
 - Schoeb Firefighting & Equipment Trading
Mr. Mushtaq Ahmed
 - Specified Technologies, Inc. & Eastern Wings Equipment
Mr. Tony Abou Rjeily, Mr. Saifuddin Taher

FCIA Educational Seminar @ UAE



Break Sponsored by FCIA

FCIA Educational Seminar @ UAE

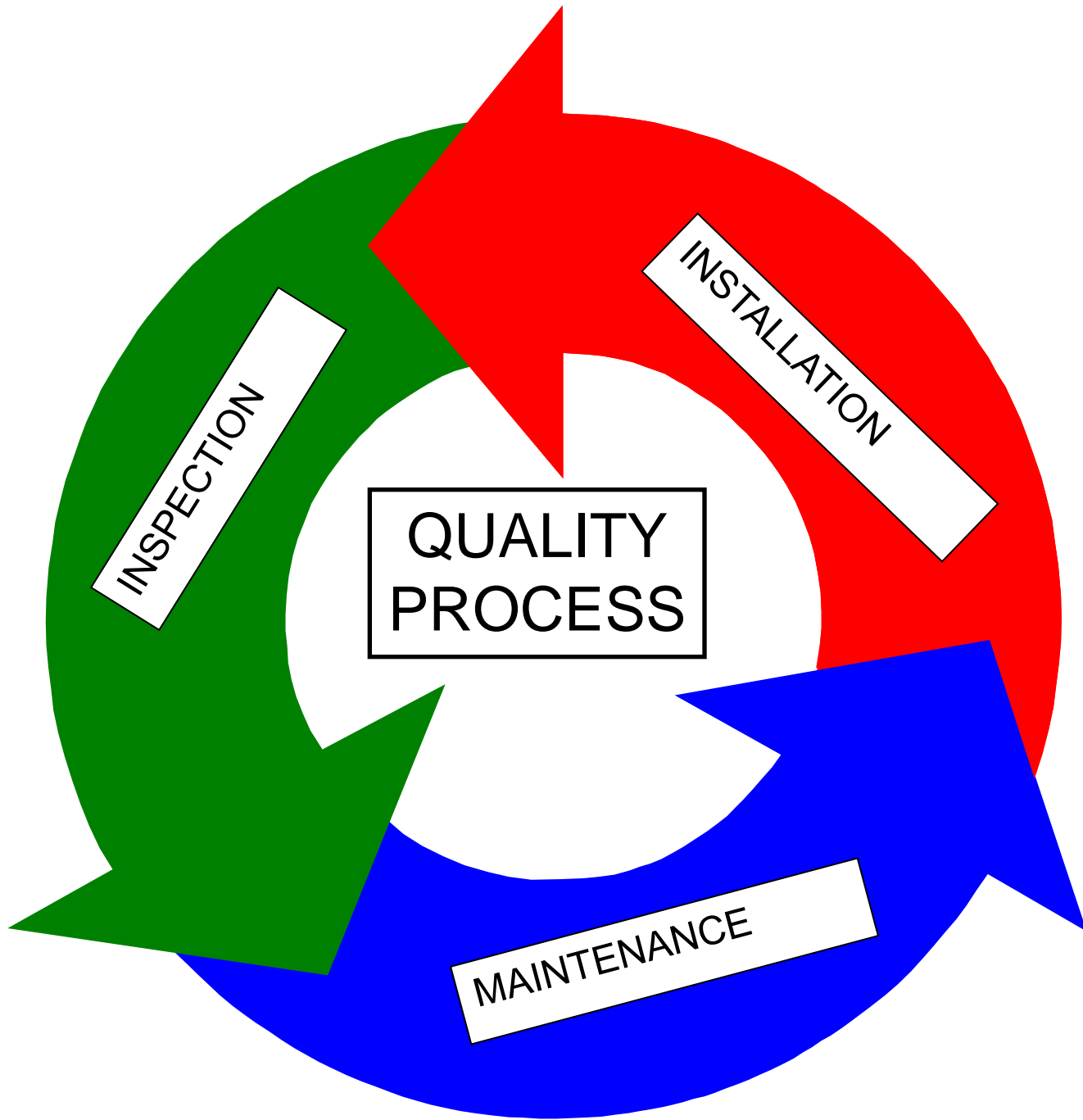
- The FCIA DIIM Story - **Installation**
 - Mr. Ahmed Eldidi, Underwriters Laboratories, Inc.



FCIA Educational Seminar @ UAE



Break Sponsored by FCIA



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”
 - Fire Marshals & Code Officials
 - Inspection Firms
 - 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 DIIMM
 - Design – Tested and Listed **Systems**

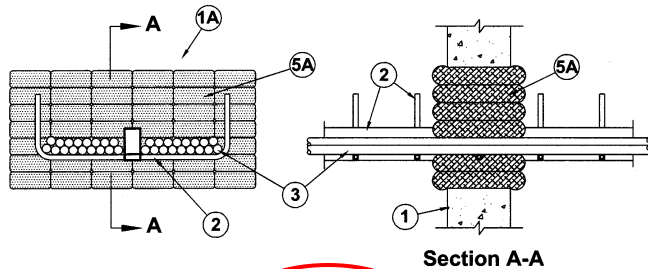


FCIA Educational Seminar @ UAE

- ASTM E 2174 & ASTM E 2393 -
- UAE Life Safety Code of Practice uses DIIMM
 - Submittal – Tested and Listed Systems from Product manufacturer AND Installer
 - Manufacturer to Installer
 - Installer to General Contractor
 - Systems, EJ's



UL Classified Firestop Systems



System No. W-J-4021
 F Rating — 2 Hr
 T Rating — 0 Hr

1. **Wall Assembly** — Min 6 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening is 288 sq in., with max dimension of 24 in. See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
2. **Cable Tray** — Max 18 in. wide by 6 in. deep center-hung cable tray formed from min 0.060 thick aluminum with nom 1/2 in. square tubular rungs spaced 6 in. OC. The annular space between the cable tray and the top and bottom of the opening shall be 1/2 in. min to 5-1/2 in. max. Cable tray to be rigidly supported on both sides of the wall assembly.
3. **Cables** — Max 3 in. deep cable loading within cable tray. Any combination of the following types and sizes of cables may be used.
 - A. Max 200 pair No. 24 AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) jacketing and insulation.
 - B. Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
 - C. Max RG59/U (or smaller) coaxial cable with fluorinated ethylene insulation and jacketing.
 - D. Max 62.5/125 micron fiber optic cable with PVC insulation and jacketing.
 - E. Max 4 pair No. 24 AWG (or smaller) copper conductor Category 5 cable with Hylar insulation and jacketing.
 - F. Max 4/C No. 10 AWG (or smaller) copper or aluminum conductor aluminum or steel Metal-Clad® or Armored-Clad® cable.
4. **Nonmetallic Penetrants** — One or more nom 1-1/2 in. diam (or smaller) Optical Fiber Raceways+ formed from either polyvinyl chloride (PVC) or polyvinylidene fluoride (PVDF). Min separation between optical fiber raceways is 2 in. When optical fiber raceway is included in the cable tray, no other cables may be installed in cable tray within 2 in. of optical fiber raceway. Raceway to be installed in accordance with Article No. 770 of the National Electrical Code (NFPA No. 70). See **Optical Fiber Raceway (QAZM)** category in the Electrical Construction Materials Directory for names of manufacturers.
5. **Firestop System** — The firestop system shall consist of the following:
 - A. **Fill, Void or Cavity Material*** — **Pillows** — Max 9 in. long by 6 in. wide by 3 in. thick plastic covered intumescent pillows. Pillows to be installed lengthwise through the opening and positioned to extend equally in both directions from the approximate center line of the wall. Pillows tightly packed to fill the annular space between cables and periphery of opening and between cable tray and periphery of opening.
Specified Technologies Inc. — SpecSeal Firestop Pillows.
 - B. **Fill, Void or Cavity Material*** — **Putty** — (Not Shown) — After installation of pillows (Item 4A), putty applied to seal any voids between cables, between cables and the pillows on both sides of the wall assembly.
Specified Technologies Inc. — SpecSeal Putty

*Bearing the UL Classification Marking
 #Bearing the UL Listing Marking

Reproduced courtesy of Underwriters Laboratories, Inc.

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
 1. Not used in lieu of tested systems, when available.
 - » Manufacturer Researches
 2. Manufacturer
 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 DIIMM
 - 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 DIIMM
 - Delivery Storage & Handling
 - Original Containers
 - Storage Conditions
 - Expiration Dates



FCIA Educational Seminar @ UAE

- ASTM E 2174 & ASTM E 2393
- UAE Life Safety Code of Practice uses DIIMM
 - Examination & Preparation
 - Project Conditions
 - Installation – Systems, ASTM E 814, UL 1479, Alt's.
 - 'Represent field conditions'
 - 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 ...**
 - 3rd Code Cycle Submission...worked!!



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.

FCIA Educational Seminar @ UAE

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.

FCIA Educational Seminar @ UAE

IBC 1705.16.2 Fire-resistant joint systems.

Inspection of fireresistant

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 =
 - Chapter 17 – *Special Inspections*
 - ‘for Buildings 75’ and higher above Fire Department Access’
 - ‘for Occupancy Type IV, V, Chapter 16 Table’

FCIA Educational Seminar @ UAE

- ASTM E 2174 & ASTM E 2393 -
- “Standard Inspection Procedure”
 - Special Inspection Agencies
 - Fire Marshals & Code Officials
 - Inspection Firms
 - Architects
 - Other Qualified Firms



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**
 - **Other Documents – International Building Code**

FCIA Educational Seminar @ UAE

- 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

- ASTM E 2174/ ASTM E 2393 –
“Inspection Process”
 - 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 Specify ASTM E 2174 / E 2393
 - Quality Process – Install, Inspect
 - Verify Field Installations
 - Management - “Service & Testing”... Demming
- **Qualifications of Inspectors**
 - IAS AC 291 – Accreditation Criteria for Special Inspection Agencies



FCIA Educational Seminar @ UAE

Quality Assurance

Specifications– MF 04 - 07 84 00 ... was 07270

- 07 84 00 – Both Pens & Joints – FCIA.org, Spec**
- 07 84 10 – Through Penetration Firestop Systems
 - Pipes, cables, ducts, cable trays, MEP&C Systems
- 07 84 20 – Fire Resistive Joint Systems
 - Top of Wall
 - Fire Resistance Rated Joints – Soft, Metals & Fire Inserts
 - Perimeter Joints (Floor Slab edge/Exterior Wall)
- *Systems Spec, and product properties spec...*

FCIA Educational Seminar @ UAE



Break Sponsored by FCIA

FCIA Educational Seminar @ UAE

- The FCIA DIIM - Maintenance
 - Mr. Amir Toma, HILTI, Inc.



FCIA Educational Seminar @ UAE

- The FCIA DIIM Story - Summary
 - Mr. Bill McHugh, FCIA Executive Director



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

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
 - Mike Azimi, Mark Tyrol, FM Approvals
 - Ahmed Eldidi, Underwriters Laboratories
 - Amir Toma, HILTI, Inc.



FCIA Educational Seminar @ UAE

- Thank You FCIA Sponsors

- Al Shadid Technical Contracting
- Butler ME – Mr. Sajid Raza
- Blue Diamond Fire Protection – Mr. Lee Andrews
- FSIME Construction, LLC – Mr. Sanjay Narang
- Firestop Insulation Technologies
- Firestop Middle East
- HILTI, Inc. – Mr. Amir Toma
- INTHERPRO, LLC – Mr. Joseph Karkour
- Rise & Shine Insulation Cont. Co. – Mr. Ravi Subramanyam
- Schoeb Firefighting & Equipment Trading –
Mr. Mushtaq Ahmed
- Specified Technologies, Inc. & Eastern Wings Equipment Mr.
Tony Abou Rjeily, Mr. Saifuddin Taher

FCIA Educational Seminar @ UAE

- Welcome & 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

Firestop Contractors International Association

Hillside, IL – 708-202-1108 - office

FCIA Info – info @ fcia.org

Bill McHugh – bill @ fcia.org