THE APPROVAL OF FIRESTOP CONTRACTORS

FM APPROVAL STANDARD 4991

By

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Approvals Engineer – Middle East & India
177+ Years of Experience

“It’s better to prevent a loss than recover from it afterwards.”
FM Global celebrates 175 years of innovation, partnership and risk management.
Who is FM Global?

Property Insurance Company – (largest in world)

• 177 year old company
• Commercial & Industrial Properties
• Headquartered in USA
• Typical policy coverage
  – Property damage
  – Business Interruption
FM Global

- Largest *industrial and commercial insurance company in the world*
- 4,700+ employees, 1,600+ engineers
- 130,000+ insured locations in 120+ countries
- Insure 27% of the world’s commercial and industrial facilities
- Recently Invested another $200 million in the FM Global Research Campus – a world-renown research and testing laboratory
- **Belief that loss is preventable through engineering**

- **Mutual ownership:** over $1 billion returned in membership credits last 5 years

- **Financial strength (549 in Fortune 1000)**

- **Underwriting Expertise (Bundled engineering & underwriting)**

- **Bet on our engineering**
FM Global’s Structure
FM Global Research Campus
New Natural Hazards Laboratory - 2010
FM Approvals

• 200+ employees, Offices worldwide
• Nationally Recognized Testing Laboratory (NRTL)
• Notified Body (CE) and Member of EOTA
• Solely focused on Approving Products that promote Property Loss Prevention
• Develops and publishes Approval Standards
• 50,000+ products Approved
• Publish on-line in Approval Guide and RoofNav
A long history of product testing
Once You Are FM Approved

Products and assemblies are added to www.approvalguide.com
CO-OPERATIVE EFFORT

- **FM APPROVALS**
- **FIRESTOP CONTRACTORS INTERNATIONAL ASSOCIATION**
- **YEAR 2000**
PURPOSE

• IMPROVE THE PERFORMANCE & INSTALLATION OF FIRESTOP SYSTEMS AND COMPONENTS

• ACCOMPLISH THAT BY EXAMINING & QUALIFYING CONTRACTORS INVOLVED IN THE INSTALLATION
FIRESTOP SYSTEMS

• **DESIGNED TO PROTECT OPENINGS IN**
  – WALLS
  – FLOORS
  – CONSTRUCTION JOINTS
  – FLOOR/WALL SLAB EDGE CONDITIONS
FIRESTOP SYSTEMS

- ONLY PRODUCTS SHOWN IN PUBLISHED LISTINGS
- INSTALLED PER MANUFACTURER’S INSTRUCTIONS & INDUSTRY PRACTICES

LABELLED <FM> APPROVED
FIRESTOP SYSTEMS

- **ENTIRE SYSTEM IN JEOPARDY IF ANY COMPONENT IS**
  - OMITTED
  - IMPROPERLY INSTALLED
  - UNAUTHORIZED SUBSTITUTION OF COMPONENTS
APPROVAL STANDARD REQUIREMENTS

- **MUST EMPLOY AT LEAST ONE (1) DESIGNATED RESPONSIBLE PERSON (DRI)**
  - DEMONSTRATED ABILITY TO UNDERSTAND
    - APPROVAL STANDARD REQUIREMENTS
    - FCIA MANUAL OF PRACTICE (MOP)

- Available on [www.fmapprovals.com](http://www.fmapprovals.com) > Approval Standards > 4991
APPROVAL STANDARD REQUIREMENTS

• WRITTEN QUALITY CONTROL MANUAL
• SUCCESSFUL AUDITS
  – OFFICE
  – JOB-SITE
APPROVAL STANDARD REQUIREMENTS

• **MUST PASS TWO (2) WRITTEN EXAMS**
• **MINIMUM SCORE OF 80% ON EACH EXAM**
  – EXAM 1 GENERAL INFORMATION
  – EXAM 2 DESIGN SELECTION
APPROVAL STANDARD REQUIREMENTS

• **MAINTAIN APPROVAL**
  – CONTINUE TO EMPLOY A DRI
  – SUCCESSFUL JOB-SITE AND OFFICE QUALITY CONTROL AUDITS EACH YEAR
  – PASS A WRITTEN RE-EXAM EVERY THREE (3) YEARS
  – OBTAIN 6 CEUs EVERY THREE (3) YEARS
Guard against being complacent!!
WRITTEN EXAMINATION TOPICS

• **KNOWLEDGE OF**
  – CONSTRUCTION MATERIALS
  – LISTING AGENCIES & LISTED SYSTEMS
  – T, F AND L RATINGS
  – AUTHORITIES HAVING JURISDICTION
  – NON-CONFORMANCES
WRITTEN EXAMINATION TOPICS

• **KNOWLEDGE OF**
  – TERMINOLOGY
  – HOURLY RATINGS
  – TYPES OF SYSTEMS
  – DEFINITIONS
  – BUILDING CODES
  – QUALITY CONTROL
WRITTEN EXAMINATION TOPICS

• CONTINUING EDUCATION REQUIREMENTS
• APPROVAL MARKINGS
• FIRE RATED SYSTEM SELECTION
• ENGINEERING JUDGEMENTS
Example Question

- To properly select an appropriate design for an insulated metallic pipe penetrant system, the following must be considered.
  - a) the insulation material type
  - b) the insulation thickness
  - c) neither a or b
  - d) both a and b
Example Problem

- The concrete wall is 4 1/2 inches thick. The opening is 15 inches x 20 inches. The penetrants consist of one (1) nominal 4 inch diameter PVC pipe and one (1) nominal 8 inch diameter schedule 40 steel pipe. The penetrants are equally spaced within the opening and meet all annular space and distance requirements between penetrants and the edge of the opening. Glass fiber insulation, 1 1/2 inch thick, has been provided on the steel pipe. The maximum hourly rating of the assembly is
  - a) 1/2 hour
  - b) 1 1/2 hours
  - c) 2 hours
  - d) The installation does not meet the criteria and this design cannot be used
  - e) 1 hour
EXAMINATION RESULTS

- **1ST EXAMS – NOVEMBER 2000**
- **53 PEOPLE TOOK THE EXAM**
- **MINIMUM SCORE OF 80% ON EACH OF TWO (2) EXAMS**
- **ONLY 39 PEOPLE PASSED BOTH EXAMS**
- **STILL TODAY – ONLY 2 OUT OF 3 CONTRACTORS PASS BOTH TESTS ON 1ST TRY**
Growth of the program

- **1st Exams – November 2000 Boston, MA**
- **Approval Guide**

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PLUS 4 COMPANIES ARE IN THE PROCESS
FREQUENTLY ASKED QUESTIONS

• *Do I have to belong to the FCIA?*
  Answer – *No, but we encourage it. They are a great resource and can help you with things that we cannot help you with – QA Manual, etc.*

• *Do I have to install all types of firestopping?*
  Answer – *No but the written exams will cover all types of firestopping*
FREQUENTLY ASKED QUESTIONS

• *I’m not a contractor but I am an inspector. Can I take the DRI exams?*

  Answer: *Yes! You will technically not be a DRI but you will receive a letter stating that you passed the test (if that happens to be true!)*
What do we need to make it work!!

Adequate Protection

Adequate Design

Proper Installation

Supervision, Maintenance and Testing
Floor Slab with Opening Filled
Slab Placed Over Furnace
Slab Removed from Furnace
Openings Must Not Develop During Test
Example of Failure
Concrete Wall Assembly with 6 Openings
Wall Assembly Placed Against Furnace
“A perfection of means, and confusion of aims, seems to be our main problem.”

Albert Einstein
WHO DO I CONTACT?

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Thank You

Questions / Comments