Firestop Education & Committee – Action Conference
Seattle, Washington
May 1, 2008

Firestop Data Collection, Maintenance Documents and Firestop Contractor Stats

Presented By
The University of Manitoba, Buller Building is located at the Fort Garry Campus in Winnipeg, Manitoba and was originally opened in 1932. This 5 level, 99,400 sq.ft facility services the Biological Faculty. The Firestopping upgrades were phased over 3 years for a value of $800,000.
Firestop Data Collection

Methodology

- Review current drawings and written documents
- Code analysis – Fire Separations
- Data Collection / Inventory from existing fire separations
  - Service penetrations M+E
  - Top of wall joints
  - Wall to wall joints
  - Perimeter joints
  - Recessed M+E devices
  - Abandoned openings
  - Extension of walls
  - Floor or wall partition upgrades
- Floor, wall and ceiling schedules
- Bid documents (drawings and specification) are created
Firestop Data Collection

Drawing Set Up

- AutoCAD Floor Plans are developed based on the owners most up-dated electronic documents
- Existing floors are cleaned up to form the base firestop drawings
- Based on the code analysis, fire separations are indicated on the plans (hourly ratings)
- Reference Numbers are indicated:
  - Walls
  - Floors
  - Ceilings
- Additional keynotes are placed on drawings to suit site conditions
- Building sections, wall sections or sections and details are provide to suit upgrade requirements
Firestop Data Collection
Firestop Data Collection
Firestop Data Collection

Schedule Setup

- FS Schedule – Wall, (Enter)
  - Reference number
  - Drawing number
  - Room number
  - Wall type
  - Photo number
  - Quantity
  - Description
  - Size
  - FS Detail number
  - Penetration note

- During Construction, the following data is entered by the FS Contractor
  - I.D. Plate No. and Design Listing No.
# Firestop Data Collection

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### Firestop Data Collection

**University of Manitoba**

**Req#157C050720-02**

**FIRESTOPPING SCHEDULE**

- **WALL**

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Penetration Note No. 9 – Polyurethane foam present.
Firestop Data Collection

- Compressed Air Pipe
- PVC Pipe
- Polyurethane Foam
- Insulated Domestic, Hot Water Pipes
- Gas Pipe
- EMT Conduits

*Picture 395*
Firestop Data Collection

FS Details
Firestop Data Collection

Related Details
Firestop Data Collection

CGC Building
FS Value - $750,000

MacDonald Building
FS Value - $470,000

Parker Building Level 300, 500
FS Value - $120,000

Brandon Federal Building
FS Value - $460,000

Victory Building
FS Value - $250,000

Government of Canada Building
FS Value - $160,000
Firestop Data Collection

Club Regent Casino
FS Value - $750,000

Royal Canadian Mint
FS Value - $1,700,000

Jack River School
FS Value - $150,000

McPhillips Street Station Casino
FS Value - $825,000

Churchill Town Center
FS Value - $2,300,000
The University of Manitoba, Faculty of Pharmacy building is currently under construction located at the Bannatyne Campus in Winnipeg, Manitoba. This 5 level, 105,000 sq.ft. Pharmacy facility has 3 levels of labs and 1 level of classrooms is being built for a construction cost of $22.5 Million.
Firestop Maintenance Documents

Methodology

- Review current construction documents
- As Built
  - Drawings
  - Schedules
- Product
  - Literature
  - MSDS
  - VOC
  - Shelf Life
  - Life Expectancy
- Design Listed System
- Final Report
  - ASTM E2174 & E2393
Firestop Maintenance Documents

As Built Drawings

- Create AutoCAD floor plans based on the Architectural Documents

- Floor plans are developed indicating fire separations (as noted on the Architectural Documents) and Reference Numbers:
  - Walls
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- Keynotes are placed to provide further info

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# Firestop Maintenance Documents

## FIRESTOPPING SCHEDULE
### - WALL

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**Section 00971**

Page 1
Firestop Maintenance Documents

Photo No. 01

Photo No. 02

Photo No. 03

Photo No. 04

Photo No. 05
Firestop Maintenance Documents

Photo No. 06

Photo No. 07

Photo No. 08

Photo No. 09
Firestop Maintenance Documents

Final Report

- Introduction
  - Overview
  - Mandate
  - Contact Listing
  - Executive Summary

- Performance Requirements and Verification
  - Method
  - Types of Firestops
  - Redundant Design Listed Systems
  - Quantities of FS per level
  - Certification

- Appendix
  - A – Correspondence
  - B – Mock-Ups
  - C – General Reviews / Observations
  - D – Destructive Tests
  - E – Mock-Up Summary
  - F – Destructive Test Summary
  - G – As-Built Drawings
  - H – As-Built Schedules
  - I – Submitted Design Listed Systems
Firestop Contractor Stats

Study

- Global and Affinity compiled firestop inspection statistics from 2006-2007
- Projects from Eastern United States and Western Canada were used for this study
- Inspections were based on ASTM E2174 and E2393
- 70 Projects were chosen
- 1000 Tests were performed utilizing Observation or Destructive Test review methods
- Firestop Contractors reviewed:
  - FCIA, FM approved Contractors
  - FCIA Contractors
  - Non Firestop Contractors
Firestop Contractor Stats

Design Listings Reviewed

- Total of 985 Design Listings submitted
- Total of 345 Engineered Judgments submitted
- Accuracy of what is installed on site compared to Design Listings submitted:
  - FCIA, FM 96%
  - FCIA 76%
  - Non FS 32%
- Accuracy of what is installed on site compared to Engineer Judgments submitted:
  - FCIA, FM 93%
  - FCIA 73%
  - Non FS 12%
Firestop Contractor Stats

Inspection groups scope of work increases:

- Education for Non Firestop Contractors
  - Building Codes
  - FCIA - MOP
  - Specifications and Drawings
  - Numerous General Site Meetings
  - Product
    - Literature
    - MSDS
    - Installation Limitations
  - Design Listings
  - Engineered Judgments
  - Testing Procedures
  - Mock-Ups
Firestop Contractor Stats

Inspection groups scope of work increases:

- Site Issues by the Non-Firestop Contractor
  - Workmanship is very poor
  - Preparation of joint, service penetration or substrate is not being followed
  - Work is only partially complete
  - No Design Listing was submitted for installed system
  - Design Listing has not been followed
  - Product has expired, frozen, or washed out
  - Seals have been broken
  - No fasteners or incorrect fastener has been installed on collars
  - Inconsistency of actual installer
  - Constantly canceling site reviews
  - Not familiar with code requirements
Firestop Contractor Stats

Additional Inspection Cost for Non FS Contractor

- Education Requirements Increase
- Installation Issues Increase
- More than one Non FS Contractor on a job
- Additional overlap with Designer, Contractor, Sub Trades, AHJ, Owner
- More Reporting
- More follow up on issues (emailing, fax, phone calls)
- Final Reports increase in size

Inspection Group Costs Increase:

50% to 300%

Up and above using a FCIA – FM approved Firestop Contractor
Firestop Contractor Stats

Project Totals for each Firestop Contractor

- 42
- 23
- 5
Firestop Contractor Stats
Total Tested Firestop Systems

- 490
- 450
- 60
Firestop Contractor Stats

Success Rate

- 52
- 73
- 94
Firestop Data Collection, Maintenance Documents and Firestop Contractor Stats Questions
Firestop Education & Committee – Action Conference
Seattle, Washington
May 1, 2008

Thank You