Henri Fennell, CSI/CDT

Henri is an architect and building envelope specialist with over forty years of experience in the construction industry. He was a pioneer in the solar industry, introduced the installation technique for field-applied closed-cell cavity-fill polyurethane foam, developed a pressurized theatrical fog quality assurance technique and protocol, and has designed and constructed a net-zero energy research structure in Antarctica. He has four energy-Related U.S. patents.

HCF foam experience

1. First spray foam project was in 1971
2. Foam manufacturing from 1972 to 1978
3. Foam contracting from 1979 to 2009
   - Developed the method for injecting closed-cell foam on site
   - Installed ~ 3 million pounds of foam
4. Foam consulting from 2009 to present
   - Foam project planning
   - Installation commissioning
   - BE problem diagnostics & inspections
   - Remediation planning
5. Noteworthy foam projects include:
   - Bruce Museum, The Big Dig, 4 American Ski Grande Hotels in the Northeast, Net-zero energy weather station in Antarctica, The Guggenheim Museum
6. Two patents and two published technical papers related to foam products and quality control

Interpreting Infrared Images for Building Diagnostics in Foam Installations

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ANTITRUST POLICY STATEMENT FOR SPRAY POLYURETHANE FOAM ALLIANCE MEETINGS

- It is and shall remain the policy of the Spray Polyurethane Foam Alliance ("SPFA"), and it is the continuing responsibility of every SPFA member company, SPFA meeting or event participant, as well as SPFA staff and leadership to comply in all respects with federal and state antitrust laws. No activity or discussion at any SPFA meeting or other function may be engaged in for the purpose of bringing about any understanding or agreement among members to (1) raise, lower or stabilize prices; (2) regulate production; (3) allocate markets; (4) encourage boycotts; (5) foster unfair or deceptive trade practices; (6) assist in monopolization; or (7) in any way violate or give the appearance of violating federal or state antitrust laws.

- Any concerns or questions regarding the meaning or applicability of this policy, as well as any concerns regarding activities or discussions at SPFA meetings should be promptly brought to the attention of SPFA's Executive Director and/or its legal counsel.

Course Description

Remediating Problems in Foam Plastic Insulation Installations

This program introduces the building science, processing, installation, and post-installation problems in field-applied polyurethane foam plastic installations.

The four most common types of foam material quality problems are presented, along with the means of determining which types are in a given project or area.

This program will discuss when foam material can be stabilized and repaired vs. when it has to be partially or completely removed and replaced, and finally, the strategies for remediating each type.

It also emphasizes the importance of addressing air quality requirements during and after the remediation work.

Case studies provide examples of problem foam installations for.

Learning Objectives

1. Participants will be able to identify typical problems and failures in foam installations
2. Participants will be able to differentiate between foam that should be replaced or repaired
3. Participants will be able to select the appropriate remediation strategies for problem foam installations

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The five most common types of foam quality problems

- Dimensional stability
- Adhesion
- Odors
- Related moisture problems
- Inadequate fire protection

Dimensional stability

- Picture here

Adhesion

- Picture here

Odors

- Pictures here

Related moisture problems

- Insert pictures here

The foam quality problems are caused by

- Building science issues
- Improper processing
- Installation protocols
- Post-installation protocols

- Note: I didn’t include poor quality raw materials in this list

Building science issues

- Insert pictures here

Improper processing

- Insert pictures here

Installation protocols

- Insert pictures here

Post-installation protocols

- Insert pictures here

The means of determining which types are present in a given project or project area

- Visual inspection
- Density check
- Slit testing
- Hot and cold tests
- Odor protocols
- Laboratory testing

Visual inspection

- Insert pictures here

Density check

- Insert pictures here

Slit testing

- Insert pictures here

Hot and cold tests

- Insert pictures here

Odor protocols

- Insert pictures here
- Sample VOC report

Laboratory testing

- Insert sample lab reports here
- Schubert chart

When can problem foam material be stabilized and repaired vs. when it has to be partially or completely removed and replaced

- Health first – vapors/odors can be managed, but not remediated

- Determine if dimensional stability can be achieved if there are no vapors – if so, remediation is possible

Health first – vapors/odors can be managed, but not remediated

- Are the vapors a health hazard?
- Rate of decline
- Testing issues

Determine if dimensional stability can be achieved if there are no vapors – if so, remediation is possible

- Insert picture here

What the strategies are for remediating each type of problem

- Removal and replacement of material causing long-term health problems
- Repair of salvageable material
- How to address air quality requirements during and after the remediation work

Removal and replacement of material causing long-term health problems

- Insert picture here

Repair of salvageable material

- Localized removal and replacement
- Stabilization
- Isolation
- Ventilation
- Combinations

Localized removal and replacement

- Insert picture here

Stabilization

- Insert picture here

Isolation

- Insert picture here

Ventilation

- Insert picture here

Combinations

- Insert picture here

How to address air quality requirements during and after the remediation work

- Insert pictures here

Thank you for your time!

QUESTIONS??

This concludes this Continuing Education Systems Program

By: Henri Fennell, CSI/CDT

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