Existing Structures: How to Address a Retrofit SPF Job Properly, in Commercial and Residential Environments

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- This presentation will not be all encompassing but rather will present several considerations that need to be addressed when getting ready to do a construction project using spray foam materials.

- Here are some topics we will discuss:
  - Setting up
  - Preparing substrates/protection
  - Ventilation Strategy
  - Inhabitant’s concerns
  - Re-occupancy
  - Working near others
  - PPE/Training
  - Dealing with electrical, heat
  - Sources and other issues
  - Thermal Barrier, Ignition Barrier
  - New Construction Differences
  - Other Concerns
Before you start....
Can you do the job?

- You really have to take a look at your:
  - Equipment
  - People
  - The training they need to do the job
  - Your financial capability
  - Can you recover your costs and little extra for “profit” so you can build equity in your business
  - Does it fit your schedule
  - Can you satisfy the customer, contract, specification
  - Can you purchase the proper materials
  - If you have not done the application before, you need to ask for help BEFORE the job starts
There are a lot of other concerns

- Weather and environmental conditions
- Schedules that are formed by “others” such as General Contractors
- Use of other equipment on the job, such as scaffolds, man lifts, cranes, toilets, storage, debris, etc.
- If you become partners on a project, how well do you know the partner?
- Building Science and other construction issues
- Will it work? Is it code compliant? Is it going to be a good application?
Let’s take a look at some example jobs

MN Twins Stadium

Residential Attic Glass Fiber Replacement

Exterior Wall Energy Upgrade during siding replacement
Residential Attic Insulation Upgrade

This photo shows a few year old home that was in foreclosure and the new buyer wanted to upgrade the insulation, because of high energy costs.

The plan was to remove and replace the blown glass fiber attic insulation and replace with closed cell spray foam to current building code requirements.

If budget permitted, side wall insulation was to be installed on the inside of the block wall basement foundation wall.
Let’s go back to our list…

- Setting up
- Preparing substrates/protection
- Ventilation Strategy
- Inhabitant’s concerns Barrier
- Re-occupancy Differences
- Working near others

- PPE/Training
- Dealing with electrical, heat
- Sources and other issues
- Thermal Barrier, Ignition
- New Construction
- Other Concerns
Attic Insulation

- How to remove blown in
- Vapor Barrier Issues
- Vents-in and out
- Attic access, confined space
- Hot stacks or other items
- Condition of ceiling
- 100% survey of area to be foamed checking for openings
- PPE and Safety Equipment
- Wires, electrical, speaker, cable, etc.
- Plumbing, pipes, gas lines
- Roof Deck inspection, stains, mold
- Is it installed on deck or topside of ceiling sheetrock
- Building Science issues
- HVAC investigation
- Communication/Lighting
Insulation Removal Process
Blown In Removal and Collection

- Collection bags will contain the blown in and allow air out
- The bags will allow collection, and control debris during the process
- The use of bags allow containment to transport to a construction waste site for proper disposal
AFTER
But
Before Thermal Barrier or Ignition Barrier
Basement Wall

- The intent was to remove the vapor retarder
- Install closed cell spray foam to the wall cavity
- Install spray foam to the rim or floor joist area
Let’s look at our list......

Setting up  PPE/Training
Preparing substrates/protection  Dealing with electrical,
Ventilation Strategy  Heat Sources and other issues
Inhabitant’s concerns  Thermal Barrier, Ignition Barrier
Re-occupancy  New Construction Differences
Working near others  Removal and Disposal of Batts

What about the wall moisture protection, outboard side
Thermal Barrier Requirements documented notification
Use Owner Checklist from www.spraypolyurethane.org website
Read Safety Data Sheets, TDS’s for products, mfg.. application instructions
Wall Spray

- Equipment Ready
- PPE Ready
- Occupants /Pets OUT
- Owner Checklist Used
- Trained Professional Applicator who knows processing and application requirements
- Permits, What is required for thickness, What gets foamed
- Final Check of Spray Area
- Signs Posted
Final Inspection/Paperwork

- Post the Insulation card by Electrical Box, filled in and signed
- Inspect all areas for proper foam quality, thickness required and uniformity
- Fill in paperwork with what was done, by whom, with what products
- Coordinate Re-occupancy and Ventilation Strategy
Questions Or Discussion
Before We Move On
Exterior Wall Residential

- Siding needed to be replaced
- 2 x 4 wood stud wall
- Upgrade with removal of batt from exterior
- Install near stud thickness of closed cell spray
- Install Isocyanate Foam Sheathing
- Install wall cladding materials
Exterior Side Wall, our list....

- Setting up
- Preparing substrates/protection
- Ventilation Strategy
- Inhabitant’s concerns
- Re-occupancy
- Working near others
- Overspray Control
- Thickness Control
- Water Damage
- PPE/Training
- Dealing with electrical
- Heat Sources and other issues
- Thermal Barrier, Ignition Barrier
- New Construction Differences
- Outside Job
- Wind, Weather
- Phasing/Coordination
- Inspections
Job Inspection/Paperwork

- Similar to previous example
Insulation-Commercial New Construction

- More demanding and coordination required
- Jobsite Demands are higher
- Costs are typically greater compared to residential
- Paperwork requirements generally higher
- Bonding and Insurance Requirements

Target Field Minneapolis Twins
To install spray foam and spray applied thermal barrier in several areas

- The job was to insulate areas designated for Spray Foam and Thermal Barriers, some areas were spray applied thermal barriers.
- The underside of concrete formed steps was insulated and fireproofed.
- The insulation was installed to meet the building code and specification requirements.
And the list.....

- Setting up
- Preparing substrates/protection
- Ventilation Strategy
- Inhabitant’s concerns
- Re-occupancy
- Working near others
- Other workers
- Ventilation and Containment
- Large jobs will generally limit your service to other customers
- Hard to find professional applicators

- PPE/Training
- Dealing with electrical
- Heat sources and other issues
- Thermal Barrier, Ignition Barrier
- New Construction Differences
- Other Concerns
- Spraying off hours
- Job not ready when you are
- Slow Payments/Retainage
Inspection of Thickness
SPF before thermal barrier

You may have to mask off several times before done with an area
Containment and Ventilation

The use of plastic to contain the work area so it can be compartmented and ventilated is important for worker safety and others outside the spray area.

This should be in writing and part of the project folder. Written coordination through the General Contractor is important up front of the job start.
Inspection/Paperwork

- Lots more paperwork to get paid!
- Must keep up and do it right
- A lot of people to make happy
- Slow and Long process
Summary

- We have looked at three example jobs and pointed out some of the concerns---not all.
- Each job may have similarities, but needs to be evaluated on a case by case basis.
- The level of requirements seem to escalate with project types residential vs. commercial as well as project size a few kits to 40 kits plus
- Keep your eye on the prize-safe application, an application that is good and making money and getting paid for a job well done.