



## Cellulose Application Training Course

This is full day training course, led by Bill Hulstrunk/ Bill Sovie, and is designed to give contractors the proper technique to dense pack and open blow cellulose and in accordance with BPI (Building Performance Institute) and building codes. The course is also eligible for 4 BPI Continuing Ed credits. The course is designed for contractors new to the field or experienced contractors who have not been formally trained in the proper way to install cellulose insulation. Contractors attending the course will leave with knowledge of machines selection and use, dense pack hose configuration and optimization, how to test a blower machine (if you have a machine, you are encouraged to bring it to the training for testing and calibration), how to dense pack walls using the tube insertion method, and be able to pass the test box evaluation. Learn from the experts at National Fiber about how to improve production and quality of your cellulose installations.

When: Call 413-283-8747 and ask for Chris White for class dates info

Time: 8am – 5pm

Where: National Fiber, 50 Depot St. Belchertown, MA

Topics: See Attached for curriculum

Cost: \$200 per person

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Class sizes are limited, so please sign up quickly.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Office Phone: \_\_\_\_\_ Cell Phone: \_\_\_\_\_

Have you installed cellulose before? Y N What brand of cellulose do you use? \_\_\_\_\_

Where do you buy your cellulose? \_\_\_\_\_

Do you own a cellulose blowing machine? Y N If yes, what type do you have? \_\_\_\_\_

How many years/months experience do you have as an insulation installer? \_\_\_\_\_

What are the top items you would like to learn from this course?

\_\_\_\_\_  
\_\_\_\_\_

**Mail Check and this registration form to:**

**National Fiber, Cellulose Training, 50 Depot St., Belchertown, MA 01007**

# **I. National Fiber Cellulose Field Training Outline**

## **A. What cellulose is made from?**

### **1. Fire Retardants**

- a) All Borate Products
- b) Blended Products

### **2. Benefits of Cellulose Insulation**

- a) Fire Resistance and Testing
  - (1) *Classification*
  - (2) *Firewalls*
  - (3) *Fire Blocking*
- b) Moisture Management
  - (1) *Hygroscopic Properties*
    - (a) Liquid Water & Mold
- c) Insects and Vermin
- d) Airborne Sound Transmission

## **B. Applications**

### **1. Loose Fill (Flat Attics)**

- a) Benefits of filling irregular surfaces
  - (1) *Identifying air and insulation boundaries*
  - (2) *Aligning the air and insulation boundriess*
- b) Attic Prep
  - (1) *Safety Issues*
    - (a) Personal safety
      - (i) Dust masks or respirators
      - (ii) Tyvek or overalls
      - (iii) Lighting
    - (b) Electrical

- (i) Knob and Tube Wiring and NEC
- (ii) Open junction boxes
- (c) Chimneys, vents and non-IC rated recessed lights
  - (i) Non Combustible materials
    - (a) *Air sealing (Metal flashing and high temp caulk)*
    - (b) *Insulation (Rock wool batts)*
  - (ii) Insulation dams and air tight boxes
- (d) Moisture related issues
  - (i) Venting bathroom fans and plumbing stacks
  - (ii) Ice damming and ventilation
  - (iii) Awareness of indoor moisture problems
  - (iv) Attic venting
    - (a) *When you need to vent the roof*
    - (b) *Soffit, gable end and ridge vents*
    - (c) *Proper vents and wind baffles*

(2) *Attic air sealing*

- (a) Air flow resistance of loose fill cellulose @ 1.5 lbs/cuft
- (b) Air sealing materials and methods
  - (i) Caulking
  - (ii) Two part foam
  - (iii) Metal flashing and high temp caulk
- (c) Wiring and plumbing penetrations
- (d) Exposed top plates or open tops of walls
- (e) Drop soffits, chimney and duct chases
- (f) Floored attics

(3) *Attic access*

- (a) Attic storage vs insulation

- (i) Ways to make more room for insulation
  - (b) Walk up attics
    - (i) Insulating stair treads and walls
    - (ii) Weather stripping and insulating door
  - (c) Pull down stairway
    - (i) Building or installing an air tight lid
    - (ii) Insulation dam
  - (d) Attic hatches
    - (i) Insulating and weather stripping
    - (ii) Insulation dam
  - (e) No access or the gable end crawl
- (4) *Existing insulation materials*
  - (a) Fiberglass or rock wool batts and loose fill
    - (i) When to remove or not
    - (ii) Encapsulation
  - (b) Vermiculite
    - (i) Asbestos concerns and respirators
- (5) *Marking insulation depths*
  - (a) Insulation rulers
  - (b) Spray paint
  - (c) Depth probe
- c) Loose fill installation
  - (1) *Coverage charts*
    - (a) Installed density vs settled density
  - (2) *Optimizing coverage*
    - (a) Machine settings
      - (i) Air adjustment and visibility
    - (b) Hoses

- (i) Planning attic access and retreat
  - (ii) Hose length
    - (a) *Ribbed or smooth bore*
    - (b) *Why size matters*
      - (i) Friction
    - (c) *Hose connections*
      - (i) Clamps vs duct tape
  - (c) Hose orientation
    - (i) Common mistakes
  - (d) Consistency of depth
- 2. Dense pack (Enclosed cavities)
  - a) Benefits
    - (1) *Targeting inaccessible framing junctions and interstitial spaces*
  - b) Importance of density
    - (1) *Settling in older applications*
      - (a) Nozzles and density drop off
    - (2) *Dense pack cellulose @ 3.5 lbs/cuft*
      - (a) Tube insertion technique
      - (b) Stopping air movement
    - (3) *Unvented roof assemblies*
  - c) Preparation for dense pack cellulose
    - (1) *Safety Issues*
      - (a) Personal safety
        - (i) Dust masks or respirators
        - (ii) Ladders and drills
      - (b) Knob and tube wiring and NEC
      - (c) Lead safe practices
        - (i) Drop cloths

- (d) Asbestos siding
  - (i) Removal do's and don'ts
- (e) Electrical box locations
  - (i) Drilling into wires

(2) *Wall inspection*

- (a) How many stories is the building and do I have clear ladder access?
  - (i) Where am I going to be drilling?
- (b) What type of siding am I working on?
  - (i) Brick, stucco, aluminum, asbestos, clapboard or shingle?
- (c) How many layers of siding?
  - (i) How thick is the sheathing?
- (d) How thick is the wall cavity?
  - (i) Plank walls
  - (ii) Back plastered or double plastered walls
- (e) Are they already insulated?
  - (i) If so, what is it and how thick is it?
- (f) Are the walls fire blocked or unusual framing?
- (g) Are their solid headers above the windows and doors?

(3) *Siding types and removal*

- (a) Brick
- (b) Stucco
- (c) Asbestos shingle
- (d) Aluminum
- (e) Clapboard
- (f) Shingle
- (g) Vinyl

(4) *Drilling*

- (a) Types of drills
    - (i) Clutches
    - (ii) Corded or cordless
  - (b) Types of bits
    - (i) Self feed
    - (ii) Hole saws
  - (c) Sizes
  - (d) Drilling orientation and figure 8 pattern
  - (e) Plugging the holes watertight
- d) Dense pack installation and optimization
- (1) *Crew size*
  - (2) *Tube insertion method*
    - (a) Hose types
      - (i) Static and grounding
      - (ii) Flexibility
      - (iii) Hose prep and connections
    - (b) Optimizing hose size for the cavity
    - (c) Machine settings
      - (i) Air and material gate settings
    - (d) Covering open assemblies
      - (i) Knee wall slopes or open walls
        - (a) *Materials*
          - (i) Insul-web or Typar
          - (ii) Rigid Thermax and strapping
    - (e) Installation process
      - (i) Wide or interconnected bays
      - (ii) Band and rim joists
- (3) *New Construction*

- (a) Spray applied cellulose and equipment
- (b) Insul-web and pneumatic staplers
  - (i) Rigid wand application
    - (a) *Prefill for thicker assemblies*

C. *Equipment selection and maintenance*

- 1. Modern air lock machines
  - a) Paddle and seal assembly
    - (1) *Testing of blower pressure and seals*
    - (2) *Can I put this into my machine?*
- 2. Types of blowing machines
  - a) Portable vs truck mounted
    - (1) *Production rates – Attic only*
    - (2) *Weight vs hopper size*
  - b) Power requirements
    - (1) *Extension cord sizes*
      - (a) Length and voltage drop
    - (2) *Generator size*
      - (a) Safety and carbon monoxide
    - (3) *Sub panels*
      - (a) Electrical safety
        - (i) Clipping in or adding breakers
        - (b) 220 volt splitter off dryer or electric range outlet
          - (i) Plug configuration
- 3. Maintenance
  - a) Daily
    - (1) *Blow out all hoses*
    - (2) *Repair anything right away*



- b) Weekly
  - (1) *Blow out all air filters*
- c) Monthly
  - (1) *Check belt and chain tension*
  - (2) *Lubricate chains with dry lubricant*
- d) Quarterly
  - (1) *Test blower pressure and seals*
  - (2) *Check blower to airlock connection*
- e) Annually
  - (1) *Change gear oil*
  - (2)
  - (3)