Wall Insulation Experiments

Winthrop, Maine, October 14, 2003

Sponsored by Maine State Housing and Boston Department of Energy as part of the 04S Project.

Two 22 inch wide cavities
¼ inch Lexan, strapped fo
strength. Fiberglass
stuffed in bottom of
cavity. Cavities are
3 ¾ inches deep.

Ready for test blowing.

Summer-grade 1 ¼ inch tube inserted in 22 inch wide cavity. Tube is too flexible to reliably travel properly.

The flaccid tube makes it difficult, if not impossible to achieve an adequate density in the wall.

A more rigid 1 ¼ inch Inside diameter tube is inserted in the left cavity. This turgid tube is much less likely to bend downward than the flaccid tube in the right cavity, ensuring a better insulation density.

Flaccid Tube Blow

The four photos show the sequence of blowing through the sub-standard tube from a fill hole near the bottom of the cavity.

The measured cellulose density in lb/ft^3 at a particular height in the cavity is shown in photo number 4.

Note: Krendl 2090 machine with air on 7 for both blowers and feed set at 3.

Rigid Tube Blow

The four photos show the sequence of blowing through the more rigid tube (left cavity) from a fill hole near the bottom of the cavity.

Continued . . .

Note: Krendl 2090 machine with air on 7 for both blowers and feed set at 3.

Rigid Tube Blow

The four photos show the sequence of blowing through the more rigid tube (left cavity) from a fill hole near the bottom of the cavity.

The measured cellulose density in lb/ft^3 at a particular height in the cavity is shown in photo number 8.

Note: Cavity on right was blown with less rigid tube that curved downward

Note: Krendl 2090 machine with air on 7 for both blowers and feed set at 3.

The Lexan is removed fron
cavities to get ready for
the next test.

The holes through the wal
sheathing and cellulose –
except the bottom hole in
each cavity – are the core
sampling holes.

Core sampling kit, includin
the copper tube, scale for
weighing the core sample,

Center Fill, Up-Down Blow

The three photos show the sequence of blowing through a rigid tube from a fill hole near the center of the cavity.

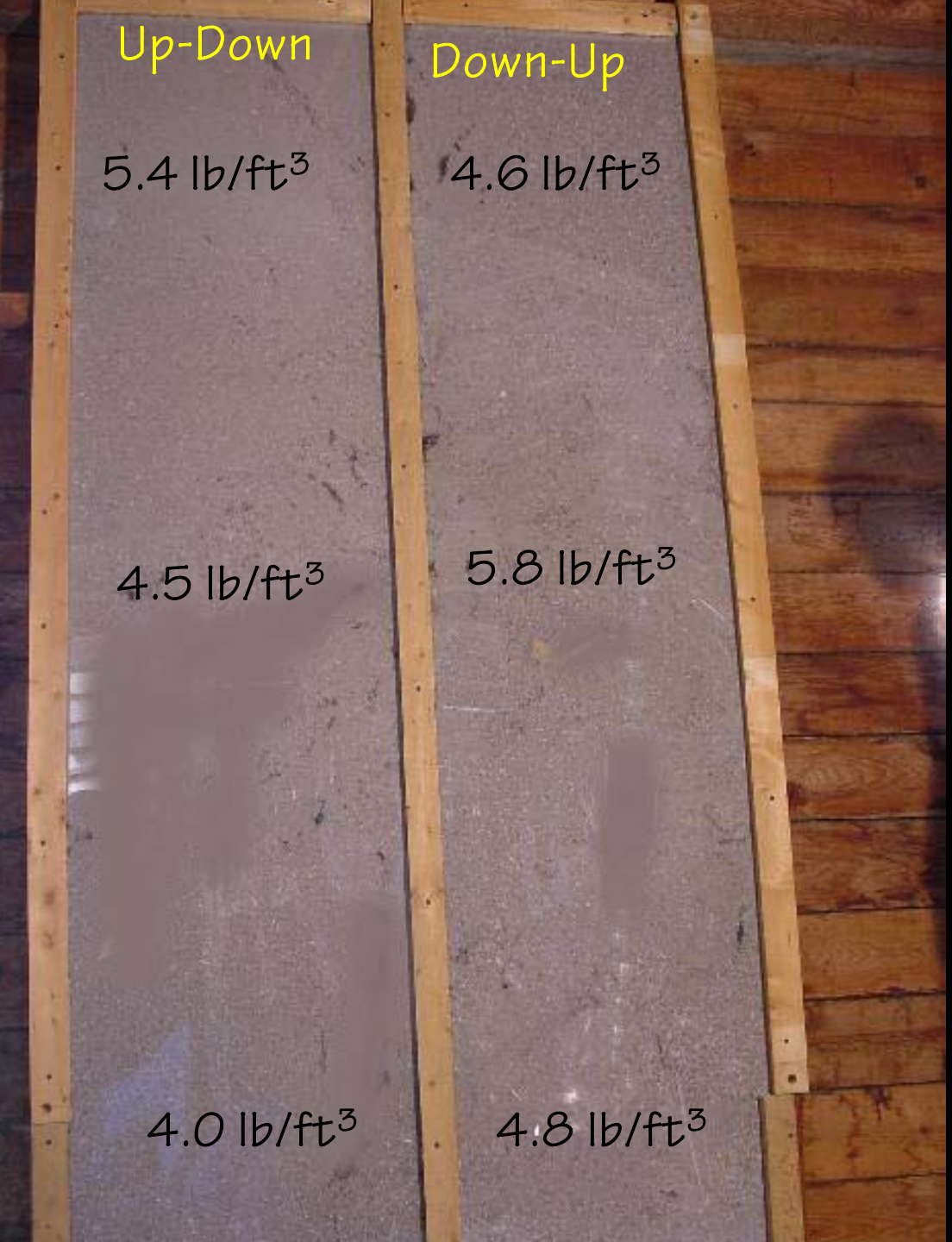
The fill hole in the left cavity is at the same height as the fill hole in the right cavity.

Note: Krendl 2090 machine with air on 7 f
both blowers and feed set at 3.

Center Fill, Down-Up Blow

The four photos show the sequence of blowing through a rigid tube from a fill hole near the center of the cavity.

For this test, when the tube direction was change to up, the feed was shut down so that only air cam out of the tube. This seemed to "drill" a channe allowing the end of the tub all the way up to the top plate.



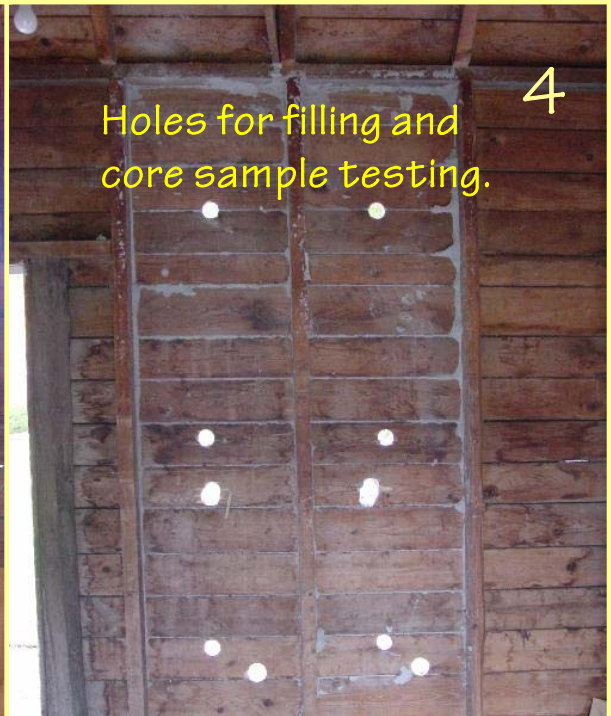
Center-Cavity Fill Hole

In left cavity, the tube directed up and then down.

In right cavity, the tube directed down and then up.

The measured cellulose density in lb/ft^3 at a particular height in the cavities is shown in the photograph.

Note: Krendl 2090 machine with air on 7 f
both blowers and feed set at 3.



Two-Hole Method

The first three photos sho
the sequence of blowing
through a nozzle, bottom
and then top hole.

The densities measured fro
core samples are included o
photo number 3. The top fil
hole and core sample hole a
one in the same (see photo
number 4).

Note: Krendl 2090 machine with air on 7 f
both blowers and feed set at 3.

Bottom Tube Fill with Inferior Machine Setting

The left cavity is filled from the bottom with a sufficiently rigid summe tube, 1 ¼ inch inside diameter.

(The right cavity was done with t two-hole method with good machine settings.)

The inferior core sample densities are listed

Note: Krendl 2090 machine with air on 1 ½ for one blower and feed set at 4.

2nd floor band joist treatment