June 2008

GREENHOUSE TIPS

Alberta News

Combat the high cost of heating.

Infiltration Series

ENERGY CONSERVATION SERIES

Seal them up from costly effects of infiltration and create a high thermal barrier.

Way way back in the early 1900's, actually 1992 or 1994 we started an active energy conservation program for any of our clients wishing to consider.

This was the year we started spraying a 1 1/2" to 2" layer of spray foam insulation on all north gable ends (when possible) and along all sidewall base systems at grade.

The photo above, a construction project completed in 2004 sort of tells the story. Here the fellows are just starting to finish off the application of spray on white ULC lagging spray over the insulation. The lagging is quite important for many good reasons.

1. Prevents UV de gradiation of the costly spray foam.
2. Looks good, plus adds the benefit that it provides greater lighting intensity along the north end of the structure. (This is important when our winter sun is low to the horizon).
3. Provides a fire stop, flame spread and smoke development barrier in case of a fire.
4. Effectively seals the entire wall against excessive infiltration. (There's that evil word again)
5. Provides a very high thermally resistant wall against conducted heat loss.
6. Due to the nature of spray foam it creates its own vapor barrier.
7. Looks good for many many many years.

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Energy Conservation

Should be your first step in reducing your energy operation costs.

Generally a 1 1/2" spray application provides an R value of 7.5 and a 2" spray application provides a R value of 10.0. Don't snicker at these numbers cause if you consider the fact that they are 100% completely air proof the REAL R value of the assembly is far greater than the good old batt and panel type insulation systems.

If you look closely at the above photo, on the right sidewall along grade line you will see that the base plate system has as well be insulated. We actually take the insulation down below grade by about 12". To do this, depending on soil conditions we carve a trench 4" to 6" wide X 12" deep along the whole sidewall below the base plate (which in itself extends down into grade) then spray foam in the whole void and back fill. This is also done on the gable ends as well.

Sounds like overkill ? No. Just practical common sense. It is an investment ! It pays for itself in a year or two and continues paying you rewards of lower heating costs for years and years. Most importantly, it improves your plant growth environment.

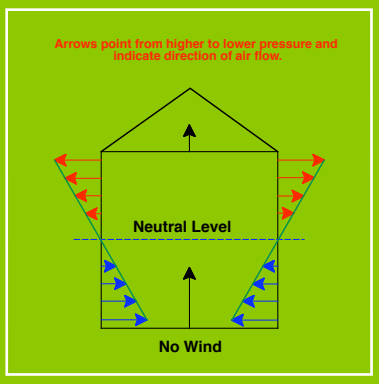
Why do we spend so much effort and concern about reducing low level leakage cracks. Take a look at the illustration to the right. Notice how the blue arrows get longer (larger) towards the base of any building. That's right the lower the opening is below the neutral plan level is, the greater the leakage flow will be.

Now consider where your plants are located. Where the wet growing media is and subsequently where the roots are. Not nice.

To recap.

It's not all about insulation, fancy costly high efficiency equipment. Combating infiltration should be a major concern and it can be drastically altered with simple things such as a tube of chalking.

INFILTRATION



Is the uncontrolled flow of air through openings in the building envelope driven by pressure differences across the shell. Infiltration is balanced by an equal amount of exfiltration. Uncontrolled/excessive infiltration will contribute greatly to your heating costs.

More Information on Infiltration and tips to control.

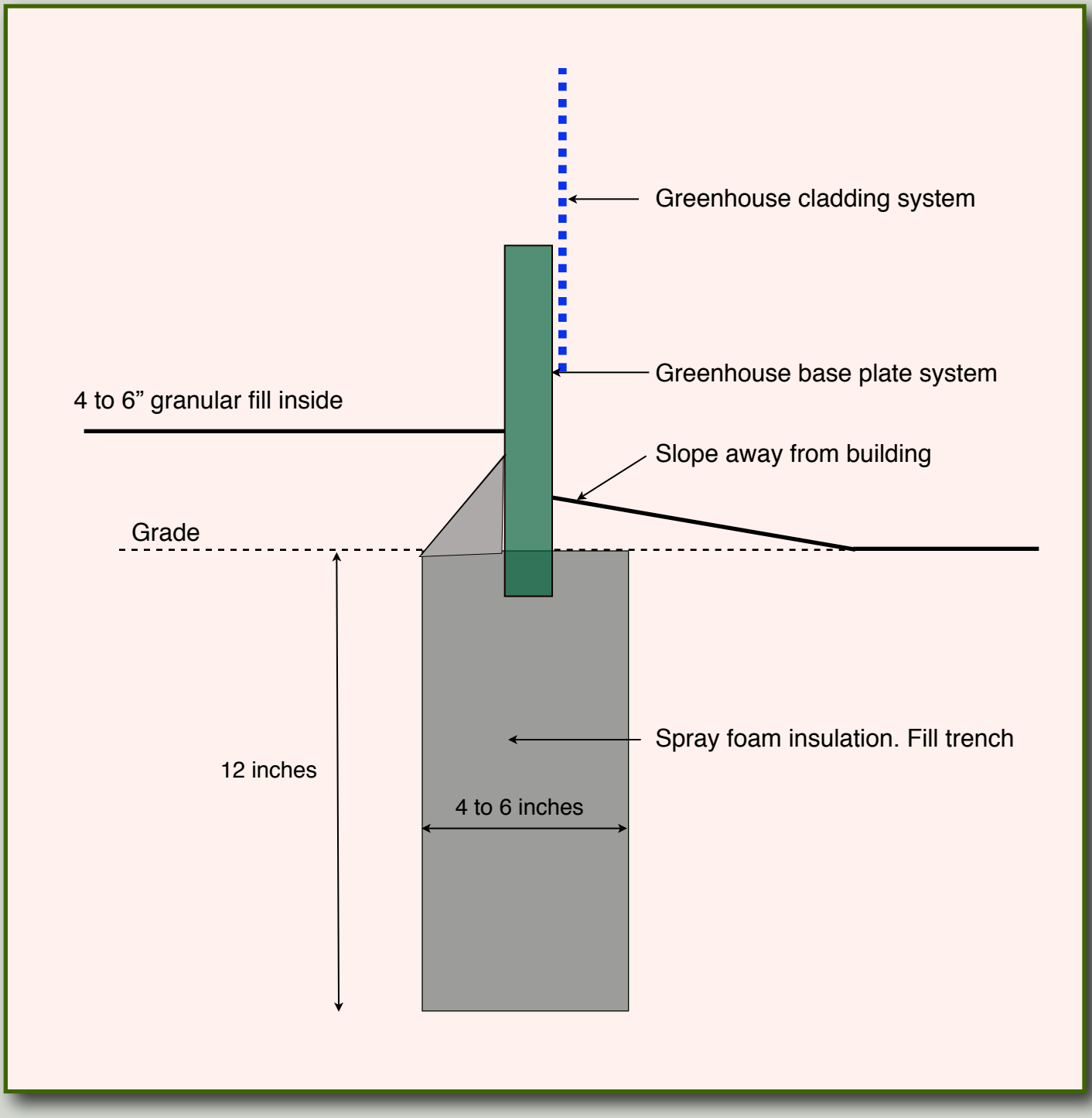
Article One : general understanding of infiltration.
Article Two : Tips on how to cut down infiltration.
Article Three : Control Strategies for Roof Vents

A Leaky Structure

Can easily cause 1/2 of your heating bill be comprised of heating air that enters at low level and exits at high level.

It is time to tighten up things and take control.

Insulated base plate system



Concept Sketch. **Cut trench method for soil thermal break and base infiltration protection. For detailed construction plans/details contact our office. File no. 801011. Cad/pdf format available.**

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