

We are currently preparing for close-in on one of our more unique and challenging custom homes. What makes it challenging? Two factors; it's a significant renovation; which meant keeping the original foundation built in 1960 and then constructing a magnificent modern designed structure.

Our client is extremely concerned with energy consumption. To this end, we thought we would blog about "common household air leaks" and what to do. The main areas to address are:

- Behind Kneewalls
- Attic Hatch
- Wiring Holes
- Plumbing Vent
- Open Soffit (the box that hides the recessed lights)
- Recessed Light
- Furnace Flue or Duct Chaseway (the hollow box or wall feature that hides ducts)
- Basement Rim Joists (where the foundation meets the wood framing)
- Windows and Doors

At Congressional Design Build, we subscribe to the theory that if you insulate properly, you can heat and cool your house with a match ... we'll almost. Start by sealing the thermal envelope. This is part of the house which separates the indoors from the outdoors, and consists of the floor on the bottom level, the ceiling on the top level, the exterior walls, the exterior floor bands, and of course the doors and windows.

How?

- During the framing process make sure you seal under the exterior walls; we use a special wall gasket
- Use housewrap (tyveck or equivalent) on the exterior framing at the floor band just below the walls, and to the very top outside of the exterior walls. Follow installation instructions
- Caulk under exterior doors before installation
- Seal around windows and exterior doors using caulk or poly foam sealer (great stuff) that is specified for doors and windows. Don't use the regular expanding foam sealant ...just don't!
- If your attic will have blown insulation, ask to build a box around the access hole so the insulation can come all the way to the access hole without spilling into the house.
- After wiring, plumbing and HVAC have been roughed in and before installation of

insulation, use foam sealant in all of the holes that have been drilled through the top or bottom plates of all walls; not only the exterior walls. The interior walls are important too; air will exchange from the interior to the crawl space and the attic through interior walls.

We would recommend hiring an insulating company to perform the above and make it part of their Turn-Key solution. In the Washington Metropolitan Area they call it “Air Control and Draft Stop.” They typically use a foam sealant and a high grade non-sag caulk for air control and we would recommend an STI Fire Stop product.

Next we use spray-in custom insulation materials that provide superior performance, we’ll tell you who they are and why it’s superior on our next blog entry.

Cheers, Team CDB