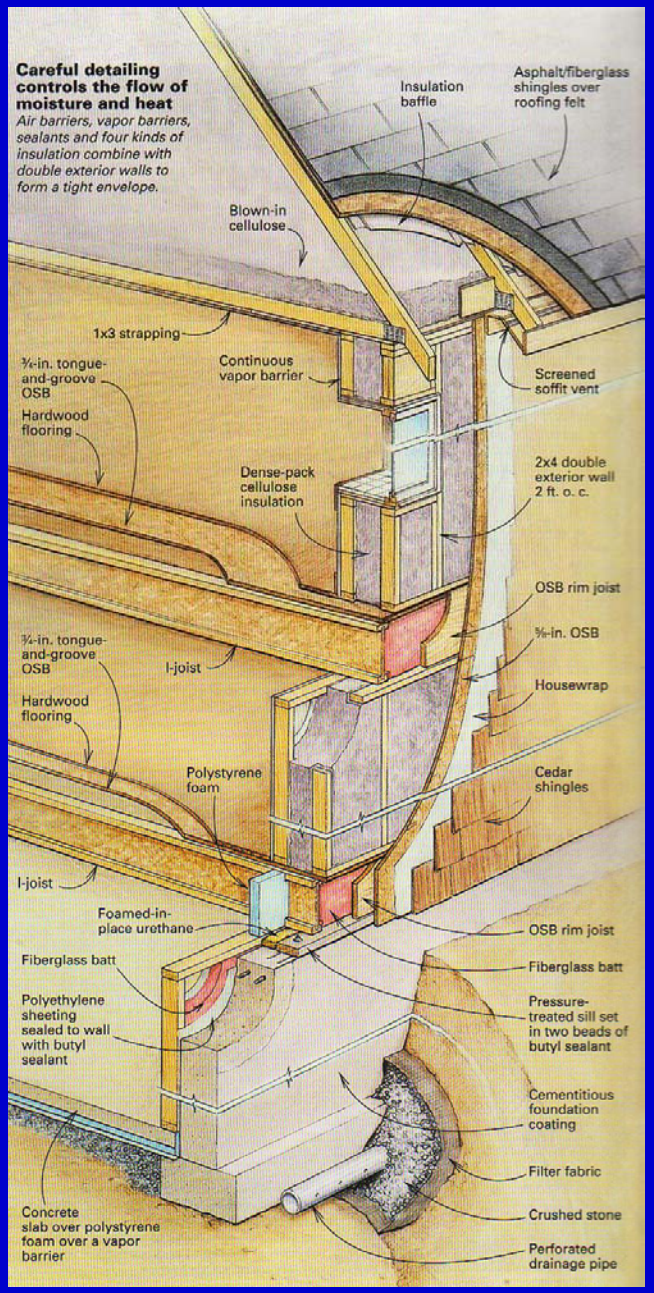
This is only a test – had it been a real presentation there would have been lots of zoomy animations

Why a Good Building Envelope *Matters*



Features of a good building envelope:

- Provides comfort
- Minimizes energy usage
- Keeps water out
- Prevents drafts
- Prevents condensation on visible and hidden surfaces
- Prevents mold growth
- Is durable

Components of a good building envelope:

– A durable, continuous air barrier
– High quality windows and glazing
– A continuous thermal barrier of sufficient insulating value
– Detailing to keep water out of the building
- Materials and assemblies designed to be able to dry out if they get wet

Air barrier

A typical home built today may have an average air change rate of 0.5 – i.e., half of the air inside the home is replaced with outdoor air every hour. In a 1500 ft2 home in this climate, this air leakage represents a heating load of about 165 gallons of fuel oil annually. It's not difficult to cut this by a factor of 5, and a factor of 15 is achievable with design and care of implementation.

High quality windows and glazing

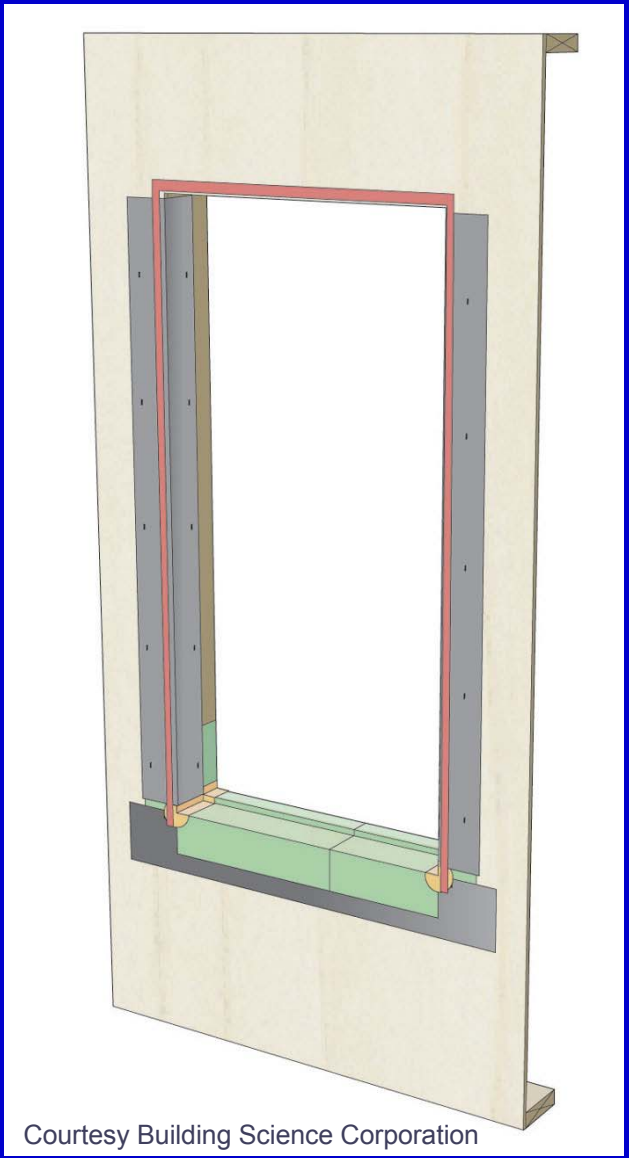
The average good window installed today is a clad wooden window with double glazing that has a low emissivity coating (low-e) and uses argon gas as the fill between glass layers. The insulating value (R value) of this window is about 3. A Canadian fiberglass window with insulated sash and frame, and triple glazing with two low-e layers, has an R value of between 4.5 and 5. This upgrade has more impact than adding insulation to a wall or roof.

Thermal barrier

Fiberglass batt insulation in a typical 2x6 wood frame wall has an effective R value not much above 10. Using cavity fill insulation such as cellulose with a slightly deeper cavity (strapped wall) doubles the effective R value to over 20. An effective thermal barrier places insulation everywhere – foundation, rim joists, corners, headers, etc., are all insulated. It is more important to get moderate amounts of insulation everywhere than high amounts of insulation in most places, leaving some out.

Keeping water OUT (and promoting drying when wetting occurs)

Designing the building and the site surrounding it to drain water away is the key. Proper flashing, good window installation details, roof overhangs, rainscreen detailing of wall cladding, foundation drainage – all are critical, many are ignored.



Courtesy Building Science Corporation

A Good Building Envelope Should Be A Top Priority!

Always do the things that you can't easily go back and change later