

Building Envelope & Air Infiltration

Heat transfer (gain or loss) = \$ Lost =
Conduction + Radiation + Convection

Winter —

Conduction: heat flowing through a *material*
("my door feels cold when I touch it").

Radiation: heat flowing through the *air*
("my arm feels cold when I sit next
to the window").

Convection: cold air flowing around
("I feel cold air flowing under the door").

Building Envelope & Air Infiltration

- **Walls/Roof/Solid Doors =**
Conduction + Radiation
- Difference between poor & good insulation
is 2X cost! (Too Thin = Too Many \$ Lost)

- **Windows =**
Conduction + Radiation + Convection
- Infiltration means heating the outside
world...why? (1 Pane + Metal Frame +
Infiltration = Too Many \$ Lost)

Building Envelope O&M Check List

- **Caulk frames and openings**
- **Patch holes in building envelope**
- **Repair cracked window panes**
- **Weatherstrip windows and doors**
- **Install storm doors and windows**
- **Remove AC units in winter**
- **Use Shades in summer**
- **Check automatic door closing mechanisms**