



Session 4: Insulation & Air Sealing

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Division of Energy Resources

Wall Air Sealing

- Air Sealing Walls
 - Built-In Cabinets/Shelves
 - Wall Framing Around Fireplaces and Chimneys
 - Pocket Door Cavities
 - Cooling Appliances Installed through Walls or Windows
 - Balloon Framed Walls
- Minor Air Sealing
 - Window and Door Frames
 - Rim Joist Area
 - Masonry Surfaces
 - Interior Wall Top Plates



Wall Air Sealing

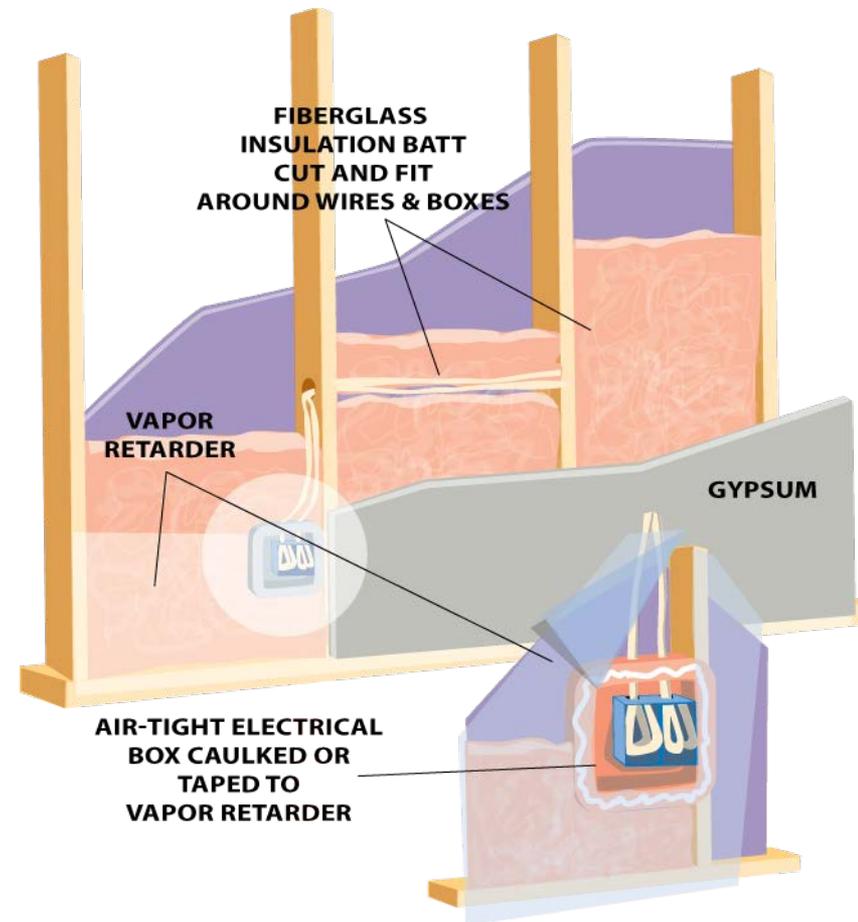
- Durability
 - Pressure envelope
 - Driven Moisture
- Energy Savings
- Comfort

Exterior Sealing?

- Techniques and work standards verses measure type. Pg 162
- Commerce will align “Allowable Activities Chart” to SWS
- Exterior Sealing is technically a general repair, not air sealing. The pressure barrier is almost always to the interior
 - Exceptions, tuck under garage. The ceiling and walls of a tuck under garage should be considered air sealing.

Walls

- Wall Insulation
 - Wall Insulation: Preparation and Follow-up
 - Retrofit Closed-Cavity Wall Insulation
 - Open-Cavity Wall Insulation
 - Insulated Wall Sheathing
 - Wall Insulation in a Retrofitted Frame Wall
 - Insulating Unreinforced Brick Walls



Quality Control Methods

- IR—looking for consistency, with blower door on
- Testing around protrusions for densepack
- Bag count/ weight
- Pg. 167

Field Guide Examples

- Some methods and materials in the field guide
 - Are not approved by MN WAP
 - Are not feasible for a WAP Program
- They are included in case other funders allow
- A number of wall insulation techniques fit this category

Floors and Foundations

- Thermal-Boundary Decisions: Floor or Foundation
 - The auditor's responsibility
 - Most often MN crawlspaces and basements are INSIDE
 - Field Guide Offers Guidance

Air Sealing Foundations and Floors

- When Building Envelope is at a floor, air seal
 - Plumbing Penetrations
 - Stairways to Unconditioned Areas
 - Incomplete Finished Basements

Cantilevered Floors

- Modelled in NEAT as an exposed floor
- Leaky ducts in Cantilevers can drive moisture into the insulation cavity
 - Part of why new code requires duct sealing on ducts “outside” of pressure boundary

Cantilevered Floors

- Where is the pressure boundary?
 - Is backing accessible?
 - What about when it isn't
- What is a cantilever most like?
 - A wide wall cavity
 - A tuck under garage ceiling
 - A flat attic
 - A band joist cavity?

Cantilevers SWS Field Guide

- ✓ Remove a piece of soffit or drill a hole under the overhanging floor to determine the condition of insulation and air barrier.

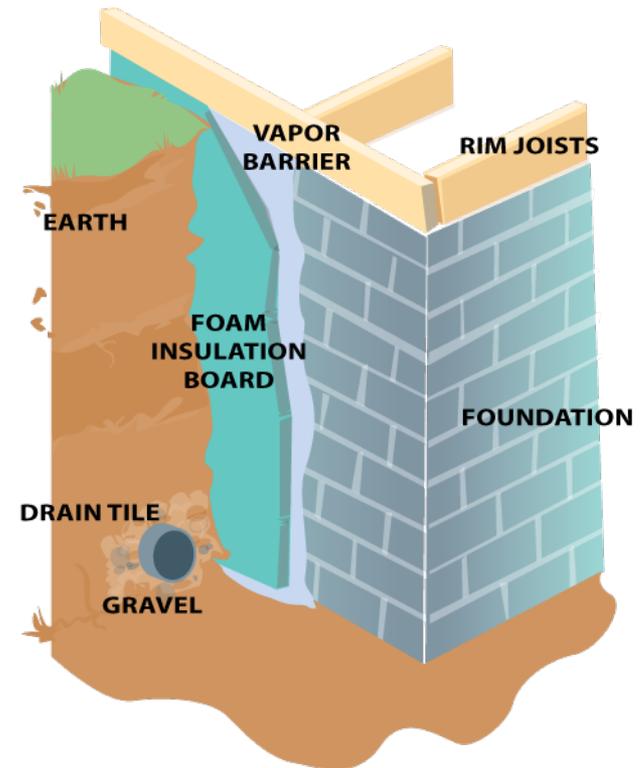
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Floors and Foundations

- ✓ Stuff the overhanging floor with fiberglass batts or blown fibrous insulation.
- ✓ Bed the sheeting underneath the overhanging floor in sealant where possible. Caulk joints and seams where the sheeting isn't bedded in sealant.
- ✓ Seal any ducts you find in the cantilevered floor sections.

Floors and Foundations

- Preparing for Foundation or Floor Insulation
 - Rim-Joist Insulation and Air-Sealing
 - Not considered to be part of habitable space
 - Air sealing all six sides of the rim joist
 - Spray foam is most versatile
 - Foam board and one part as caulk can work
 - Make sure there is no leakage from any of the six sides



Floors and Foundations

- Preparing for Foundation or Floor Insulation
 - Installing Floor Insulation
 - Installing Fiberglass Batt Floor Insulation
 - Consider
 - Plumbing
 - Heating
 - Electrical
 - Etc.
 - Larger Cantilevers are more like exposed floors and less like widened wall cavities

Floors and Foundations

- Preparing for Foundation or Floor Insulation
 - Crawl-Space Wall Insulation
 - Basement Insulation
- SWS is the “how” not the “what”
- Currently Policy is that all foundation insulation projects require Commerce approval
 - Moisture conditions
 - Potential for outward drying

Windows and Doors

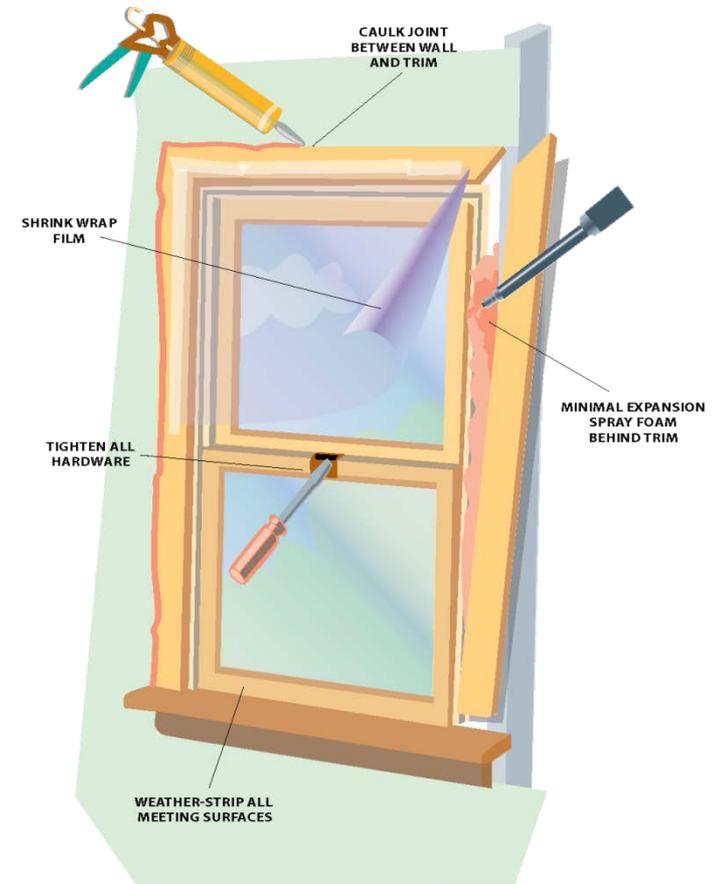
- SWS is the “How,” not the “What”
- Refer to Allowable Measures Chart and program policy to determine “what” to do
- SWS Field Guide Very Detailed and Thorough

Windows and Doors

- Storm Windows
 - Exterior Storm Windows
 - Allowed for Single Family homes, when NEAT shows and SIR greater than 1.0
 - pg. 200-203

Windows and Doors

- Window Repair and Air Leakage Reduction
 - Double-Hung Window Weatherization
 - Weatherstripping Double-Hung Windows
- The detail level in the SWS is staggering when it comes to window repair
- Discussion on page 203-206



Windows and Doors

- Window Replacement Specifications
 - Window Energy Specifications
 - Removing Old Windows
 - Installing Replacement Windows
 - Replacing Nailing-Fin Windows
 - Block-Frame or Finless Windows
 - Flush-Fin Window Replacement

Windows and Doors

- Window Safety Specifications
 - Windows Requiring Safety Glass
 - Fire Egress Windows

Windows and Doors

- Door Replacement and Improvement
 - Door Replacement
 - Door Adjustment and Repair
 - Allowable Measures Chart
 - If the problem is more than just a weatherstrip and sweep, do what it takes as air sealing allows

