MICHIGAN TRAINING
&
EDUCATION CENTER

Attic/Crawlspace Access Solutions

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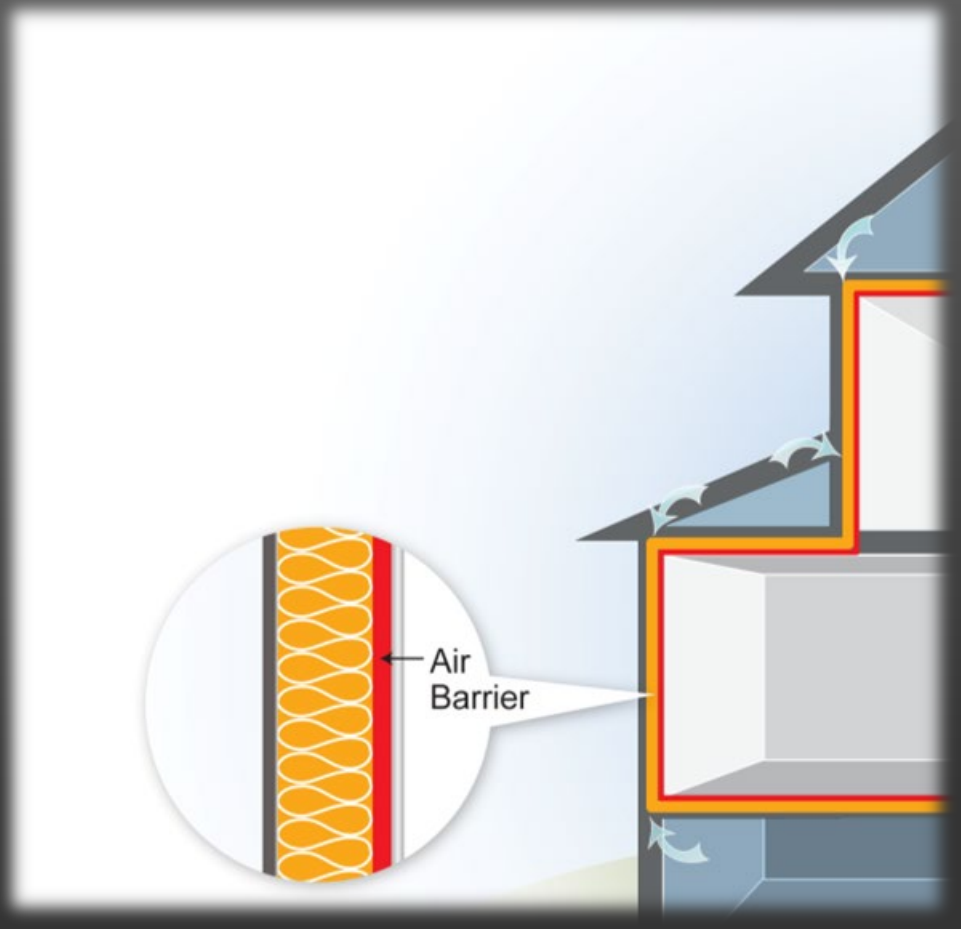
BUREAU
Community Action and Economic Opportunity

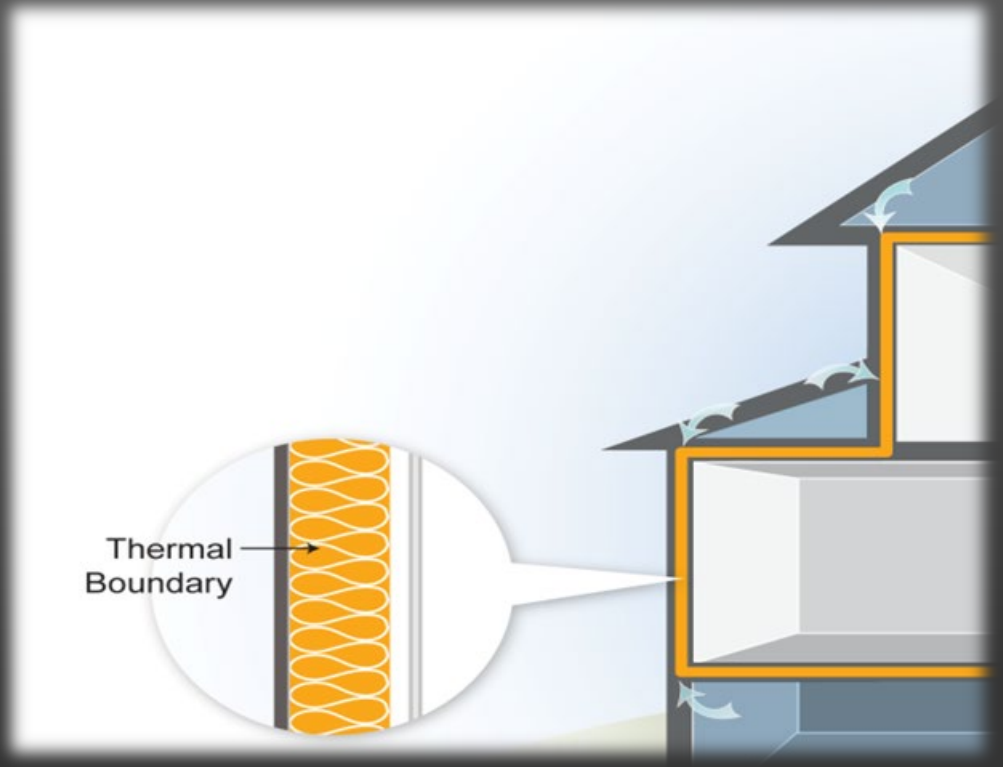
THE AIR BARRIER (PRESSURE BOUNDARY)

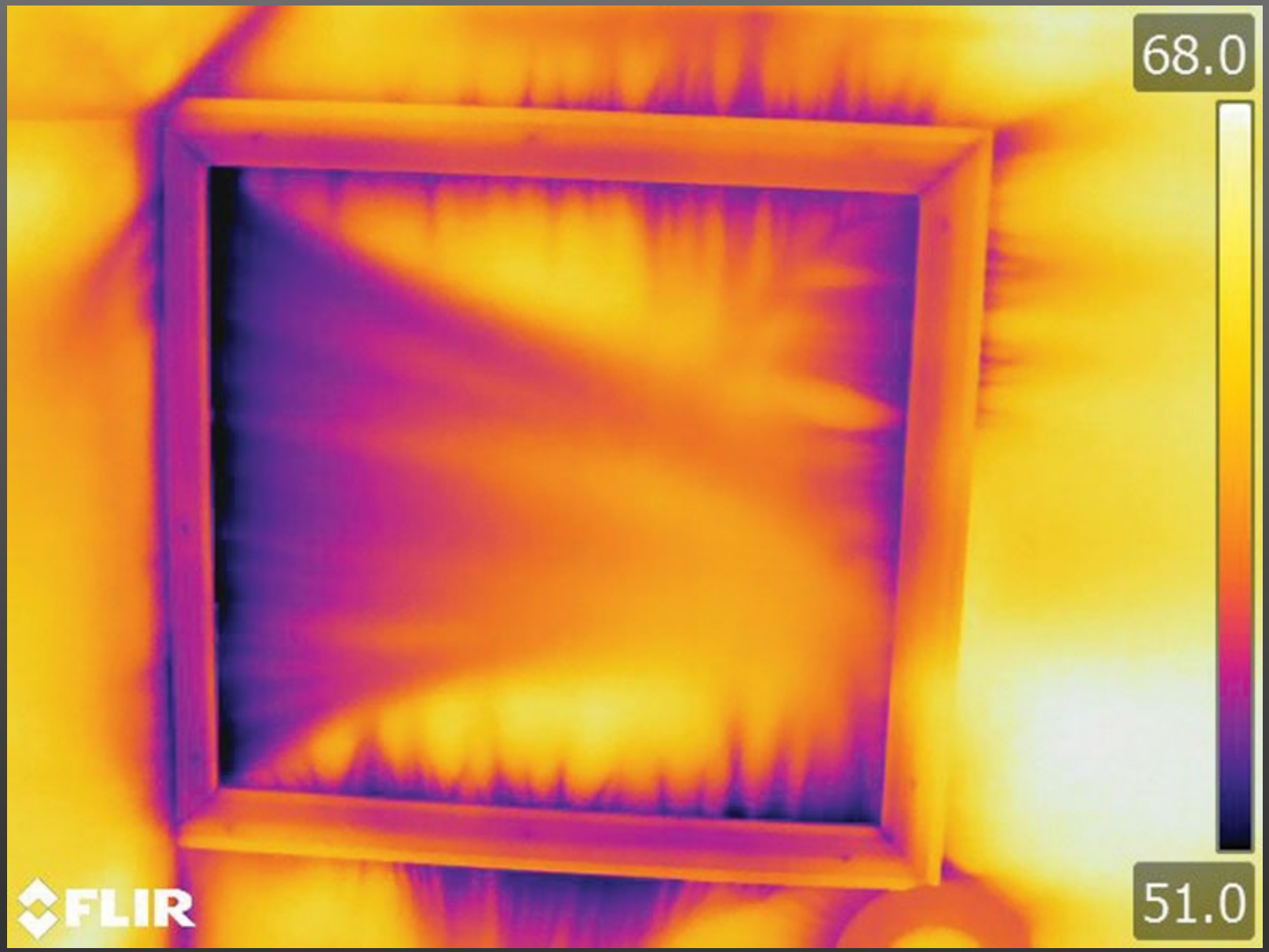
- Limits airflow between inside and outside.
- More difficult to identify.
- Not always where you think it is.
- Blower door is used to locate the air barrier.



THE THERMAL BOUNDARY

- Limits heat flow between inside and outside.
- Easy to identify by presence of insulation.
- The location of insulation is critical to its effectiveness.
- Even small areas of missing insulation are very important.
- Voids of 7% can reduce effective R-Value by almost 50%.




68.0
51.0
FLIR

PROJECT GUIDANCE

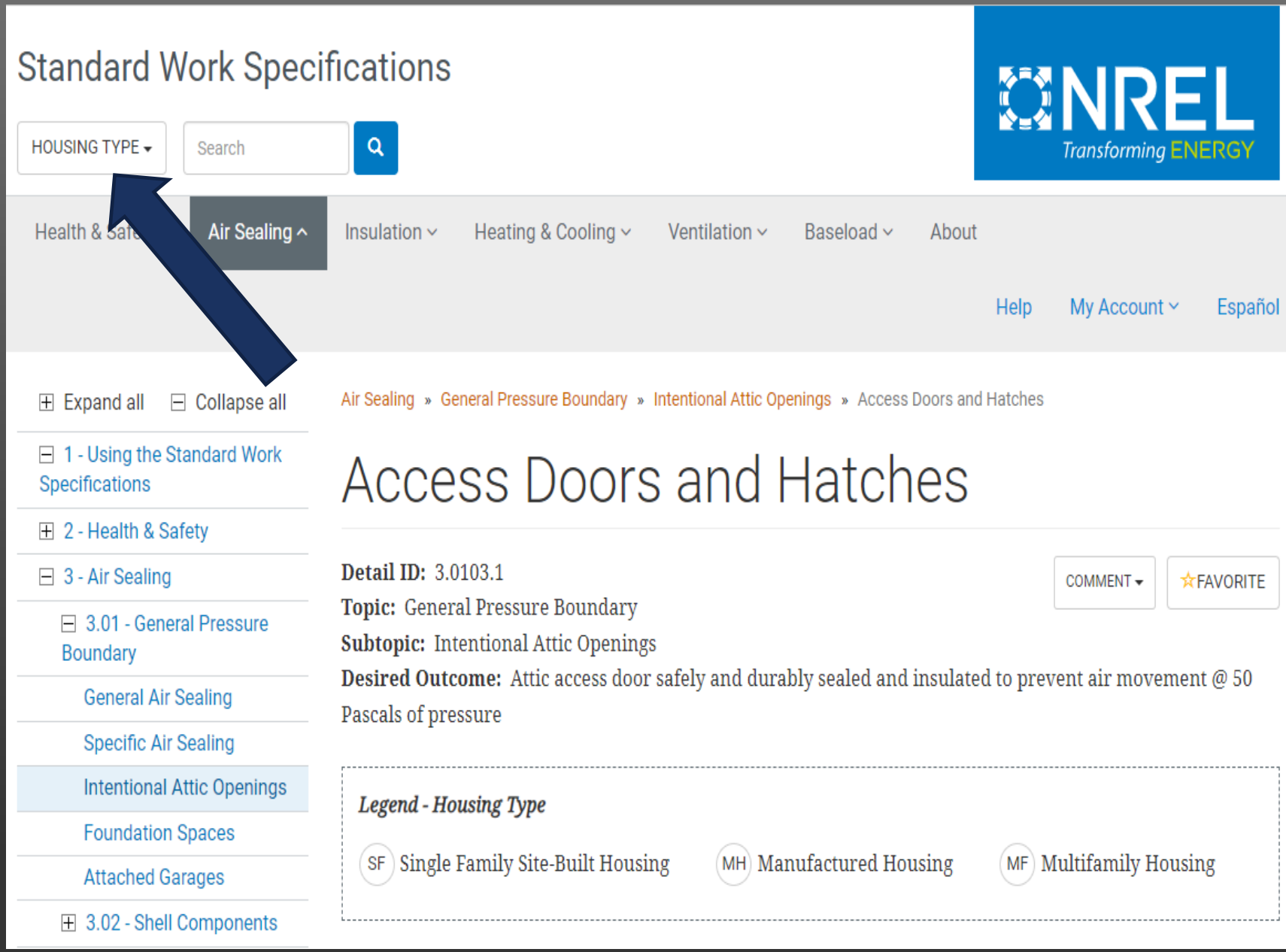
MiTEC
Michigan Training & Education Center

MICHIGAN WEATHERIZATION FIELD GUIDE

- Our Weatherization Field Guide outlines a set of best practices for the Weatherization Assistance Program

- A major purpose of our guide is to show how its contents are aligned with the SWS. Therefore, we've inserted hypertext references to the specific SWS details

- If a local agency is required to follow a local ordinance, the ordinance shall supersede the guidance in our Weatherization Field Guide, as it does not address local code structures.


Standard Work Specifications
HOUSING TYPE
Search
NREL
Transforming ENERGY
Health & Safe
Air Sealing
Insulation
Heating & Cooling
Ventilation
Baseload
About
Help
My Account
Español
Expand all
Collapse all
1 - Using the Standard Work Specifications
2 - Health & Safety
3 - Air Sealing
3.01 - General Pressure Boundary
General Air Sealing
Specific Air Sealing
Intentional Attic Openings
Foundation Spaces
Attached Garages
3.02 - Shell Components
Air Sealing » General Pressure Boundary » Intentional Attic Openings » Access Doors and Hatches
Access Doors and Hatches
Detail ID: 3.0103.1
Topic: General Pressure Boundary
Subtopic: Intentional Attic Openings
Desired Outcome: Attic access door safely and durably sealed and insulated to prevent air movement @ 50 Pascals of pressure
COMMENT
☆FAVORITE
Legend - Housing Type
SF Single Family Site-Built Housing
MH Manufactured Housing
MF Multifamily Housing

Weatherization Installer Job Aids and Single-Family Interactive 3D House

Weatherization Assistance Program

Weatherization Job Aids

Weatherization job aids are step-by-step visual guides created to assist home energy professionals with effective, durable, and safe energy efficiency upgrades. Each guide includes an easy-to-use checklist that can be used to verify installation quality or support skill development of new staff members.

The job aids are organized by areas found in single-family and manufactured homes. These areas include but are not limited to attics, subspaces (e.g., basements or crawlspaces), and the main floors within the home.

Access the **individual job aids** at the bottom of this page or **download all job aids into one PDF**.

Weatherization Installer Job Aids and Single-Family Interactive 3D House | Department of Energy

U.S. DEPARTMENT OF ENERGY | Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

5-1

Dam, Seal, and Insulate an Attic Hatch

Job Aid for Treat Attic Hatch Badge

Aligns With Standard Work Specifications 3.0103.1

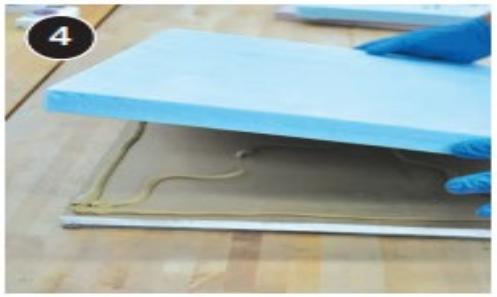
BEFORE

Uninsulated and unsealed attic access points allow conditioned air to escape the home in all seasons and reduce the overall R-value of the attic.

Rigid, durable damming is installed and mechanically fastened in place.

Dam is at least 2 inches taller than the final attic insulation depth.

If replacement is needed, cut a gypsum or plywood board to size and use a durable weatherstrip or closed cell foam tape to create a seal.



Cut and stack rigid foam insulation, gluing with appropriate adhesive, to build up R-value.Ensure the foam meets thermal or ignition barrier requirements of the authority having jurisdiction.

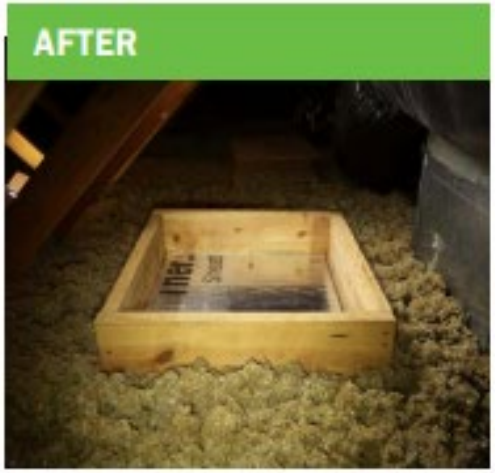
Hatch is insulated to proper R-value (the maximum R-value structurally allowable, up to the final insulation level of surrounding attic).

Dam, Seal, and Insulate an Attic Hatch

5-1

Trim is air sealed with appropriate material.

For vertical accesses, run weatherstripping or closed cell foam tape to air seal at these doorways too. Hold vertical accesses closed with latch if necessary.



Safely and durably sealing and insulating attic access doors prevents air movement and reduces heating and cooling loads.

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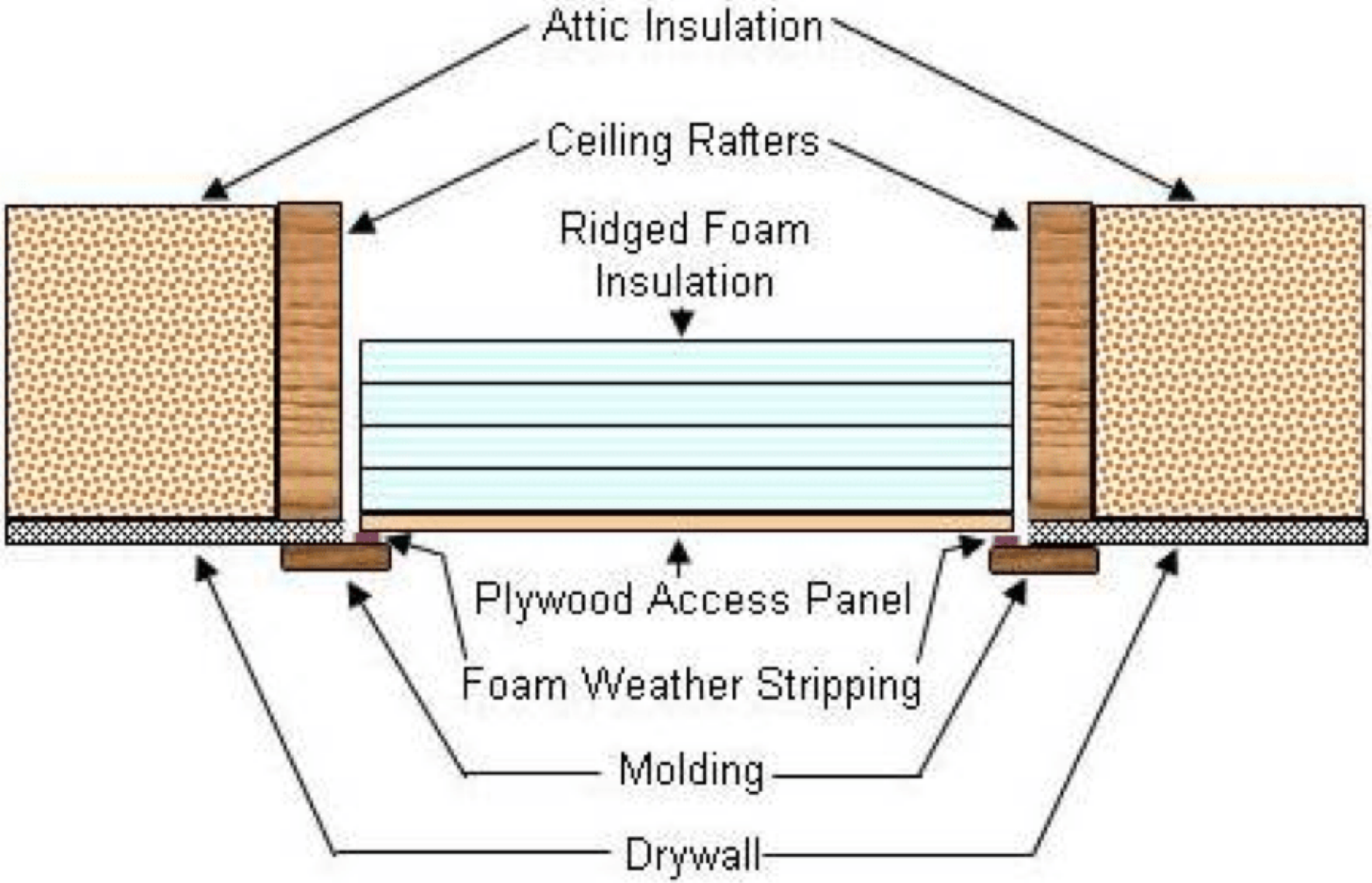
CHECKLIST

Treat attic hatch

DESIRED OUTCOME

Attic access door or hatches properly sealed and insulated to minimize heat loss or gain and prevent insulation from falling out of attic when accessed.[1]

- ☐ Install rigid,[2] durable attic hatch blocking/dam in a permanent way.
- ☐ Dam will remain 2" taller than final attic insulation depth.
- ☐ Insulate hatch to proper R-value (the maximum R-value structurally allowable, up to the final insulation level of surrounding attic).
- ☐ Durably attach insulation to hatch.
- ☐ Weatherstrip or otherwise treat access to prevent air movement when hatch is closed.
- ☐ Ensure access closes with a tight fit or latch.
- ☐ Air seal trim with appropriate material.
- ☐ Verify air-tightness of hatch when closed with blower door and smoke (or infrared, if temperatures permit).


Attic Insulation
Ceiling Rafters
Ridged Foam Insulation
Plywood Access Panel
Foam Weather Stripping
Molding
Drywall

EPS (Expanded polystyrene)

Good moisture resistance

Good energy efficiency

Above or below grade use

EPS Insulation

Polyiso (Polyisocyanurate)

Foil-backed, closed cell foam

Most Energy Efficient

Highest R-Value per ft.

Above grade use only

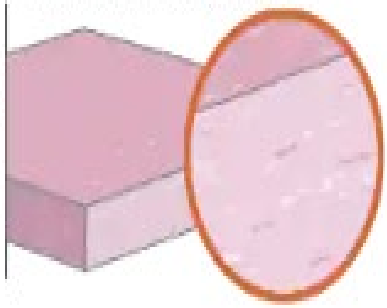
Polyiso Insulation

XPS (Extruded polystyrene)

Most Moisture Resistant

Good for energy efficiency

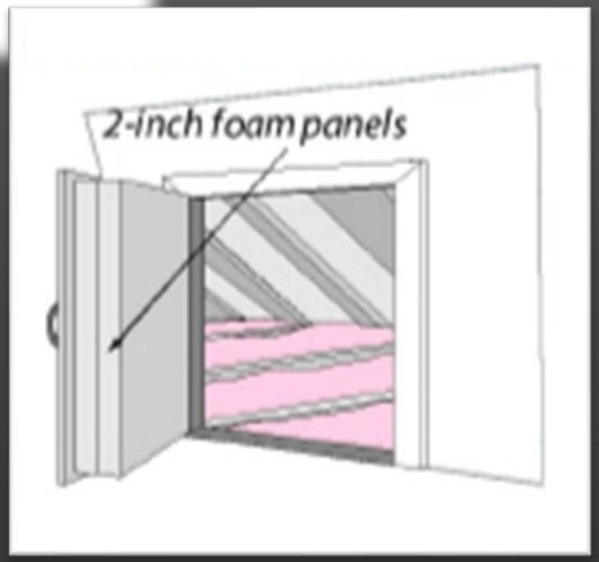
Above or below grade use

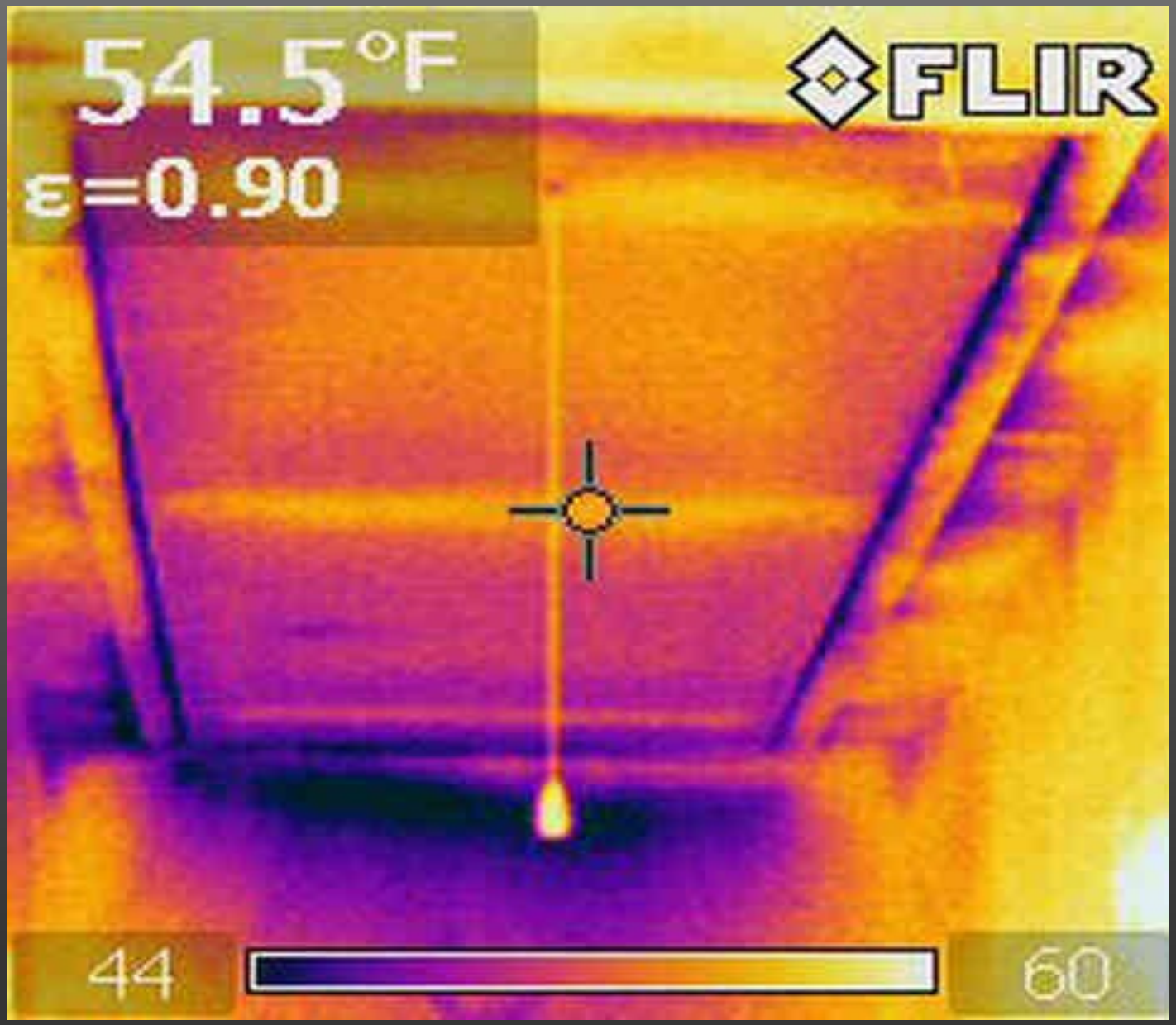


XPS Insulation

Knee Wall Attic Access Door

Insulated access door in a knee wall: Achieve an R-value as close to the wall as practical. Weatherstrip the door and install some type of latch.




54.5°F
ε=0.90
FLIR
44
60

Pulldown Staircase Treatment

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5-2

Dam, Seal, and Insulate a Pull-Down Attic Stairway

Job Aid for Treat Attic Hatch Badge

Aligns With Standard Work Specifications 3.0103.1

BEFORE

Pull-down stairs can be a weak point in thermal/pressure boundaries, and they can also allow insulation to fall into the home if not properly dammed.

1

Build cover above and around pull-down stair, taller than final insulation height.

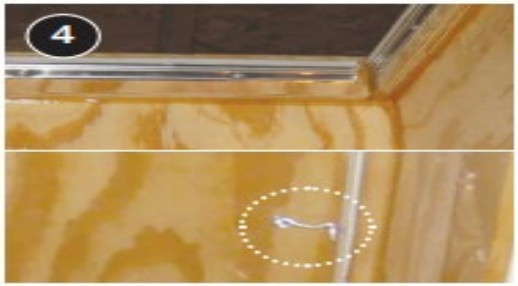
2

Insulate top and sides of dam cover, to appropriate R-value. Use materials that meet the requirements of the applicable fire safety code (e.g., thermal or ignition barriers).

3

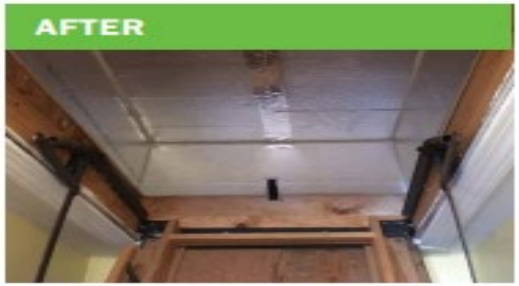
Air seal gaps in framing and edges of trim as needed.

4



Air seal with closed cell foam tape or weatherstripping. Install latches as needed to ensure the access door closes tight to the weatherstripping.

AFTER



Attic pull-down stairs are safely and durably sealed and insulated to prevent air movement and reduce heat transfer.

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CHECKLIST

Treat attic hatch

DESIRED OUTCOME

Attic access door or hatches properly sealed and insulated to minimize heat loss or gain and prevent insulation from falling out of attic when accessed.[1]

- ☐ Install rigid,[2] durable attic hatch blocking/dam in a permanent way.
- ☐ Dam will remain 2" taller than final attic insulation depth.
- ☐ Insulate hatch to proper R-value (the maximum R-value structurally allowable, up to the final insulation level of surrounding attic).
- ☐ Durably attach insulation to hatch.
- ☐ Weatherstrip or otherwise treat access to prevent air movement when hatch is closed.
- ☐ Ensure access closes with a tight fit or latch.
- ☐ Air seal trim with appropriate material.
- ☐ Verify air-tightness of hatch when closed with blower door and smoke (or infrared, if temperatures permit).

Attic Stairway Treatment

Insulate an Attic Stairway

Job Aid for Insulate Attic Floor and Pass Inspection First Time Badge

Aligns With Standard Work Specifications 4.0104.1, 4.0104.2, 4.0104.3, 4.0104.4, 4.0104.5, 4.0104.6, 4.0201.2, 4.0201.3, 4.0202.1

BEFORE

Attic stairways can offer a unique set of insulation challenges. Clearly define where the thermal and pressure boundary are going to be located before starting insulation.

If walls defining the thermal boundary are accessible from the attic side, choose between batt or blown-in insulation.

Seal off open cavities along the line of the thermal/pressure boundary.

Air seal around blocking material.

Cut batts to size for each individual cavity, ensuring no gaps remain, locating insulation vapor retarder toward conditioned space.

For batt insulation, cover installed batts with backing. For blown-in, attach netting to framing members, cut holes in netting, and blow insulation to an installed density of 3.5 pounds per cubic foot.

If walls are enclosed from attic side, drill holes in stairway walls defining the thermal boundary.

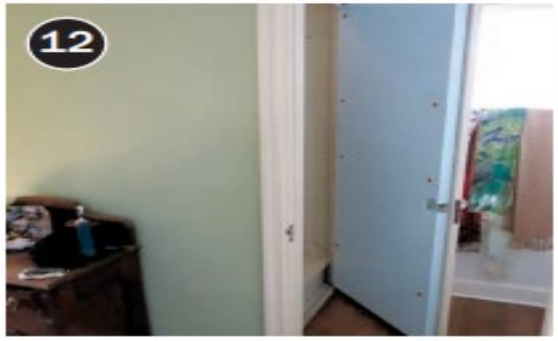
Dense pack stairway walls.

If the stairs have no backing material (e.g., drywall, plaster, etc.) towards the house or conditioned space; insulate with material specified by the work order.

Cover insulation with an approved thermal barrier material for fire safety and to seal off insulation from conditioned space in home.

If backside of stairs already have backing material, blow insulation into cavity behind stairs.

Plug access holes for blown insulation.



Weatherstrip and insulate door using fire safe materials that meet the requirements of the authority having jurisdiction.

Insulation provides a continuous, contiguous, safe, and compliant thermal boundary that prevents air movement between the attic and the remainder of the home.

CHECKLIST

Insulate attic floor and pass inspection the first time

DESIRED OUTCOME

Consistent thermal boundary between conditioned and unconditioned space controls heat flow.[1]

Pre installation check:

- ☐ Safety protocols (e.g., venting, lighting, protective barriers) implemented prior to beginning work.
- ☐ Worker can determine whether attic is ready for insulation (e.g., check for air sealing, confirm dams around high-temp items).

Post-installation check:

- ☐ Insulation blown to proper depth.
- ☐ Level and even coverage reaches to all edges.
- ☐ Insulation is not blown onto equipment or between dams and the items dams are protecting.
- ☐ No more than 5 bags over-blown according to manufacturers' coverage chart.
- ☐ When insulating attic platforms or attics with partial platforms, insulation is in contact with air barrier (under platform), not blown over platform.
- ☐ Insulation has no gaps, voids, compression, or misalignment.
- ☐ Applicable sections of house-wide insulation certificate are filled out with[2] insulation type, coverage area, installed thickness, settled thickness, R-value, and number of bags installed.

1. *Relevant Standards: 4.0104.1, 4.0104.2, 4.0104.3, 4.0104.4, 4.0104.5, 4.0104.6, 4.0201.2, 4.0201.3, 4.0202.1*
2. *Underlined details are required on all insulation certificates. Other items are required only when using blown-in insulation.*

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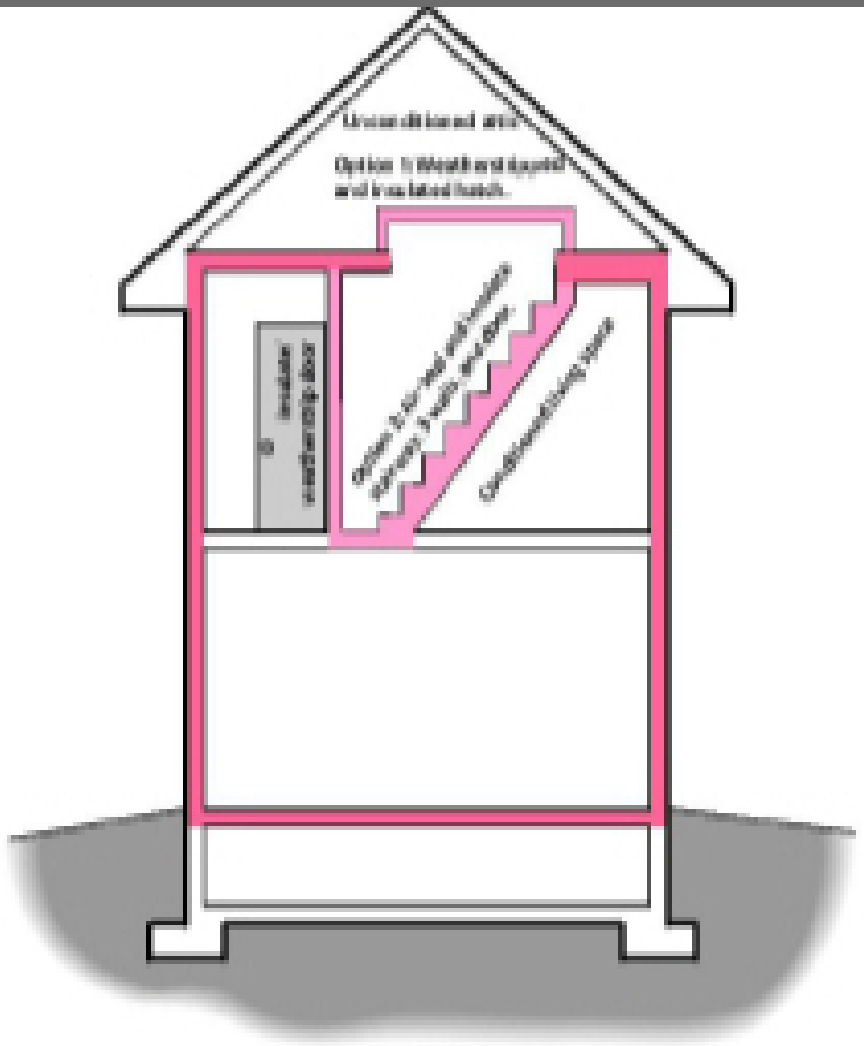
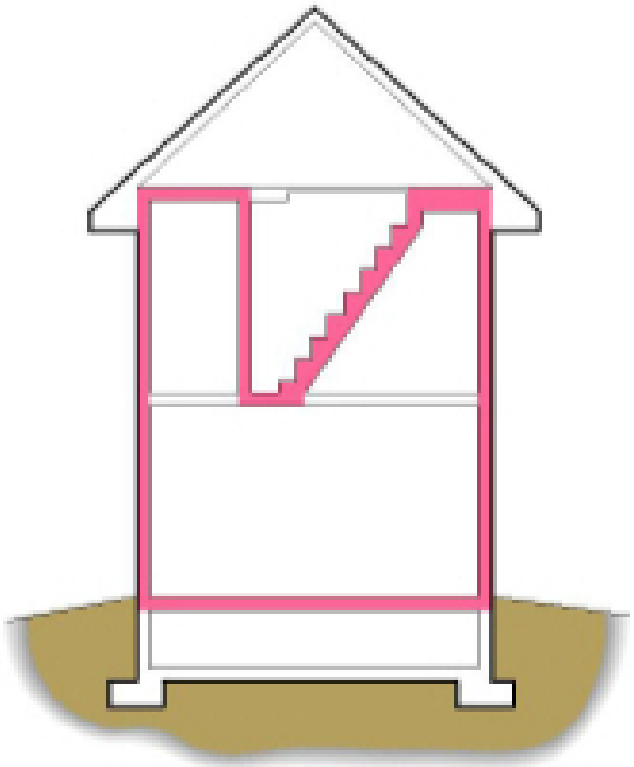
For more information, visit: energy.gov/eere/wap

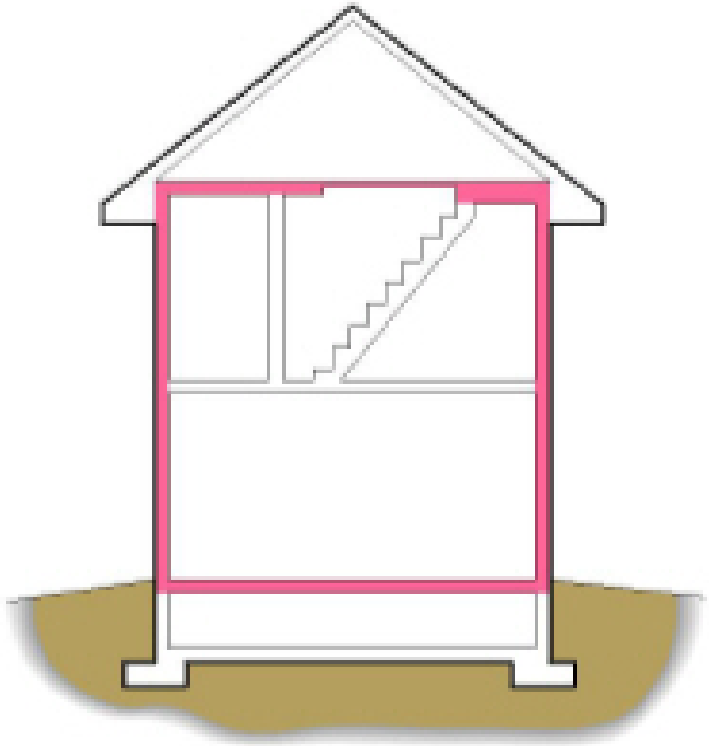
DOE/EE-2591 · May 2022



Stairways at the thermal boundary: The stairway may be within the thermal boundary or outside it. Only walls, ceilings, doors, and hatches at the thermal boundary require thorough air sealing. The door as shown is open.



Insulating and sealing attic stair walls, doors, and stairs: Insulating and air sealing these is one way of establishing the thermal boundary.



Insulating and weatherstripping the attic hatch: Air sealing around the hatch and insulating the hatch is an alternative method.

Crawlspace Access Doors

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Thank you for attending!

Please scan the QR Code to complete this session's evaluation

MDHHS
Michigan Department of Health & Human Services