

Installing Contractor Insulation Boot Camp

Lesson 23: Accesses and Whole House Fans

Lesson 23 Introduction



What we will cover:

- Weatherizing basement bulkheads
- Weatherizing attic pull-down stairs
- Weatherizing whole house fans
- Weatherizing attic walk-ups
- House 4 wrap-up

Weatherizing Bulkheads

What we'll cover:

- Bulkheads
- Optimal thermal boundary
- Door installation



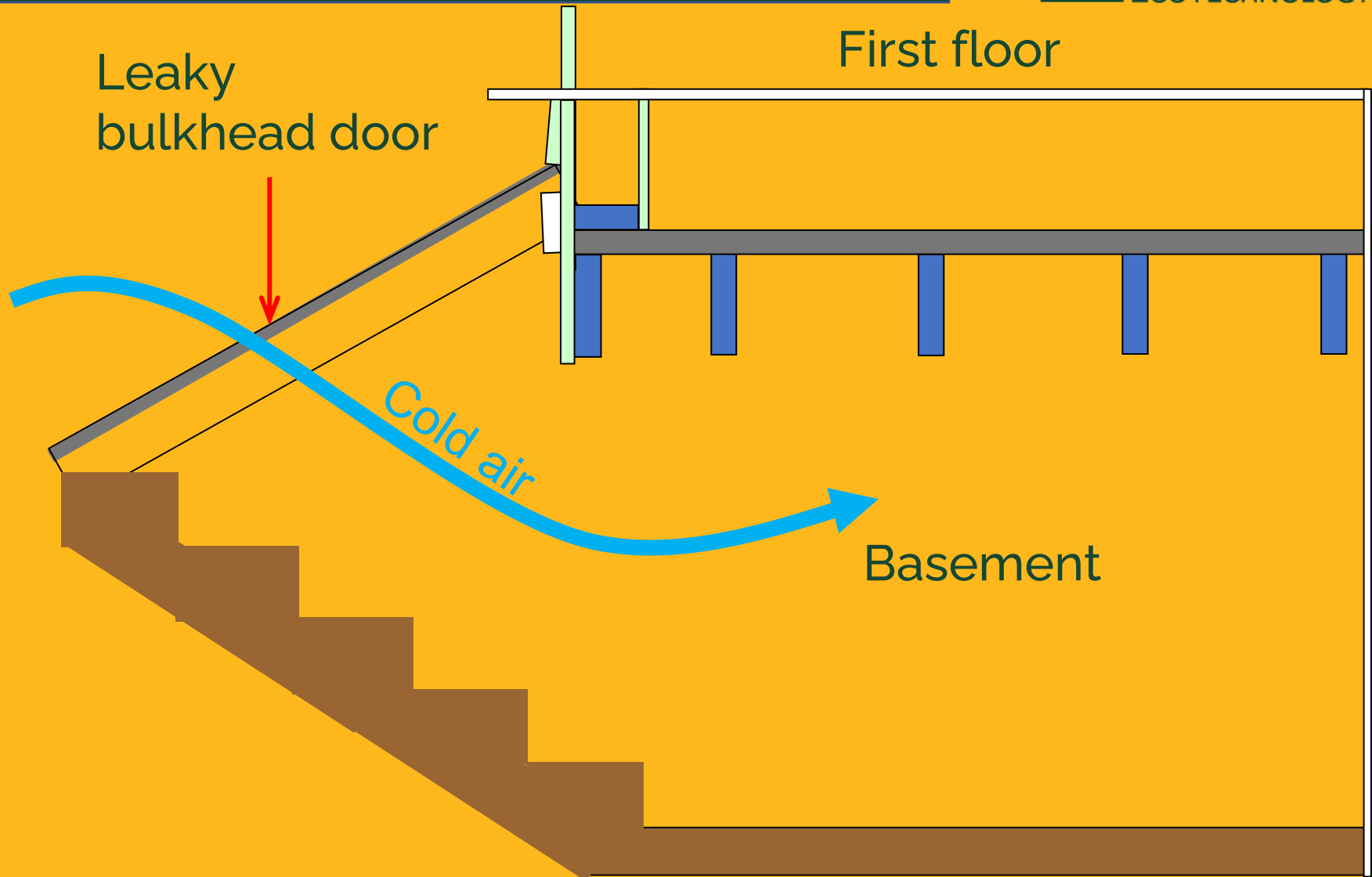
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Bulkheads

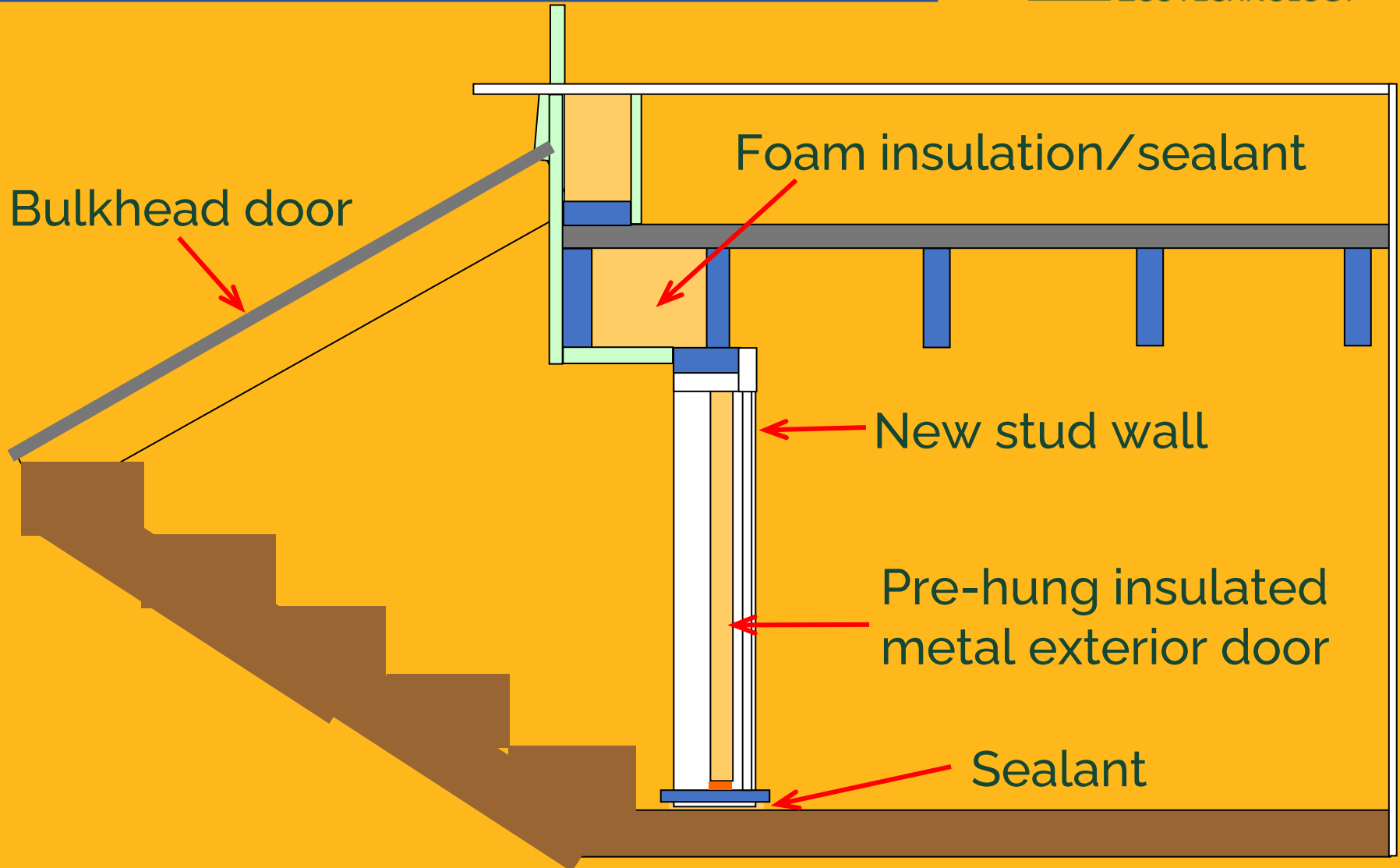
- Provide direct access to the basement
- Often very leaky and uninsulated
- Typically need a secondary door to reduce heat loss (shown)



Bulkhead Without Insulated Door



Installing An Insulated Door



Bulkhead Door



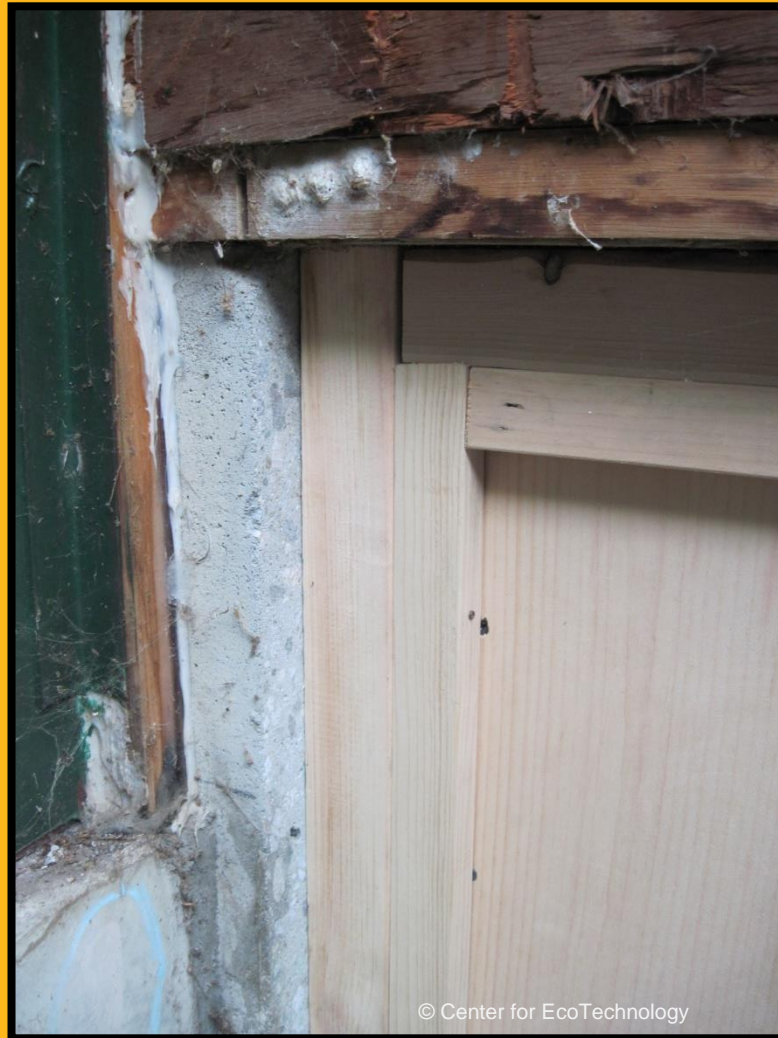
Secondary Door



Secondary Door



New Basement Door Frame



Summary



Basement bulkheads:

1. Common weakness in the air barrier and thermal boundary
2. Difficult to effectively air seal and insulate
3. Should be addressed when working in the basement
4. Best addressed by installing a secondary door or weatherizing an existing secondary door

Weatherizing Attic Pull-Down Stairs

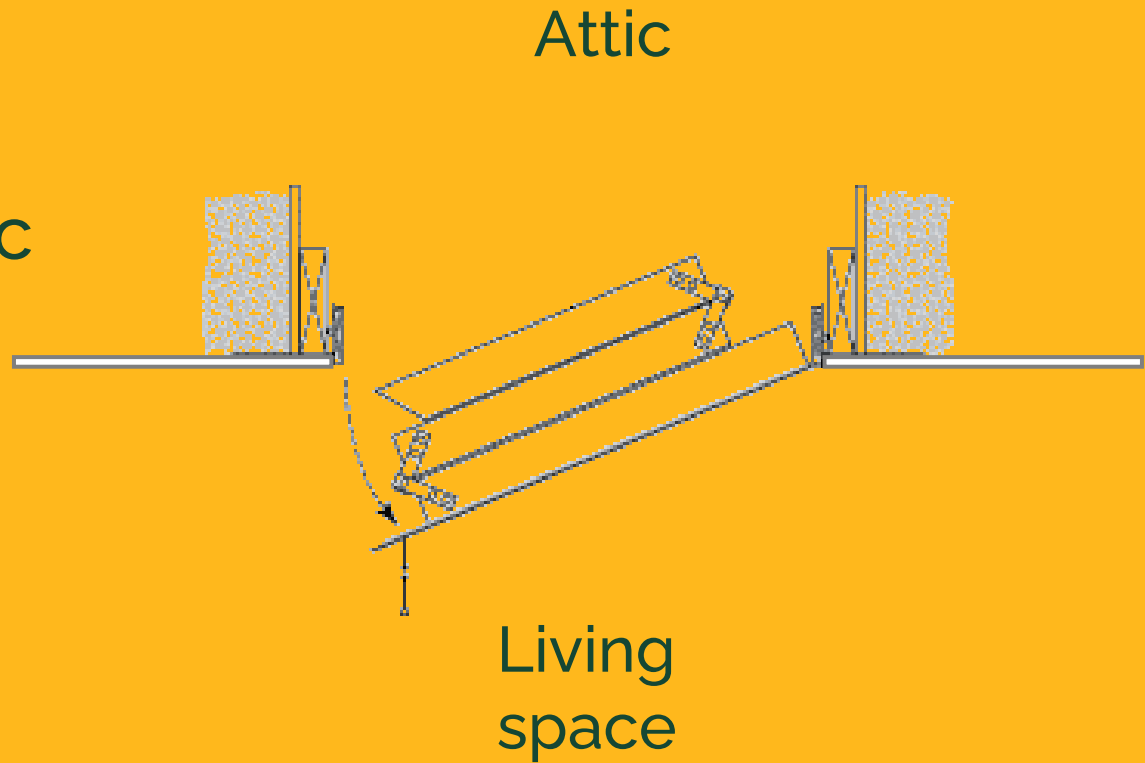
What we'll cover:

- Types of attic pull-down stairs
- Typical weatherization methods
- Challenges



Attic Pull-Down Stairs

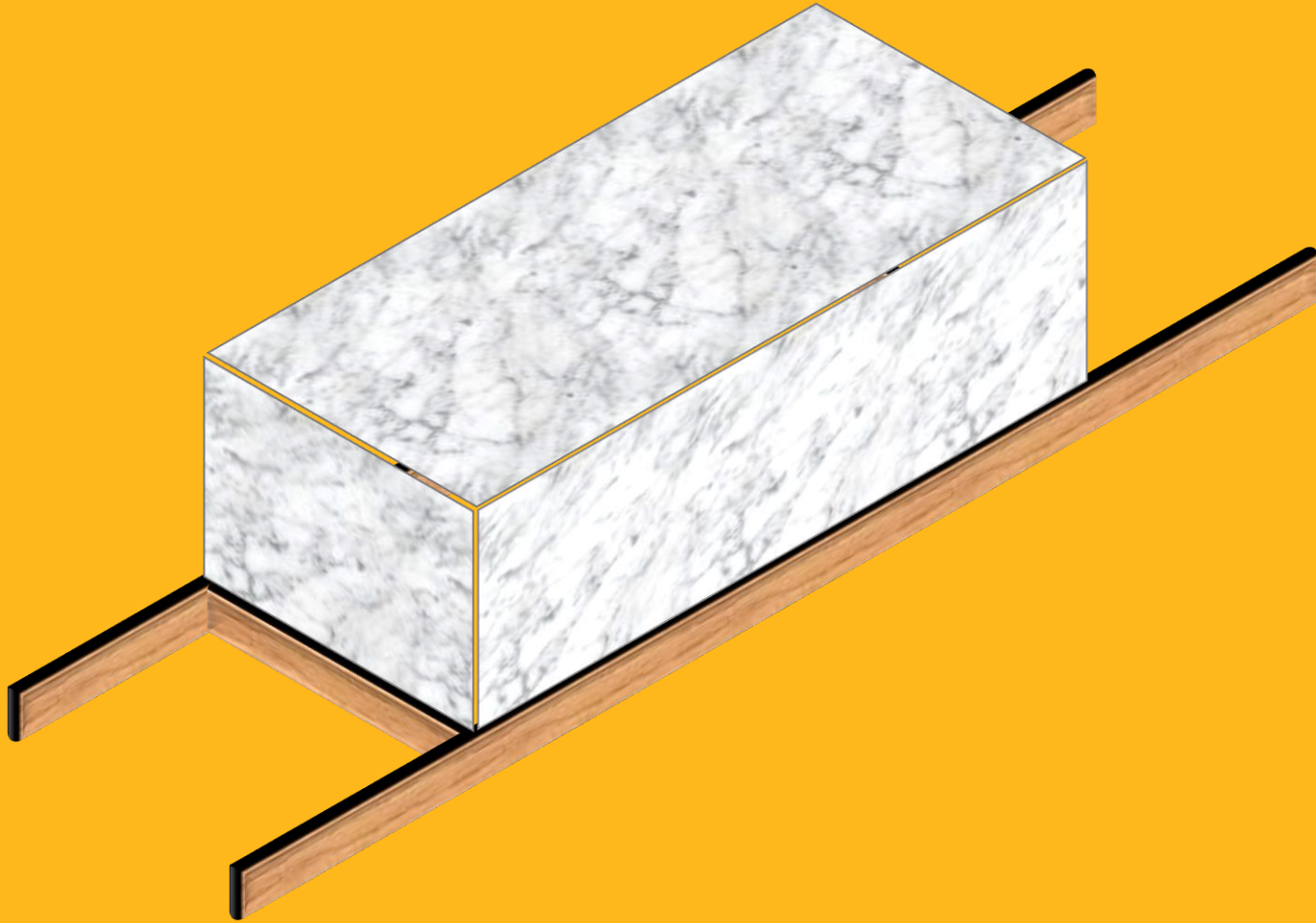
- Folding stairs above the attic hatch
- Difficult to insulate



Pull-Down Stairs Insulation Box



Build Box Over the Framing



Insulation Box Details



Image Courtesy of NRCERT

Gasket – tubular foam is usually the best choice

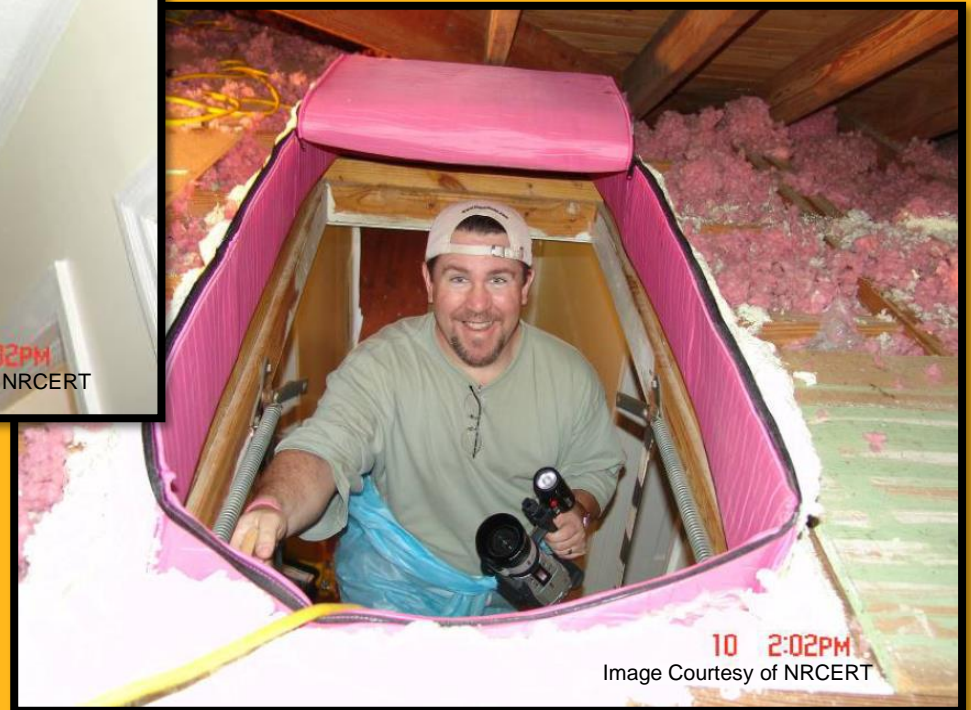
Hook & loop strap

Seal the inside corners

Bracket to receive the hook and loop strap

One-part foam sealant at the framing connections

Alternative: Attic Tent



Alternative: Insulated Wood Framing



Challenges: Sliding Pull-Down Stairs



Image Courtesy of NRCE

What Is Wrong With This Picture?



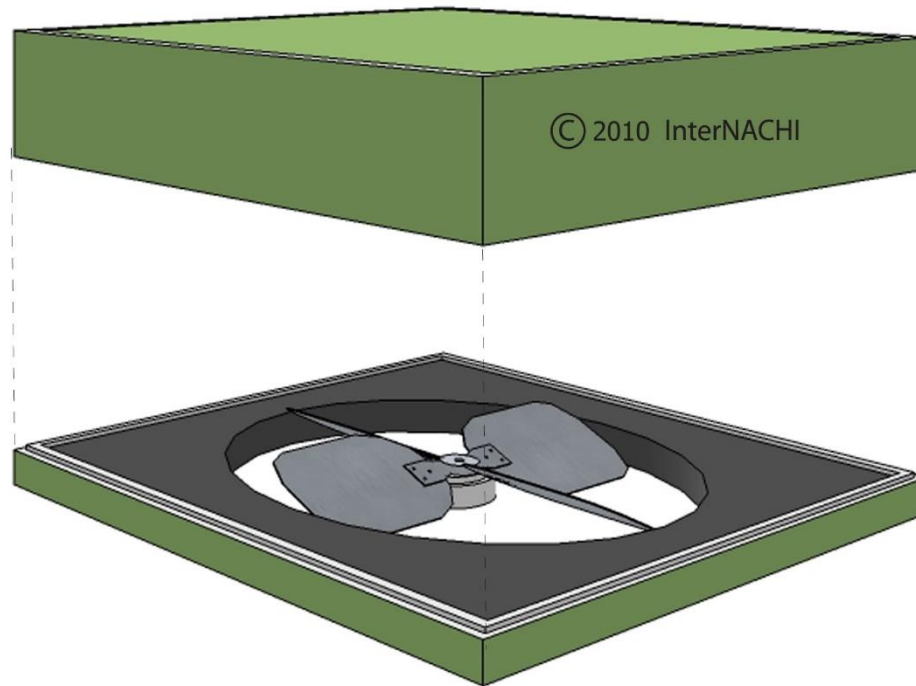
Image Courtesy of NRCERT

Weatherizing attic pull-down stairs

1. Can usually be done for folding and telescoping assemblies with an air-tight insulation box
2. Is difficult and sometimes impractical for sliding stairs
3. Must complete the attic thermal boundary and air barrier to be effective

Weatherizing Whole House Fans

WHOLE-HOUSE FAN



Weatherizing Whole House Fans



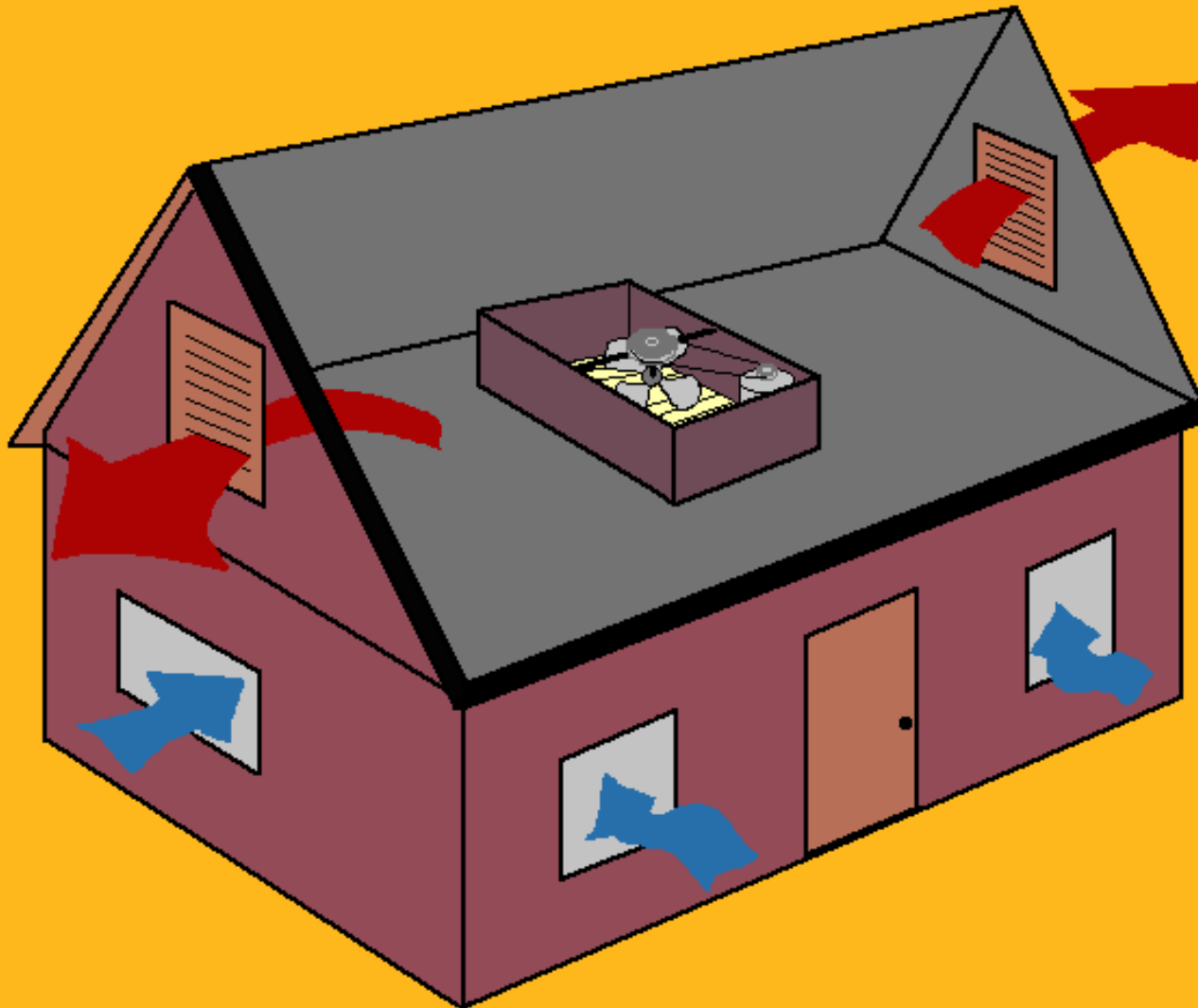
1. Types of whole house fans
2. Constructing the enclosure
3. Air sealing and insulating

Discussion

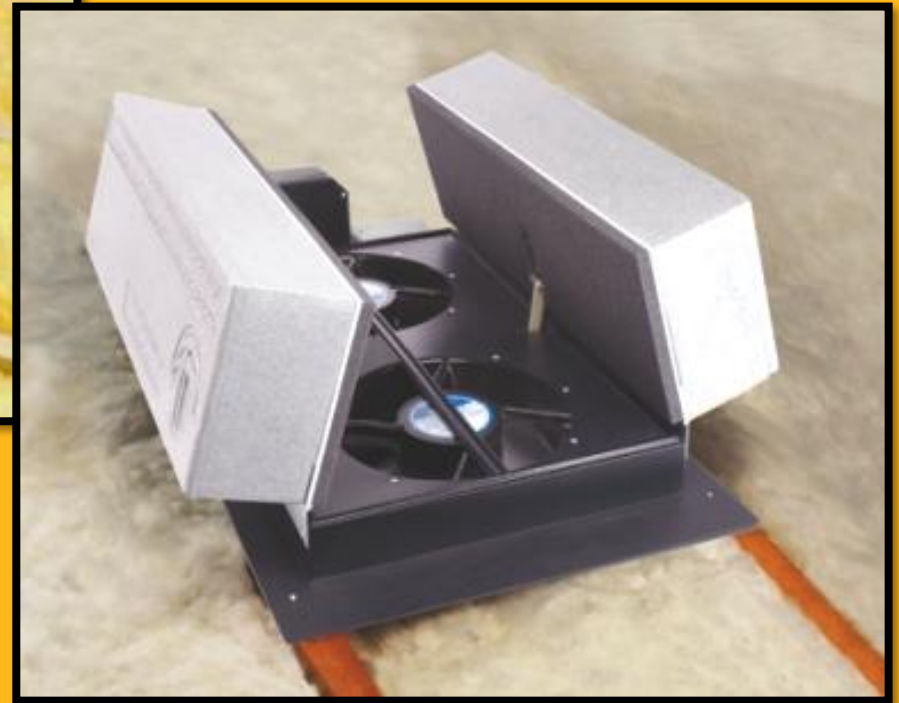
1. What is the function and purpose of a whole house fan?
2. Where might the most common leakage points be in a whole house fan system?
3. Based on previous lessons, how would you air seal and insulate a whole house fan?



Whole House Fans

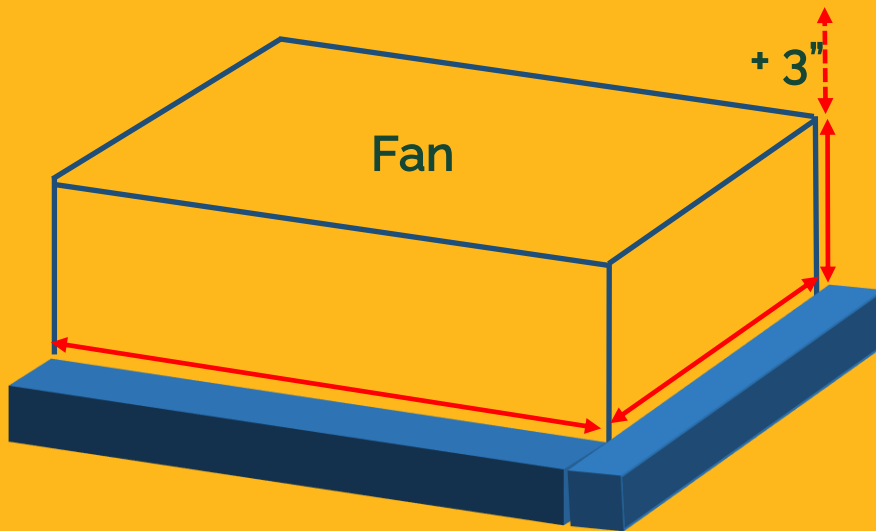


Types of Whole House Fans

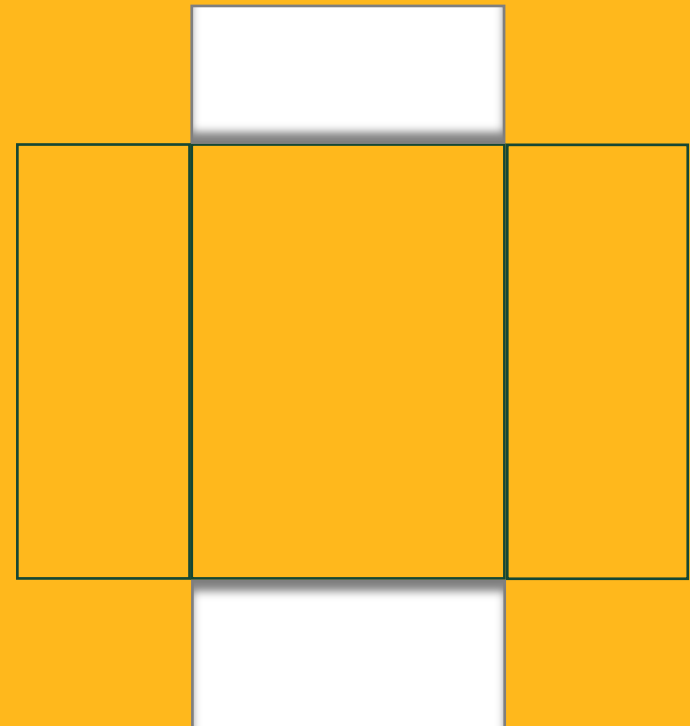


Constructing Enclosure

Measure Fan

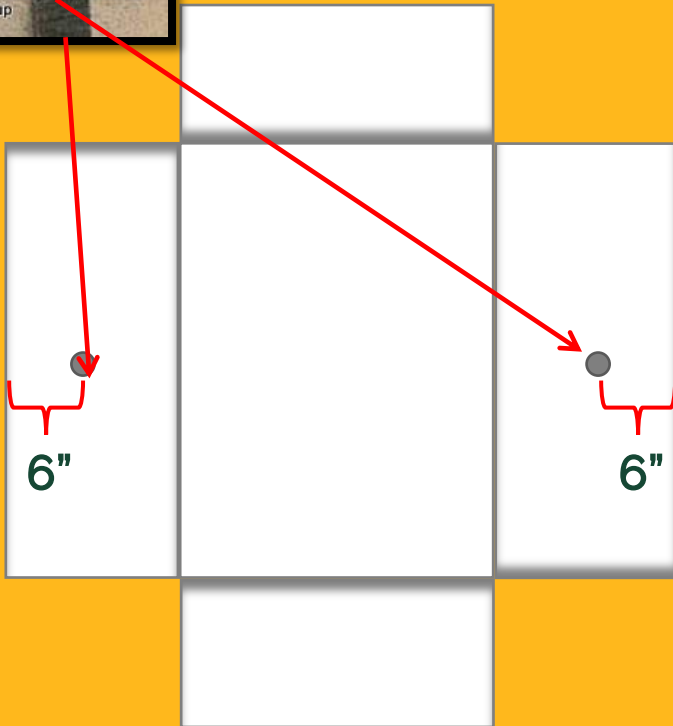


Cut Enclosure

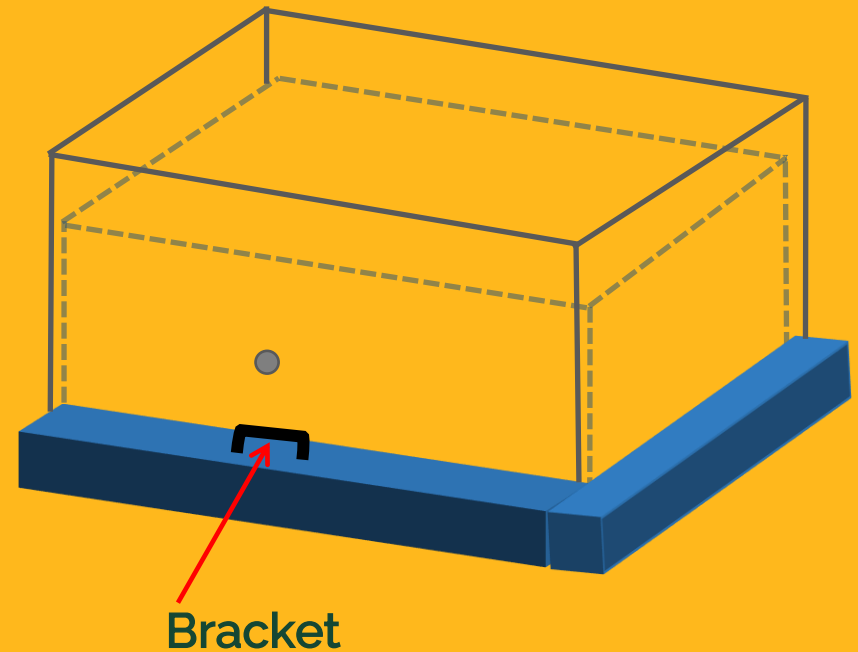


Constructing Enclosure

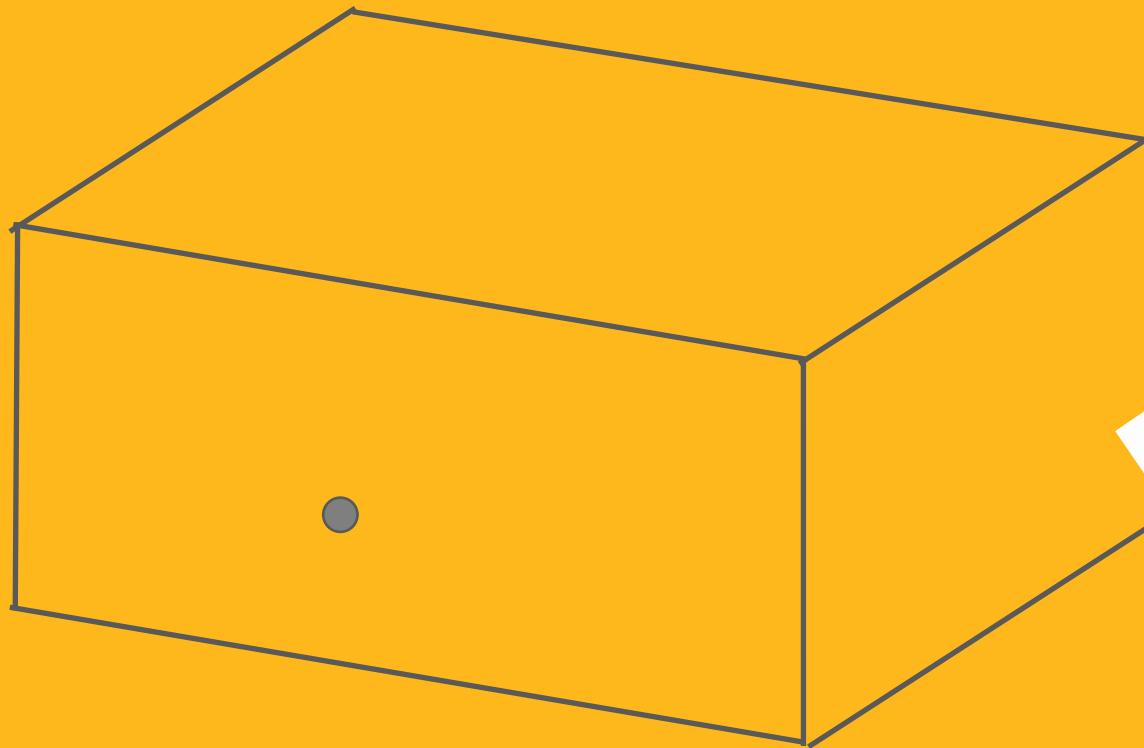
Drill holes



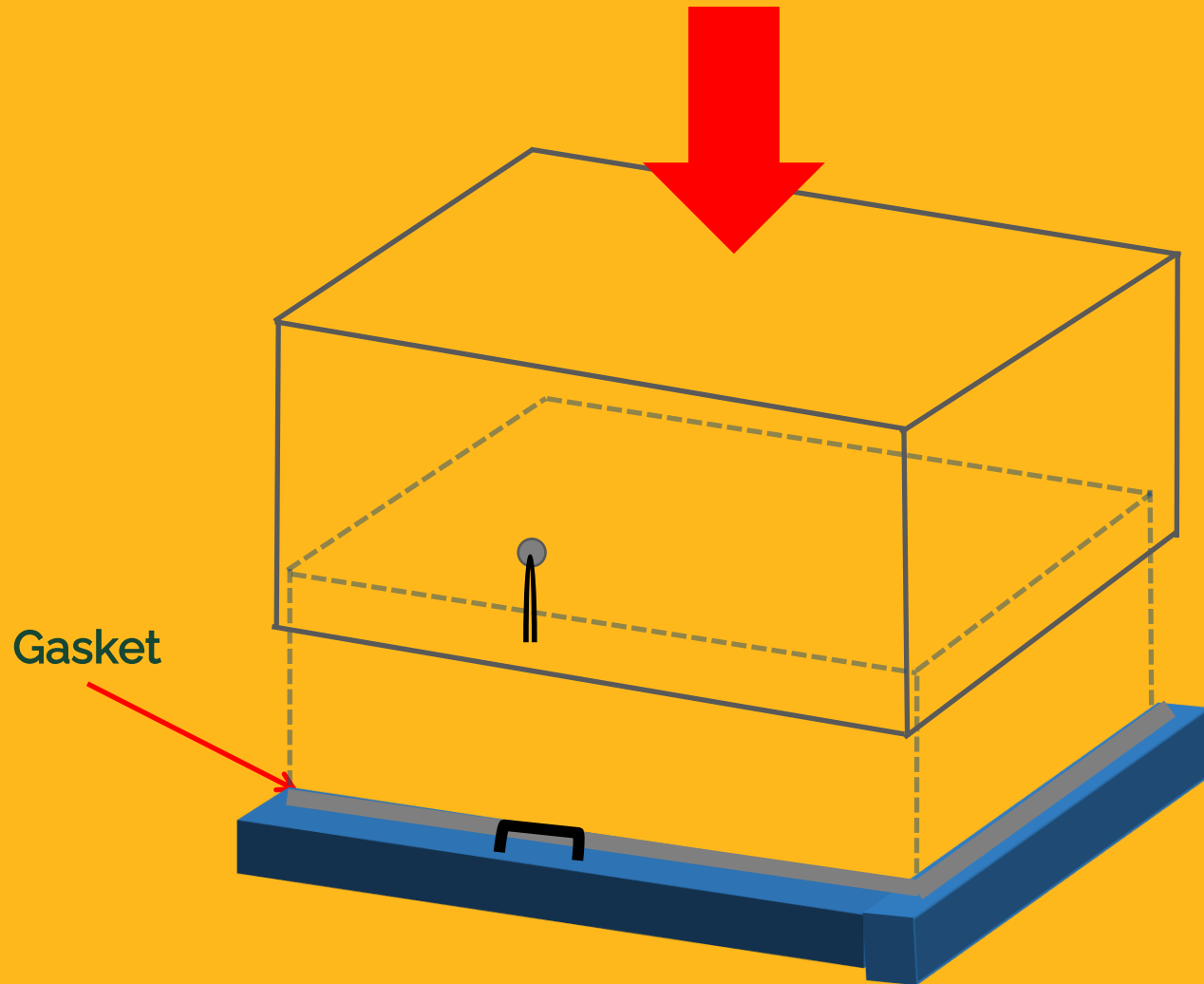
Install Bracket



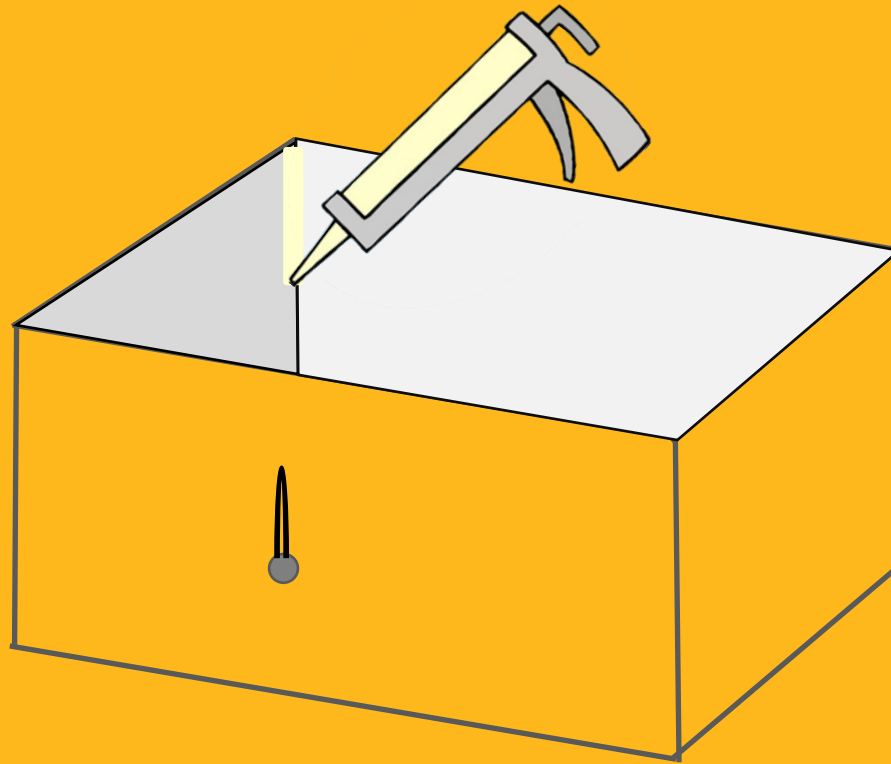
Assemble Enclosure



Install Weather Stripping

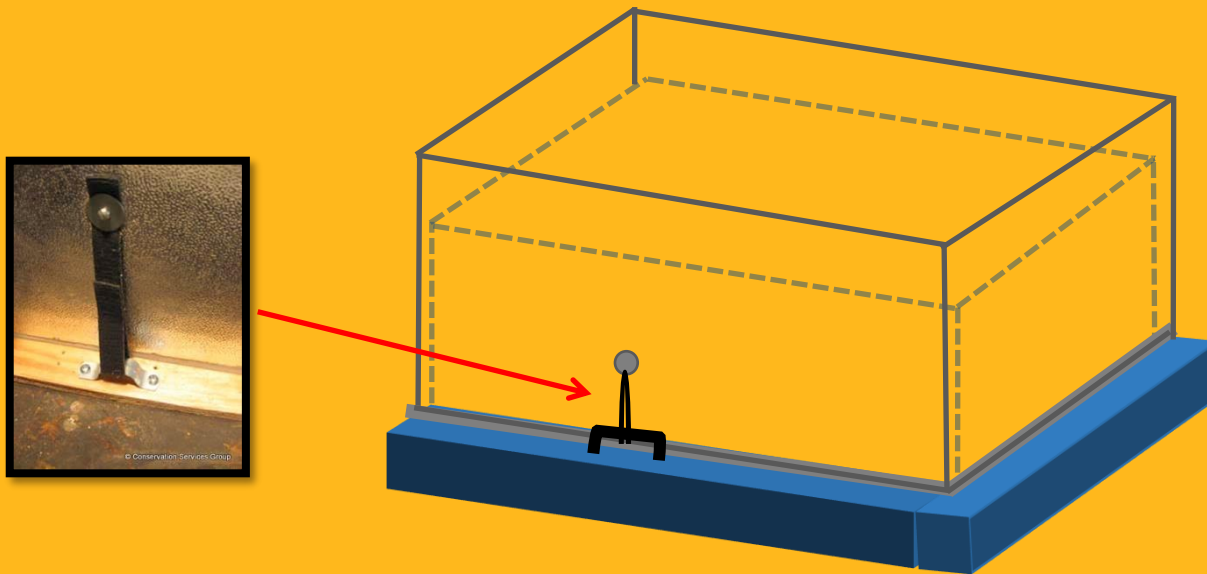


Air Seal the Enclosure

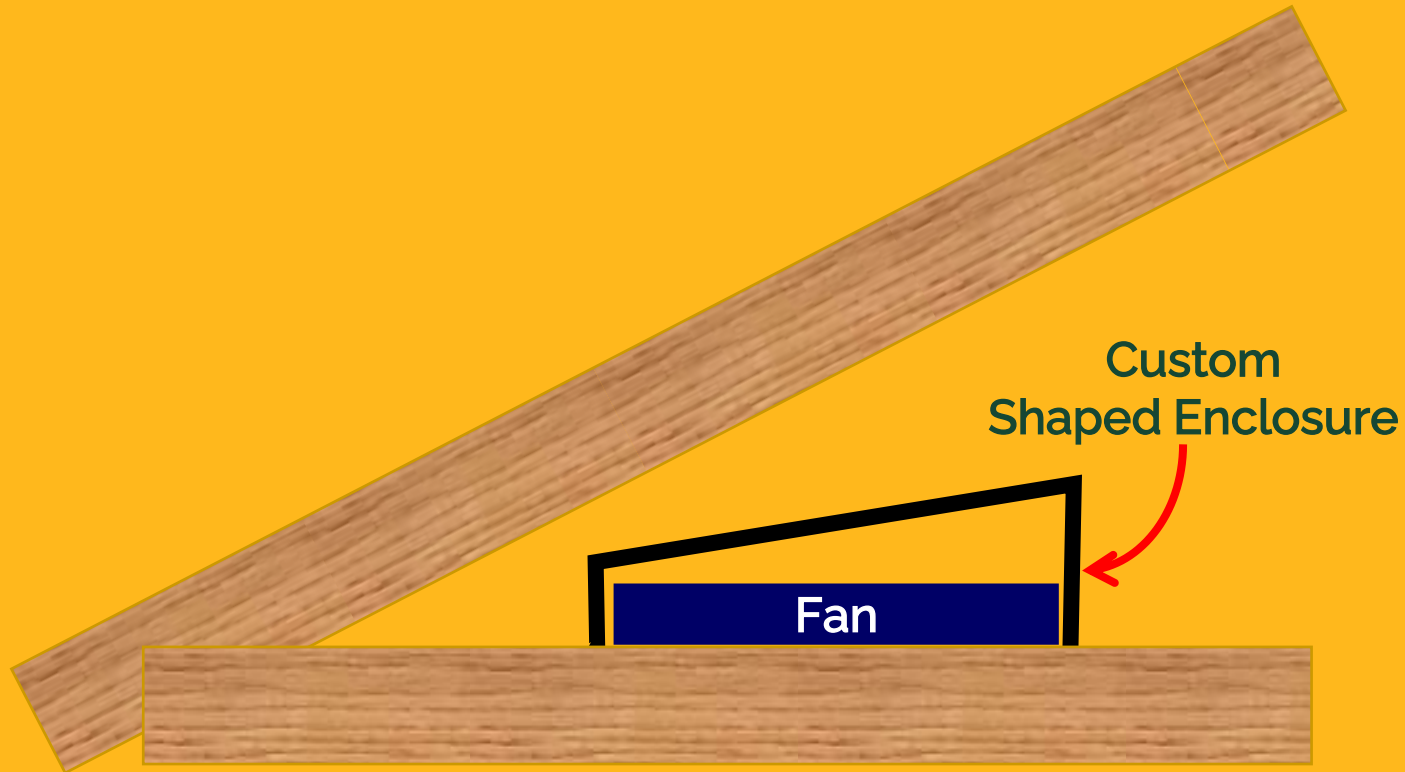


Constructing Enclosure

Air Sealed Enclosure



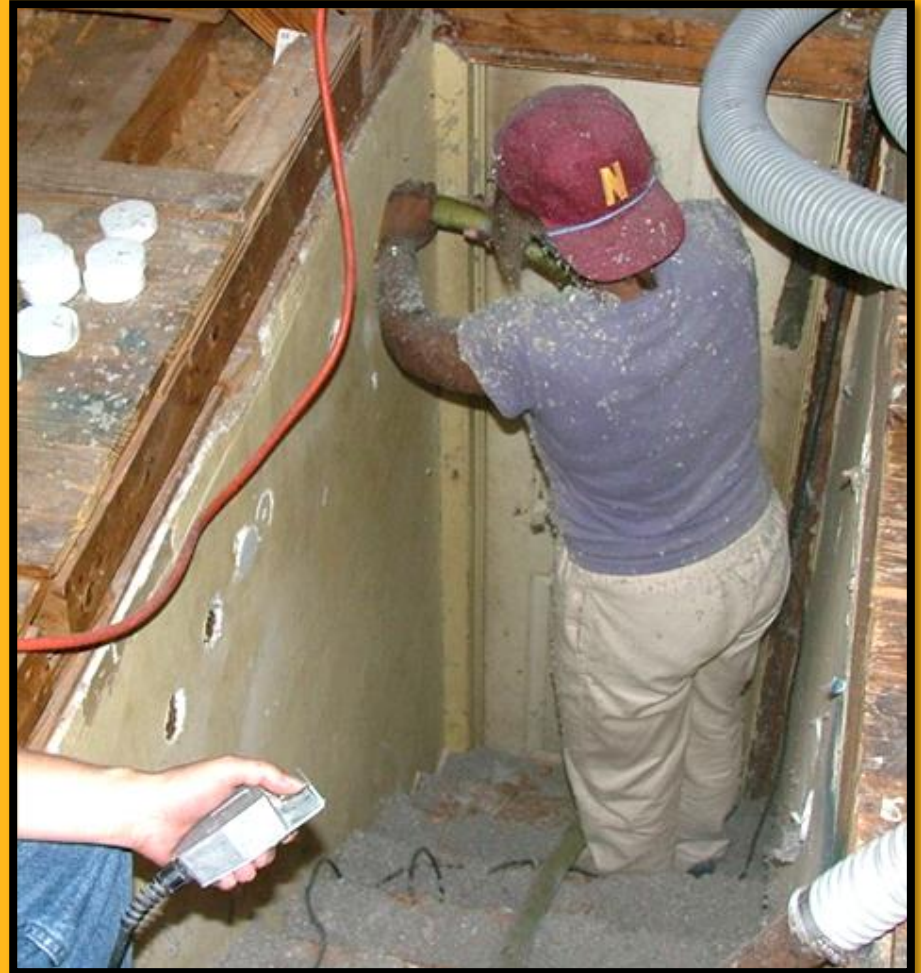
Challenging Locations



Attic Walk-Ups

What we'll cover

- Common locations
- Thermal boundary and air barrier considerations
- Common problems



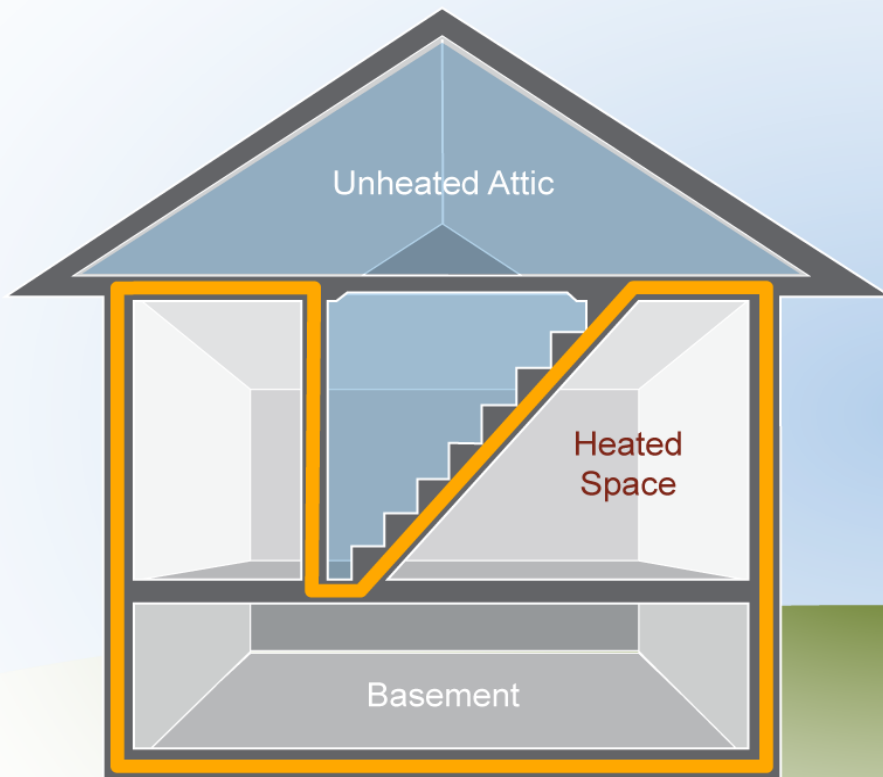
Walk-Ups

- Widely used in older homes, especially:
 - Farmhouses
 - Duplexes
 - Victorians
- Not common in newer homes

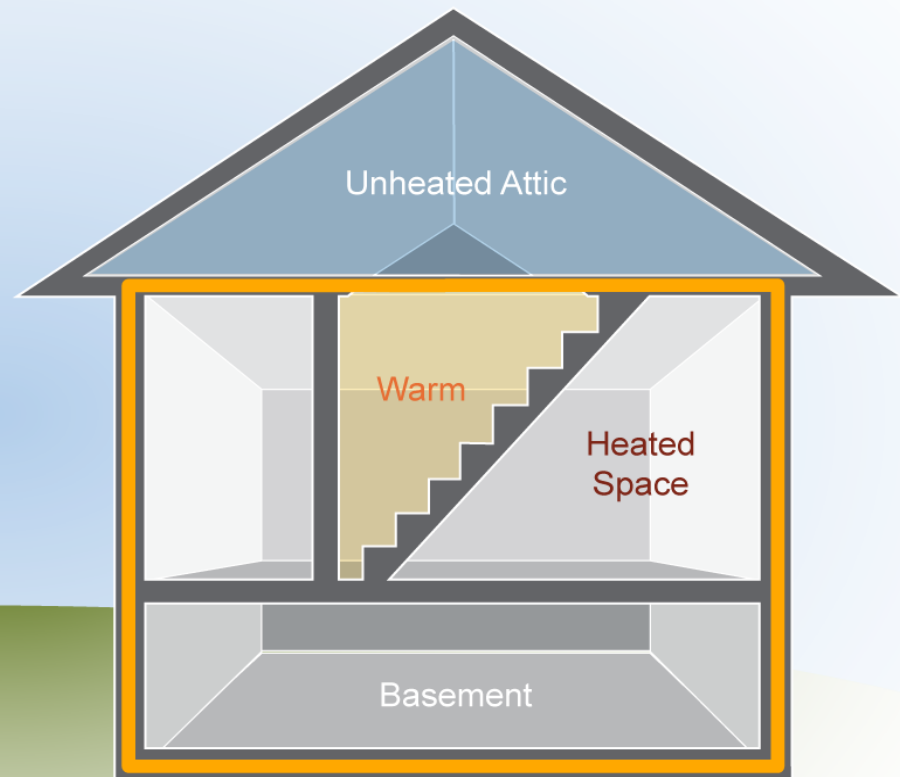


Thermal Boundary Configurations

Stairs are *outside* the thermal boundary

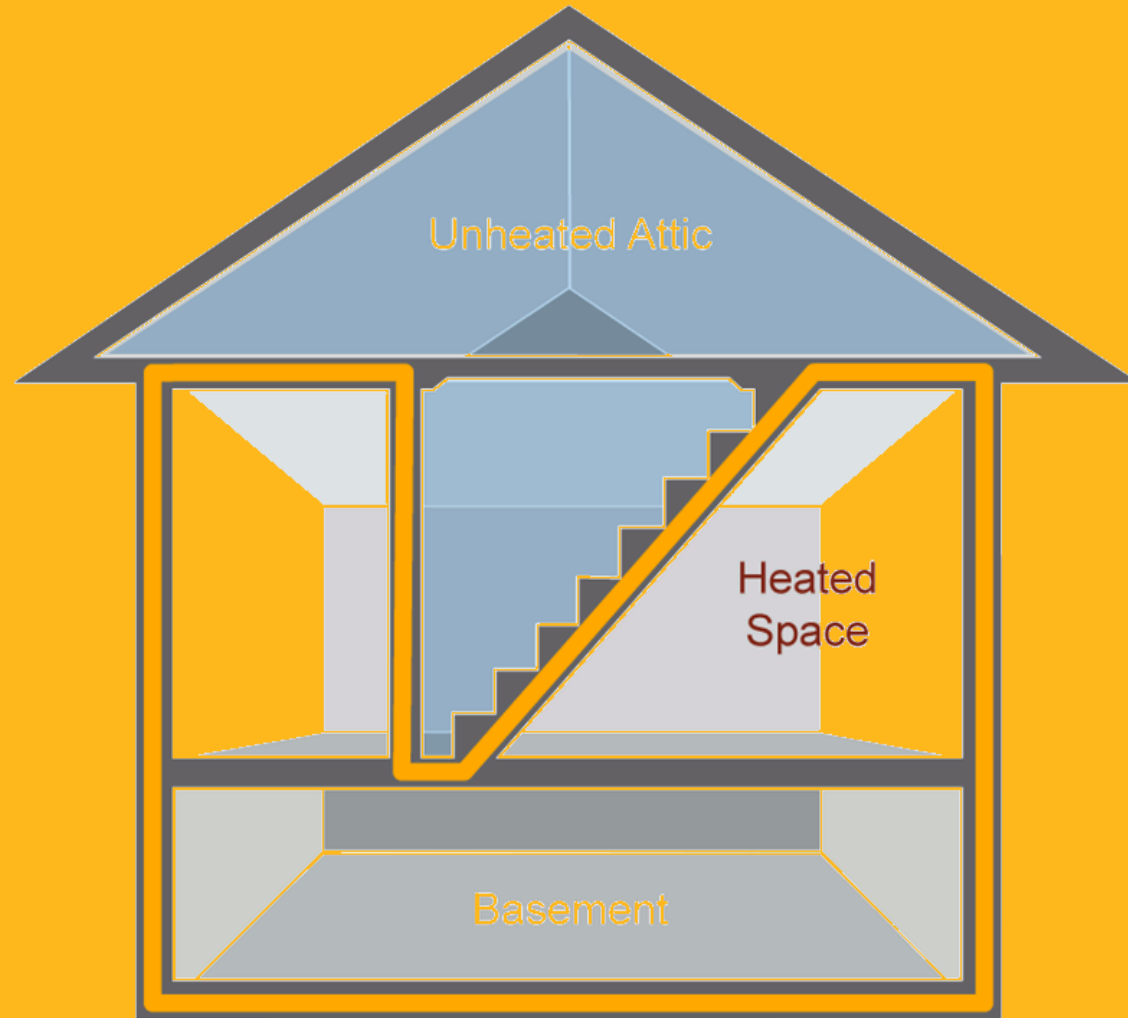


Stairs are *inside* the thermal boundary

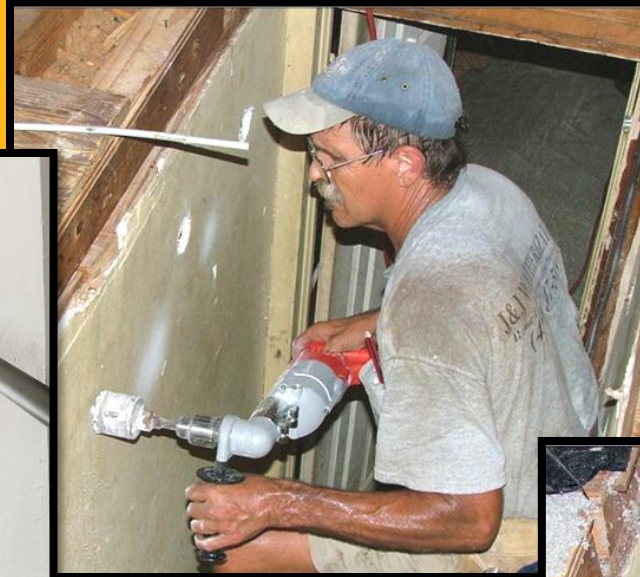


Excluding the Walk-Up

- Allows easier access to the attic
- Better when the occupant uses the attic often



Air Seal and Insulate



Walls



Door

Air Seal and Insulate



New physical boundary

Cover to meet code

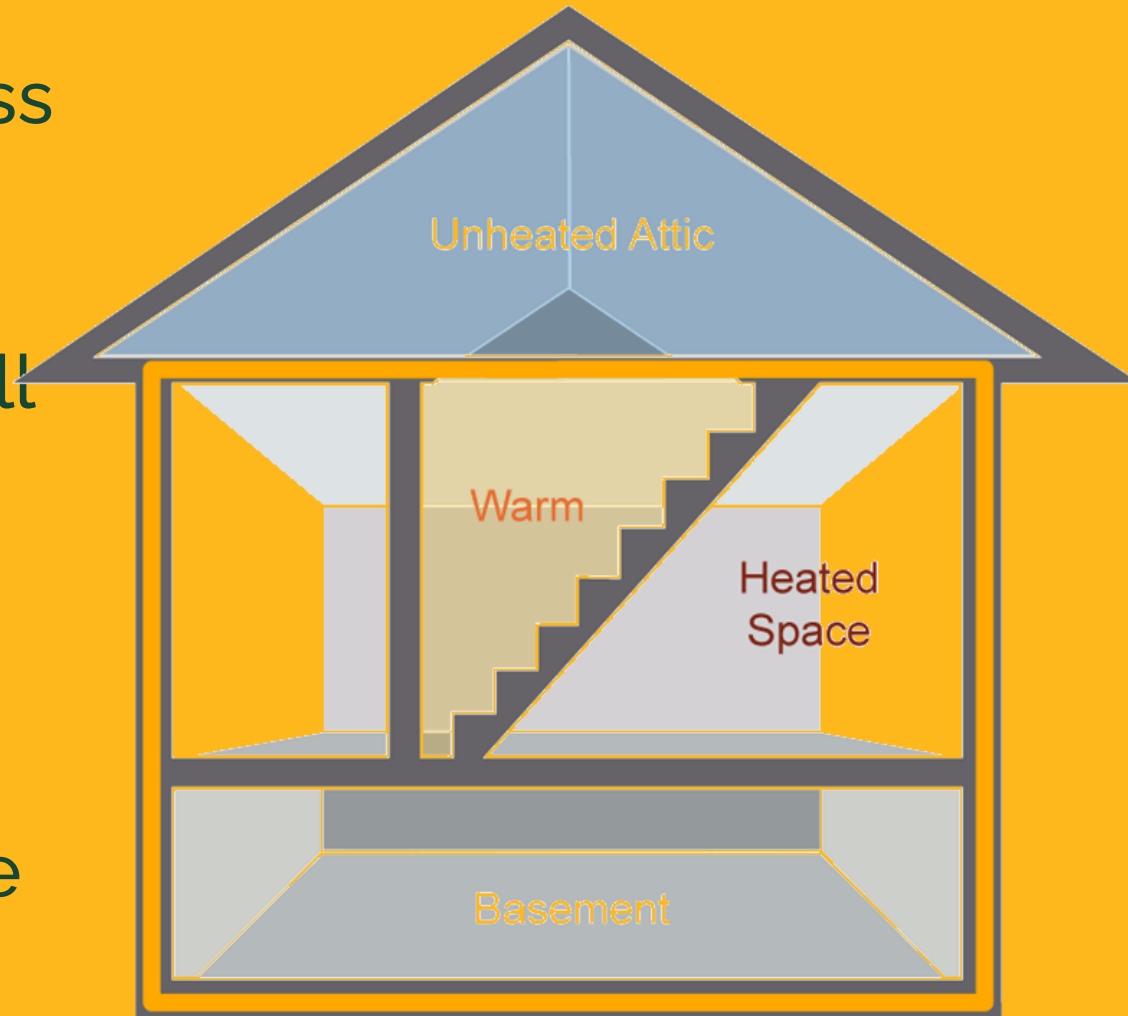


Attic Stairs, Uninsulated



Including the Attic Walk-Up

- Difficult to access the attic
- Quicker and cheaper to install
- More energy efficient
- Use when the occupant does not intend to use the attic space

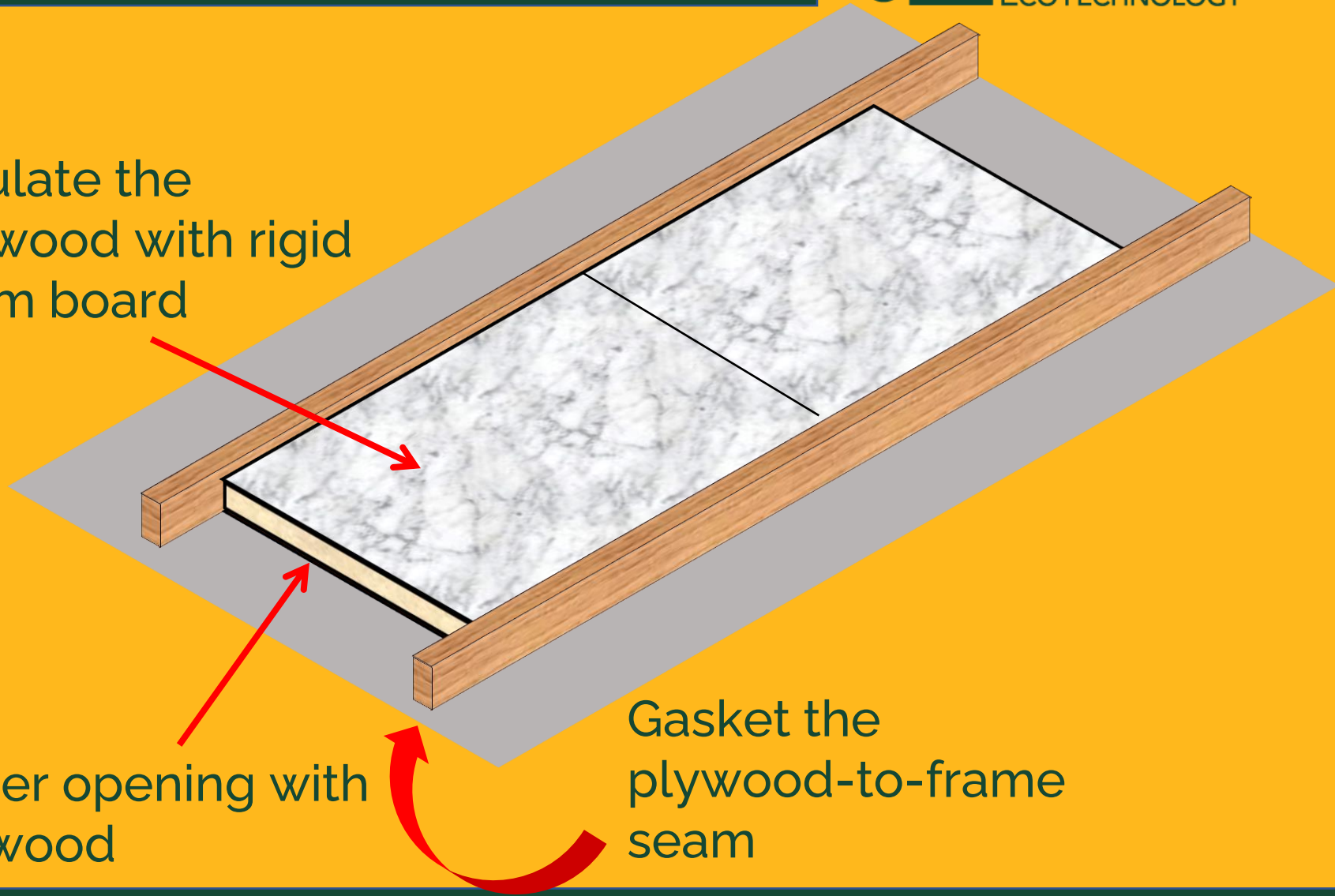


Building the Barrier

Insulate the
plywood with rigid
foam board

Cover opening with
plywood

Gasket the
plywood-to-frame
seam



Attic Walk-Ups:

- Typically found in older homes
- Can either be included or excluded from the thermal envelope
- The EnergizeCT Program does not apply to Attic Walk-ups which are included in the thermal boundary
- Range in cost and in work scope
- Should be treated according to the occupant's needs

Role Play – Tenant

- Homeowner: home occupant is a tenant whose landlord scheduled the work to be completed
- Installer: express your sympathy that the tenant is inconvenienced, explain how the work to be completed will benefit the occupants

Questions

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