TIP SHEETS – All About Your Attic

The attic is a crucial part of your home, and ***most attics could use improvements or upgrades.***

ACCESS:

The attic access is critical, and hard/impossible to access attic areas are always an issue. Attic access is REQUIRED when the attic has a vertical height of 30 inches or more and an area of at least 30 square feet. I recommend having access to ALL attics – regardless of size.

The minimum rough-framed attic access opening is **22 inches by 30 inches** (559 mm x 762 mm). I recommend a larger opening – especially if any equipment is located in the attic area (such as HVAC, etc). **The opening should be large enough to remove/replace the equipment that is located in the attic** (this is common sense…). Attic stairs are a good access (when PROPERLY INSTALLED).

All modern attic stairs have specific REQUIRED mounting points (holes in the metal brackets – typically marked as "REQUIRED") and **these MUST be ALL installed with the proper fasteners so that the stairs can provide proper strength.** *(NOTE: All attic stairs have a "maximum weight limit" – I recommend 300+lb rated steps—such as commercial rated stairs)*

Example Mounting Instructions for Attic Stairs

Step 4 Permanently mount the stairway using 16d nails or 3" lag screws in the locations shown in Fig. 6.

Square and start at hinge end of stair.

Two nailing holes have been pre-drilled on the end above the piano hinge. Pilot holes should be drilled if lag screws are used. It is recommended that nailing holes be pre-drilled by the installer. The pivot plate mount should be shimmed and nailed through the 2 holes in the plate.

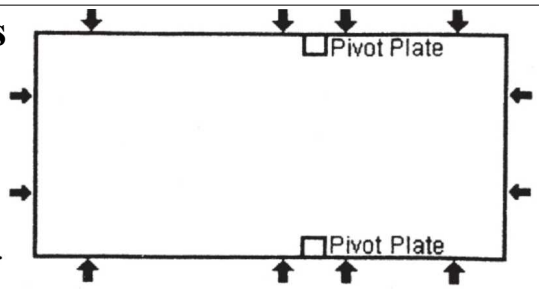
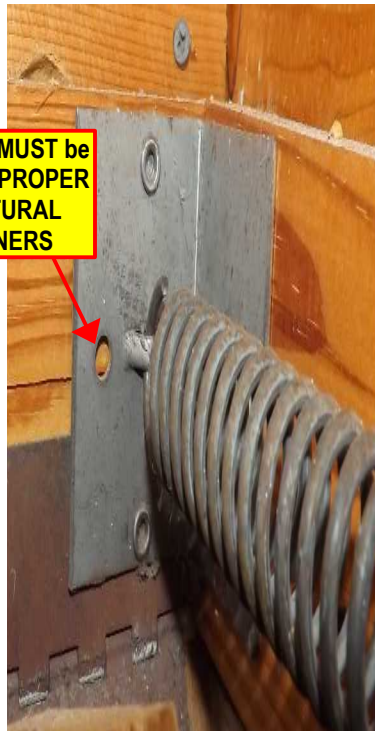


Fig. 6



TIP SHEETS – All About Your Attic

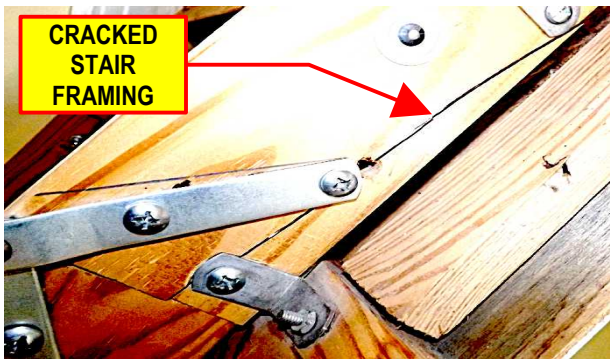
Attic stairs must be cut to properly sit flat on the floor when fully extended.

The stairs also need yearly inspection and maintenance – to insure no nuts/brackets have loosened, springs are functional and not bent/"stretched out" – as any loose or damaged components (or lack of proper mounting) CAN LEAD TO STAIRWAY FAILURE AND INJURIES!

Access panels or stairs should always be fully insulated. Stairs often have pre-made foam enclosures that seal air tight. I recommend that stairs / access panels always have weatherstripping installed to help prevent air losses into the attic.

The attic stairs should also close and seal fully (I suggest adding weatherstripping on units which lack it).

ANY STAIRS WHICH HAVE DAMAGED / STRETCHED OUT SPRINGS, BENT OR LOOSE HINGE / SPRING BRACKETS HAVE CRACKED WOOD PIECES OR DO NOT CLOSE PROPERLY POSE A SEROUS POTENTIAL FAILURE HAZARD AND NEED IMMEDIATE REPAIR OR REPLACEMENT



Correct

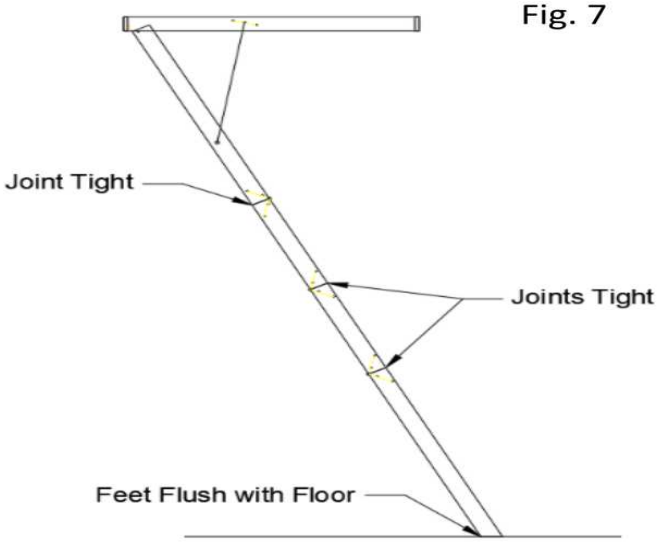


Fig. 7

Fig. 8

Wrong

Stair Cut Long

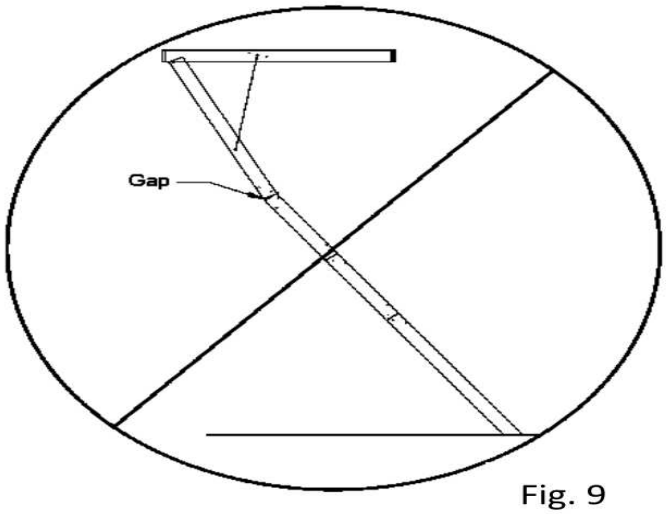


Fig. 9

Wrong

Stair Cut Short

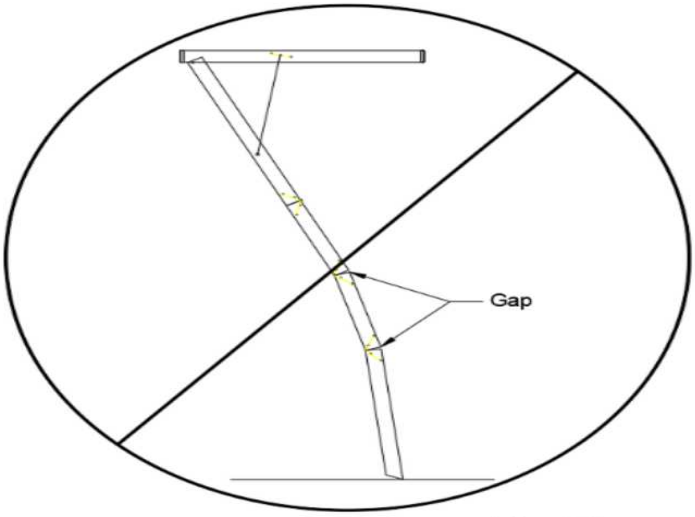


Fig. 10

TIP SHEETS – All About Your Attic

INSULATE IT!

No matter what type of attic access you have, it NEEDS insulation.

To the left are some types of insulation "boxes" which provide insulation and air-sealing to the opening.

Note that these foam boxes should seal air tight – otherwise they will leaks heat / air into the attic areas.

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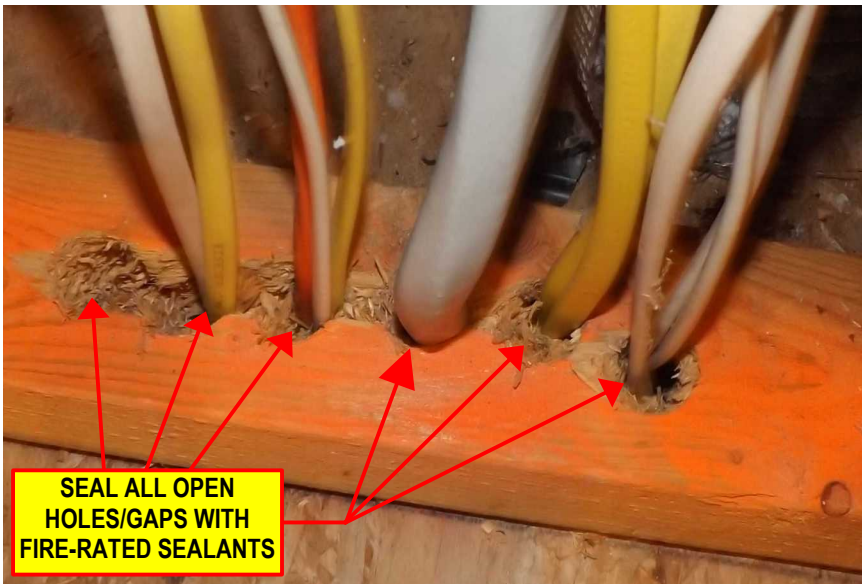
AIR AND FIRE SEALING:

All attic penetrations (wires, pipes, ducts or any penetrations from he attic into the building) MUST be fully Air/Fire sealed.

Air leaks into an attic can allow heat and moisture from the house to enter and become trapped in attic areas. Every penetration can allow fire to spread more quickly when these penetrations are not sealed with FIRE-RATED SEALANTS. This includes any open shafts, open gaps at framing seams as well as wire/duct/other penetrations.



Download our FREE separate Fire-Stopping and Fire-Sealing Tip Sheet:

Download our free PDF Tip Sheet on Fire-Stopping and Fire-Sealing your home from our website:

TIP SHEETS - Fire-Stopping & Fire-Sealing

NOTE: ORDINARY SPRAY FOAM IS COMBUSTIBLE AND SHOULD NOT BE USED FOR FIRE-SEALING! USING ORDINARY SPRAY FOAM CAN ACCELERATE THE SPREAD OF FIRE RATHER THAN RETARD IT – AS IT IS HIGHLY COMBUSTIBLE!

I STRONGLY ADVISE USING ONLY FIRE-RATED FOAM OR CAULKING TO SEAL ALL OPEN GAPS AND SHAFTS.

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TIP SHEETS – All About Your Attic

INSULATION:

Attics NEED full insulation (*energy is NOT cheap!*). In Massachusetts, new construction must adhere to updated energy codes (Climate Zone 5), generally requiring R-49 to R-60 for ceilings/attics.

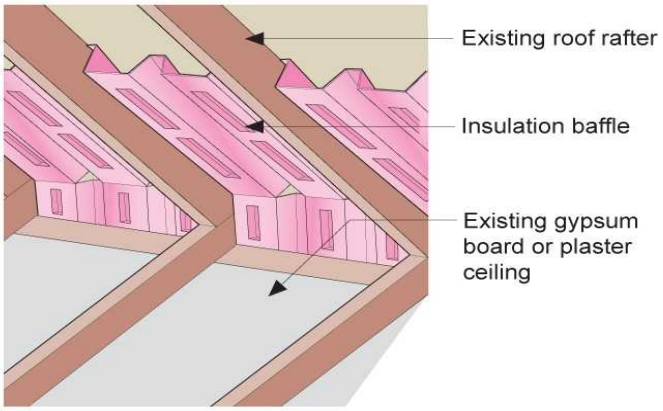
Attic Insulation Depth Required for R-50 to R-60

Blown-in Cellulose:	**16 to 18 inches (R-3.2 to R-3.8 per inch).**
Blown-in Fiberglass:	**17 to 22 inches (R-2.2 to R-2.7 per inch).**
Fiberglass Batts:	**16 to 20 inches (R-2.9 to R-3.8 per inch).**
Closed-Cell Spray Foam:	**8.5 to 10 inches (R-6.0 to R-7.0 per inch).**
Open-Cell Spray Foam:	**13 to 17 inches (R-3.5 to R-3.9 per inch).**

Insulation MUST NOT BLOCK ventilation (such as the soffit vents). “Baffles” are used to allow airflow through the ventilation system.

WITHOUT THIS VENTILATION MOISTURE AND HEAT ARE LIKELY TO BUILD UP AND CAUSE ISSUES IN ATTIC AND ROOF AREAS.

Baffles are REQUIRED for proper ventilation (cool / dry air comes up IN through the soffit areas



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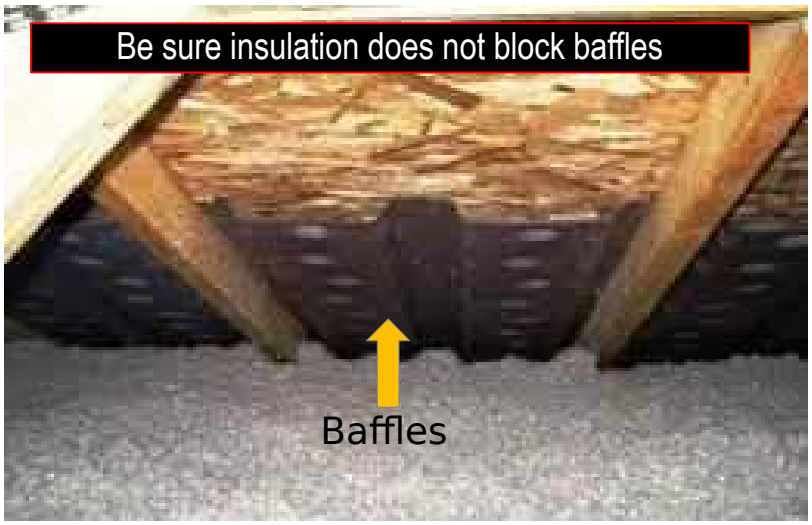
VENTILATION:

An Explanation of Proper Attic Ventilation

Attics should have full lower to upper ventilation (*Soffit vents and Ridge vents***) and "baffles" (***plastic pieces that hold back insulation and provide air a path to flow through***) in order to properly ventilate the attic and remove excess heat and moisture. Most asphalt roofs REQUIRE full soffit to ridge ventilation – and their warranties are typically voided without the proper required attic ventilation.**
(*There are special "Hot Roof" rated shingles which do not require ventilation – few houses have these***)**



Ventilation for HIP ROOFS:

Hip roofs pose a ventilation challenge – as there is usually not enough ridge areas to use the typical ridge vents that most roofs have *(there would NOT be enough upper ventilation for the ventilation system to work properly)*. Installing multiple large upper roof mounted vents SOMETIMES can be sufficient, but Hip style roofs are BEST VENTILATED WITH **FULLY OPEN SOFFIT AREAS** and upper **TURBINE STYLE VENTS** (see image to right). Your attic has INSUFFICIENT VENTILATION visibly installed and you should Obtain Estimates on installing FULL UPPER AND LOWER VENTILATION TO ALL ATTIC AREAS.

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This hip style roof should have the following done for proper ventilation:

ALL exterior soffit areas should be opened up, wood soffit areas removed, and fully open ventilation installed in all soffit areas.

Attic areas should have insulation removed from ALL soffit areas, all wall shafts firestopped/fire-sealed at the soffit areas, baffles installed (*to hold back insulation for air flow – baffles should extend far above the height of the installed insulation*) and the area FULLY re-insulated.

One (*or more*) upper Turbine style vents should be installed near the upper peak of the hip roof (turbine vents *are preferred over roof mounted vents and attic fans due to superior performance, longer life, and economy [they don't use power]*).

I strongly advise fully air-sealing the attic (fire-sealing fully does this) and installing vapor barriers in attic areas/vapor barrier paints below on ceilings – to reduce air movement/heat losses and moisture migration into attic areas.

FRAMING:

While framing issues are a big potential issue in attics, determining framing sizes and supporting ability is far beyond a publication like this. Collar ties, ridge poles *(both missing in the picture to right),* proper fasteners, and other framing issues are among the many framing issues that must be evaluated.

YOU SHOULD HAVE ATTIC FRAMING EVALUATED BY AN INSPECTOR, CONTRACTOR, OR ENGINEER.

Obvious issues such as bowed framing, split or cracked framing or extremely undersized framing are more easily detectable and may be noticed by a home-owner or home-buyer. IF ANY ISSUES ARE NOTED – Be SURE TO HAVE A PROFESSIONAL EVALUATE THE FRAMING FURTHER.

Some framing issues are common (like "plywood pops' (where sheets of plywood WARP and cause uneven roof surfaces.

PLYWOOD POPS WILL TYPICALLY VOID ROOF WARRANTIES AND DAMAGE ROOF SURFACES.

These need correction to prevent roof damage and leaks.

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MISC:

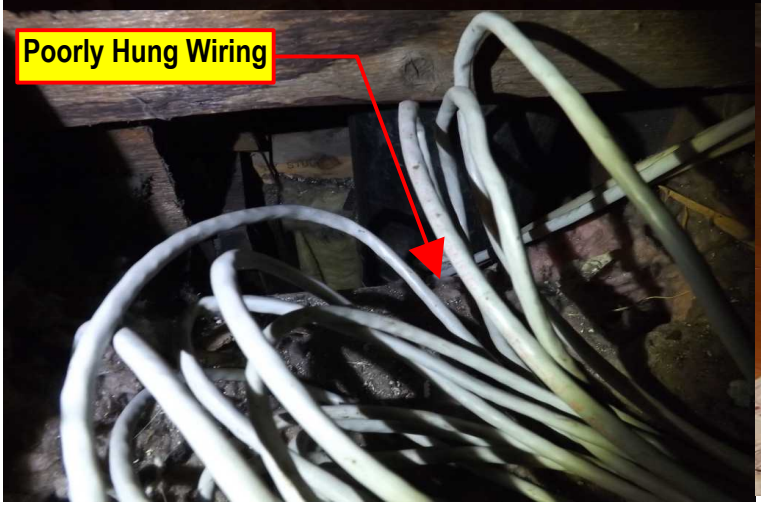
Condensing gas units normally REQUIRE an installation in “conditioned” (heated) space – and often is in a foam enclosed area. This prevents the condensate in both the unit and it’s exhaust from freezing and causing issues/damage.

To the right is a “conditioned attic” area which is fully insulated. Sometimes ONLY the HVAC system is enclosed in a smaller foam board enclosure (2 inch walls are often enough).

Vents should all have proper holes cut for proper airflow. (Air does not move through framing…)

Electrical and lights should all be properly mounted and recessed lights MUST be rated for insulation burial (to prevent fires).

DO NOT ENTER ATTICS OVER 110 F!
This can be hazardous and lead to HEAT STROKE or even DEATH!



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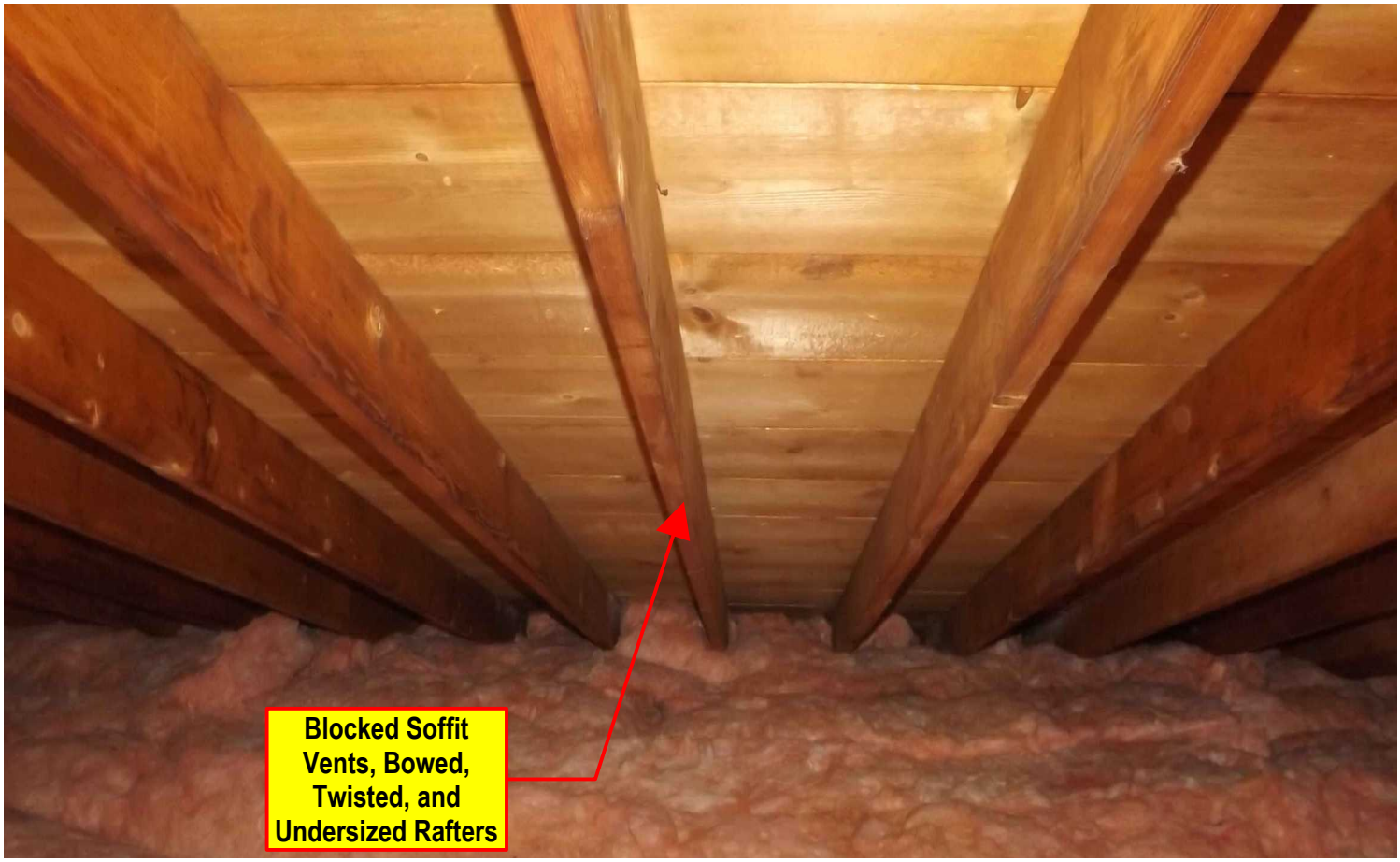

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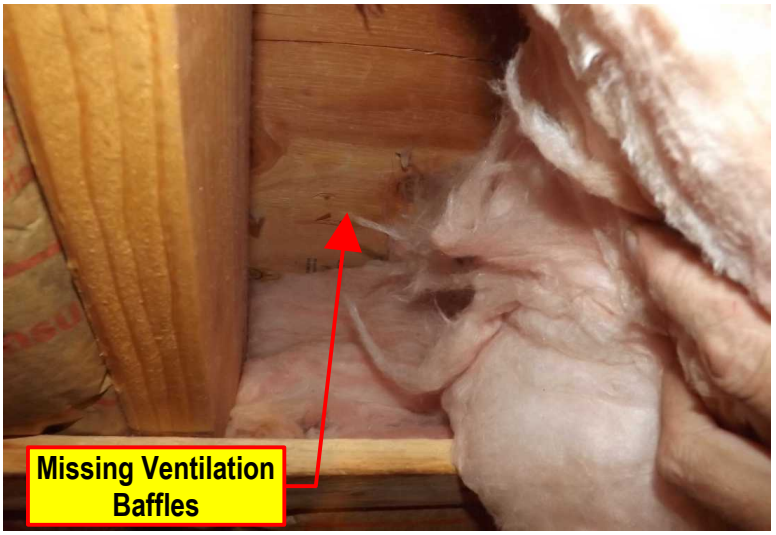

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MOLD IN ATTICS:

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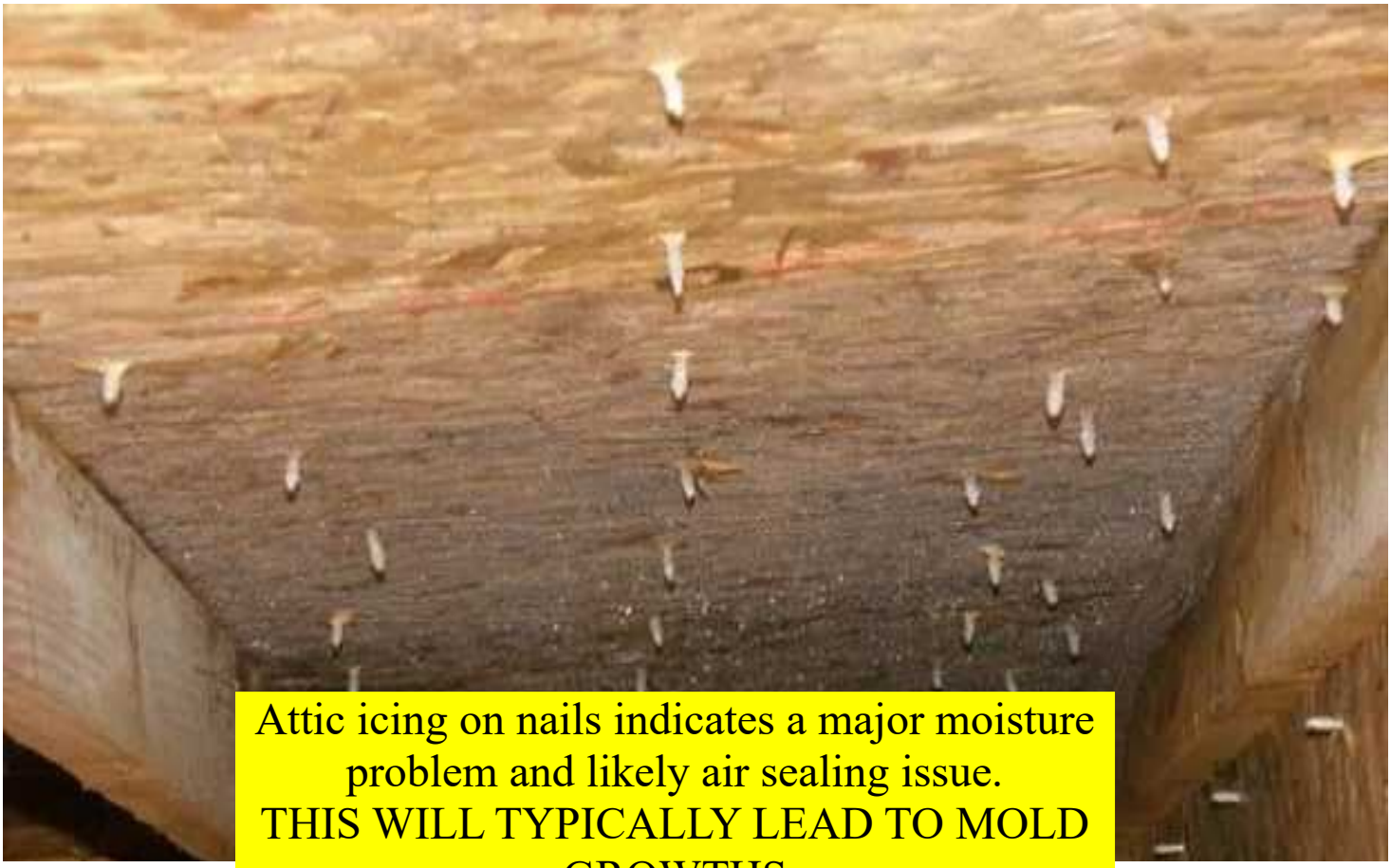

Attic icing on nails indicates a major moisture problem and likely air sealing issue.
THIS WILL TYPICALLY LEAD TO MOLD GROWTHS

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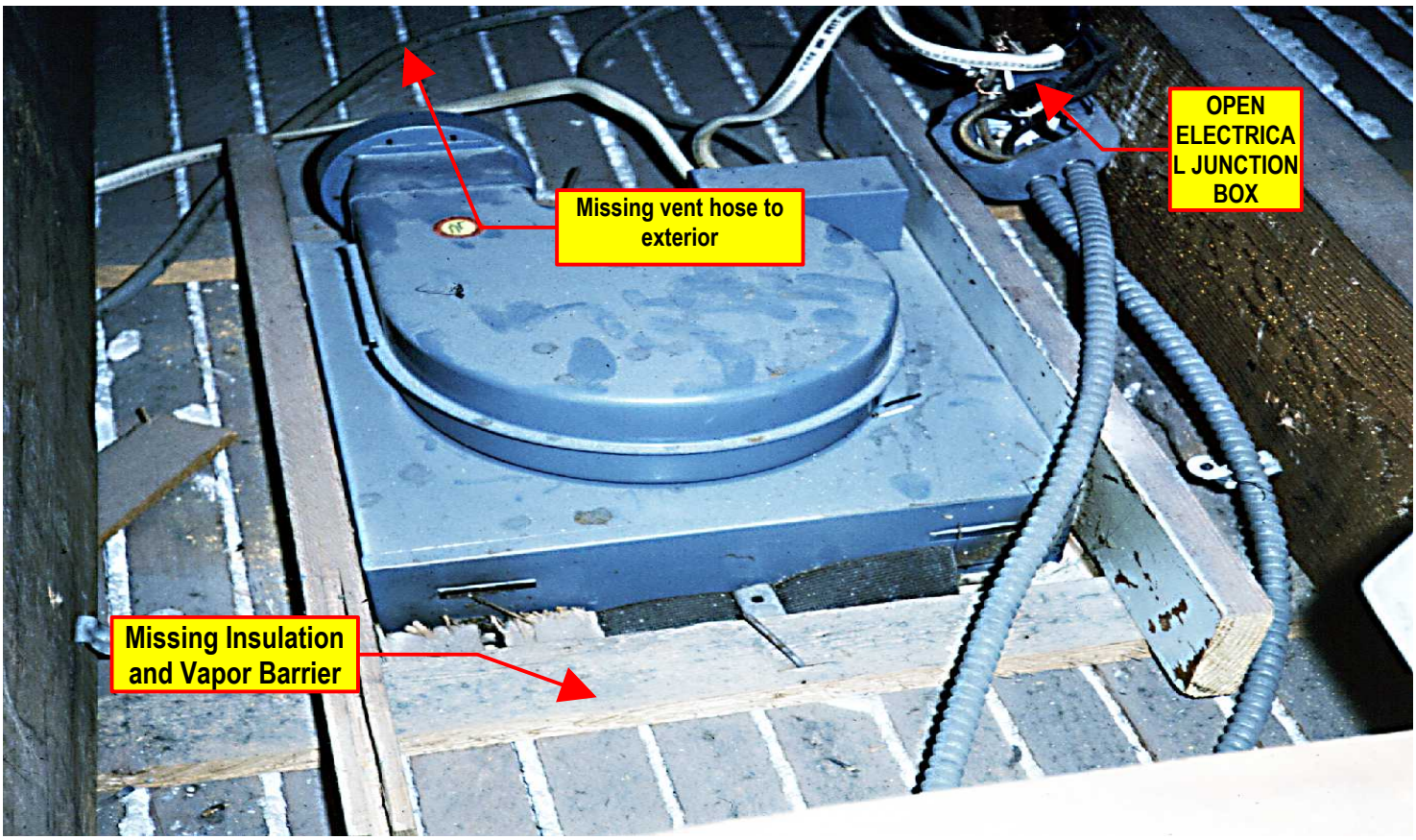

Roofs with solar panels installed MAY need additional support added to the framing.
This should be evaluated by a contractor/engineer.

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