

Roofing problems can develop at any time. Most asphalt/fiberglass shingles are made to last about 15 years but you should begin to expect some problems when your roof reaches the age of 8 to 10 years. *Roof leaks are often difficult to find and can be the cause of significant structural damage that may appear sometime later.*

## **SIGNS OF ATTIC LEAKS/MOISTURE:**

- STRUCTURAL SAGGING; WAVY ROOF FRAME AND SHEATHING
- DAMAGED, WORN OR MISSING SHINGLES; MOSS GROWTH
- CORRODED FLASHING (AROUND CHIMNEY, DORMER, VENTS AND IN VALLEY)
- RAISED SHINGLES ALONG THE BOTTOM OF THE ROOF
- ICICLES HANGING FROM GUTTER IN THE WINTER (EVIDENCE OF POTENTIAL ICE DAMS)
- STAINED/DISCOLORED OR DELAMINATING SHEATHING
- RUSTED NAILS AND RUST STAINS ON SHEATHING
- DAMP OR DISCOLORED INSULATION
- WATER SPOTS OR BLACK MARKS ON THE CEILING OR AT THE JUNCTION BETWEEN CEILING AND WALL
- WATER MARKS AROUND CEILING FIXTURES

## **SOURCES OF ROOF LEAKS / MOISTURE:**

**RAIN/WIND** – Some roof problems occur when wind forces the rain under the edges of the roof or shingles. Two factors contributing to this phenomenon is an improperly sloped roof or failure to adhere, using roofing cement, the asphalt/fiberglass shingle tabs in high wind areas.

**ICE DAM** – is an accumulation of ice at the lower edge of a sloped roof. They form when there is a layer of snow on the roof, which melts due to heat loss from the house into the attic. The water refreezes at the eave because it extends past the warm interior of the house and the backup of water seeps underneath the roof covering.

**MOSS** - Wood and built-up roofs are vulnerable to the deterioration by moss for its ability to retain moisture and its root system penetrating the roof surface.

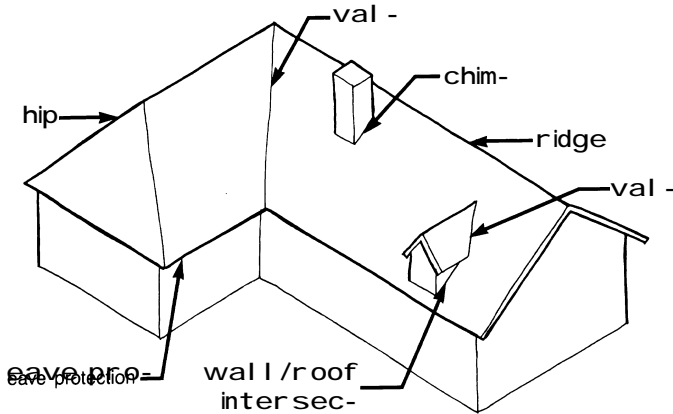
**WATER VAPOR** - Until the late 1970s residential construction codes did not require thermal or vapor barriers that are now standard practice. Exfiltration of warm moist air to drier colder air results in condensation (frost in the winter), mold and mildew and wood decay. It causes curling; cupping and shrinkage in asphalt/fiberglass shingles, corrosion of metal roofing and rotting of wood shakes and shingles. Adding insulation doesn't seal the leak; it merely filters the air going through it. Seal well around ceiling fixtures, plumbing pipes, exhaust pipes and other obstructions running through the ceiling

## **FACTORS CONTRIBUTING TO LEAKS/MOISTURE:**

- POOR ROOF SLOPE DESIGN; INCORRECT SHINGLE INSTALLATION ON LOW SLOPED ROOFS
- EXCESSIVE EXPOSURE LENGTH, IMPROPER JOINT LOCATIONS OR NO UNDERLAY ON WOOD SHAKE/SHINGLE ROOFS
- WATER PONDING OR CLOGGED ROOF DRAINS ON FLAT ROOFS
- MISSING OR DAMAGED SHINGLES; EXPOSED NAILS
- IMPROPER FLASHING OR SEALING (AROUND PROTRUSIONS OR VALLEYS)
- INADEQUATE EAVE PROTECTION; IMPROPERLY HUNG GUTTERS OR DRIP EDGES
- DETERIORATED CHIMNEY (SOFT OR ERODED MORTAR JOINTS; CRACK OR DISINTEGRATING CAP)
- INSUFFICIENT INSULATION; INSUFFICIENT VENTILATION; ABSENCE OR DAMAGED VAPOR BARRIER
- VENT PIPES OR EXHAUST PIPES TERMINATING INTO THE ATTIC
- WATER HEATER, AIR CONDITIONER OR AIR HANDLER MISSING SAFE PAN AND DRAIN

For further information contact your local building authorities or a licensed basement contractor.

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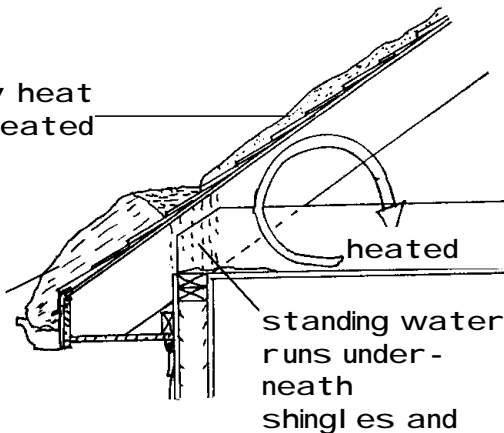


## VULNERABLE FLASHING AREAS

unvented and uninsulated

snow melts by heat loss from heated

snow melt refreezes over the eave to form ice dam

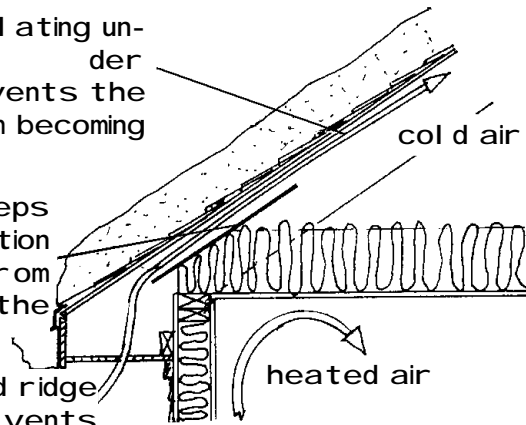


vented and insulated

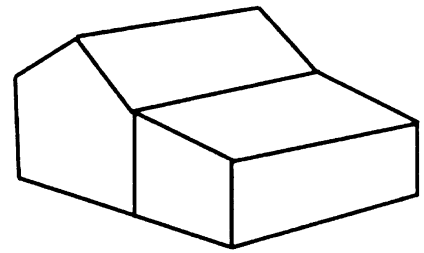
cold air circulating under the roof, prevents the roof from becoming

air chutes keeps the insulation from blocking the

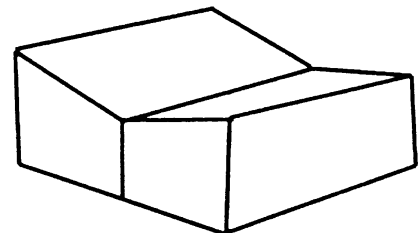
soffit and ridge vents allow circulation of



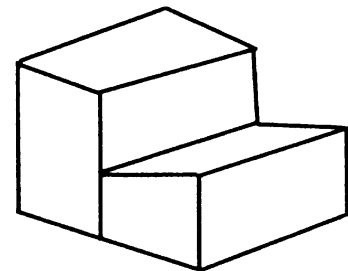
## ICE DAMMING ON A TYPICAL ROOF



Sloped/fl at - water/snow builds up at the junction of the two differently pitched roofs (such as an unheated attached



Sloped/Sloped - two opposing facing sloped roof planes come together at the edge or eave and form a 'valley'; this causes water backup or an ice dam in



Sloped/wall - an extremely poor design where a sloped roof plane meets a wall; water/snow can accumulate in this 'valley' and cause damaged.

## ROOF SLOPES/DESIGN