ROOF CONDENSATION

Condensation is caused by the rapid cooling of warmer air. **Condensation is** a common sign of inadequate ventilation and tenant operations.

Roof Condensation is moisture that develops at the roof ceiling area and is trapped by foil insulation or other types of radiant barriers. If left untreated, it can destroy the entire roof structure. Moisture rust and decay all metals including hangers, nuts, bolts and in severe cases the plywood that holds up the roofing deteriorates and needs to be replaced. This problem can be very costly.

HOW DOES IT FORM?

A roof structure that contains a vapor barrier, which is usually a foil radiant barrier. As the roof heats up and absorbs moisture from the warm air it causes condensation when it cools. Heat is created in the air cavity between the insulation and the roof. Hot air holds the ambient water molecules, drawing moisture into the air cavity. Because of the insulation, the individual roof cells, the area between the foil and plywood roof are not able to vent and dry out.

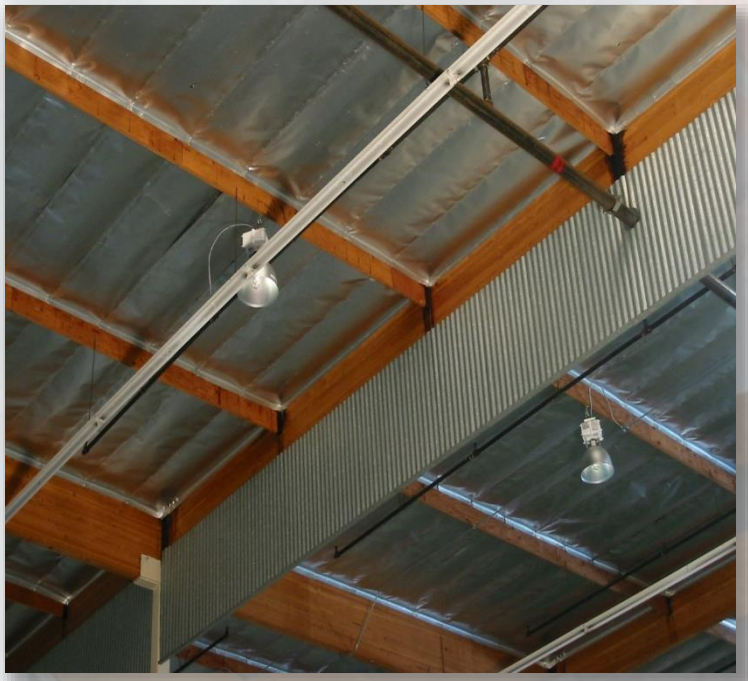
- Humidity - Structures located near water or in other humid regions are more susceptible to condensation damage.
- Building Construction – Installing insulation prior to lumber being completely dry, excessive condensation can occur.
- Roof Leaks - roof may suffer minor or major leaks that allow moisture into the roof wood system, which of course, becomes trapped by the insulation.
- Tenant Operations - Boilers, foam production, bakeries, and similar operations produce additional moisture in the roof cells. Extended vacancies leave a building un-vented and cause additional moisture buildup as well.

WHAT TO LOOK FOR?

What to look for? Dark streaks running down from purlin hangers, corrosion

Black Streaking

Corrosion



GROUND VISUAL

What to look for...

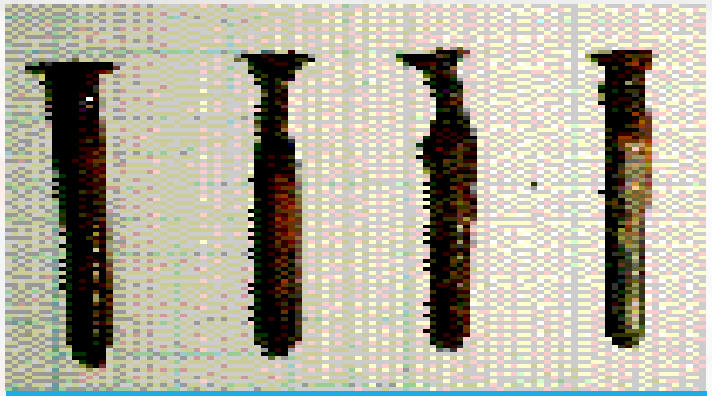
These pictures show what to look for when looking from the ground. All the black streaks indicate the metal hangers are rusting and with this much evidence the sub-purlin hangers are sure to be corroded even though they are covered over by the foil.

Why conduct regular inspections...

Early detection is helpful for many reasons and one primary is the cost factor. The cost to repair the damage from roof condensation when detected early on is significantly less than potentially waiting until the roof has completely deteriorated.

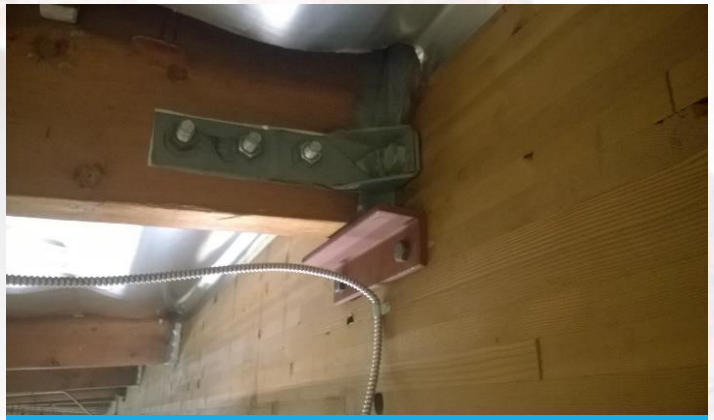
REPAIRS FOR ROOF CONDENSATION

VENTING & LEDGERING



NECKING OF NAILS

HANGER REPAIR



PURLIN HANGER REPAIR

WHY HAVE INSPECTIONS?

What proactive measures can be taken...

- Underside of Roof Inspections for condensation clues.
- Tenant operations, changes to allow moisture into the building.
- Inspect and look for roof leaks, skylights, all roof top equipment and any penetrations through the roof membrane.

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