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CONSULTATION REPORT

Inspector: Roger Hankey, ACI #269

Property: 205 Fictional Av Sample consultation, Destination, MN 553xx

01/12/15

Client: Brad Name Changed
205 Fictional Av. Real Consulation
Destination, MN 553xx

Lakeshore:
Manufactured:

Area: Suburb
Building Type: Single Family
Year Built: 1925
Levels: 2
Street Surface: Paved
Street Type: Residential
House Faces: North

Garage: Attached
Space Below Grade: Basement Crawlspace
Soil Condition: Damp Frozen Snow covered
Sky: Partly Cloudy
Precipitation: None
Temperature: 6
Start Time: 9:00 AM

Client Present:
Owner Present:
Agent Present:

Occupied:
Water On:
Electric On:
Gas On:

Consultation Report on 205 Fictional Av Sample consultation, Destination, MN

January 12, 15

MOISTURE INVESTIGATION CONSULTATION

Regarding:



Water damage below master bathroom

Purpose and Scope:

Identify & describe wet areas, investigate causes, and make recommendations. Visual examination of readily accessible areas.

Limitations:

The consultation examination was limited to the items and conditions listed in this report. No other items or conditions were examined. The findings and recommendations in this report do not constitute a warranty or guarantee against future water intrusion or water damage.

Information Provided:

The customer has owned this home since April 2011 and has had chronic water seepage during the past two winters in the wall and ceiling below the master bathroom. He has had portions of the wall and ceiling cut out to reveal the subfloor and water supply pipes to the hand wash basin located above the water damaged area. He reports that the water entering the subfloor is slight, always in the same location, and occurs only in cold weather.

Findings or Observations:

Exterior

No indications of water intrusion from the exterior were found.

Interior



The water damaged area was determine to be directly beneath the left side of the left vanity cabinet of the master bathroom. This was done by referencing the location of the hot water supply pipe and the supply air register in the bathroom floor.

A hole about 2.5" in diameter was found in the back panel of the hand sink base cabinet. A white PVC pipe visible in this hole is

consistent with the plumbing vent serving the two hand sinks on the exterior wall. This pipe runs horizontally in the space between the original wall surface and the back panel of the base cabinet.

One end of a coupling in this vent pipe is visible in the hole in the cabinet back panel. A drip of water was visible at this coupling. The joint between the PVC vent pipe and its coupling lacks any colored primer. A colored primer, typically purple, is normally used by plumbers as part of a two step process to clean and prime the pipe and fitting, prior application of the PVC solvent cement to join the pipe to the coupling. The joint on this vent pipe, and other visible joints in the traps and drains for the two hand sinks in this bathroom had no colored primer applied.

Some horizontal portions of this vent pipe were found to be exposed in the attic, as well at the vertical section. The attic was heavily insulated and cold enough that frost was found on the underside of the roof boards.

Portions of the attic insulation are compressed and displaced, particularly in the center near the vent pipes.

Attic vents include soffit vents with insulation baffles, standard box vents near the ridge, and at least one box vent mid slope on the roof, not far from the attic hatch.

Conclusions:

The drip at the vent coupling was wiped dry, but another drip formed again about a half hour later, after hot water had run for several minutes at the left basin.

The drip is consistent with the condensation of hot water vapor, rising in the vent pipe, condensing on the interior of the cold vent pipe in the attic, draining back down the vent until it reaches the coupling joint in the horizontal section of the vent behind the base cabinet and dripping out the poor joint in the coupling and onto the subfloor.

Condensation in the vent will NOT occur when the temperature of the vent pipe, particularly the attic portion, is above the dew point of the water vapor in the vent. The vent typically would not carry any liquid water since it above all other plumbing fixtures in the house.

The widespread frost in the attic is consistent with significant air leaks from the house into the attic. This is both a heat loss and the frosted roof boards increase the potential for fungal growth on the roof boards, particularly in early Spring when attic temperatures change rapidly from night to day and back. These conditions can cause the roof boards to stay wet for hours or even days.

The attic vent placed mid slope defeats from of the convection currents in the attic and probably reduces ventilation.

Recommendations:



Have a qualified plumber enlarge the hole in the back of the sink base cabinet and repair the dripping coupling in the vent pipe.

Before making any further repairs, wait at least a week after the plumbing repair is completed to verify that no further condensation leaks are present. If any further leaks are found, have them corrected.

Once the vent pipe leaks have been eliminated, have a qualified insulation firm make the following corrections and/or others they recommend:

- A. Install spray foam in the space between the back of the sink base cabinets and the original wall.
- B. Install spray foam in the rim joist area of the opened rear first floor wall.
- C. Find and seal all readily accessible air leaks from the house to the attic (attic bypasses) in the 2nd fl. attic, including installation of weatherstripping on the attic access hatch.
- D. Correct any displaced and compressed insulation in the 2nd fl. attic.

Have a qualified roofer replace the box vents with a ridge vent, and remove and roof over the existing box vents, including the mid slope vent.

Commentary:

If properly implemented with good workmanship, the recommendations made in this consultation report should reduce the potential for condensation in the attic, and leaks in the vent pipe. However, the dynamic interaction of water vapor, indoor air and cold surfaces can lead to hidden condensation and/or water damage. The recommendations in this report do NOT guarantee or warranty to eliminate all condensation or water damage.

Attachments:

The photos shown at thumbnails in this report are also presented postcard size, 4 per page in the attachment. The attachment captions are up to two lines only. The full text of the report is found in the main report, not on the photo supplement.

Thank you for this assignment.

An article entitled "The Unseen Drip" about this consultation was featured in the April 2015 ASHI Reporter, or can be read at hankeyandbrown.com/Moisture_Mysteries
