SCOPE
This document provides homeowners with an overview of approaches for flashing and sealing roof penetrations to help discussion with a roofing contractor.

PURPOSE
Proper flashing and sealing of roof penetrations prevents rainwater from leaking into the roof structure and house below.

BENEFITS
• Minimizes the risk of structural damage to the roof deck and framing due to water intrusion
• Minimizes the risk of moisture damage to the interior of the house that can cause mold and mildew

RETROFIT OPPORTUNITY
This retrofit can be done when repairing a roof or replacing the roof covering.

HAZARD AND RISK
Deteriorated or incorrectly installed flashing at roof penetrations such as plumbing vents, chimneys, and skylights can allow rainwater to enter through the roofing that can damage the roof structure and interior finishes. Visible water stains are usually the first indication water has leaked through the roof. Water will travel through the path of least resistance and may leave a stain far from where it first penetrated. Homeowners can inspect for water intrusion at roof penetrations by carefully looking for signs of leakage in the attic, water stains on the roof sheathing or even walls below, wet insulation, and deterioration of roof coverings and roof deck. The flow of water on the roof should be observed from inside if possible and outside while it’s raining and afterwards.

SOLUTION
Water intrusion at roof penetrations can be prevented by proper flashing. Flashing is required at plumbing vents, masonry and metal chimneys, exhaust vent caps, dormers, and skylights. Flashing must be integrated with the roof covering (e.g., shingles) and roof underlayment and installed shingle-fashion such that the top layer of the roofing or flashing laps over the bottom layer to prevent water from draining behind the bottom layer. Roofs should be inspected periodically, and flashing repaired or replaced as needed.
Sometimes replacing deteriorated flashing is the easiest solution to preventing water leakage at roof penetrations. In other cases, roof shingles may have to be removed to facilitate repair or replacement of damaged roof sheathing or flashing. It is important to choose products designed for the application to minimize leakage.

Enhanced sealing practices in high-wind and hurricane-prone regions can further reduce the risk of leakage at flashing due to wind-driven rain. Enhanced sealing practices, such as installing sealant between the flashing and roofing underlayment, can be integrated with the flashing and underlayment.

**TIPS**

- Flashing at penetrations should be repaired or replaced by a professional roofing contractor.
- Inspect for rainwater leakage at roof penetrations, during and after a heavy rain, from within the attic and from outside.
- Look for shingles that are loose, broken, missing, or deteriorated.
- From the attic check wood for signs of rot and metal for rust.
- Inspect gutters and downspouts and other flashing at roof-wall intersections, roof valleys, and drip edges along rakes and eaves.
- Do not rely on sealants as a substitute for proper flashing.
- Apply flashing cement or sealant at flashing/underlayment for enhanced sealing in high-wind regions.

**COST**

Costs can vary considerably depending on local rates and how much work the roofer is doing. The costs below are estimated ranges for a roofer to replace existing flashing; replacement would be less expensive during a roof replacement:

- Vent pipe flashing: $100-200
- Skylight flashing: $250-500
- Metal chimney flashing: $250-350
- Masonry chimney flashing: $500-900

**ADDITIONAL RESOURCES**

1. Insurance Institute for Business & Home Safety (IBHS): Tips on Hiring a Roofing Contractor
   [https://disastersafety.org/hurricane/how-to-protect-your-home-from-hurricanes/](https://disastersafety.org/hurricane/how-to-protect-your-home-from-hurricanes/)

2. Journal of Light Construction: Roofing Details That Work
   [https://www.jlconline.com/how-to/roofing/roofing-details-that-work_o](https://www.jlconline.com/how-to/roofing/roofing-details-that-work_o)