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AIRVENT UNIVERSITY LESSON PLAN December 2025

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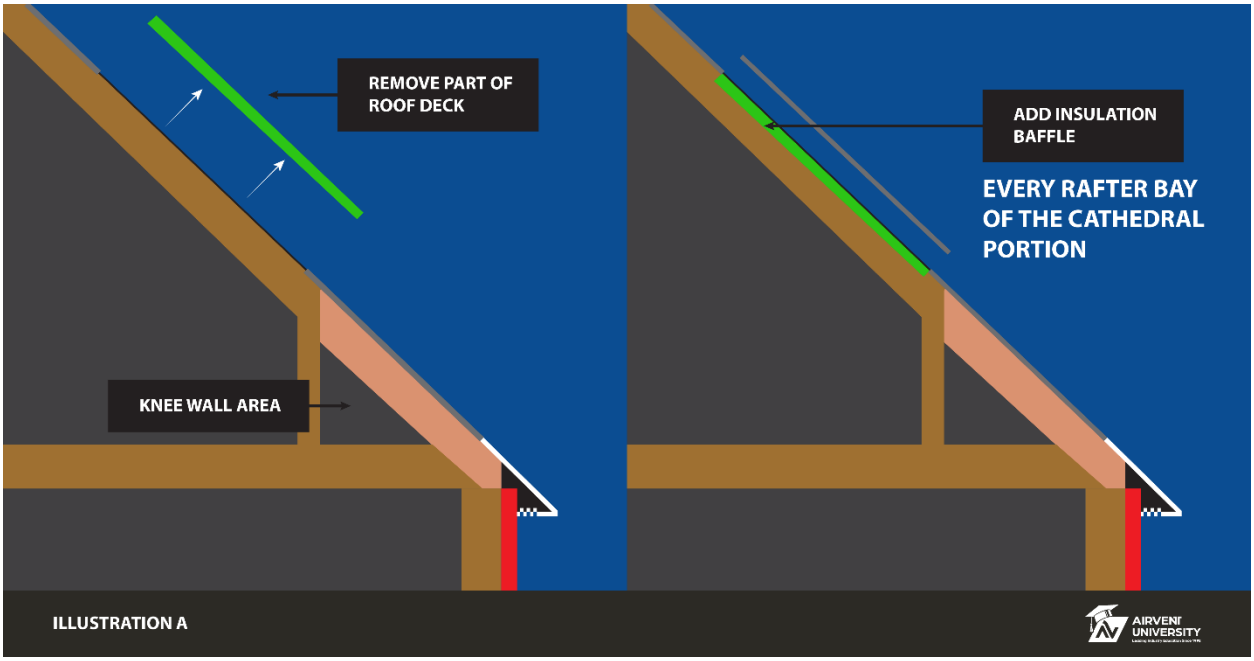
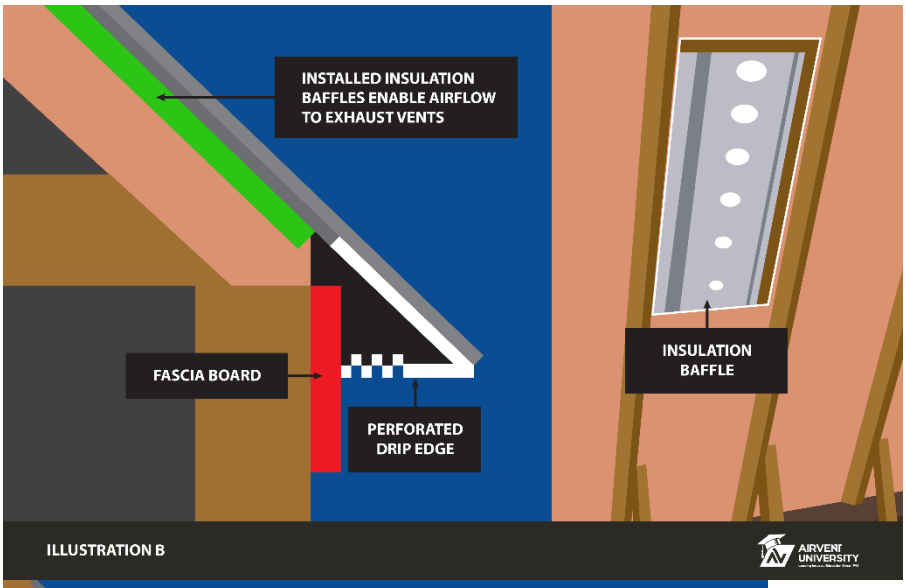
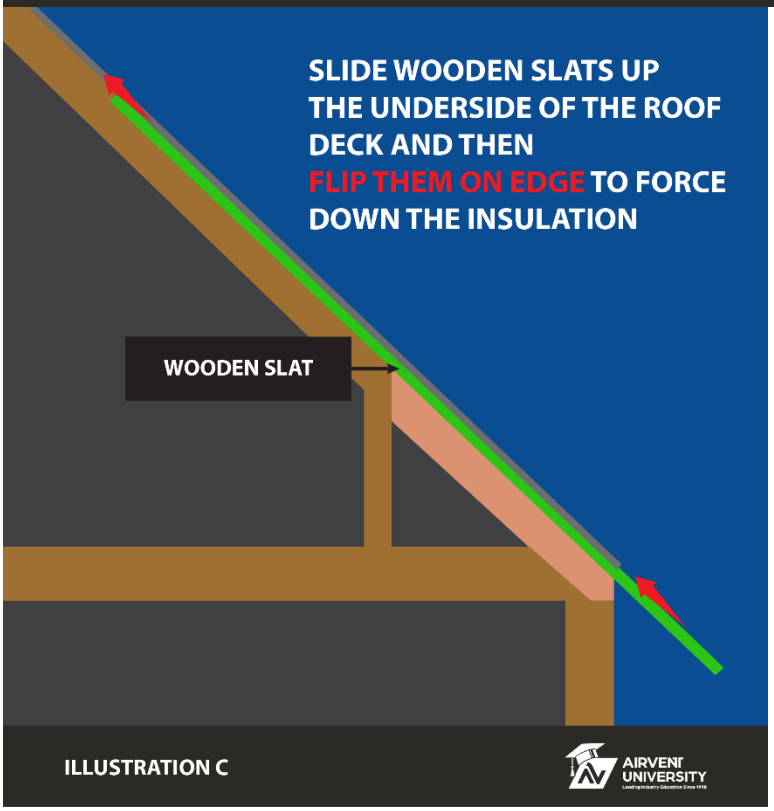
Venting an Attic with a Knee Wall.

A particularly challenging attic design for proper airflow is a “knee wall” – sometimes found in Cape Cod or Bungalow homes. A knee wall is short wall – usually about 3 feet in height – used to support the rafters. It creates a closed off, triangular section in the attic. Getting attic airflow past the knee wall is the catch. And it can get extra complicated if the roof does not have an overhang in which to install traditional intake vents. Here are some tips to consider.

If the roof deck is being replaced. If the roofing project requires replacing the roof deck, try placing attic insulation baffles in the rafter bays before installing the new roof deck. You will have access. The insulation baffles will provide the air space required for the air to flow from the intake vent to the ridge vent/exhaust vent in the vaulted area beyond the knee wall. If it is a roof without overhangs you can install roof-top intake vents or a perforated drip edge. Be sure that the insulation baffles are placed in every rafter bay and the full length of the cathedral portion so that the entire roof area can be ventilated. (**See illustration A**).





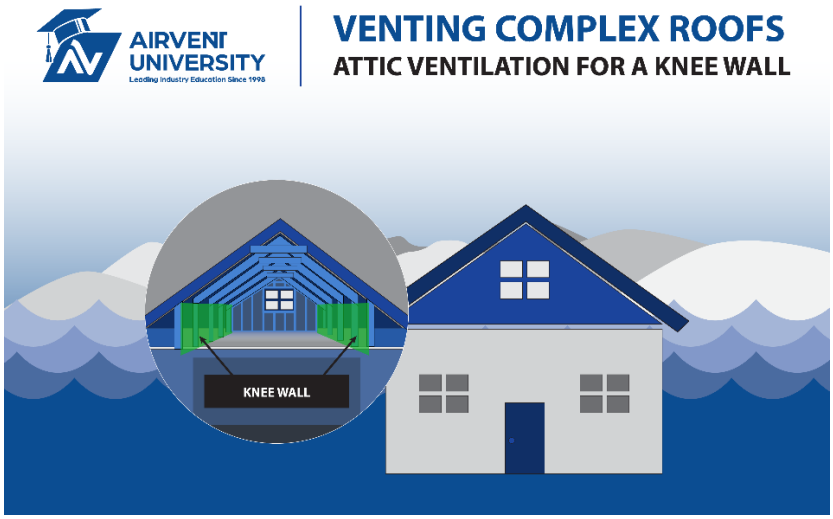


If the roof deck is not being replaced. You are not going to have easy access if the roofing project does not include replacing the roof deck. But it still might be possible to create an airflow path for a knee wall. In many Cape Cod style homes with knee walls, the vaulted portion above the second floor is densely packed with insulation. To open this area for airflow, consider this:

Slide wood slats up the underside of the roof deck and then flip them on edge to force down the insulation. You are compressing the insulation a bit to create an airflow channel, sacrificing some insulating capability in exchange for gaining attic airflow to help remove heat and moisture. This works nicely for short spans. It is easiest to do this if the fascia can be pulled down to allow access to the underside of the roof deck from outside the house. Someone can feed the wood slats from outside while someone in the knee wall guides the slats to ridge. Once the slats have been positioned it may then be possible to slide insulation baffles up in the space that has now been created, like snaking a wire. (**See illustrations B and C**).

The best time to insert the wood slats is when all the roofing nails are removed prior to installing the underlayment and the shingles. Use enough to try to get the air space even across the bay, regardless of width. Aim for an overall area equal to a ¾-inch gap across the entire bay. Some contractors have told us instead of using wood slats they have successfully used PVC piping or even a gutter downspout.

Consider gable vents. If the vaulted ceiling portion is too tightly packed and/or you cannot use either roof-top intake vents or perforated/vented drip edge for intake, consider cross ventilating the knee wall space using gable louvers in the ends of the knee wall. Along those same lines, vent the upper attic portion (the vaulted ceiling portion) between the two vented areas (the knee wall and the attic). This may not be ideal, but it is better than no ventilation at all. It will help get rid of any moisture being introduced to the vented spaces, and it may also help with some of the moisture in the vaulted area.



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