Tapered Roof Insulation

The performance risks associated with a roof that does not have positive drainage have been known in the roofing industry for many years and are covered further in the Roof Decks Section of this manual. Tapered InsulFoam offers the designer an easy and economical means of adding positive slope to virtually any building. With a trained tapered design staff at every location, Insulfoam can efficiently assist roofing professionals with recommendations on designing, ordering and installing Tapered InsulFoam insulation systems. To facilitate the installation process, Insulfoam provides detailed shop drawings for every Tapered InsulFoam project.

Tapered InsulFoam systems can be used for new, re-roof and re-cover projects. Assemblies can include complete and integral systems that incorporate sloped panels for the field of the roof as well as crickets and saddles to further assist in directing water to drainage outlets.

There are several basic elements that should be considered for every project: minimum slope required, locations of drains (internal and external), mechanical equipment, curbs, expansion and control joints, allowable overall insulation thickness (imposed by parapets or equipment curbs), and alternative system layouts. Alternative tapered layouts and additional roof drains should be considered when existing project conditions limit the performance of a system.

Tapered InsulFoam is available in six standard slopes: “A” panels have a slope of 1/8" per foot, “B” panels have a slope of 3/16" per foot, “C” panels have a slope of 1/4" per foot, “D” panels have a slope of 3/8" per foot, “E” panels have a slope of 1/2" per foot and “F” panels have a slope of 3/4" per foot. Custom slopes are available upon request. To facilitate installations, each panel is hand-labeled at the Insulfoam plant. Tapered InsulFoam panels can be provided in thicknesses up to 40" from most Insulfoam manufacturing locations.

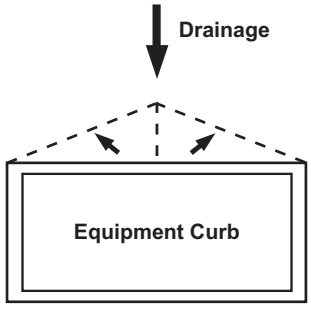
The ability to produce specific panels (up to 40" thick) for each course of insulation eliminates many of the complexities associated with those tapered insulation systems in which individual panel thickness is limited to approximately 3". With fewer pieces to handle, Tapered InsulFoam systems are significantly less labor-intensive to install. In addition, pre-cut ridge and valley panels are available. These panels are typically cut to 45° angles, though other angles can be provided upon request. Tapered InsulFoam panels can also be easily fabricated on site by the roofing mechanic.

Crickets and Saddles

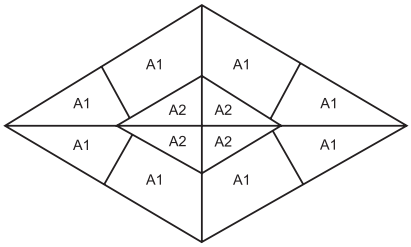
Directing water to or from specific areas of the roof can be achieved quite easily with Tapered InsulFoam cricket and saddle systems. These materials can be used with numerous other insulation systems or integrated into a total Tapered InsulFoam package.

In the roofing industry, the terms cricket and saddle are often used interchangeably. For this manual, the term saddle is defined as a relatively small, elevated area of a roof that is constructed to divert water around a chimney, curb or other projection.

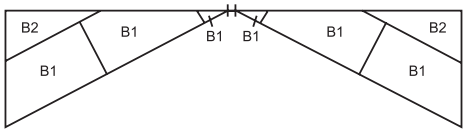
An example is given below.



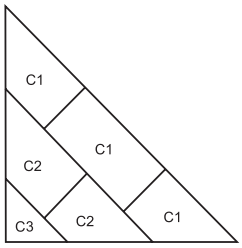
A cricket is defined as a small structure that directs surface water to drains, frequently located in a valley, and often constructed like a small hip-roof or a pyramid with a diamond shape base. Several examples are given below.



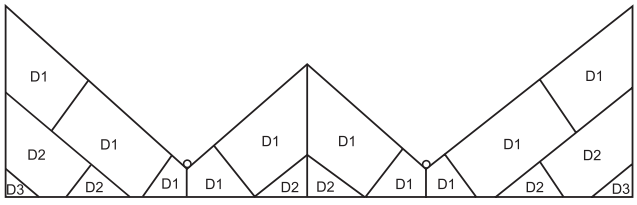
Diamonds Between Drains



Drain To Scuppers



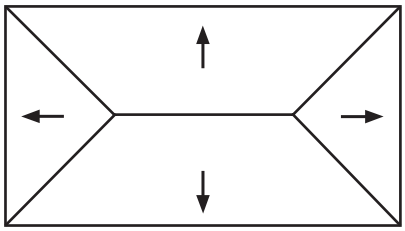
Drain Corners



Inset Perimeter Drains

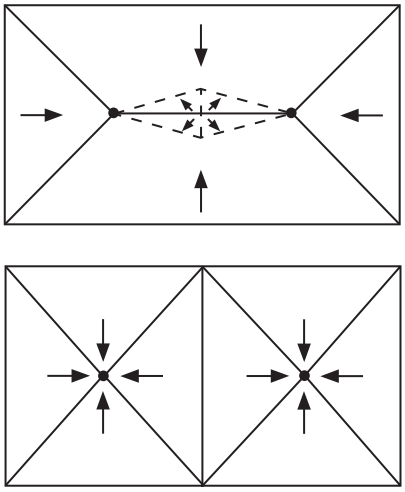
Tapered Insulation System Options

Continuous Perimeter Drainage A simple tapered insulation solution for moving water from the field of the roof to the gutter edge is a full or partial hip-style tapered insulation design. A hip-style layout is well suited for buildings that can drain water freely around the entire perimeter. In the following example, the arrows indicate the direction in which the water will drain.

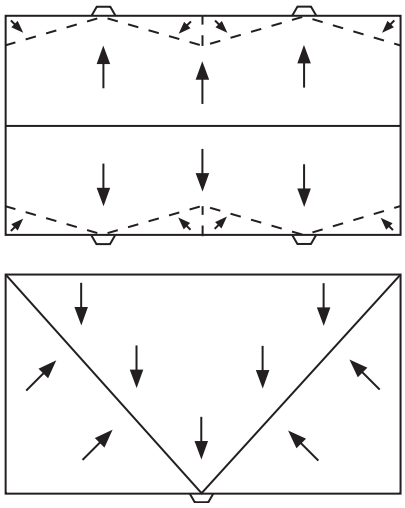


Interior Drains and Parapet Walls A common tapered insulation solution for buildings with parapet walls and interior drains consists of compound mitered panels with overlay crickets. In the field of the roof, the tapered system will divert the water away from the parapets, while the crickets (dashed line) and mitered panels will direct water into the valleys and towards the drains (shown as dark circles).

Note: Even if not required by local building codes, consideration should be given to have backup or overflow drains at each drain location. Set slightly higher, the backup drain will provide a safety outlet in the event the primary (lower) drain becomes obstructed or clogged.



External Drains and Parapet Walls If the building has parapet walls around its perimeter and exterior drains (scuppers, shown as trapezoids), a combination of sloped field-panels can be used to form a ridge in the center of the roof, and be overlaid with factory-fabricated crickets (dashed lines) to direct the water away from the parapets and towards the valleys and scuppers.



Buildings with multiple sections often employ combinations of all the systems previously shown. Insulfoam can provide assistance in determining which alternatives best suit your needs.