

RSI Article –  
Looking at the “Hole” Story

Information Sheet

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# Looking at the 'hole' story

**V**enting base sheets are hardly new to the roofing industry. "Pressure-equalizing layers" were common in German roofing specifications as early as the 1950s. Werner Schuller applied for a U.S. Patent in 1958, with the patent issuing in 1964.

In those days, the base sheet used coarse granules on the bottom side, and was installed by nailing or spot-mopping. The Schuller patent used a perforated glass mat, so that "controlled spot mopping" could be accomplished by laying the sheet dry, and subsequently attaching it when hot bitumen or cold adhesive was applied over the top.



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The U.S. version of a venting base sheet used finer granules, embossing conventional roofing granules into a

waffle pattern for better lateral venting. This also eliminated the perforations. In order to avoid filling in and blocking the embossed channels, the sheets were installed by nailing or spot-mopping. Strip-mopping frequently resulted in blockage of the vent paths, with blistering as the result.

This waffle pattern was patented and the trade-name "Ventsulation" assigned. When the patent expired, similar products such as single direction "Channel-vent" and waffle-channeled "Vapor-Channel" followed.

Advantages for only partially attaching these sheets are:

If the substrate develops cracks, the sheet can bridge the widening cracks without suffering excessive shear stress.

If vapor pressure is generated from entrapped air or moisture, the pressure can

be dissipated laterally through the channels or granules without the roof membrane blistering or delaminating.

This may provide a cost-effective alternative to non-foam overlays when isoboard insulation is used in MB or BUR installations.

The concept of using a prepunched base sheet, mentioned in the Schuller patent, originated in Canada. The glass mat was pierced prior to application of asphalt coating and granules. A British patent awarded to Permanite Limited also cited the prepunching of the base sheet.

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That was issued in 1967.

The Peace River Glass Company (became part of Schuller Corp.) provided punched glass mat to Canadian manufacturers, who produced base sheets with trade names such as But'n Base and Durovent. The idea was that the punched base sheet could be laid dry over appropriate substrates (such as concrete), and when asphalt was hot-mopped to set the first roofing ply, the bitumen would flow through the "holey" base sheet and provide "controlled" spot attachment. Reports on the Canadian product were very favorable, even when installed in extreme wind exposures.

The punched product has been available as GAFGLAS "Stratavent" for some 28 years. In fact, an unpunched version is used for nailable applications, such as light-weight insulating concrete. In that case, special expanding fasteners are needed. But the punched versions is finding utility not only in the traditional applications such as on structural concrete and in reroofing, but as a divorcing sheet for direct application to polyisocyanurate roof insulation.

The GAF Materials Corporation has recently redesigned the perforation pattern of Stratavent, receiving a patent in 1999 for the improved product. The redesigned perforation pattern greatly increases the FM Wind Uplift ratings. Classes exceeding 1-180 are now available, suitable for even the extreme uplift pressures found on corners and perimeters of most buildings. For steel decks using isoboard insulation, FM 1-135 has been achieved. In the perimeters and corners, only the isoboard requires upgraded attachment to the deck. The mopped base sheet is acceptable without supplemental anchorage.

Industry experience with venting base sheets, punched and unpunched, has been outstanding over the last 40 years or so. Most roofing contractors admit they have seen no significant blistering when they are used, even when the roof has been installed over marginal substrates.

The glass-based venting base sheets are covered under ASTM Specification D 4897. Two types are offered, with most product now meeting the strength requirements for the stronger Type II product. Both perforated and non-perforated products are included in the scope.

For BUR, composite and MB roofing, venting base sheets have been real problem solvers. With the NRCA concerns for blistering over isoboards these prepunched sheets deserve a closer look. **RSI**