**SOLDERED-SEAM COPPER ROOFS**

Many old slate and tile roofs have low-slope “soldered-seam” metal roofs abutting or adjoining them. They’re usually found on porches, bay windows, mansard roofs, and two-story additions and are most often made of terne metal pans, and sometimes copper pans, soldered at their flat-lock seams, hence the name “soldered-seam,” “lock-seam,” or “flat-lock” roofs.

The best way to repair a

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Demo soldered-seam copper roof section under construction at a workshop conducted by Jenkins Slate Roofing Services, Grove City, PA, and taught by Keith Schorr of Butler, PA, showing drip edge and one pan installed over rosin paper (above). Participants included (left to right, below) Doug Lodge, Keith Schorr (with hat), Dave Kunz, Brent Ulisky, Barry Smith, Stacy Moore, and Orion Jenkins, all gathered around the finished roof section. This workshop will soon be available on videotape — stay tuned at jenkinsslate.com.

**Staggered Butt Slating**

Above: Manuel Avila, crew foreman (left); Ron Stokes, owner of The R.W. Stokes Co., (center); and Juan Avila (right), re-slatting Glenridge Hall.

Below: Staggered butt and ragged butt slating styles yield roofs that are both functional as well as artistic. See page 3 for hints on how to install this sort of slate roof.
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The best way to repair a leaking soldered-seam metal roof is the same way flashings are repaired on slate or tile roofs: the old metal is completely removed and then replaced. When the old terne metal is removed, it should be replaced with new terne-coated stainless steel or 20-ounce copper. 16-ounce copper will work too, but for the smaller extra cost and the promise of a metal roof that can last a century with little maintenance, the 20-ounce copper would be preferable (and the stainless the most durable). It has become difficult these days to find roofing contractors who can and will do flat-lock metal roof work, and it is even more difficult to find information or instructions on how to do this sort of work, which is why we have included it in this issue of Traditional Roofing.

The flat-lock roof starts with a drip edge piece (see illustration below). The field of the roof is then covered with metal pans which can be various standard sizes, the most common perhaps today is a pan 24" X 18".

The flat pans are cut, the corners are snipped off at approximately a forty-five-degree angle, then two adjacent edges are folded up and the opposite two adjacent edges are folded down, the folds being 1/2" to 3/4". The pans are fastened to the roof with cleats, these being made of the same metal, approximately 1.5" X 2", with a fold equal to the folded seam on the pan (1/2" to 3/4"). This fold is fit into the pan seam, and the other end is nailed to the roof deck with two nails, then folded over the nail heads. Two to three cleats are recommended on the long side of the pan and one to two cleats on the short side. The seam is then hammered down with a dead blow hammer and soldered with 50/50 tin/lead solder or other suitable solder. Roof protrusions such as vent pipes are fit closely around the base with a pan, then a sleeve is fabricated with a flared bottom that is riveted to the pan and soldered in place.

More information about soldered-seam metal roofing can be found in the Slate Roof Bible, 2nd edition (see inside front cover).