GR GREEN SLATE™
Installation Guidelines ©

September 2012

Disclaimer Notice
The following Installation guidelines are required for best product application results, and to qualify for GR GREEN product warranty. Installation is the responsibility of the roofing contractor who should proceed in accordance with applicable building code requirements. It is the responsibility of the roofing contractor to independently research and determine which installation methods are appropriate to comply with code requirements in the jurisdiction of their operations.

General:

Due to the composition of the natural substances contained in GR GREEN SLATE™ slight shade variations will exist in each pallet and from pallet to pallet. When starting to install product from a new pallet, it is recommended to inspect the new product to ensure its colour shade is similar to the colour shade of the product from the previous pallet. Periodically during the installation, inspect the work from a distance to ensure that color patterns do not appear.

To avoid damage to tiles it is recommended to stack pallets a maximum of 2 pallets high. Cold temperatures may cause some difficulty with installation of GR GREEN SLATE™ tiles. It is recommended to store the tiles in an area above 8 degrees C. (45F) prior to application. The minimum recommended temperature for installation of GR GREEN SLATE™ tiles is 8 degrees C (45F). If installation above 8 degrees C (45F) is not possible, a pre-drilled pilot hole in each of the two nailing locations may be necessary to avoid tile cracking.

Roof Pitch:

GR GREEN SLATE™ roofing needs a minimum slope of 1:3 (4" in 12") to achieve required runoff to a maximum slope of 21” in 12”.

Roof Deck:

Plywood for roof decks shall conform, as a minimum, to the requirements of the Building Code; but it is strongly recommended, for better nailing and less deflection, that the following be used: 12.7 mm (½") thick when supported at 400 mm (16") o/c or 15.9 mm (⅝") thick when supported at 600 mm (24") o/c

Wood decks constructed of shiplap and dimensional lumber shall be overlain with sheathing that conforms to CSA 0151-04, Canadian Softwood Plywood, Grade C or better; or CSA 0121-M 1978 (R2003) Douglas Fir Plywood, Grade C or better. Minimum thickness of 9.5 mm (⅜").

Underlayment:

Slate should have ice dam protection at the eaves and an underlayment of #30 asphalt saturated felt laid perpendicular to the slope with end laps min. 100 mm (4") and 100 mm (4") laps on successive courses. Valleys should be run vertically with field rolls overlapping at least 300 mm (12"). Hips and ridges should be overlapped 300 mm (12") in both directions.

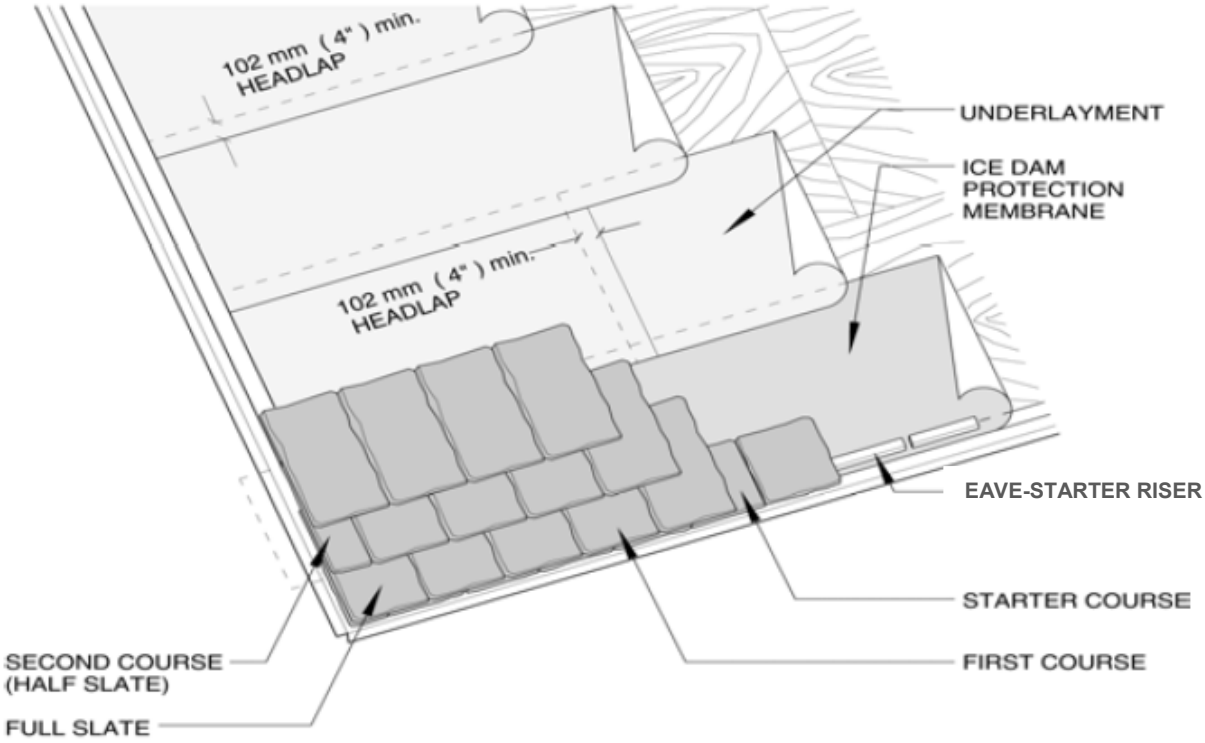

Figure 1: Underlayment detail and GR GREEN SLATE™ Application

Eave-Starter Riser: For standard hanging eaves-trough detail at bottom of roof, prior to installing underlayment install a continuous 2 inch wide strip of ¼ inch plywood flush with eve overhang using 2" Galvanized common nails on 16" centers. This will perform the function of kicking up the first row of slates, such that the second and subsequent rows of slate sit at the same plane as the first slate (similar to using a starter course on a cedar shingle or shake roof).

Starter Course: Cut standard 18" long slate tiles 10 1/2" from bottom (for 7 1/2" standard exposure), and use bottom portion of cut as first course. Save the cut tiles (tops) for top rows further up the roof. Space each slate tile a minimum of 3/8" and a maximum of 1/2" apart. Install at ¾" beyond the overhanging drip metal edge and underlayment for a total of a 1.25" to 1.5"minimum overhang past the fascia for the eaves-trough. Overhang rake edge by ½ to ¾ inches.

Main Slate: It is critical to space tiles a minimum of 3/8" and a maximum of 1/2" apart from one another. Center tiles over the space on the starter tiles and proceed along the starter row aligning the bottom of each tile with the bottom of the starter course. Follow through on the 2nd and each successive course with an exposure of 7 1/2 inches. It is VERY IMPORTANT to ensure both vertical straightness and horizontal evenness. This is possible by the use of horizontal chalk lines every 5-7 rows, and the use of a vertical chalk line at the centre point and additional lines every 15-20 feet to the right and left as the tiles are installed.

Fasteners: Each tile shall be secured with two - 14-gauge corrosion resistant nails (electro-galvanized, hot-dipped zinc, aluminum or stainless steel, Type 304 or 316) placed approximately 25 mm (1") from each edge and approximately 38 mm (1-1/2") above the butt line of the following course. Nails shall be of sufficient length to penetrate the underlying sheathing a minimum of 20 mm (3/4") or, in the case of plywood, completely through the sheathing. Nail heads shall be driven flush and tight but not so the nail head crushes the tile, refer to figure 2. Power staplers and staples or T-nails are not permitted. For small pieces, pre-drill pilot holes to avoid splitting.

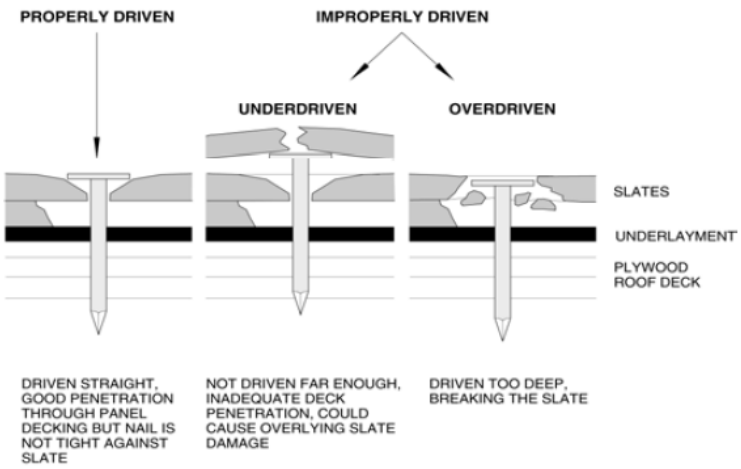

Figure 2: Proper Nailing

If a pneumatic nail gun is used, check setting on the pneumatic gun to ensure the nails are not under or overdriven.

Valleys: After valley flashings are installed keep laying GR GREEN SLATE™ tiles into the valley. Do not nail tiles within 6 inches of center of "W" crimp on valley metal. Notch the top-inside corners of the tiles in the valley as necessary this will avoid any redirection of water flow behind slates. Ensure all cuts are neat and straight.

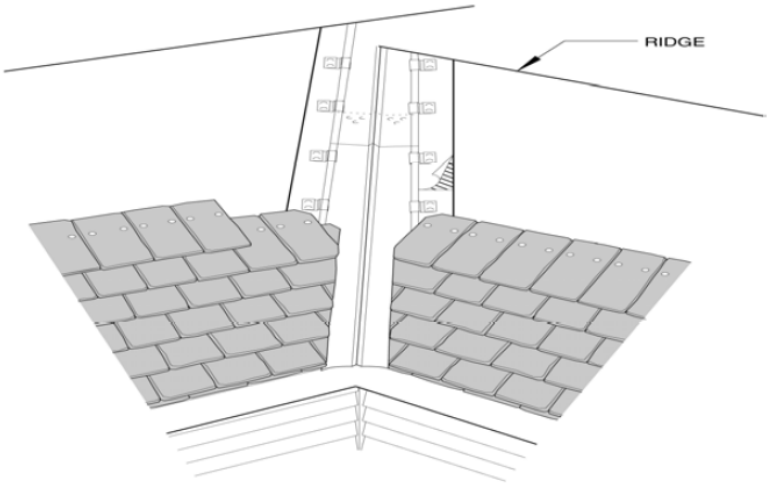

Figure 3: Valley Detail

Ridges – Comb Ridge
For ridges, a Comb Ridge installation method is to be utilized. In the "Comb Ridge", GR Green Slate™ is laid such that the ridge tiles on the prevailing weather side of the ridge are extended beyond the ridge line. It is recommended that the extended or top combing course project 1/8 to ¼ of an inch to provide an uniform finish. Tiles for the Comb Ridge should have the same width as the length of exposure used on the main roof.

For roof installations where the exposure used on the main roof is 7 ½ inches, pre-cut ridge cap tiles 7 ½ wide by 18 inches long are available from GR Green Building Products.

The exposure of the combing tiles should be the same as the exposure used on the main roof.

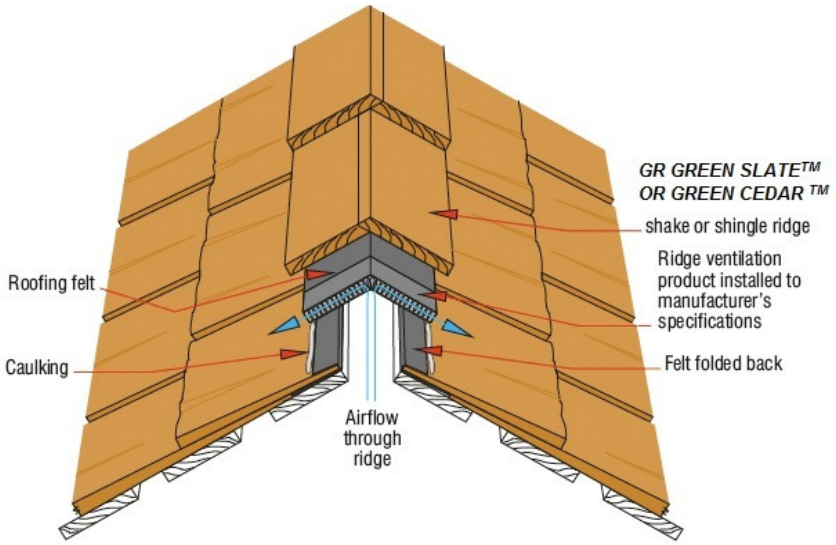

Figure 4: Comb Ridge shown with GR GREEN SLATE™ Application

Note: It is recommended that continuous roof vents are installed along ridges.

Hips – Comb Hip
For hips, a Comb Ridge installation method is to be utilized. In the "Comb Hip", GR Green Slate™ is laid such that the hip tiles on the prevailing weather side of the hip are extended beyond the hip line. It is recommended that the extended or top combing course project 1/8 to ¼ of an inch to provide an uniform finish. Tiles for the Comb Hip should have the same width as the length of exposure used on the main roof.

For roof installations where the exposure used on the main roof is 7 ½ inches, pre-cut ridge hip tiles 7 ½ wide by 18 inches long are available from GR Green Building Products.

The exposure of the combing tiles should be the same as the exposure used on the main roof.

Cutting Tiles: GR GREEN SLATE™ Tiles can be cut with a standard circular saw, or for quick cuts, scored with a utility knife and snapped. Once scored, ensure to snap over a straight edge to create an even line.

Cutting Field Tile Starters on site: From a full 11 X 18-inch GR GREEN SLATE™ tile, the starters are cut 101/2 inches from the bottom of the tile with a standard circular saw, leaving a 11 X 10 1/2 -inch starter tile.

Additional Information:

Snow diversion accessories are necessary in regions where snow and ice exist and should be installed in accordance with the architect or engineer's specifications

To ensure proper ventilation follow recommended standards as required by building codes or contact your architect, engineer or building contractor

Environmental / Recycling Commitment

GR Green Building Products is committed to minimizing the impact our production process and our products have on the environment. The plastic GR Green uses as raw materials for its products is 100% recycled. Our production process is zero waste. To minimize the impact our products have the landfills, GR Green will accept all trim and excess material from a roofing installation for reprocessing into finished roofing products. We believe this is a first in the roofing industry.

Roofing applicators are encouraged to return all excess finished products for credit. Additionally, during installation of a roof, applicators are to place all excess trim materials with nails removed into a separate container. For installations in excess of 2000 square feet, GR Green will supply a cardboard gaylord or a bulk bag for use as the separate container for excess trim materials. Roofing applicators are encouraged to return excess trim to GR Green's plant for reprocessing. The will practice will minimize landfill waste and reduce costs by eliminating dumping fees.

Roofing applicators that do not separate excess trim materials with nails removed and return these materials to GR Green's plant will be considered as not complying with GR Green's recycling policy. GR Green reserves the right to cancel outstanding orders to roofing contractors that do not comply with GR Green's recycling policy.

Questions: Please call for assistance with any product related questions 778 855-2549