



GR GREEN CEDAR™ 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 CEDAR™ 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 shingles it is recommended to stack pallets a maximum of 2 pallets high. Cold temperatures may cause some difficulty with installation of GR GREEN CEDAR™ shingles. It is recommended to store the shingles in an area above 8 degrees C. (45F) prior to application. The minimum recommended temperature for installation of GR GREEN CEDAR™ shingles 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 shingle cracking.

Roof Pitch:

GR GREEN CEDAR™ 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 (5/8") 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 (3/8").

Underlayment:

Shingles 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.

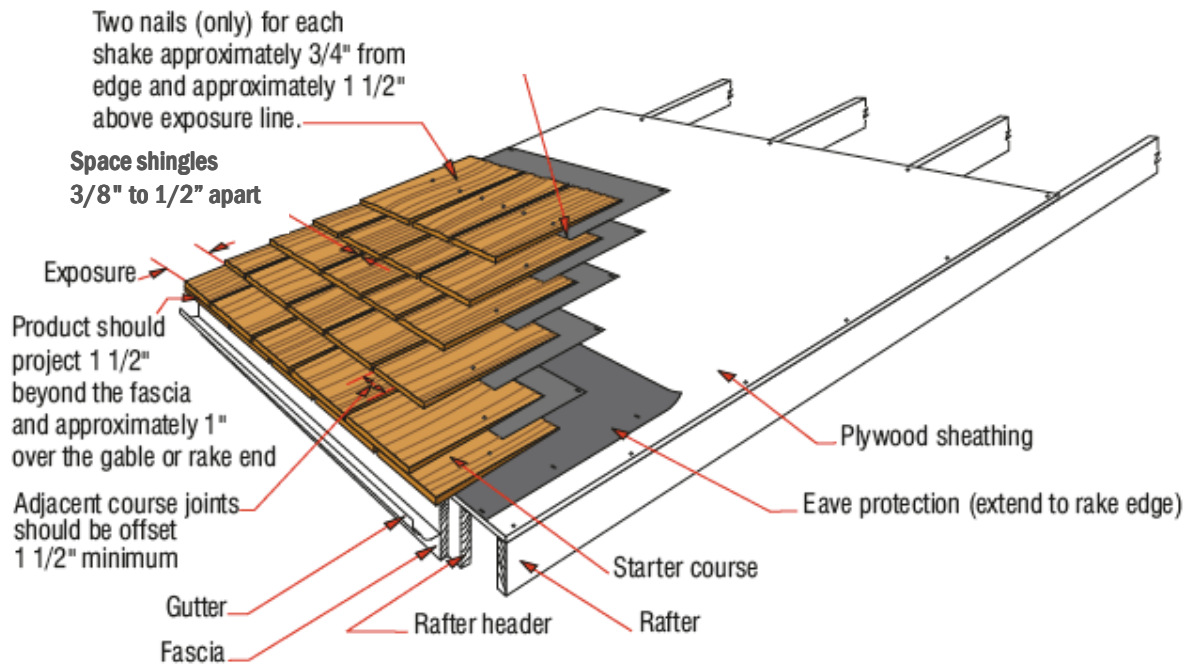


Figure 1: GR GREEN CEDAR™ Application

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 eave overhang using 2" Galvanized common nails on 16" centers. This will perform the function of kicking up the first row of shingles, such that the second and subsequent rows of shingles sit at the same plane as the first row of cedar shingles.

Starter Course: Cut standard 18" long cedar shingles 10 1/2" from butt (for 7 1/2" standard exposure), and use bottom portion of cut as first course. Save the cut shingles (tops) for top rows further up the roof. Space each cedar shingle a minimum of 3/8" and a maximum of 1/2" apart. Install at ¾" beyond the over hanging 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.

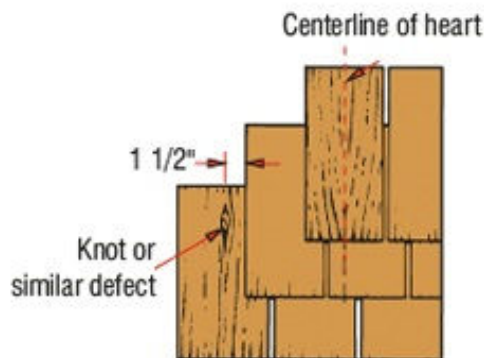


Figure 2: Course Alignment shown with GR GREEN CEDAR™ Application

Note: Felt underlay for GR Green Cedar™ is not to be interlaid.

Main Course: Space shingles a minimum of 3/8 inches and a maximum of 1/2 inches apart to allow for expansion as well as true shingle appearance. Locate shingles over the space on the starter shingles and proceed along the starter row aligning the bottom of each shingle with the bottom of the starter course. Follow through on the 2nd and each successive course with an exposure of 7 ½ inches. Keyways must not be aligned and must be a minimum of 1 ½ inch offset from the course above. 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 shingles are installed.

Fasteners: Each shingle 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 shingle, refer to figure 2. Power staplers and staples or T-nails are not permitted. For small pieces, pre-drill pilot holes to avoid splitting.

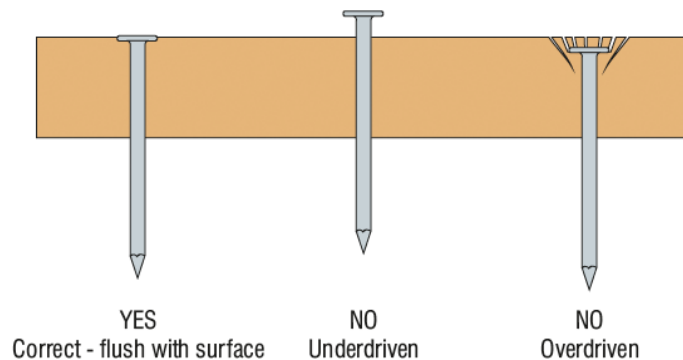


Figure 3: Proper Nailing

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 CEDAR™ shingles into the valley. Do not nail shingles within 6 inches of center of “W” crimp on valley metal. Notch the top-inside corners of the shingles in the valley as necessary this will avoid any redirection of water flow behind shingles. Ensure all cuts are neat and straight.

Ridge Capping: GR Green Ridge Caps for GR Green Cedar™ are available from the factory with pre-formed “V” angles and are used for aesthetic appearances only (use of flashings and/or waterproof peel and stick will guard against water penetration).

GR Green Cedar Ridge Caps are available with three different pre-formed “V” angles of 45, 60 and 90 degrees. The ridge caps are 11” by 18” with each side of the ridge or hip approximately 5 ½ inches wide. The roofing contractor is to select which preformed “V” angle will best suit a particular application.

The Ridge Caps are installed with 7 ½ inches exposure, and using 2 nails for each side of the cap (total of 4 nails per cap).

Comb Ridge

As an alternative to using GR Green's pre-formed ridge caps, a Comb Ridge can be installed. In the "Comb Ridge", GR Green Cedar™ is laid such that the ridge shingles 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 1/4 of an inch to provide an uniform finish. Shingles 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 1/2 inches, pre-cut ridge cap shingles 7 1/2 wide by 18 inches long are available from GR Green Building Products.

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

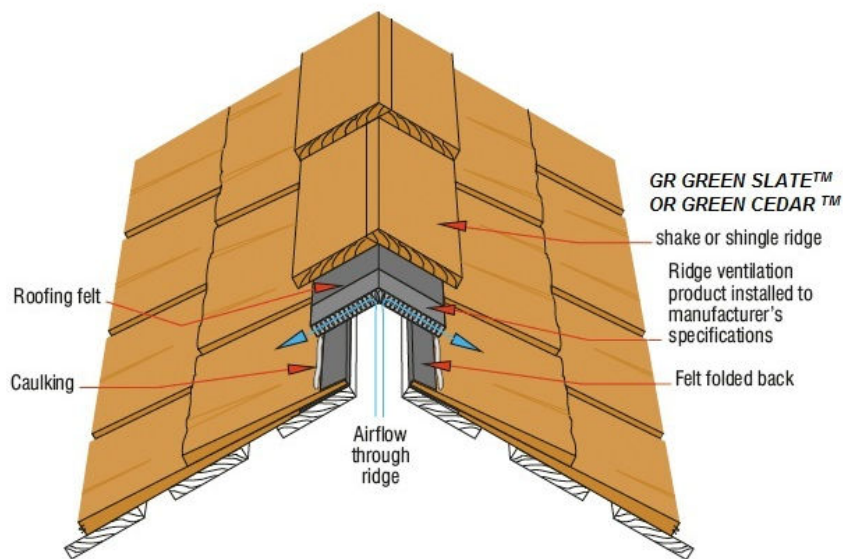


Figure 4: Comb Ridge shown with GR GREEN CEDAR™ Application

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

Hip Capping: GR Green Hip Caps for GR Green Cedar™ are available from the factory with pre-formed "V" angles and are used for aesthetic appearances only (use of flashings and/or waterproof peel and stick will guard against water penetration).

GR Green Cedar Hip Caps are available with three different pre-formed "V" angles of 45, 60 and 90 degrees. The hip caps are 11" by 18" with each side of the ridge or hip approximately 5 1/2 inches wide. The roofing contractor is to select which preformed "V" angle will best suit a particular application.

The Hip Caps are installed with 7 1/2 inches exposure, and using 2 nails for each side of the cap (total of 4 nails per cap).

Comb Hip

As an alternative to using GR Green's pre-formed hip caps, a Comb Hip can be installed. In the "Comb Hip", GR Green Cedar™ is laid such that the hip shingles 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 1/4 of an inch to provide an uniform finish. Shingles 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 shingles 7 ½ wide by 18 inches long are available from GR Green Building Products.

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

Cutting Shingles: GR GREEN CEADR™ shingles 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 Shingle Starters on site: From a full 11 X 18 inch GR GREEN CEDAR™ shingle, the starters are cut 10 ½ inches from the bottom of the shingle with a standard circular saw, leaving an 11 X 10 ½ inch starter shingle.

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 contactors that do not comply with GR Green's recycling policy.

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