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Check list for Metal Installs:

- Install crew watches all the installation videos pertaining to the profile they are about to install.  
  Link to our install videos: http://www.matterhornmetalroofing.com/slate-and-shake-install/

- Install crew reads the shake/install manual pertaining to the profile they are about to install.  

- The install crew foreman has a written copy of the install guide on site throughout the job for reference.
- All the tools listed in the install guide be on site throughout the install.
- Trainer has the opportunity to review the material list against the roof report/blueprint to confirm the correct material will be on site.
- Install specialist needs to have the project address and contractor’s name/phone number
- Roof is stripped and dried in before our Matterhorn install specialist arrives to the jobsite.
- Our trainer to be notified of changes in the schedule 48 hours prior to the start date/time.
Tools & Accessories

Required Tools
Minimum recommend tools and equipment:
The standard set of tools and equipment in the general roofing trade.
Including: Cordless driver, snips, tape measure, electric metal saw, caulking gun, chalk line, hand seamer/hemming tool, gloves, square, felt tipped marker, needle nose pliers and a small flat head screw driver.

Special Additional Tools:
Not needed to complete the job but can improve install procedures and provide an overall finished look.

Accessories
Most available through local roofing distributors:
Caulk: Butyl or urethane caulk/sealant
Tape: Butyl tape, or flashing tape on a roll, for side and end wall flashing
Boots: For vent pipes with metal sealer ring
Snow Guards: Should be placed as needed, and always refer to the manufacturing instruction guide when installing. Refer to local distributor for more information.
System Components

Shake Slate Install Tips: Make your first Matterhorn® install, a success! Please share with your install crew:

- A unique feature of Matterhorn® is the starter. The EL Drip Edge is the starter for the field panels. Drip edge on an asphalt roof doesn’t have to be perfectly parallel to the ridge, but with Matterhorn it does. Measure down from the ridge to the eve on both ends of the roof plane. Determine the common measurement, then caulk a line. The drip edge is then installed to the chalked line. Drip edge has to be 100% straight. Very similar practice compared to installing the starter strip for vinyl siding.

- Only one retention clip per panel. The panels have a recessed pocket on the left side for the clip to sit in. Then the following panel’s leading edge (right side) gets tucked inside the return on the clip. Three tricks to the clips:
  - Ensure clip is installed securely within the pocket.
  - Screw down flush to the clip but don’t over tighten. If you over tighten the screw it causes the opposite side of the clip to rise off the surface of the panel. Similar to a teeter totter. If this happen, the next panel being tucked into the return of the clip will be elevated slightly. Elevated panels could be noticeable, creating an unfavorable appearance.
  - Leave a 1/8” space from the right side of the clip from the right side of the recessed pocket during installation. As the screw is driven in, the clip will flatten towards the right side of the recessed pocket.

All screws used while installing Matterhorn® Slate or Shake must be of a recommended screw type. Screws must be long enough to penetrate the roof deck. Refer to diagram on page 7.
Installation Sequence

1. Install T style drip edge straight and square to the roof plane. To ensure it does not follow any wave in the fascia, measure down from the ridge to the eave on both ends of the roof plane. Determine the common measurement then chalk a line. (See Page 7)

2. Install applicable underlayments based on slope requirements. (See Page 7)

   • > 4/12: DiamondDeck® synthetic underlayment must be installed prior to the installation of the metal roofing products. WinterGuard® Metal/WinterGuard® HT high temperature self-adhering underlayment is required in all valleys and eaves—refer to local building code.

   • 3/12 to < 4/12 slope: WinterGuard® Metal/WinterGuard® HT must be used over the entire roof deck.

3. When joining two pieces of outer gable ensure top piece overlaps the bottom piece.

3. Install rake edge detail (See pages 10 & 11 )
4. Install hip & ridge detail (See page 12)
5. Install valley flashing (See page 13)
6. Install sidewall & or endwall flashing as necessary (See pages 15,16,17)
7. Address any remaining penetrations that require under panning. (See page 21)
8. Install the field panels (See pages 22,23,24)

C. Craftsman edge on gable.
F & G - Traditional gable end.
J & K Closed Valley System
L & N Open Valley System

Watch detailed Matterhorn® Shake and Slate installation videos online at certainteed.com
General Installation Guidelines

- CertainTeed recommends tearing off existing roof systems and installing Matterhorn® Metal Roofing over a clean deck.

- Matterhorn® Metal Roofing must be installed on a solid roof deck. The roof deck must be a minimum of 15/32” wood structural panels or nominal 1” thick wood deck.

- **Slope requirements:**
  - > 4/12: DiamondDeck® synthetic underlayment must be installed prior to the installation of the metal roofing products. WinterGuard® Metal/ WinterGuard® HT high temperature self adhering underlayment is required in all valleys and eaves—refer to local building code.
  - 3/12 to < 4/12 slope: WinterGuard® Metal WinterGuard® HT must be used over the entire roof deck.
  - < 3/12 slope: Do not install Matterhorn® Metal Roofing.

- Valleys, as well as eave/drip edge, rake, endwall and sidewall flashing should be installed before the panels.

- When cutting panels to length, begin cutting from the top of the panel, cutting downwards towards the pre-formed bend at the bottom. This ensures the cleanest shear and keeps the rolled edge intact for optimal locking. Must use factory edge to factory edge when joining panels.

- Always install Matterhorn® Slate and Shake panels from right to left, then bottom to top, beginning with the bottom right corner of the roof deck.

- Minimize foot traffic. Wear clean, soft sole, non-marking shoes when walking on installed panels.

- Upon completion of the installation, inspect the roof surface for metal shavings or other loose material. Remove by wiping softly with a cloth, being careful not to scratch the painted surface. Remove dirt with a damp rag.

- General Handling: Carry the roofing panels carefully to keep them from bending.

### Fastening

- Fasten all panels to the roof using only the recommended screw type, inserting one into each of the holes along the top of the panel. For high wind areas three additional screws must be installed (see page 6). Ensure each panel is fully engaged to the one below via the pre-rolled feature at the bottom of the panel before fastening it to the roof deck.

- Retention clips must be installed on each panel side lap.

### Safety Guidelines

- Follow all governmental safety procedures, including, but not limited to, all OSHA guidelines. Always wear safety gloves, safety glasses and fall protection gear when installing Matterhorn® Metal Roofing.

### Ventilation

Proper ventilation must be achieved to avoid moisture and heat buildup in the attic space, or between the layers of the building envelope. Consult local building code for NFA (Net Free Area) rating requirements.

- **Intake vs. Exhaust:** To achieve maximum airflow through the attic, the amount of intake at the eave must be less than or equal to the exhaust at the ridge.

- **Soffit Vents** are found on the underside of the eave overhang. This is the primary source for the intake of air to the attic.

- **CertainTeed Ridge Vents** are located at the peak of the roof and are the primary exhaust outlet for accumulated hot, moist air.

### Class A Fire Rating

Matterhorn® tested using Georgia-Pacific 1/4” DensDeck. For a Class A fire rating, use Georgia-Pacific 1/4” DensDeck. A Class A fire rating is not applicable if Matterhorn® Metal Roofing panels are installed over existing 3-tab shingles.

<table>
<thead>
<tr>
<th>Assembly No. 1</th>
<th>Assembly No. 2 / With Underlayment</th>
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</thead>
<tbody>
<tr>
<td>1/4” or 1/2” Georgia Pacific DensDeck</td>
<td>GAF VersaShield</td>
</tr>
<tr>
<td>CertainTeed WinterGuard® Metal or</td>
<td>CertainTeed WinterGuard® Metal or</td>
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<tr>
<td>CertainTeed WinterGuard® HT; or</td>
<td>CertainTeed WinterGuard® HT; or</td>
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<tr>
<td>CertainTeed DiamondDeck®</td>
<td>CertainTeed DiamondDeck®</td>
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</table>
**Screw & Fastening Specifications**

**High Wind Areas**

High Wind Area 7 Screw Installation. Add 3 more screws centered between the pre-punched holes for 130 MPH rating.

**Standard**

Standard 4 screw Installation using pre-punched holes.

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**Eave/Drip Edge**

**Eave Edge Detail:**

1. Fasten drip edge to the roof deck every 12” with panhead screws.

2. When installing, ensure that drip edge is straight and does not follow any wave in the fascia. This will require a chalk line.

3. Ensure that drip edge is installed securely, the drip edge is designed to hold down the bottom of the first row of panels.

4. Matterhorn® drip edge is designed to be installed on up to a 12/12 pitch without modification. On steeper roof pitches, drip edge can be bent for easier installation. By bending forward the leg of the drip edge it will fit tight on a steep slope roof.

5. Install WinterGuard® Metal/WinterGuard® HT per local building codes.

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Traditional Rake Edge

Step 1: Inner Gable
1. Install the inner gable up the rake edges using panhead screws every 12”. The opening of the inner gable should face toward the roof deck. The back side should align with the outside edge of the roof deck.
2. Overlap inner gable trim as per the sequence below. Overlap by at least 6”.

Place inner gable 1/4” from the nose of the drip edge.
Install inner gable as a whole piece. When adding a second inner gable trim, open up the water lock and cut out the top section to allow for tight, overlapping, waterproof fit.
When overlapping, apply sealant under overlap. Be sure to screw every 12” between the diverter and the water lock.

Refit the overlapping water locks together with a hand seamer.
Traditional Rake Edge

Option 1 - Outer Gable

1. Hook the hem of the outer gable over the top edge of the inner gable. This may require opening the hem slightly.
2. Make sure the outer gable lap joint is staggered with the inner gable lap joint.
3. When joining two pieces of outer gable ensure top piece overlaps the bottom piece.
4. Beveled cut the lower piece to receive the upper piece.
5. Outer gable should be hemmed to inner gable and fastened with painted 1-1/4” hex head screw, as necessary.
6. Where the first row of panels overlap the inner gable a weep slot will need to be cut to allow proper drainage.

Open up the hem on the outer gable with your fingertips to allow easy placement.
Craftsman Rake Edge

Rake Edge Option

The drip edge will need to be installed up the rake edge of the roof before starting this option. When starting or ending the panel you should have a 7/8” tab overhanging the edge of the drip edge. This tab will be bent over to form a hem that holds the panel to the rake edge of the roof.

Hemming Steps for Shake & Slate: 7 Steps

Step 1
Hold the panel in the desired location on the roof, measure out from the edge of the drip edge 7/8” and make a cut line, cut off the excess area of the panel, The panel should now have 7/8” overhanging the drip edge.

Step 2
Trim 1” off the upper receiver and lower hook of the panel back from the cut edge. Position the panel with tab over the drip edge on the rake of the roof 7/8” and then fasten the panel to the decking. Tip: notch out between the courses to make the hem easier to work with.

Step 3
Use a small hand seamer to start the bending process. Slide the opening of the seamer over the 7/8” tab on the panel until it hits the noes of the drip edge.

Step 4
Bend the tab in small 20 degree steps down the length of the panel. Hold your hand on the top of the panel right above the bending area, this will keep the steel from deforming.

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Craftsman Rake Edge

Step 5
Repeat the 20 degree bending steps until the hand seamer hits the fascia.

Step 6
To bend the tab the remaining distance use your hand until the tab is tight under the nose of the drip edge.

Step 7
After the tab is bent under the nose of the drip edge use the seamer to finish.
Open Valley Method

1. Be sure to run WinterGuard® Metal/WinterGuard® HT in all the roof valleys.

2. Install the W-Valley at the bottom of every roof valley overhanging the drip edge. Lap the next 10’ piece over the first one at least 6”. The water lock will have to be opened up on the top of the bottom piece to allow the next section to nest inside. Two rows of sealant are required in the overlap.

3. Push the W-Valley down into the roof profile before fastening to prevent bridging or spanning of the metal between the two roof slopes. Tack the valley metal in place with pan head screws.

4. The Valley Cleat is installed on top of the W-Valley, fastening every 12”. Before fastening, apply bead or tape sealant between the cleat and valley. Use the ribs in the valley to align the cleat parallel to the center rib at the desired width.

5. Angle cut the roof panel leaving 1” of extra metal to be folded under the cleat. Remove 1” of the screw flange top and bottom interlock before bending panel. (See Diagram)

6. Hook the cut and bent edge of the panel to the valley cleat before fastening through the screw holes along the top of the panel.
Closed Valley Method

Valley Detail #1: Closed Valley (3 Pieces)

1. Fully line the valley of the roof with WinterGuard® Metal/WinterGuard® HT.

2. Install the opposing pieces of valley closure back to back. Fasten every 12" within 6" of the water lock with pan head screws.

3. Install the Valley Closure Cap from the side by opening the hem on one side of the cap and installing it onto both closures. Then re-hem the Valley Closure Cap and secure with painted screws as necessary.

4. Make sure the joints in the Valley Closure Cap are staggered from the joints in the valley closure. Overlap sections of the Valley Closure Cap by approximately 2" to keep water from entering between Valley closures.

5. Be sure the panel is cut to fit the valley angle.
1. Apply WinterGuard® Metal/WinterGuard® HT.

2. Install inner gable before the panel, fastening every 12”, between the water lock and the diverter.

3. Install the sidewall flashing over both the panel and the inner gable, hooking the bottom hem of the sidewall flashing over inner gable. Seal and fasten sidewall flashing into the sidewall.

4. Cut panel 1/2” short of the distance to the side wall to allow water to flow freely in the inner gable.
1. Apply WinterGuard® Metal/WinterGuard® HT.

2. Install inner gable before the panel, fastening every 12”, between the water lock and the diverter.

3. Install the sidewall flashing hooking the bottom hem of the sidewall flashing over inner gable. Seal and fasten sidewall flashing into the sidewall.

4. Install counter flashing over the upper leg of the side wall to ensure waterproofing.

5. Cut panel 1/2” short of the length needed to meet the sidewall inside the inner gable, to allow water flow freely.
Endwall Option 1

1. Apply WinterGuard® Metal/WinterGuard® HT.
2. Attach endwall flashing under siding.
3. Fasten endwall flashing to wall, ensuring the hemmed end covers the panel below appropriately.

Endwall Option 2

1. Apply WinterGuard® Metal/WinterGuard® HT.
2. Install inner gable.
3. Install sidewall flashing onto inner gable. Bend sidewall flashing to existing roof to wall angle.

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Transition Detail Option 1

During panel installation, the roof plane may change pitch at a point that will require endwall flashing.

1. Apply WinterGuard® Metal/WinterGuard® HT.
2. Bend the panel to existing roof to wall angle.
3. Be sure to fasten panel securely to roof deck and in a water tight manner.
4. Apply sealant over lower panel and under the transition flashing.
5. The transition trim (end wall flashing) will need to be secured with water tight fasteners to the lower panels and secured to the deck above to allow connection to the next row of panels.
6. Install a valley cleat just above the bend.
7. If the next course is a short course, cut and hem panel in the desired location so the upper course align.

Transition Detail Option 2

1. Apply WinterGuard® Metal/WinterGuard® HT
2. Bend the panel to existing roof to wall angle.
3. Be sure to fasten panel securely to roof deck and in a water tight manner.
Chimney Skylight & Dormer Detail

1. Apply WinterGuard® Metal/WinterGuard® HT.

2. Install inner gable before the panel, fastening every 12” between the water lock and the diverter. Ensure inner gable extends long enough to reach panel below.

3. Trim the high end of the inner gable that extends below the chimney. Make sure you allow for a hem to ensure proper drainage. (See image below)

4. Install the sidewall flashing hooking the bottom hem of the sidewall flashing over inner gable. Seal and fasten sidewall flashing into the sidewall.

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Under Panning

1. When you have a penetration in the roof, you make a pan to go under the Matterhorn® panels. Use trim coil to fabricate under pans to come out on a lower course of roofing material. If the water gets in the penetration it will discharge on top of the roof. *(Refer to roof vent detail)*
Vent Pipe

Install WinterGuard® Metal/WinterGuard® HT or sealant over top of the DiamondDeck® to create under seal at the pipe. Cut panels tightly against pipe and apply sealant to ensure the panel is water tight to the pipe. Install high quality EPDM/silicone pipe boots per manufacturer’s instruction.

Exhaust Vent

Cut the panel to fit around the vent to make sure the discharge is out onto the next course. Underpanning may be required in some applications.
When starting rows of panels, ensure that the drip edge is straight and true. You can do this by snapping a chalk line. As referenced on page 7.

A clip is used between the vertical overlap to keep seam closed. It will also eliminate panel uplift in extreme weather. Ensure clip is installed securely within the pocket while taking care, not to over tighten.

Ensure that the panel is fully engaged, so that the panels remain square as you progress.

Apply the adjacent panel ensuring that the right edge is properly engaged to the clip.
Panel Layout & Installation

Using the 3-4-5 rule, if a triangle has sides measuring 3, 4, and 5 ft., it must be a right triangle with a 90 degree angle between the short sides.

1. Start by chalking a straight line on the eve of the roof.
2. Pick a spot on the chalked line and Measure up 4 ft. and mark a line
3. On the chalked line measure over 3 ft. to the left of the 4 ft. line and make a mark
4. From this mark measure up 5 ft. to where the 5 ft. and 4 ft. line intersects.
5. The 4 ft. line gives a straight line to start the roof measurements from.

Stock edge of panel should just cover the mounting hole, or centered between the holes.
Panel Layout & Installation: Shake & Slate

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1. Cut and install wood shims behind panel to support roof jack and stop panel from denting.

2. Wrap roof jack components that come in contact with panel tape to prevent scratching. Be sure to install jack into structural support.

3. Cut and bend out bottom hem of next panel course so panel can be installed over roof jack.

4. After panel is installed, roof jack is ready to be used. Be sure to comply with safety regulations.

5. When finished, remove roof jack safely.

6. After roof jack is removed, apply sealant under flap.

7. After sealant is applied, use a wooden tool to close and tuck flap in. Done correctly, it will be very unnoticeable from the ground.

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Vented Ridge Cap

Vented Ridge Cap: Using CertainTeed 12” Ridge Vent

1. Cut recommenced slot into roof deck per CertainTeed’s ventilation application instructions.

2. The last row of panels needs to be cut to the opening in the roof deck without blocking the airflow. Cut DiamondDeck® to allow for proper ventilation.

3. Install CertainTeed Ridge Vents over metal panels with 2” screws to roof deck.

4. Install vent fasteners in areas required according to product specifications.

5. Install ridge cap using 2” screws

When running ridge vent all the way to the rake edge, bend first cap down over outer gable trim and fasten securely.

CertainTeed ridge cap is designed with multiple pre-punched holes for fastening. This allows the installer to place the fasteners in the optimum position; in nail line.

The design of the CertainTeed ridge cap allows for the best water tight connection. Ridge cap can be installed in any direction, and is not limited to prevailing weather.

Ridge Cap Detail
Non-Vented Ridge Cap

1. The DiamondDeck® is left uncut when venting is not needed.
2. Install Matterhorn® ridge cap with 2” screws directly over panel.