Standard Details for Metal Roofing & Siding

Post Frame and Residential Structures

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**Due to Product improvements, changes and other factors, Fabral reserves the right to change or delete information herein without prior notice or obligation to make changes in products previously purchased.
Installation Instructions

Building Design and Construction

In order to ensure the anticipated performance and longevity, protect metal panels from potentially corrosive situations and materials. When treated lumber will be in direct contact with metal panels or flashings please note the following: Galvanized steel is compatible with the CCA (Chromated Copper Arsenate) pressure-treated lumber that was predominantly used before 2004, but not with the older Pentapenta treated lumber or the new ACQ (Alkaline Copper Quartenary), CA (Copper Azole), or CBA (Copper Boron Azole). Stainless steel or other special treated fasteners should be used into these non-compatible pressure treated lumbers. Aluminum must be separated from contact with all treated wood since the soluble copper in the preservative is corrosive to aluminum. Likewise, dissimilar metals also require a protective barrier between them to prevent galvanic corrosion. Request FABRAL Technical Bulletin #803, 106, and 107 for more information on treated lumber and dissimilar metals.

Plastic, builders’ felt, bituminous paint, caulking, or gasket material may be used to separate panels from treated wood and dissimilar metals. When using aluminum panels in direct contact with steel, use a separator as described above and fasten with Stainless Steel screws.

Fertilizer, lime, acids, feeds, manure, soils, and many other compounds also cause corrosion in metal panels. Contact between metal panels and any potentially corrosive materials should be prevented.

Porous insulation materials may absorb and retain moisture, and should not be used in direct contact with metal panels. Use a vapor barrier such as polyethylene plastic or 30-lb felt to prevent moisture from contacting both the insulation and the metal panel.

FABRAL’s translucent panels are intended for siding applications only. In all situations, foot traffic should be avoided on translucent panels. Translucent panels used in roofing applications will break down in a short time and cause staining and premature corrosion of the metal panels below. If used on roofs, apply butyl caulking to separate the fiberglass panels from the metal. Translucent panels should be cleaned and sealed regularly, as recommended by the translucent panel manufacturer.

Purlins, Girts and Roof Deck

The substructure to which the metal panels are fastened must be properly spaced and sufficiently thick to provide a roof or wall system able to meet required load designs.

A 2” nominal lumber thickness provides the maximum pullout values for both screws and nails when the fasteners penetrate a minimum of 1” into the wood. Since 1” nominal lumber and solid decking are thinner, they provide somewhat lower pullout values. When using purlins, FABRAL recommends a minimum spacing of 24” on-center (note that 5V requires solid decking). Pullout values decrease if the fasteners protrude completely through the purlins. Kiln-dried softwood is recommended for purlins or decking (pine, fir, hemlock, and spruce). Hardwoods are difficult to fasten into without splitting and contain tannic acids that are corrosive to metal panels. Green (non-kiln-dried) lumber may warp, twist, and shrink as the wood seasons fully, causing waviness in the panels as well as loosening and leaking of the fasteners.

Solid decking is highly recommended for all residential applications. When using solid decking or sheathing, always use 30-lb felt or underlayment and plan on using closer fastener spacing and larger diameter #14 screws. (Refer to the tables on page 31).

On re-roofing projects where the condition of the old decking is in question, or where existing shingles will be left in place, new 2x4 purlins should be fastened through the decking and into the rafters. This will provide a solid framework for attaching the metal panels. For more detailed information on Re-roofing applications, consult FABRAL Technical Bulletin #721, Re-Roofing With Metal. Load tables are available for all FABRAL panels; contact FABRAL for additional information.

Roofing

Panel sidelpans should face away from wind driven rain. To accomplish this, begin by installing the first sheet square with the eave and gable at the down wind end of the roof, farthest away from the source of prevailing winds.

In applications requiring a panel endlap, please refer to the detailed instructions in this booklet. For best results, lap panels as shown and install in the indicated sequence. All endlaps require sealant. When weather-tightness is critical, use sealant tape in all endlaps.

To provide a drip edge, allow an overhang of 1 to 2 inches at the eave. At the gable edge, use a gable or sidewall flashing. This will keep weather out, prevent lifting in high winds, and provide a neat, finished appearance. The trim and roofing sheet should be fastened every 12 to 24 inches along the gable edge.

Roof Pitch

The metal roofing panels shown in this manual require a minimum slope of 2/12 per foot to ensure proper drainage. Refer to the rain-carrying table in this booklet for the maximum allowable panel length per slope that will provide adequate drainage. For longer slopes and lower roof pitches, contact FABRAL for other suitable profiles.

Bending and Bowing

Aluminum roofing and siding sheets are rollformed from hardened, tempered metal for maximum strength. If a sheet must be bent, a gentle 90-degree bend is the maximum recommended. Metal should not be re-bent once it has been formed, nor should it be folded back on itself. When a metal roofing sheet must be installed on a curved roof, screws should be installed at every overlapping rib at the sheet ends to resist the natural tendency of the metal to spring back. The standard fastening pattern is permitted over the rest of the sheet. When installing the metal panels shown in this booklet over a curved arch, the minimum radius of the arch is 18’ for aluminum panels and 24’ for steel panels. Use sealant tape or butyl caulking at all endlaps and endlaps. Additional care and fasteners must be provided when securing the top and bottom purlins on an arched rafter building to prevent the curved panels from pulling the purlins loose from the rafters. Ring-shank pole barn nails, heavy wood screws, lag screws, or bolts are often used for attaching these purlins.

Siding

Siding should be installed using the standard fastening and overlap patterns to ensure optimum performance. For strong, neat corners use hemmed corner flashings. Do not run siding sheets all the way to the ground. Instead, provide a protective base of concrete, masonry, treated wood, or similar material and terminate the siding sheets 6” above grade.
Installation Instructions

If siding sheets are installed horizontally, use sealant tape or butyl caulking at the vertical laps to ensure weather-tight joints. Install panels from the bottom up so that water is directed away from, and not into, the lap joints.

Fastening

FABRAL can supply either screws or nails for fastening into dimension lumber, with screws offering better pullout values. Always use screws with solid sheeting. Screws for use with steel panels are galvanized and then coated with an organic polymer for optimum corrosion resistance. For best results with aluminum panels, use #300 series stainless steel screws.

The FabrOseal® galvanized ring-shank nail, with its premium long-life silicone rubber gasket, assures a lasting seal and is the best nail available for steel panels when screws are not desired.

The correct way to fasten steel panels with nails is to drive the nail through the top of the rib so the washer is compressed securely against the metal. Nail placement must be in the ribs for roofing appllications to minimize the potential for roof leaks. Over-driving the nail can split the washer and dimple the metal, causing leaks.

Wood screws with combination metal and neoprene washers should be installed in the flat area of the panel adjacent to the ribs, and tightened such that the washer is compressed as illustrated above. This will ensure a lasting, leak-proof seal. Remove any metal filings created by the drilling action of the screws to avoid rust staining on the panel surface. Refer to the fastening schedules in this booklet for the correct fastener locations.

Flashing and Trim

Always begin flashing installation from the bottom and work up, so that upper flashings are lapped on top of lower flashings. This will prevent moisture from leaking under the flashings and into the structure. Endlap flashings a minimum of 6” and seal the lap joints with sealant. Extend flashings 4-6” beyond the building, cut along the bend lines, apply sealant, and fold the side flaps in and the top flaps down to cap off the ends. Secure with pop-rivets or stitch screws.

Some roof conditions, such as valleys, may require a longer endlap and/or a larger flashing to properly drain moisture from the roof. Factors that influence flashing size, shape, and endlap requirements include roof pitch, roof geometry, slope length, and climatic factors (such as heavy snowfall or rainfall).

Whenever possible, begin trim installation at the downwind end of the roof, farthest away from the source of prevailing winds, to allow flashing laps to face away from wind-driven rain. Refer to the details in this book for the proper location of fasteners and sealants.

The flashings and trims shown in this book are standard parts. Custom trims are available to meet your specific design needs. If you need a special trim, please furnish a drawing of the desired shape, including dimensions and angles, to your Fabral dealer to obtain pricing and availability.

Refer to the SMACNA Architectural Sheet Metal Manual for additional information about detailing and installing flashings.

Safety

Always work safely when installing metal products and use extreme caution on the roof at all times. Wear gloves and safety glasses to reduce the risk of injury, and use hearing protection when operating power tools. Always be sure that ladders are safely positioned and properly secured. Safety harnesses or other special equipment may be required; be sure to Consult OSHA guidelines for compliance with all safety requirements.

Do Not walk on panels until all the fasteners are installed. Metal roofing panels are slippery when wet, dusty, frosty, or oily -- Do Not attempt to walk on a metal roof under these conditions. Wear soft-soled shoes to improve traction and to minimize damage to the paint finish. Always be aware of your position on the roof relative to any roof openings, roof edges, co-workers, and penetrations. Installing metal panels or flashings on a windy day can be dangerous and should be avoided if possible.

Cutting Aluminum Panels

To make a cut parallel to the ribs, score the panel deeply with a sharp utility knife and bend back-and-forth along the score, breaking the metal off cleanly. For cuts across the ribs, use straight-cut snips, electric or pneumatic shears, a portable profile shear, or an electric nibbler. Some installers prefer using a circular saw with a metal cutting blade (a fine-tooth hardwood blade, or a standard combination blade reversed in the saw works also). Light oil or soap on the blade will make cutting easier.

Cutting and Drilling Steel Panels

Steel panels may be cut with metal snips, electric or pneumatic shears, a portable profile shear, or an electric nibbler. Some installers prefer using a circular saw to cut metal panels. Do Not use self-consuming abrasive blades because of the following: 1. Abrasive blades burn the paint and galvanizing at the cut edge, leaving edges that are jagged and unsightly and rust more quickly 2. Abrasive blades produce hot metal filings that embed in the paint and cause rust marks on the face of the panel 3. All saw cut panels must be turned face down and cut in a location down-wind and well away from the building and other panels to avoid embedment of metal filings on other panels 4. All saw cut panels must be thoroughly wiped to ensure the removal of all metal filings. If saw cutting cannot be avoided, select a carbide-tipped blade specially designed for cutting light-gage ferrous metal panels. These blades are now available at many home centers and lumber yards. Pre-drilling wall panels gives uniform alignment of screw rows. Be sure to remove drill filings once panels are installed to avoid rust marks from the filings.

Building Maintenance

A metal roof should be inspected annually and cleaned as necessary to maintain its beauty and performance. Any debris or residue, including leaves, twigs, and dust should be cleaned off promptly to prevent moisture entrapment against the metal, which may lead to finish deterioration or premature corrosion. Flashings may need to be re-sealed periodically in order to maintain optimum weathertightness.
Paint System & Warranties

Enduracote™ is a paint system that takes performance to the next level. Based on cutting edge resin technology, this system offers unbeatable durability and superior long-term performance against the elements.

The Enduracote™ Warranty
- Lifetime film integrity for walls & roofs
- 30-year against fade & chalk
- 10-year edge rust against acid rain
For profiles: Grand Rib 3®, Alu-Tuff II, 5V Crimp, ProClad, StrongClad, Mighti-Rib®

The Enduracote™ PLUS Warranty
- Lifetime film integrity for walls & roofs
- 30-year against fade & chalk
- 15-year edge rust against acid rain
- 25-year non-perforation against acid rain for walls; 20-years for roofs
For profiles: Grand Rib 3® PLUS, Alu-Tuff, 1 1/2” SSR, Climaguard™

The Energy Star® Program
The Energy Star Program promotes highly reflective roof systems that reflect solar energy. These roof systems allow buildings to stay cooler and, in turn, use less electricity for air conditioning; less electricity means a reduction in power generation and a reduction of pollutants discharged at power plants. Fabral has attained Energy Star approval for many of its Enduracote™ system colors. Ask for Technical Bulletin #724 titled “Energy Star Approval”, for program details and a list of approved Enduracote™ colors.

Please contact your Fabral representative for more information about Fabral warranties and paint systems.
Steel Panel Profiles

Grandrib 3®
29 Gauge steel, Plain, and Painted Galvanized

MP Panel
37 3/4" FORMED WIDTH
36" COVERAGE

Alu-Tuff
37 3/4" FORMED WIDTH
36" COVERAGE

Correct sidelap for Alu-Tuff, Grandrib 3, and multi-purpose steel panels.

Butyl sealant location (optional field applied)

Purlin bearing

Screw patterns
Intermediate roof purlins and all siding
Eaves and endlaps - roof purlins

Nail patterns
All supports

Fastener usage: 80 screws per square or 1 pound of nails per square

5V Crimp
Use on solid decking

1 1/4" Corrugated

*Not all profiles are available in all areas. Please contact Fabral for availability.
Steel Panel Profiles

2 1/2" Corrugated

2.667”

26” OVERALL
21 1/2” COVERAGE (ROOFING)

1/2”

1/2”

NAIL PATTERN

ROOFING - EAVES, RIDGES, AND ENDLAPS
ROOFING - INTERMEDIATE SUPPORTS
SIDING - ALL SUPPORTS

SCREW PATTERN

ROOFING - EAVES, RIDGES, AND ENDLAPS
ROOFING - INTERMEDIATE SUPPORTS
SIDING - ALL SUPPORTS

XPRT 936

38 3/8” FORMED WIDTH
36” COVERAGE

1 1/2” SSR
24 Gauge Standing Seam Roofing

Mighti-Rib®
26 Gauge Roofing & Siding

Climaguard™
26 Gauge Roofing

Grandbeam®
26 Gauge Roofing & Siding

*Not all profiles are available in all areas. Please contact Fabral for availability.

Other Steel Profiles Available

*Screws

Intermediate Roof Purlins and All Siding
Eaves and Endlaps - Roof Purlins

*The panels above are available at certain locations and have their own particular details, flashings, and accessories. Please contact Fabral for more information.
Aluminum Panel Profiles

**Grandrib 3®**
- 37 3/4" FORMED WIDTH
- 36" COVERAGE
- 3/4" 9"

**Alu-Tuff**
- 37 3/4" FORMED WIDTH
- 36" COVERAGE

**Strongrib®**
- 0.018 Aluminum, Plain, and Painted White
- .0155 and .018 Aluminum, Plain, and Painted White

**Fabrib**
- 37 3/4" FORMED WIDTH
- 36" COVERAGE

**AluTwin**
- 50" FORMED WIDTH
- 48" COVERAGE

**2 1/2" Corrugated**
- 2.667" OVERALL
- 48" COVERAGE (ROOFING)
- 48" COVERAGE (SIDING)

*Not all profiles are available in all areas. Please contact Fabral for availability.*
Estimating Metal Roofing, Siding & Flashings

Panel lengths are to be determined by the truss top chord or actual field measurements. Remember to add for overhangs at the eaves; subtract for a gap at the ridge. Siding should be kept up away from the ground with a skirt board.

Number of Panels

The coverage of the panel being used will determine the number of panels at a length (i.e.: 3’ coverage panel on a 30 ft. long building would require 10 panels on each side of the ridge or 20 panels at the particular length.)

Horizontal Measurement to a Roof

Divide the building width in half, then multiply by the slope factor (i.e.: 40’ wide building with 4/12 slope. 40 divided by 2 equals 20’ times 1.054 equals 21’-1” in slope dimension.) Allow for 1/2” to 1” gap at peak and 1” to 2” eave overhang.

<table>
<thead>
<tr>
<th>Roof Pitch</th>
<th>Slope Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/12</td>
<td>1.031</td>
</tr>
<tr>
<td>4/12</td>
<td>1.054</td>
</tr>
<tr>
<td>5/12</td>
<td>1.083</td>
</tr>
<tr>
<td>6/12</td>
<td>1.120</td>
</tr>
<tr>
<td>8/12</td>
<td>1.202</td>
</tr>
<tr>
<td>10/12</td>
<td>1.302</td>
</tr>
<tr>
<td>12/12</td>
<td>1.414</td>
</tr>
</tbody>
</table>

Flashing Conditions

Roof - Eave, Ridge, Gable, Sidewall, Endwall, Valley, Hip, Transition, Gambrel, Soffits
Siding - Base Perimeter, Corners, Inside Corners, Man Doors, Windows, Sliding Doors, Overhead Doors

Please contact Fabral’s Engineering Department for all your estimating & specification needs.

1-800-916-1413
1-800-322-1030 Fax
Standard Post Frame Flashing/Trims

All flashing is 10’ 6” in length & available in steel & aluminum, unless otherwise noted. Please contact Fabral for specifics on the trim available in your area.

AJ6  Jamb Trim  (for 2x wood)

AR3  Ridge Cap

AG1  Gable/Rake  Aluminum 10’  Steel 10’ Standard  14’ in select colors

AR3 w/ VersaVent RX-10  Ridge Cap  Grandrib 3 & Alutuff net free area = 10.66 sq. in. per lineal feet of ridge (5.33 per side)

RR1  Universal  Ridge/Hip  Flash  Steel Only  Customer to specify roof pitch

AE1  Eave Flash

CP1  Monoslope  Ridge  Steel Only  Customer to specify roof pitch

CE1  Denver Eave  Steel Only  Customer to specify roof pitch

RJ9  F-J Trim

PJFB  One Piece Door Trim

SunSky Ridge  Ridge Cap  Clear Only

4"  24"

A94  10’-6” Length  Face-Mount Track  Cover for Cannonball  Track with 1" Track  Plank Matches  Cannonball Trim  #646224
Standard Post Frame Flashing/Trims

**AGRN4**
For Grandrib 3 40 1/4" Length
Notched Gambrel Flash

**AT1**
Transition Flash
Typical for 8/12 to 4/12
(otherwise specify pitches)
Steel Only

**RV1**
Valley Flash
Customer to specify roof pitch

**RV2**
W-Valley Flash
Steel Only
Customer to specify roof pitch

**AB1**
Soffit Box
Net free area = 22.9 sq. in. per lineal ft. of soffit
(Vented available in white steel only)

**AB2**
Soffit Box
Net free area = 12.96 sq. in. per lineal ft. of soffit

**AB3**
Soffit Box
Net free area = 22.9 sq. in. per lineal ft. of soffit
(Vented available in white steel only)

**AB4**
Soffit Box
Net free area = 22.9 sq. in. per lineal ft. of soffit
(Vented available in white steel only)

**ASW1**
Sidewall/Endwall Flash

**AEWN4**
For Grandrib 3 40 1/4" Length
Notched Endwall Flash

**Soff Vent A**
Vented Aluminum Soffit
Net free area = 12.96 sq. in. per lineal ft. of soffit
Standard Post Frame Flashing/Trims

**AC1**  
Corner  
Aluminum 10’  
14'-6" in select colors

**AL2,3,4,5**  
Angle Flashing  
AL2 = 3 1/2"  
AL3 = 5 1/2"  
AL4 = 7 1/4"  
AL5 = 9 1/4"

**AZ2**  
Zee

**AC2**  
Inside Corner

**ABG1**  
Base Guard

**AL7**  
Angle Flashing

**AC3**  
Corner  
Available in Lancaster service area only

**AJ3**  
J-Channel  
For Grandrib 3, Strongrib and all other Agri panels

**AH5**  
10'-6” Length  
Face-Mount Track Cover for Cannonball Track with 2” Track Plank  
(Replaces STC-503)  
Matches Cannonball Trim #646225

**AH3**  
10'-6” Lengths  
Fits National 5100, 5103 and 5105 box rail.  
Matches National trim #5120  
(Replaces STC-504)
Standard Post Frame Flashing/Trims

BOX GABLE

FLASH AG-1

ROOFING

SEALANT TAPE

SEALANT TAPE

ROOF PURLIN

END RAFTER

SEALANT TAPE

TOP & BOTTOM

OF CLOSURE

1"x6" FASCIA

FASTENER

24" C/C MAX

FASTENER

@ EVERY

MAIN RIB OR

12" C/C MAX.

OUTSIDE CLOSURE

(OPTIONAL)

7 1/2" OR 11 3/4"

SIDING

FASTENER

@ EVERY

MAIN RIB OR

12" C/C MAX.

FLASH AB-1, AB-2,

AB-3, OR AB-4

Post Frame Flashing Details
**Post Frame Flashing Details**

**ENDLAP**

1. Apply 3/32” x 1/2” butyl endlap sealant on bottom panel just below centerline of purlin (see endlap diagram for location) on panel #1.
2. Apply sidelap sealant on panel #1 and connect to endlap sealant.
3. Place panel #2 so it overlaps panel #1, 12” as shown. Install screws per endlap fastening pattern.
4. Apply sidelap sealant on panel #2 to connect to sidelap sealant of panel #1.
5. Place panel #3 over sidelap of #1 and #2.
6. Apply endlap sealant on panel #3.
7. Apply sidelap sealant on panel #3 and connect with endlap sealant.
8. Place panel #4 over endlap of panel #3. Install screws per endlap pattern.
9. Repeat sequence for entire roof.

**ALLOWABLE PANEL LENGTHS (ft.) ALONG THE SLOPE FOR 4” RAINFALL PER HOUR**

<table>
<thead>
<tr>
<th>Panel Name</th>
<th>Minimum Slope</th>
<th>2 1/2:12</th>
<th>3:12</th>
<th>3 1/2:12</th>
<th>4:12</th>
<th>5:12</th>
<th>6:12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alu-Tuff</td>
<td>2 1/2:12</td>
<td>58</td>
<td>61</td>
<td>64</td>
<td>67</td>
<td>73</td>
<td>78</td>
</tr>
<tr>
<td>Grandrib 3</td>
<td>2 1/2:12</td>
<td>58</td>
<td>61</td>
<td>64</td>
<td>67</td>
<td>73</td>
<td>78</td>
</tr>
<tr>
<td>Prime Rib</td>
<td>2 1/2:12</td>
<td>39</td>
<td>41</td>
<td>43</td>
<td>45</td>
<td>49</td>
<td>53</td>
</tr>
<tr>
<td>5V</td>
<td>2 1/2:12</td>
<td>43</td>
<td>45</td>
<td>47</td>
<td>49</td>
<td>54</td>
<td>58</td>
</tr>
<tr>
<td>2 1/2&quot; Corrugated</td>
<td>2 1/2:12</td>
<td>28</td>
<td>29</td>
<td>31</td>
<td>32</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>1 1/4&quot; Corrugated</td>
<td>2 1/2:12</td>
<td>16</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Alutwin</td>
<td>2 1/2:12</td>
<td>37</td>
<td>39</td>
<td>41</td>
<td>43</td>
<td>46</td>
<td>50</td>
</tr>
<tr>
<td>Fabrib</td>
<td>2 1/2:12</td>
<td>32</td>
<td>34</td>
<td>36</td>
<td>38</td>
<td>41</td>
<td>44</td>
</tr>
</tbody>
</table>

**Notes For Rain-Carrying Tables**

1. All values based on a 1-hour duration storm of 4”/hr. intensity.
2. Values represent the point at which the panel ribs will flood.
3. Size and frequency of penetrations can greatly reduce the amount of water removed from a roof.
4. All panel endlaps must be caulked.
5. When weather-tightness is critical, use sealant tape in all sidelaps.
Post Frame Flashing Details

**EAVE**

- **Inside Closure**
- **Roof Panel**
- **Flash CE-1**
  - Sealant Tape Top & Bottom of Closure
  - Fastener @ Every Rib or 12" C/C Max.
  - Outside Closure (Optional)
- **Siding**
- **Fastener**
- **Roof Purlin**
- **Roof Truss**
- **Post**
- **Top Plate**
- **Fastener Per Standard Eave Pattern**
- **Sealant Tape Top & Bottom of Closure**

**Box Eave**

- **Flash AB-1, AB-2, AB-3, or AB-4 as Required**
- **Sealant Tape**
- **Inside Closure**
- **Eave Purlin**
- **Fascia Board**
- **Roof Panel**
- **Roof Truss**
- **Post**
- **Top Plate**
- **Fastener Per Standard Eave Pattern**
- **Modified AL-2**
- **Fastener @ 24" C/C Max.**

Provides 8" or 12" overhang with GrandRib 3, ALU-Tuff, or StrongRib Siding.
Post Frame Flashing Details

VENTED EAVE

- Inside closure with sealant tape top & bottom
- Fastener per standard eave pattern
- Eave trim
- Fascia board
- Fabral aluminum soffit
- Fabral metal siding panel
- Fabral metal roof panel
- Truss or rafter
- 16" coverage

If closures are omitted, Fabral suggests using screen wire between panels and ridge gap area to keep insects and birds out of attic area.

Closures and sealant are recommended for optimum weather resistance.

RIDGE/PEAK - NON VENTED

- 2" long fastener @ every main rib or 12" c/c max.
- Sealant tape top & bottom of closure
- Purlin
- Gap as required
- Outside closure (on hip roofs, use 1"x1"x19'-8" sealer strip & RR-1 flashing)
VersaVent RX-10 Factory Applied To Ridge Cap
Vent Material and Ridge Cap Install As A Unit

VersaVent RX-10 Factory Applied To Ridge Cap
Vent Material and Ridge Cap Install As A Unit

**ALTERNATE VENTED RIDGE**

Fabral RR-1 Ridge Flash with CoraVent (shown). The RR-1 can be modified to fit many other solid, plastic vents. Other solid, plastic vents (ie..Ridge Master,...) are available from local lumberyards or dealers. The metal ridge flashing may have to be customized to fit the particular vent. Mesh vents or fiber-type vents are not recommended because a metal ridge can not be fastened securely. They are not rigid enough to give good support or appearance to the metal flash. Coravent is available from Fabral.

**RR-1 RIDGE FLASH**

**OUTSIDE CLOSURE WITH BUTYL SEALANT TOP & BOTTOM**

**OPTIONAL J-CHANNEL FOR SUPPORT**

**2 1/2" FASTENER @ EVERY MAIN RIB OR 12" C/C MAX.**

**2" TO 4" OR AS REQUIRED BY VENT MANUFACTURER**

**PANEL FASTENER PER STANDARD PATTERN**

**METAL ROOF PANEL**

2" LONG FASTENER @ EVERY MAIN RIB

GAP AS REQUIRED

VERSASURE RX-10

PURLIN

AR-3, RR-1 RIDGE FLASH

ROOF PANEL

**VERSASURE RX-10**

**GAP AS REQUIRED**

**PURLIN**

**AR-3, RR-1 RIDGE FLASH**

**ROOF PANEL**

**VERSASURE RX-10**

**GAP AS REQUIRED**

**PURLIN**

**AR-3, RR-1 RIDGE FLASH**

**ROOF PANEL**
**Post Frame Flashing Details**

**ALTERNATE VENTED RIDGE**

Profile Vent is pre-notched and self adhesive. Fabral stocks Profile Vent for Grandrib 3, Alu-Tuff, and 5v Crimp.

**GABLE - STRONGRIB, GRANDBRIB 3**

- Flash AG-1
- Optional Sealant Tape Top & Bottom of Closure
- Fastener @ 24" C/C Max
- Roofing
- Roofing
- Sealant Tape
- Purlin
- End Rafter
- Outside Closure (Optional)
Post Frame Flashing Details

**GABLE - FABRIB**

- **FLASH AG-4**
- OPTIONAL SEALANT TAPE TOP & BOTTOM OF CLOSURE
- FASTENER @ 24" C/C MAX
- END RAFTER
- OUTSIDE CLOSURE (OPTIONAL)
- SIDING
- FASTENER @ 24" C/C MAX
- FASTENER @ 24" C/C MAX
- ROOFING
- PURLIN
- SEALANT TAPE

**GABLE - GRANDRIB 3, STRONGRIB**

- **FLASH AC-1 OR AC-4**
- OPTIONAL SEALANT TAPE TOP & BOTTOM OF CLOSURE
- FASTENER @ 24" C/C MAX
- END RAFTER
- OUTSIDE CLOSURE (OPTIONAL)
- SIDING
- FASTENER @ 24" C/C MAX
- FASTENER @ 24" C/C MAX
- ROOFING
- PURLIN
- SEALANT TAPE
CE1 BUTYL SEALANT TOP AND BOTTOM OF SEALER STRIP FASTENER FASCIA BOARD ROOF FELT SEALER STRIP (ASPHALT IMPREGNATED) BUTYL SEALANT TOP AND BOTTOM OF SEALER STRIP CE1 FASCIA BOARD
Post Frame Flashing Details

ENDWALL

FASTENER PER STANDARD EAVE PATTERN

2” FASTENER @ EVERY MAIN RIB OR 12” C/C MAX.

FLASH ASW-1

SIDING

INSIDE CLOSURE

GIRT

SEALANT TAPE TOP & BOTTOM OF CLOSURE

ROOF PANEL

OUTSIDE CLOSURE

PURLIN

ENDWALL - NOTCHED

FASTENER PER STANDARD EAVE PATTERN

2” FASTENER @ EVERY MAIN RIB OR 12” C/C MAX.

NOTCHED FLASH AEW-N4 OR AEW-N5

SIDING

INSIDE CLOSURE

GIRT

SEALANT TAPE TOP & BOTTOM OF CLOSURE

ROOF PANEL

OUTSIDE CLOSURE

PURLIN
Post Frame Flashing Details

**SIDEWALL**

- **SEALER STRIP** with butyl sealant tape
- **SIDING**
- **FASTENER** per standard eave pattern
- **SPACE AS REQUIRED**
- **FLASH ASW-1** field bend as required
- **SLOPING RAFTER**
- **2" FASTENER @ 24" C/C MAX.**
- **PURLIN**
- **SEALANT TAPE**

**VALLEY**

- **BUYTL SEALANT** top & bottom of sealer strip
- **CUT PANEL AS NECESSARY**
- **6" MINIMUM**
- **SEALER STRIP, 1"x1"x19'-8" BLOCK CLOSURE FILLS RIB VOIDS**
- **METAL ROOF PANEL**
- **SCREWS** each side of main rib (eave/endlap pattern)
- **ROOF FELT AND ICE & WATER SHIELD**

**NOTE:** VALLEY FLASH MUST HAVE SOLID SUPPORT.

FOR ADDITIONAL INFORMATION ON THE VALLEY DETAIL REFER TO PAGES 42 AND 43 OF THIS BOOK.
**Post Frame Flashing Details**

**GAMBRELS**

**NOTE:** Specify both roof pitches for AT-2 flash. AGRN-4 for Grandrib 3 and AGRN-5 for Strongrib are for 3/12 to 15/12 Gambrel's.

**TRANSITION**

**NOTE:** Specify both roof pitches when ordering AT-1. Standard is 9/12 to 3/12.
POST FRAME FLASHING DETAILS

OUTSIDE CORNER

* Available in Lancaster service area only.

OUTSIDE CORNER

FLASH AC-3 *

FLASH AC-1 OR AC-4

2" FASTENER THROUGH PANEL RIB @ 24" C/C MAX.

SEALANT TAPE
**Post Frame Flashing Details**

**INSIDE CORNER**

1. **GIRT**
2. **SEALANT TAPE**
3. **FASTENER @ 24” C/C MAX.**
4. **FLASH AC-2**
5. **POST**

**BASE GUARD**

1. **BARRIER BETWEEN METAL AND ACQ TREATED LUMBER**
2. **TREATED BASE PLANK**
3. **SIDING PANEL**
4. **INSIDE CLOSURE (OPTIONAL)**
5. **FASTENER PER STANDARD SIDING PATTERN**
6. **FLASH ABG-1**
7. **FLOOR 4”**
8. **6” MIN.**
9. **GRADE**

**TREATED BASE PLANK**
Post Frame Flashing Details

**DOOR JAMBS**

- Door Jamb
- Door
- Fastener
- Girt
- Siding
- Door Stop
- Flash PJFB

- Field bend or cut this area if necessary

- Flash AJ-3

- Flash AL-2, AL-3, AL-4, AL-5, or AL-7 depending on width of jamb

- Sealant

- Flash AJ-2

- 1x3 Door Stop

- Fastener

- Sealant Tape

- Siding
OVERHEAD DOOR JAMBS

FIELD BEND OR CUT THIS AREA IF NECESSARY

DOOR OPENING

Doors

Door Opening

1 x 3 Guide

Flash AL-5 or AL-7

Fastener

Sealant Tape

Flash AJ-4

Door Jamb

Post

Girt

Siding

Fastener

Door Opening

Door

1 x 3 Guide

Girt

Siding

Flash PJFB

Fastener

Door Jamb

1 x 3 Guide

Flash AL-3, AL-4, AL-5 or AL-7

Sealant

Flash AJ-3

Door Jamb

Post

Girt

Siding

Flash AJ-2

Fastener

Door Opening

Door

1 x 3 Guide

Siding

Fastener

Door Opening

Doors

Door Opening

1 x 3 Guide

Girt

Siding

Flash PJFB

Fastener

Door Jamb

1 x 3 Guide
Post Frame Flashing Details

DOOR HEADER

- SIDING
- DOOR HEADER
- FASTENER PER SIDING PATTERN
- FLASH AD-1
- DOOR STOP
- MAN DOOR
- OVERHEAD DOOR
- FLASH AL-2, AL-3, AL-4, AL-5 OR AL-7

SLIDING DOOR JAMB DETAIL

- POST
- WALL GIRT
- OPTIONAL AL-3 TRIM
- AJ-4 JAMB TRIM
- 2 x 2 FILLER BLOCK
- SIDING PANEL
- FLASH AL-6
- SEALANT TAPE
- FLASH AJ-3
- FASTENER
- SLIDING DOOR
- SIDING
Post Frame Flashing Details

SLIDING DOOR HEADER DETAIL

SIDING

FLASH AH-2, AH-3 (SHOWN), AH-4, OR AH-5. REFER TO PAGE 11 FOR CORRECT FLASHING FOR PARTICULAR MANUFACTURER’S DOOR TRACK BEING USED.

SIDING ON SLIDING DOOR

SIDING BEYOND OPENING

2x6 TRACK BOARD

2x2 FILLER BLOCK

TRACK SUPPORT

TREATED BASE PLANK

AD-1 OR BOTTOM RAIL FROM DOOR MFR.

DOOR GIRT

2x2 FILLER BLOCK

TRANSLUCENT PANEL

USE TRANSLUCENT PANELS AS SIDING PANELS TO ALLOW LIGHT INTO THE BUILDING. DO NOT USE ON ROOFS.

SEALANT TAPE TOP & BOTTOM OF CLOSURE

FLASH AZ-2

GIRT

METAL SIDING OR TRANSLUCENT PANEL

INSIDE CLOSURE (OPTIONAL)

FASTENER @ EVERY MAIN RIB OR 12" C/C MAX.

SEALANT TAPE TOP & BOTTOM OF CLOSURE

OUTSIDE CLOSURE (OPTIONAL)

TRANSLUCENT SIDING OR METAL SIDING
Post Frame Flashing Details

WINDOW DETAILS

SILL

- Window unit: 1x6 beveled
- Flash AJ-3
- Fastener per standard pattern
- Siding
- 2x4

HEAD

- Sealant tape
- Top & bottom of closure
- Fastener per standard pattern
- AD1 drip cap
- Inside closure (optional)
- Window unit
- 2x4

JAMB

- Window unit
- Flash AJ-3
- Fastener
- Optional sealant tape
- Siding
- Girt
- 2x4
Basics for Residential Installation

1. Determine the thickness and type of substrate to be used to support the metal roofing. **Solid decking is highly recommended for all residential applications (i.e., plywood, OSB).**

2. Refer to the Load-Span tables to select the proper fastener and spacing to meet loads on your structure. **Nails are NOT recommended for residential applications.**

3. Consult local building codes and restrictions to determine acceptable methods of construction for residential applications in your area.

4. Solid decking with 30# felt or Pro Master® underlayment for residential applications is recommended. Ice & water shield or similar self-adhesive membrane is recommended at all valleys, dormers, chimneys, transitions, skylights and other critical areas.

5. When re-roofing with metal panels over an existing shingle roof, 2x4 purlins or 1x4 furring strips run parallel with the ridge of the roof and must be securely fastened into the roof rafters or trusses.

6. Request Fabral’s technical bulletins # 720 and # 721 for more details on residential roofing.
## Residential Load Table

**GRANDRIB 3®**

**Load-Span Tables For 29 Gauge Grandrib 3® & Alu-Tuff**

Allowable Wind Uplift Loads (psf)

<table>
<thead>
<tr>
<th>Substrate</th>
<th>Fastener</th>
<th>9&quot;</th>
<th>12&quot;</th>
<th>15&quot;</th>
<th>18&quot;</th>
<th>21&quot;</th>
<th>24&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; Plywood</td>
<td># 14 Woodtite</td>
<td>275.6</td>
<td>206.7</td>
<td>165.4</td>
<td>137.8</td>
<td>118.1</td>
<td>103.4</td>
</tr>
<tr>
<td>5/8&quot; Plywood</td>
<td># 14 Woodtite</td>
<td>160</td>
<td>120</td>
<td>96</td>
<td>80</td>
<td>68.6</td>
<td>60</td>
</tr>
<tr>
<td>1/2&quot; Plywood</td>
<td># 14 Woodtite</td>
<td>135.9</td>
<td>101.9</td>
<td>81.5</td>
<td>67.9</td>
<td>58.2</td>
<td>51.0</td>
</tr>
<tr>
<td>23/32&quot; OSB</td>
<td># 14 Woodtite</td>
<td>115.9</td>
<td>86.9</td>
<td>69.5</td>
<td>57.9</td>
<td>49.7</td>
<td>43.5</td>
</tr>
<tr>
<td>19/32&quot; OSB</td>
<td># 14 Woodtite</td>
<td>100.7</td>
<td>75.5</td>
<td>60.4</td>
<td>50.3</td>
<td>43.1</td>
<td>37.8</td>
</tr>
<tr>
<td>7/16&quot; OSB</td>
<td># 14 Woodtite</td>
<td>61.5</td>
<td>46.1</td>
<td>36.9</td>
<td>30.7</td>
<td>26.3</td>
<td>23.1</td>
</tr>
<tr>
<td>Solid 2x SPF</td>
<td># 14 Woodtite</td>
<td>293</td>
<td>220.0</td>
<td>176.0</td>
<td>146.7</td>
<td>125.7</td>
<td>110.0</td>
</tr>
<tr>
<td>Solid 1x Pine</td>
<td># 14 Woodtite</td>
<td>207.1</td>
<td>155.3</td>
<td>124.2</td>
<td>103.5</td>
<td>88.7</td>
<td>77.7</td>
</tr>
<tr>
<td>Solid 2x SPF</td>
<td># 9 WoodFast</td>
<td>218.7</td>
<td>164.0</td>
<td>131.2</td>
<td>109.3</td>
<td>93.7</td>
<td>82.0</td>
</tr>
<tr>
<td>Solid 1x Pine</td>
<td># 9 WoodFast</td>
<td>168.4</td>
<td>126.3</td>
<td>101.0</td>
<td>84.2</td>
<td>72.2</td>
<td>63.2</td>
</tr>
<tr>
<td>Screws per Square</td>
<td></td>
<td>190</td>
<td>150</td>
<td>120</td>
<td>100</td>
<td>90</td>
<td>80</td>
</tr>
</tbody>
</table>

The Above Loads and fastener quantities are based on the standard fastening schedule shown on page 4 of this book, with the fastener having an embedment depth of 1" into the solid wood and penetrating the plywood or OSB. Contact FABRAL for additional design information on our products.

### Other Residential Profiles

**1 1/2" SSR**

24 Gauge Standing Seam Roofing

**Climaguard™**

26 Gauge Roofing

**5V Crimp**

26 Gauge Roofing

The above Fabral profiles have their own detail manuals, flashings, and accessories. Please contact Fabral for additional information.
All flashing is 10’ 6” in length & available in steel & aluminum, unless otherwise noted. Please contact Fabral for specifics on the trim available in your area.
All residential flashings are formed for a 4/12 pitch unless otherwise requested by the customer.

**RESIDENTIAL RIDGE/hip**

- **RIDGE CAP**
  - RR-1 or AR-3
- **ROOF PANEL**
- **ROOF STRUCTURE**
- **SEALANT TAPE**
  - Top & Bottom of Closure or Sealer Strip
- **2" LONG FASTENER**
  - @ EVERY MAIN RIB or 12" C/C MAX.
- **OUTSIDE CLOSURE**
  - On Hip Roofs Use 1" x 1" x 19'-8" Sealer Strip and RR-1 Flashing

**RESIDENTIAL VENTED RIDGE**

- **RIDGE CAP**
  - RR-1 or AR-3
- **ROOF PANEL**
- **ROOF STRUCTURE**
- **VERSAMVENT RX-10 or PROFILEVENT**
- **2" LONG FASTENER**
  - @ EVERY MAIN RIB or 12" C/C MAX.
**Residential Flashings Detail**

**Residential Vented Eave**

- **Inside Closure with Sealant Tape Top & Bottom**
- **FabraL Metal Roof Panel**
- **Eave Trim**
- **Fascia Board**
- **FabraL Aluminum Soffit**
- **FabraL Metal Siding Panel**
- **F/J Trim**

**Fascia L-Trim**

- **Butyl Tape Top & Bottom of Closure**
- **Fastener @ 24" C/C Max.**
- **Fastener Per Standard Eave Pattern**
- **Roof Panel**
- **Roof Structure**
- **Inside Closure**

**Residential Eave**
**Residential Flashings Detail**

**Residential Gable**

- **RG-1, WG-1** or **AG-4**
- **Screw fastener @ 24” C/C max.**
- **Butyl tape**
- **Roof panel**
- **Roof structure**
- **Start gable**
- **Cut panel as necessary**
- **Finishing end gable**

**Residential Endwall**

- **Siding**
- **2” fastener @ every main rib**
- **Flash ASW-1**
- **Roof panel**
- **Butyl tape top & bottom of closure**
- **Outside closure**
Residential Flashings Detail

RESIDENTIAL GAMBREL

INSIDE CLOSURE

2" FASTENER@ EVERY MAIN RIB OR 12" C/C MAX.

BUTYL SEALANT TAPE TOP & BOTTOM OF CLOSURE

FLASH AT-2 OR AGR-N4 (GRANDRIB 3)

OUTSIDE CLOSURE

ROOF PANEL

FASTENER PER STANDARD EAVE PATTERN

RESIDENTIAL SIDEWALL

SIDING

2" FASTENER @ 12" C/C

FASTENER

BUTYL SEALANT

ROOF PANEL

ROOF SHEATHING

ROOFING FELT AND ICE AND WATER SHIELD FOR ADDED WEATHER TIGHTNESS
Residential Flashings Detail

Residential Transition

- Fastener per eave fastening pattern
- Inside closure
- 30# felt and ice and water shield for added weathertightness
- Flash at-1 outside closure
- Fastener per eave fastening pattern
- Butyl tape top & bottom of closure
- Fastener @ every main rib or 12" C/C max.
- Roof panel

Residential Pipe Boots

- (Optional) silicone sealant around cut of boot
- Roof panel
- Butyl sealant tape under base of pipe boot
- Plywood deck
- Ventilation pipe
- Pipe boot
- Screws spaced 2" to 3" max around base to secure

Pipe Boot Sizes
- #3 3/8" to 5" pipe dia.
- #5 4 1/4" to 7 1/2" dia.
- #8 7" to 13" dia.
SKYLIGHT & CHMINEY DETAILS

CRICKET FIELD FORMED (SEE BELOW)

ENDWALL FLASH

SIDEWALL FLASH

CRICKET FIELD MADE FROM FLAT SHEET

NOTE: SEE CROSS SECTIONS A-A, B-B, C-C

For optimum weathertightness, use ice and water shield or similar around penetrations.

CRICKET FIELD FORMING

ALTERNATIVE CRICKET DETAIL

1 1/2" SSR WHC1 "HIP CLOSURE" USE TO CREATE BASE/FRAME OF CRICKET

TOP OF CRICKET FIELD FORMED FROM FLAT SHEET

FASTEN TOP OF CRICKET TO BASE USING #14 MP. CAULK ALL JOINTS AND SEAMS WITH ONE-PART POLYURETHANE SEALANT.

FABRICATE SMALL CAP TO COVER AREA WHICH WAS SLIT

CUT TRIANGULAR CRICKET TOP FOLD OF WIDE END OF TRAPEZOID CENTERED ON POLE AND BEND SLIGHTLY DOWN THE CENTER

FLANGE CAP 2" MIN.

OVERALL HEIGHT TO BE MIDWAY PLUS ON HEAD JAMB

FLAT STOCK

UNIT WIDTH

FLANGE CAP 2" MIN.

2" MIN

UNIT HEIGHT

NOTE: SEE CROSS SECTIONS A-A, B-B, C-C

Residential Flashings Detail

For optimum weathertightness, use ice and water shield or similar around penetrations.
Residential Flashings Detail

DORMER DETAILS

SOLID SUPPORT IS REQUIRED UNDER THE VALLEY. EPDM LINING IS RECOMMENDED UNDER LAPPED PANELS AND VALLEY FLASHING. LINING MUST CONTINUE DOWN TO EAVE LINE.
CUT VALLEY PEAKS TO JOIN CLEANLY AND SEAL; COVER JOINT WITH ADDITIONAL FLASHING AND SEAL

VALLEY CENTERLINE

RIDGE CAP; CUT AND FOLD OVER INVERTED V OF VALLEY FLASHING

SEALER STRIP
BUTYL SEALANT
TOP & BOTTOM OF SEALER STRIP

SCREWS
EACH SIDE OF MAIN RIB (EAVE/ENDLAP PATTERN) AND ONE ADDITIONAL, CENTRALLY LOCATED IN THE PAN OF THE PANEL

VALLEY LINING

VALLEY FLASHING RV-2 SHOWN

SOLID DECK

METAL FLASHING TO COVER LAP AT VALLEY PEAKS (CAULK)

CLOSURE; CAULK PERIMETER TRIM AND SEAL AT VALLEY PEAK

RIDGE CAP; EXTEND TO VALLEY PEAK; CUT, FOLD, TRIM, SEAL, AND FASTEN TO VALLEY PEAK

SECTION A-A
Flat 29 gage painted and plain galvanized sheets available in full width (40 13/16” x 10’). Flat sheets are made in grade 33 steel for better hemming, forming, and flexibility for field forming.

Used for field forming cricketts around chimneys, skylights, and penetrations. Also used for field forming special flashing as necessary.

PROFILE VENT GRANDBIB 3 & ALU-TUFF (SHOWN), 5V CRIMP
Grandrib 3 net free area = 10.66 sq. in. per lineal ft. of ridge (5.33 per side)

Sealant Tape
Pipe Boots
Pipe Flashing Item Pipe Size
Gray EPDM No. Min Max
Base Diameter
7 3/4
3 3/4 5
10 3/4
5 4 3/4 7
16 1/2
8 7 1/2 1

Sealant Tape
3/16” x 3/8” x 40’
3/32” x 1” x40’

Pipe Boots

Asphalt Impregnated Sealer Strip
1” x 1” x 19’–6.8” long
USE AT VALLEYS AND HIPS

Accessories

Flat sheets are made in grade 33 steel for better hemming, forming, and flexibility for field forming.

Used for field forming cricketts around chimneys, skylights, and penetrations. Also used for field forming special flashing as necessary.

PROFILE VENT GRANDBIB 3 & ALU-TUFF (SHOWN), 5V CRIMP
Grandrib 3 net free area = 10.66 sq. in. per lineal ft. of ridge (5.33 per side)

Sealant Tape
Pipe Boots
Pipe Flashing Item Pipe Size
Gray EPDM No. Min Max
Base Diameter
7 3/4
3 3/4 5
10 3/4
5 4 3/4 7
16 1/2
8 7 1/2 1

Sealant Tape
3/16” x 3/8” x 40’
3/32” x 1” x40’

Pipe Boots

Asphalt Impregnated Sealer Strip
1” x 1” x 19’–6.8” long
USE AT VALLEYS AND HIPS

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Grandrib 3 net free area = 10.66 sq. in. per lineal ft. of ridge (5.33 per side)

Sealant Tape
Pipe Boots
Pipe Flashing Item Pipe Size
Gray EPDM No. Min Max
Base Diameter
7 3/4
3 3/4 5
10 3/4
5 4 3/4 7
16 1/2
8 7 1/2 1

Sealant Tape
3/16” x 3/8” x 40’
3/32” x 1” x40’

Pipe Boots

Asphalt Impregnated Sealer Strip
1” x 1” x 19’–6.8” long
USE AT VALLEYS AND HIPS