

General Instructions and Guidelines

Building Design and Construction

To ensure adequate performance and longevity, protect metal panels from potentially corrosive situations and materials. When treated lumber will be in direct contact with metal panels please note the following: Galvanized steel is compatible with the CCA (Chromated Copper Arsenate) pressure-treated lumber that is predominantly used today, but not with the older Penta treated lumber. Aluminum, however, must be separated from contact with all treated wood since the chemical preservatives are corrosive to aluminum. Likewise, dissimilar metals also require a protective barrier between them to prevent galvanic corrosion.

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 one of the above methods to separate the two metals.

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

Porous insulation board may absorb and retain moisture, and requires a vapor barrier similar to that described above. This vapor barrier should be installed such that moisture is prevented from contacting both the insulation and the metal panel.

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 over a short period and stain metal panels below, eventually causing corrosion of the metal. If used on roofs, use butyl caulking to separate the fiberglass from the metal. The fiberglass panels should be sealed regularly, as recommended by the translucent panel manufacturer.



Purlins, Girts and Roof Deck

The material to which the metal panel is fastened should be properly spaced and sufficiently thick to provide a roof or wall system able to meet required design loads. Load tables are available for all panels. We recommends spacing the purlins a maximum of 24" on-center for roofing (note that 5V requires solid decking).

In re-roofing jobs 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.

A 2" nominal lumber thickness provides the maximum pullout values for both screws and nails when the fasteners achieve a minimum of 1" penetration into the wood. (Note that 1" nominal lumber is only 3/4" thick and, therefore, results in lower pullout values. Refer to the tables on page 30 for additional information). Pullout values may decrease slightly if the fasteners protrude completely through the purlins or girts. Kiln-dried softwood is recommended for purlins, girts, or decking (pine, fir, hemlock, and spruce). Hardwoods are difficult to fasten into without splitting and contain 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 and loosening of the fasteners.



Roofing

Sidelaps should face away from wind driven rain. Therefore, begin installation by installing the first sheet square with the eave and gable at the downwind end of the roof, farthest away from the direction of prevailing winds.

In applications requiring a panel endlap, please refer to the details shown on page 12 of this manual. For best results, lap panels as shown and install in the indicated sequence. **All endlaps require sealant.** When weathertightness is critical, use sealant tape in all sidelaps.

To provide a drip edge, allow an overhang of 1" to 2" 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 6" to 10" inches along the gable edge.

Roof Pitch

The metal roofing panels shown in this manual require a minimum pitch of 2-1/2" per foot to ensure proper drainage. For wider buildings and lower roof pitches, contact your dealer 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, since it is not designed to take a lockseam. 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. Standard fastener spacing is permitted over the rest of the sheet. When installing the metal roofing and siding panels shown in this booklet over a curved arch, the minimum radius of the arch is 18' for aluminum profiles and 24' for steel profiles. Use sealant tape or butyl caulking at all sidelaps and endlaps.



Additional care and fasteners must be provided when securing the top and bottom purlins on a laminated 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 12" to 18" from ground level and end the siding sheets there.

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

Fastening

We can supply either screws for fastening into dimension lumber, with screws offering better pullout values. Woodgrip screws for use with steel panels are galvanized and then coated with an organic polymer for optimum corrosion resistance.

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. See pages 4 to 5 for the correct fastener locations.



Safety

Always work safely when installing metal products. Use extreme caution on the roof at all times, and wear gloves and safety glasses to avoid injury. Hearing protection should be used when power-cutting metal panels. Do not walk on panels until all the fasteners are installed. Metal panels are slippery when wet, dusty, frosty, or oily. Do not attempt to walk on a metal roof under these conditions. Wear softsoled 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 on a windy day can be dangerous and should be avoided. Consult OSHA guidelines for more complete safety requirements.

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 finetooth 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 Steel Panels

Steel panels may be cut with 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 abrasive blade. This method may be faster, but it has some drawbacks: 1. Saw cut edges are jagged and unsightly and tend to rust more quickly than sheared edges 2. Saw cutting produces hot metal filings that can embed in the paint and cause rust marks on the face of the panel 3. Panels to be saw cut 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. Saw cut panels must be thoroughly wiped to ensure the removal of all metal filings 5. Saw cutting burns the paint and galvanizing at the cut edge, leading to the onset of edge rust.



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.

