THE SKYLINE GROUP

Knife Plates and New Products

Skyline Engineered Aluminum

Skyline Engineered Systems
COMPANY HISTORY

We were founded in 1995 as a roofing & waterproofing business. We added aluminum railings in order to offer a complete deck package to our clients. Our experience with knife plate attachments allowed us to perfect our aluminum bolt on balcony. With knife plate attachments we minimize the penetration of the building envelope.

For years the balcony standard has been wood, PT slab and steel. These all come with their own unique set of problems.

- **Wood:** Water proofing failure, rot repair and replacement.
- **PT Slab:** Additional concrete costs. More water proofing concerns.
- **Steel:** Will rust and is extremely heavy. This increases the engineering needed to support the added weight.

Your job is to listen to the owner and provide solutions, our job is to make it easy for you to do just that. Our aluminum modular systems eliminate all the problems that building owners have had to endure. Skyline has become a leading manufacturer and installer in this field with lightweight, durable systems that never fail.

Skyline understands the time and energy you put into the important architectural aspects of a building. We are here to partner with you to ensure that the design intent you have is the reality we help to create.
INTRO TO KNIFE PLATES

Knife plates are a category of connection hardware pieces that collectively act as a bridge to transfer the forces from external structures to the structure of the building through the siding and waterproofing.

They are designed to have a minimal horizontal presence and to be as easy to waterproof as possible.

There are four main types of knife plates we use and are categorized by the shape of the knife outside the siding. These are: Seat, Clevis, Cantilever and Angle.

The basic components of a knife plate are the back plate (unnecessary when welding to an embed or steel structure) and the vertical knife plate (perpendicular to the structure).

Our knife plates are designed to work well with most waterproofing methods, as the vast majority are applied to the exterior of the base plate.
**SEAT PLATE**

Designed with an angle forming a ledge the seat plate is designed to hold the back of large frames. The frames are secured to the plate with fasteners providing high shear strength meeting engineering requirements.

Seat plates also offer several advantages during installation as the assembly can be hoisted into place, then partially supported by the knives while final adjustments and hardware are installed.

Typically used with canopies and bolt on balconies.
A clevis plate has a radius front with a hole drilled for the cotter pin.

The radius allows for movement of the clevis yoke and the cotter pin hole can be adjusted to fit the engineering requirements of the project.

Combined with a rod this plate resists tension and uplift forces as well as supporting standard dead load forces.

Typically used with canopies and bolt on balconies.
CANTILEVER PLATE

Designed to be bolted or welded to a structure the cantilever plate can be used to replace a seat plate and clevis knife combination for smaller structures.

Due to their nature cantilever plate resist both up forces as well as standard dead loads. Thus, making them ideal for smaller frame structures or where the visual of tension rods is to be avoided.

However, due to double duty on the engineering side of things, the forces they need to resist can get quite large as the size of the structure increases.

Additionally, due to their attachment method there is generally little opportunity for leveling/adjustments in the field.

Typically used with canopies, Juliet decks and sunshades.
Designed for connections to smaller frames and posts, the angle plate presents the bolted connection in line with the axis of the forces. Can be made of bent plate or extruded angles.

The connection at the base of the post helps to rigidify the assembly and increase the support at the point of greatest force.

Typically used on parapet railings, fascia railings and patio guards.
While we are not waterproofing consultants, our products work well with most waterproofing applications.

Plate installed on top of SAM or other WRB target flashing.

The remaining water proofing steps per the building envelope designer.
TWO TIER INSERTS

Designed for attaching a metal assembly to a structure when passing through a waterproofed membrane over sloped rigid foam insulation or landscaping.

Applicable at either wood or concrete connections. The base section is large and structurally strong which supports a smaller insert for the attachment of the visible metal assembly. It is comprised of a base plate welded to a steel HSS vertical stem welded to a SS cap welded to a SS insert. This is then secured to the wood or concrete substrate. The insert can be sized according to the engineering requirements of the posts holding the various assemblies.

While the decorative metal assembly is typically square, the base section is typically a round pipe to allow for “boot” style waterproofing applications. Typically made of steel for engineering requirements.

Typically used for railings, privacy panels, trellis’s and pergolas.
TWO TIER INSERT
INSTALLATION PHOTOS

Before

After

Designed for connections to smaller frames and posts, the angle knife rotates the bolted connection in line with the forces. Can be made of bent plate or extruded angles.

The connection to the base of the post helps to rigidify the assembly and increase the support at the point of greatest force.

Typically used on parapet railings, fascia railings and patio guards.
Skyline modular deck systems with exclusive TRUBEAM™ technology is a flexible and versatile deck system designed for the majority of standard applications.

The system is pre engineered for all common sizes. Our standard offering includes two railing options, glass or picket, but can be upgraded to accommodate any custom railing. It comes standard with our ADA compliant deck tread, with knurled ridges to prevent slippage and with built in water drainage system. Composite decking or other flooring materials can be substituted if needed. As with our other products we have a wide range of over 74 standard colors, with custom colors and finishes available.
TRUBEAM™ MODULAR SYSTEMS

Our exclusive extrusion design enables our product to span further distances with a lower profile than standard welded frames of either C channel or tube.

Designed with simple mechanically fastened connections, the decks can be assembled using minimally skilled labor.
TRUBEAM™ DECK ASSEMBLY

Details during manufacturing.
Our deck tread is ADA compliant. It is waterproof and designed to have water drain off the sides of the deck.

With over 74 powder coat colors to choose from, our decks will enhance any building theme.
TRUBEAM™ MODULAR SYSTEMS

Can be modified, cut, or resized on site with common tools, if needed.

This allows for last minute adjustments to fit the as unexpected as built conditions without needing additional refabricating or additional parts from the factory.

This minimizes potential installation delays.
TRUBEAM™ DECK WITH GLASS INFILL

Deck frame with glass infill & tension rods
TRUBEAM™ DECK WITH PICKET INFILL

Deck frame with mid rail picket infill & tension rods
TRUBEAM™ MODULAR SYSTEMS

Assembled on the ground and lifted with minimal equipment. Hoisting can be done by using a Spider hoist or crane.
TRUBEAM™ MODULAR SYSTEMS

Owner Advantages

A long term benefit for owners is that if any component is damaged after construction is complete (ie by a limb during a storm), the deck can be easily repaired with replacement parts ordered from Skyline.

Due to the simplicity of the modular system it is possible these repairs could be made by the building maintenance staff.
TRUBEAM™ MODULAR SYSTEMS

Jobsite Advantages

• Delivered direct to jobsite in single load – thereby decreasing project delivery delays

• Packaged & shipped for ease in storage and staging on site with deck numbering systems on all pieces – thereby increasing schedule adherence

• We package our kits to have easy to follow instructions and include all the required hardware. It is designed to have simple bolted connections for a quick installation with minimal labor requirements.
SKYLINE GROUP

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Thank you!

The Skyline Group of Companies