



ARCHITECTURAL WALL PANELS | AWP1818, AWP3030 | MARCH 2021

Horizontal Installation Guide

AWP1818, AWP3030

HORIZONTAL INSTALLATION GUIDE

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GENERAL

This guide is intended to enable successful installation of Nichiha's 1818mm and 3030mm Architectural Wall Panels (AWP 1818, AWP 3030) in a horizontal orientation. Spanish and French versions are available. Further installation information and technical resources such as animated instructional videos, Technical Bulletins, three-part specifications, product testing and certifications, architectural details in AutoCAD, Revit, and PDF versions, and other technical documents are available on our website: nichiha.com/resource-center.

Install products in accordance with the latest installation guidelines and all applicable building codes and other laws, rules, regulations, and ordinances. Review all installation instructions and other applicable product documents before installation. *This install guide's effective date is March 2021.*

PRODUCT INSPECTION

Inspect all products thoroughly prior to installation. Do not install any product which may have been damaged in shipment or appears to have a damaged or irregular finish. Should you have a question or problem with your order, contact your local dealer or Nichiha Customer Service, toll-free, at 1.866.424.4421. Keep the products dry prior to installation. It is best to store the products indoors, otherwise keep them covered. Do not stack pallets more than two high.

BASICS OF THE AWP SYSTEM

The are two sizes of Nichiha panels: AWP 1818 and AWP 3030. There are unique aspects to both sizes. When installing either size, be sure to follow the dedicated instructions specific to them in this guide, distinguished by a color code and page headers/ footers. The bulk of this guide is non-coded and applicable to all AWP.

AWP 1818 metric dimensions (in millimeters) are 455 (h) x 1,818 (l) x 16, 18, or 21 (t). Imperial equivalents (in inches) are 17-7/8 (h) x 71-9/16 (l) x 5/8, 3/4 or 7/8 (t).

AWP 1818 edges are shiplapped on all sides and a factory sealant gasket is included on the top and right edges. When the panels fit together, all factory joints are sealed. This enables stacked or staggered panel layouts for AWP 1818. **Joint Tab Attachments** are required at vertical joints. **AWP 1818 must be installed horizontally.**

AWP 3030 metric dimensions (in millimeters) are 455 (h) x 3,030 (l) x 16 (t). Imperial equivalents (in inches) are 17-7/8 (h) x 119-5/16 (l) x 5/8 (t).

AWP 1818
71-9/16" (1818mm) W x 17-7/8" (455mm) H



AWP 3030
WIDTH: 119-5/16" (3030mm)



AWP 3030 edges are shiplapped only on the top and bottom, with the top edge including a sealant gasket. Vertical edges for AWP 3030 are flat, requiring sealant backers or metal trim and allowing only a stacked layout. *The flat, vertical edges are never butted directly together, nor staggered.* AWP 3030 may be installed horizontally or vertically.

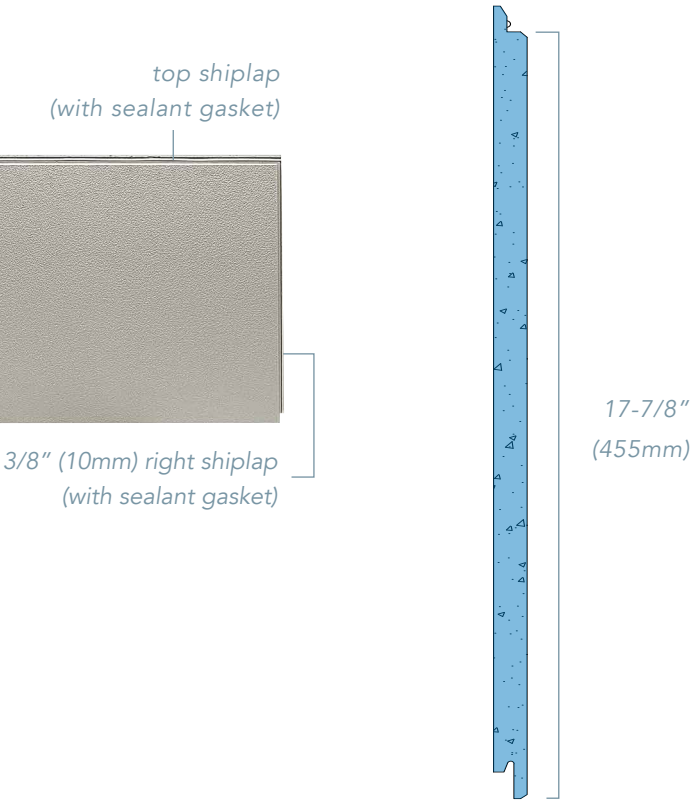
Refer also to *Compatibility Between Panel Types* on page 14 and the *AWP 3030 Vertical Install Guide*.

AWP ATTACHMENT HARDWARE

Ultimate Clips and Starter Track engage the top and/or bottom panel edges, holding the panels off the substrate surface by 10mm (~3/8") and creating a closed-joint, drained/back-ventilated rainscreen system with concealed fastening.

SYSTEM THICKNESS

For the overall thickness of the AWP system, add the 10mm rainscreen channel to the thickness of the panel (16, 18, or 21mm) for a total system depth of 26, 28, or 31mm.



Dimensions are measured from the edges of the panel face, which includes the left (AWP 1818 only) and bottom shiplaps (all panels).

LIMITATIONS, TECHNICAL REVIEWS & SPECIAL APPLICATIONS

Natural limitations on product usage are inherent to any cladding product's design, physical characteristics, and attachment system. Nichiha AWP are intended as a low-to-mid-rise cladding product.

Any project of more than three stories or 45 feet (13.7m), as well as those located in high wind coastal areas (Exposure Categories C and D with Basic Wind Speed in excess of 130 mph), or those with any wall assembly not described in *Framing & Sheathing Requirements*, require a technical review by Nichiha to evaluate feasibility via our Technical Design Review process.

By evaluating a project's unique criteria and design, we can reference independently test-derived and calculated wind load performance data for our products to determine whether and how the panels can safely be installed on the project. Contact your local rep or Nichiha technical department for details or to initiate a Technical Design Review.

AWP are not to be used in any applications/uses not specified or described in this installation guide or other Nichiha technical documents. Any such use shall not be backed by the manufacturer's product warranty.

Do not use AWP on open screen walls.

Insulated Concrete Forms (ICFs) require [additional measures](#).

Installation of AWP products on modular structures that are factory-constructed and then transported to a final site are not approved without full technical review; and further, excluded from the Limited Product Warranty, per Section 2.F.

For all applications in this guide, AWP shall be installed horizontally - level and perpendicular to wall framing.

If in doubt, please contact Nichiha Technical Services for assistance.

SAFETY

As with any natural stone, masonry, or concrete based product, when cutting, drilling, sawing, sanding, or abrading fiber cement cladding, proper safety measures must be taken due to the potential for airborne silica dust, an OSHA-identified hazardous substance that can pose serious medical risks.

Always wear safety glasses and a NIOSH/OSHA approved respirator with a rating of N, O, or P 100. Carefully follow the respirator manufacturer's instructions as well as applicable governmental safety regulations concerning silica. Refer to Nichiha's SDS for more information.

Always cut fiber cement panels outside and with a dust-collecting HEPA vacuum system. Do not cut the products in an enclosed area.

Use a dust-reducing circular saw with diamond-tipped or carbide-tipped fiber cement saw blades.

Always clean panels after cutting. Fiber cement dust can potentially bind to the panel finish. HEPA vacuuming is best, with care taken not to damage the panel finish.

FRAMING & SHEATHING REQUIREMENTS

Prior to Nichiha installation, closely inspect the exterior wall substrate and correct any problems. Walls that are out of plumb, for example, can negatively impact the installation quality of AWP. Nichiha Spacer may be used in conjunction with panel attachment hardware if necessary to ensure an even substrate.

Nichiha AWP cladding may be installed on flat walls only. No curved surfaces. Refer to pages 38-41 concerning soffits and forward-leaning (non-vertical) applications. Wood or steel framing, concrete/masonry with furring, Structural Insulating Panels (SIP), and pre-engineered metal buildings (PEMB) must meet the following requirements:

Refer to our third party building code certifications and/or state and local approvals for allowable wind design pressures: nichiha.com/resource-center.

WOOD STUDS

Size: minimum 2x4 studs
Spacing: 16" (406mm) o.c. max
Sheathing: exterior grade minimum 7/16" (11mm) plywood/OSB (APA rated), 1/2" (13mm) or 5/8" (16mm) gypsum

METAL STUDS

Gauge: minimum 18
Spacing: 16" (406mm) o.c. max
Sheathing: exterior grade minimum 7/16" (11mm) plywood/OSB (APA rated), (13mm) or 5/8" (16mm) gypsum

CONCRETE/MASONRY

Furring is required for installation of AWP over concrete and masonry structures.

Wood Furring: pressure treated lumber 2x4, oriented vertically, spaced 16" (406mm) o.c. max

Metal Furring: hat channel, c-stud, or z-furring, minimum 18 gauge, oriented vertically, spaced 16" o.c. (406mm) max.

STRUCTURAL INSULATING PANELS (SIP) AND STRUCTURAL INSULATED SHEATHING (NAILBASE)

SIPs should be constructed in accordance with the manufacturer's instructions and local building codes.

The horizontal framing elements of SIPs allow for Starter Tracks and face fasteners to be secured to solid framing.

Install *nailbase sheathing* in accordance with the manufacturer instructions and load tables. AWP installation specifics over nailbase insulated sheathings depend upon the nailbase type and thickness.

Contact the Technical Department for assistance with these substrates.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

Metal buildings must be new construction.
No direct retrofits/remodels.

Limit the metal siding/skin deflection to L/120.



50 ksi metal panels must have ribs spaced no more than 12" (305mm) o.c. with metal gauge determined by allowable wind design pressures:

Projects with allowable design pressures in excess of the table values may not utilize AWP directly over PEMB metal panels.

METAL PANEL GAUGE	ALLOWABLE PRESSURE
24 gauge	-31.41 psf
22 gauge	-39.29 psf

Additional special installation requirements for PEMBs are discussed in the *Fasteners*, *Installing the Starter Track*, and *Panel Installation* sections to follow.

CONTINUOUS INSULATION

Where exterior/continuous insulation is used, *horizontal* AWP may be installed directly over up to 1" (25mm) of foam plastic insulation on wood or gypsum sheathing. For such applications, a minimum compressive strength of 25 psi insulation is highly recommended. Thicker insulations require a structural solution to provide attachment points for AWP such as a furring grid or third-party specialized system. Mineral wool c.i. of any thickness requires a furring.

Also refer to the Technical Bulletin: *Continuous Insulation and AWP* as well as the architectural details available at nichiha.com/resource-center. Please contact Nichiha Technical Services for further assistance.

AWP OVER C.I. ATTACHMENT REQUIREMENTS

When adding furring* to enable AWP installation over c.i., the following general criteria are applicable:

AWP-1818 and AWP-3030 Horizontal Applications

1. Shaped metal furrings (Z, hat channel, C, etc.)

- Minimum 18 gauge
- Aligned vertically
- Spaced 16" (406mm) o.c. (max)

- or -

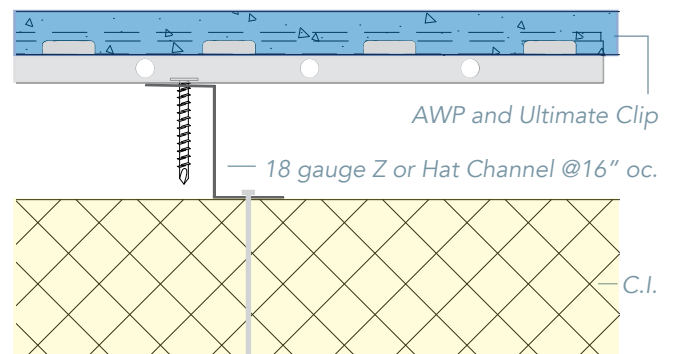
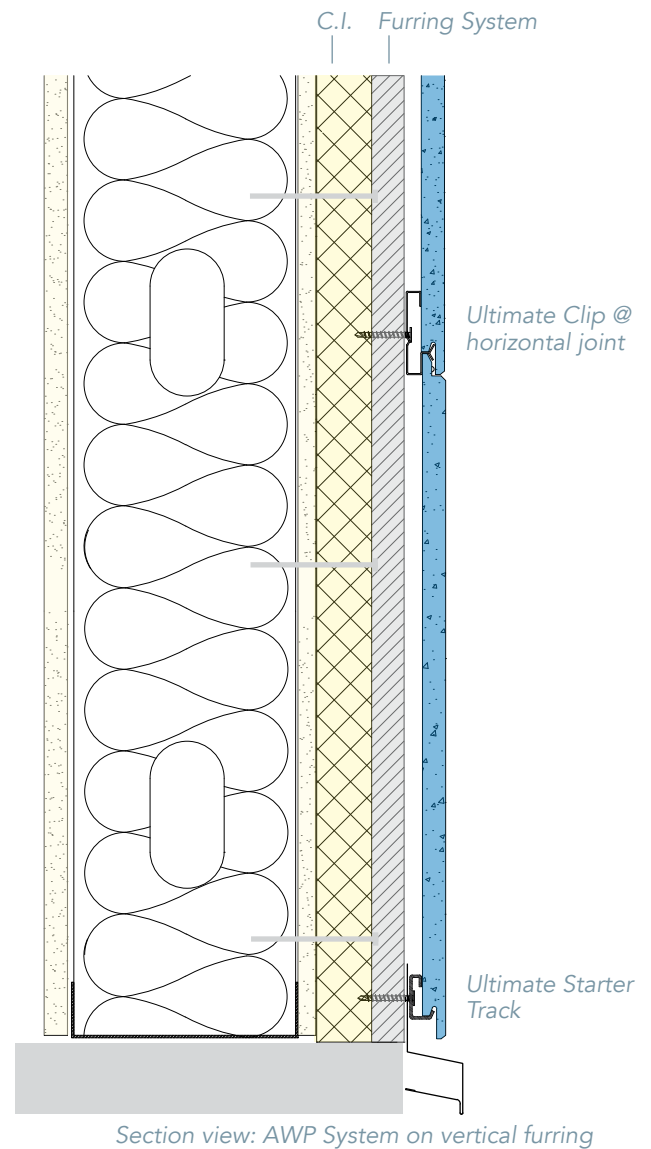
2. Pressure treated lumber (Do not use strips of wood sheathing as furring.)

- Minimum 2x (1.5") thickness
- Aligned vertically
- Spaced 16" (406mm) o.c. (max)

- or -

3. A combination of horizontal (spaced per engineer's design) with a second, outermost layer of vertical furring (16" (406mm) o.c.)

*Consult a structural engineer to design the furring system to manage the AWP system dead load of minimum 5 psf and also meet the project wind load design criteria. Furring must account for expected building compression. Nichiha does not provide fastener design for anchoring the furring to structure. Refer to IBC 2015 Table 2603.12.2 for more info.



ACCESSORY ATTACHMENTS

Nichiha Double and Single Flange Sealant Backers and metal trims, such as H-Mold and Corner Key, must be fastened to furring, blocking, or 18 gauge flat stock/brake metal. Sealant backers must be fastened every 12-14" (305-356mm) vertically, so any use of flat stock must accommodate this fastening schedule.

Outside corners may be wrapped with 18 gauge flat stock fabricated to fit the corner. Attach the stock to furring on both sides of the corner. Corner Clips are used to secure Nichiha factory panel Corners and may be fastened to the flat stock wrapping, as can metal trim corners.

IBC 2015 TABLE 2603.12.2

The model building code for 2015 includes information in Chapter 26 about foam plastic insulation/sheathing and furring minimum fastening requirements. Table 2603.12.2 shows various configurations depending upon framing gauge and spacing, fastener size and spacing, thickness of insulation and cladding weight. As an example, according to the table, 3 inches (76mm) is the maximum thickness of foam sheathing on which a furring can be added directly on top, spaced at 16" (406mm) o.c. and fastened with #8 screws every 12"-16" (305-406mm) (into 18 gauge wall framing), that can support a cladding weight of 3 psf.

ENERGY CODE FRIENDLY MARKET OPTIONS

A number of engineered third party systems exist that are designed to solve the conflicts between energy code compliance and the safe installation of exterior claddings over continuous insulation.

Nichiha has direct experience with these products:

Bracket and rail systems:

[Cascadia Clips®](#)

[FERO Cladding Support](#)

[ISO Clip](#)

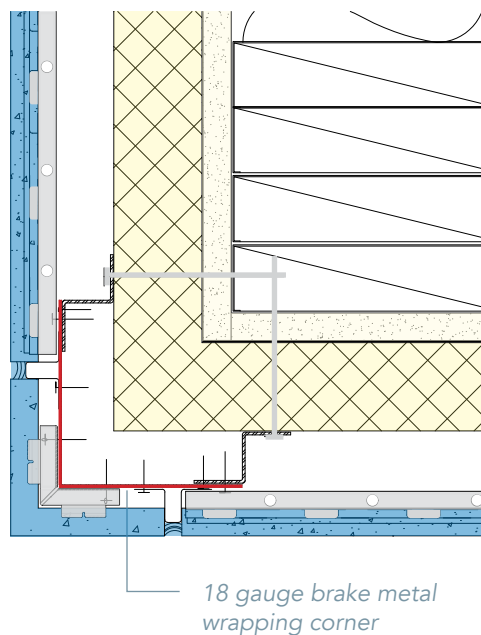
[Knight Wall MFI®](#)

[CL-TALON®](#)

[Hunter Xci Ply](#)

[Knight Wall CI®](#) and [HCI™ Systems](#)

[SMARTci GreenGirts](#)



WEATHER RESISTIVE BARRIERS

A weather resistive barrier (WRB) is required when installing Nichiha panels over stud walls and SIPs. For CMU/concrete and PEMB assemblies, Nichiha defers to local code requirements. Use an approved WRB as defined by the 2015 IBC. Refer to local building codes. Fluid applied WRBs are acceptable.

A permeable WRB is highly recommended when installing Nichiha panels for residential applications.

A permeable WRB is required for all commercial applications.

Sheathings and insulations with an integrated code-compliant WRB such as ZIP System® and DensElement™ are acceptable.

All openings, corners, and transitions must have appropriate flashing to prevent moisture penetration.

Follow moisture management best practices, WRB manufacturer's guidelines, window manufacturer instructions, and all local building codes. *Nichiha assumes no responsibility for moisture infiltration.*

STORAGE AND HANDLING

AWP are a finished product and care must be taken to protect them against damage prior to and during installation. Panels must be stored flat and kept dry. Ensure panels are completely dry before installing them. Refer to the storage information included on product pallets. Do not stack pallets more than two high.

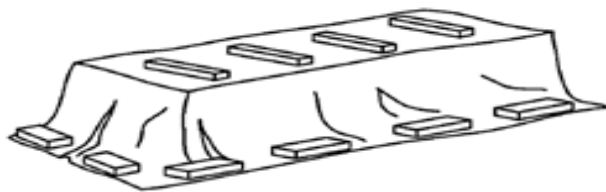
Panels **MUST** be carried on edge. Do not carry or lift panels flat. Improper handling may cause cracking or panel damage.

Direct contact between the panels and the ground must be avoided at all times. It is necessary to keep panels clean during installation process.

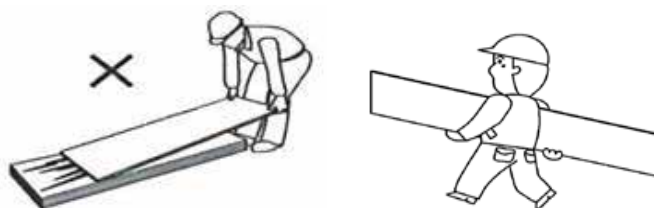
Cut the panels with the face down.

Always clean panels with a HEPA-filtered vacuum after cutting. *Dust can bind to the finish.*

When sidewalks are poured after AWP installation, take steps to cover/protect panels near grade. Cement dried on AWP cannot be removed.



Always cover pallets with a breathable tarp or store indoors!



*Don't unpack and re-stack panels!
Always carry panels on edge!*

FASTENERS

Fasteners must be corrosion resistant. Stainless steel or corrosion resistant screws such as hot-dipped zinc or ceramic coated are recommended. Comply with all local building codes for fastener requirements.

Number 10, pan-head screws (HD .365" (9.3mm)) were used as clip fasteners for AWP wind load testing. The minimum size for Ultimate Clip, Starter Track fasteners is #8. Clip and track screws must have a pan, wafer, or hex type full head.

Min. Number 7 or larger screws with a bugle or flat head (min. head diameter 0.255" (6.5mm)) are appropriate for face fastening locations. Fasteners must penetrate framing or furring per the minimum requirements below. Refer to the *Face Fastening Best Practices* section on page 17 for face fastening procedure.

WOOD STUDS

Fasteners must penetrate solid structure by a minimum of 1" (25mm).

METAL STUDS

Screws must penetrate solid structure by a minimum of 1/2" (13mm). Three threads are needed for effective grab.



CONCRETE/ MASONRY

Furring to Masonry: Fastener type, size, and spacing to be determined under direction of an engineer and in accordance with local building codes.

AWP to Furring: Screws must penetrate wood furring a minimum of 1" (25mm) or steel by 1/2" (13mm).

STRUCTURAL INSULATING PANELS (SIP) STRUCTURAL INSULATED SHEATHING (NAILBASE)

Min. one inch (25mm), full-thread, corrosion resistant wood screws must be used for Ultimate Clips. Longer screws accommodating minimum stud penetrations may be needed for Starter Track and face fastening.

SIPs: Fasten Starter Track every 16" (406mm) max to the sill plate.

Nailbase: Fasten Starter Track every 16" (406mm) into framing with longer screws or every 12" (305mm) max to the wood sheathing (nailbase) alone.

Double fastening per each Ultimate Clip (minimum of 4 screws per clip) is required as there are fewer or no studs to secure the system. Additional screws may be needed in high wind locations. Contact the Technical Department for guidance.

Face fasteners below windows and at the top of the wall are secured at 16" (406mm) o.c. max. to the framing at such locations.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

The PEMB wind load/panel gauge table (see *Framing & Sheathing Requirements*) is contingent upon use of #10-16 x 1" (25mm) pan head, S/D screws.

Fasteners must be spaced at no more than 12" (305mm) o.c. into metal panel ribs.



INSTALLATION HARDWARE & ACCESSORIES



ULTIMATE HORIZONTAL STARTER TRACK

Horizontal Starter Track serves as the foundational support for the AWP system while also providing faster and greater ease of installation.

Horizontal Panels: Starter Track FA 700



ULTIMATE CLIP II

Ultimate Clips sit on the panel shiplaps, securing AWP to the wall and distributing dead loads to the structure. Together, Ultimate Clips and Starter Track hold the back surface of the panels off the substrate to create a 10mm (3/8") rainscreen space.

JEL 778 CLIP Compatible with all AWP (except SandStone and VintageBrick)

JEL 788 CLIP Compatible *only* with SandStone and VintageBrick



Joint Tab Attachments are included with Ultimate Clips and must be secured within a clip at the bottom of **each AWP 1818 vertical joint** to support panel lateral stability. Fasteners are included for use with the Joint Attachments only.

CORNER CLIP



Corner Clips sit on the shiplaps of Nichiha Corners, securing them to the wall and supporting their weight in cooperation with Starter Track.

JE 777C Compatible with all AWP Corners (except SandStone, VintageBrick)

JE 787C Compatible with SandStone, VintageBrick Corners

CORRUGATED SPACER



At termination points where Panel Clips cannot be used, Nichiha Corrugated Spacer is required to maintain the rainscreen space and prevent panel deflection at face fastening locations such as window sills and headers.

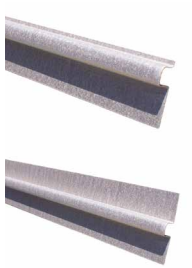
FS 1010 SPACER – 10mm

FS 1005 SPACER - 5mm



NICHIHA CORNERS

Nichiha Corners are manufactured mitered panel corners available in the same finishes as horizontally oriented AWP. Corners have 3-1/2" (89mm) returns (face dimension). Corners are not available for Miraia panels.



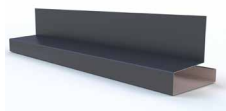
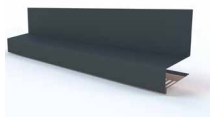
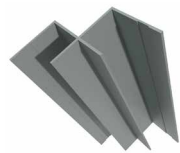
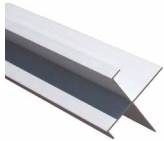
SEALANT BACKERS

Nichiha Sealant Backers provide exact spacing for expansion and termination joints and the recommended depth of sealant (75-80%).

They provide faster installation than a foam backer rod and require less sealant. At sealant joints, use a sealant that complies with ASTM C920, Class 35 (min.). Refer to the *Sealant* section on page 19 for more information.

Single Flange Sealant Backer: FHK 1015 – 10 mm

Double Flange Sealant Backer: FH 1015 – 10 mm



METAL TRIM OPTIONS

Nichiha metal trim provides aesthetically pleasing design options for corners, openings, and transitions, as well as vertical joints.

TRIM**	APPLICATIONS
Corner Key	Outside Corners
H-Mold	Vertical Joints - AWP 3030
Open Outside Corner	Outside Corners
J-Mold	Terminations
Inside Corner	Inside Corners

** Be sure to order and use trim channels sized to the appropriate AWP thickness.

ESSENTIAL FLASHING SYSTEM	APPLICATIONS
Starter*	Base/Clearance Concealment
Compression Joint	Horizontal/Compression Joints
Overhang*	Fascia-to-Soffit Transitions

* Inside and outside corner segments are available.

GENERAL PANEL & ACCESSORY BASICS

All trim, Single and Double Flange Sealant Backer should be installed before panels. Refer to *Inside Corners, Doors, & Windows* and *Vertical Expansion Joints* sections respectively.

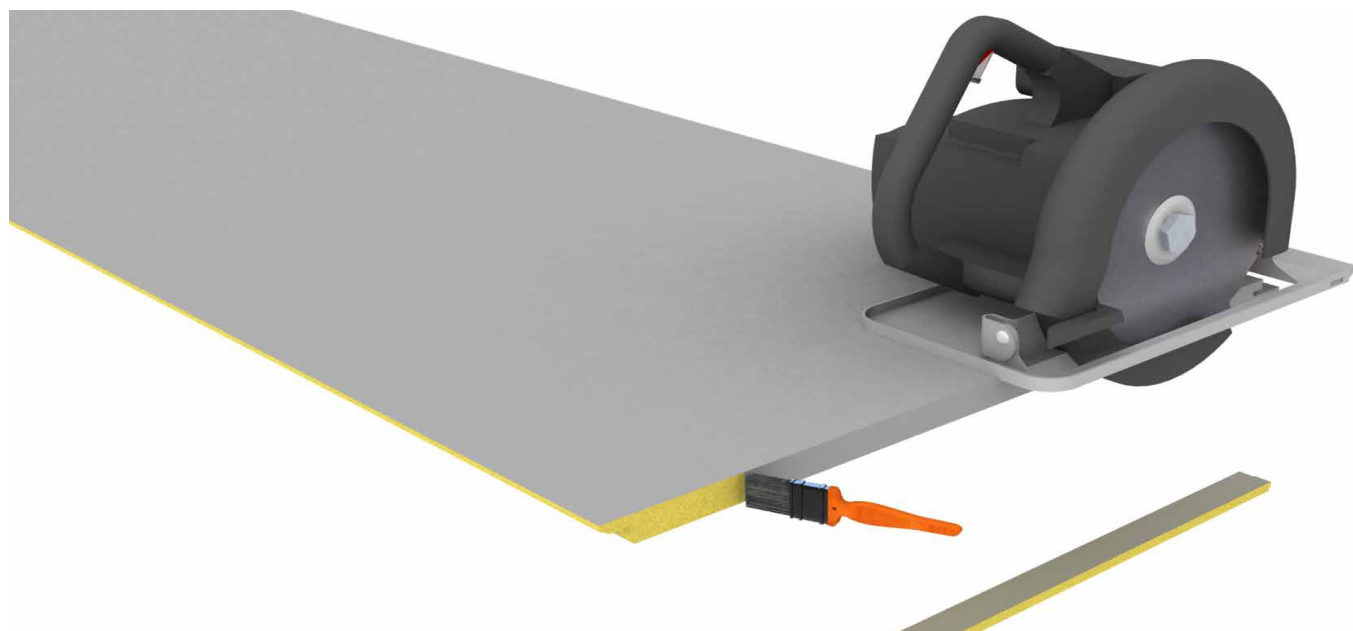
PANEL SELECTION

Nichiha AWP are packaged with two panels in a pack, which are placed on pallets consisting of two stacks. Due to alternating patterns of texture and color between individual panels as well as how the panels are manufactured and packaged, it is best to install all panels from each individual stack before taking and installing panels from the second stack on the same pallet. Do not alternate installing from one stack and the second, which may result in undesirable patterns.

SEALING CUT PANEL EDGES

When cutting AWP, it is best to cut with the panel face down, except when cutting brick finish panels as it is easier to follow the simulated mortar lines on their face.

Cut and exposed panel edges must be primed or sealed with fiber cement sealer (e.g. DryLock®) or latex paint such as Kilz Premium® or Kilz Max®. Do not use Color Xpressions touch up paint for edge sealing as there will not be sufficient supply for larger projects. *Be sure to clean panels with a clean, dry soft cloth or HEPA vacuuming after cutting to prevent dust from bonding to the finish.*



PLANNING & PANEL LAYOUT

To ensure a successful installation, it is important to first plan how the panels will be laid out, where compression and control joints will be located, and line of sight regarding inside corners decided.

Refer to *Compatibility Between Panel Types* on page 18 for additional product relationship information.

Reminder: AWP actual dimensions are metric: 455mm (h) x 1,818mm or 3030mm (l). Imperial equivalents: 17-7/8" (h) x 71-9/16" or 119-5/16" (l).

LAYOUTS

AWP 1818 can be installed in a stacked bond or a staggered bond application. Refer to the illustrations on Page 22. AWP 3030 must only be installed with a stacked bond layout. ***AWP 3030 may not be staggered.*** See the layout illustration on page 26.

VERTICAL CONTROL/EXPANSION JOINTS (PAGE 23)

10mm (3/8") sealant joints account for thermal expansion in the lateral dimension. These are often, where possible, aligned with window or door jambs, downspouts, or other features in order to minimize their appearance. Depending on sheathing type, additional framing, furring, or blocking may be required.

HORIZONTAL/COMPRESSION JOINTS (PAGE 27)

Minimum ½" (13mm) horizontal, flashed break detail to allow for building compression at floor lines.

INSIDE CORNER LINE OF SIGHT (PAGE 28)

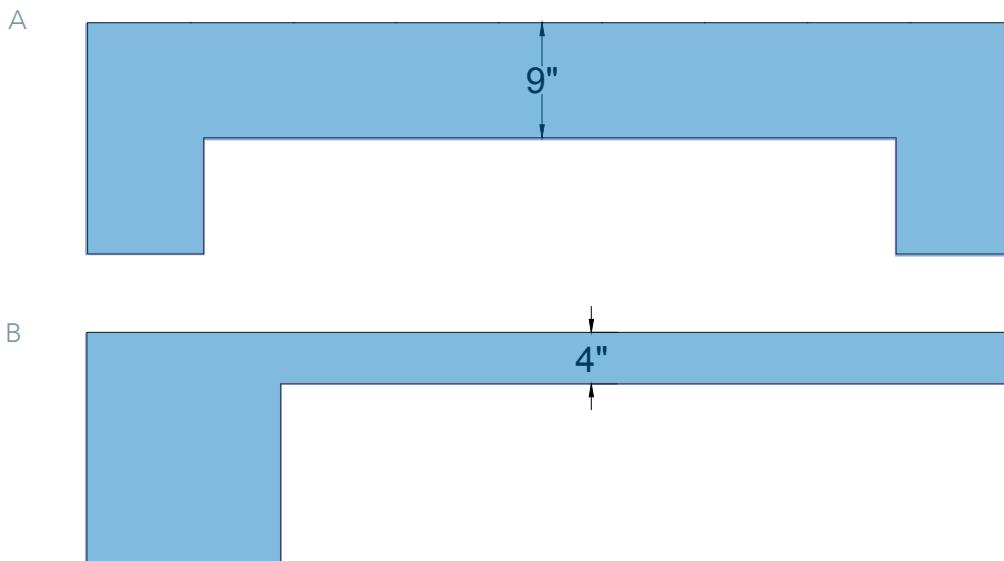
Sealant joints at inside corners can be placed out of view from the primary line of sight of a wall. Place the sealant joint on the less-viewed corner wall. Alternatively, Inside Corner metal trim may be used.

CUT PANELS

In general, it is best to avoid cutting AWP to short or narrow strips and segments of less than 9" (229mm). The hard minimum width or height is 4" (102mm). Adjust the layout or use alternate materials when needed to avoid cutting AWP smaller than 4" (102mm).

Specifically, when an individual panel is wider than a window or other opening and is used over the head or under the sill, do not cut it to less than 9" (229mm) in height. (image A)

When an opening is wider than an individual panel and two or more are needed to cap over the header or cup the sill, do not cut the panel to less than 4" (102mm) in height. (image B)

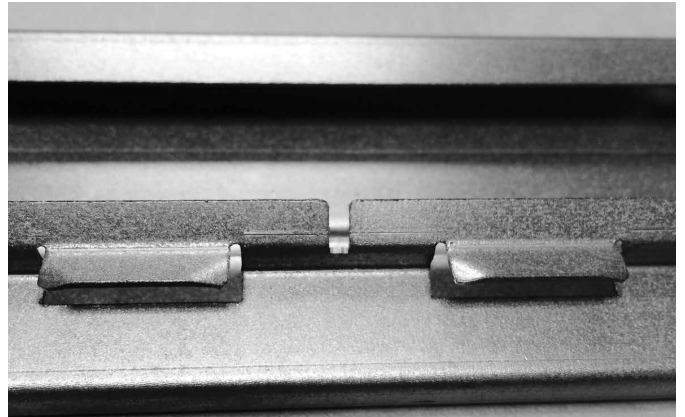


CUTTING ULTIMATE CLIPS

JEL778/788 Panel Clips are 26" (660mm) long. Where full length clips can be used, they are required. However, there may be conditions where clips must be cut to accommodate panels or corner pieces in smaller areas or segments such as narrow columns, pilasters, or insets, recessed openings, or small areas between windows.

Notches on the upward panel engagement flanges indicate where clips can be cut evenly into thirds. These 1/3 segments can be further reduced evenly into two or four pieces each with weep holes serving as dividing points. The smallest segment must include at least one downward panel engagement flange. Always use the widest clip segment possible.

Cut with a non-ferrous saw blade on a band or chop saw.



FACE FASTENING BEST PRACTICES

To minimize the appearance of face fasteners, utilize the following steps:

Apply low adhesive tape such as painters tape to the panel at face fastening locations.

Pre-drill panels 1" (25mm) from the cut edge to be face fastened. Use a countersink drill bit with chamfer matching the head diameter of the bugle-head type screws to be used for face fastening.

Fill counter-sunk fastener holes with an exterior patching compound, such as MH Ready Patch® and later dab touch-up paint with cotton swabs or an artist brush.

Remove the painter's tape only after applying the patch and touch up paint.



SEALANT

Sealants to be used with AWP must match the following requirements:

- Comply with ASTM C920
- Have a Class of 35, 50, or 100/50 (minimum 35% joint movement)
- Be a polyurethane, polyurethane hybrid, or Adfast Adseal 4580
- Provide two-sided adhesion at joints (Nichiha sealant backers are light gauge steel with galvalume and fluorine coatings.)

OSI® QUAD® may not be used for Nichiha expansion joints because it is a class 25 product.

- QUAD® MAX is acceptable since it is a Class 50

Refer to the Technical Bulletin: *Sealants* available at Nichiha.com/resource-center.

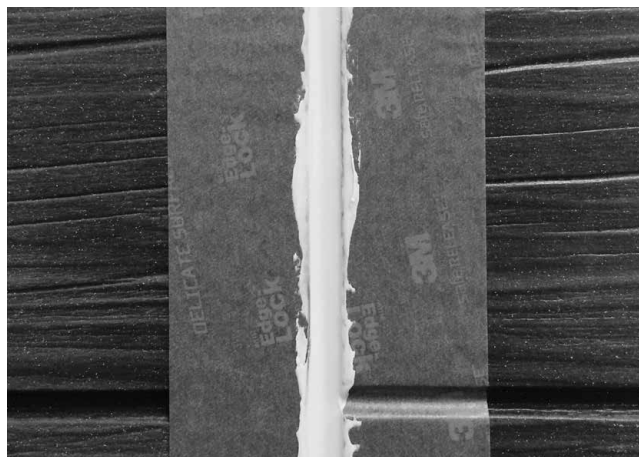
SEALANT JOINTS/CAULKING

Fasten Single Flange Sealant Backers at inside corners (one wall at corner), along window and door jambs, and transition points with other cladding. Fasten to framing, blocking or plywood/OSB sheathing at 12-14" (305-356mm) o.c. with the 3/8" (10mm) bump/sealant portion butting the corner or jamb.

Sealant complying with ASTM C920, Class 35 (min.) is required where Single and/or Double Flange Sealant Backer is used.

Refer to the sealant manufacturer's instructions or requirements.

1. Place low-adhesive tape (masking or painter's) over the panel along the areas requiring sealant joints for a clean caulk line.
2. Fill the gap between the panels with a color-matched/coordinating sealant which complies with the ASTM C920, Class 35 (min.) standard. Nichiha Sealant Backers allow for the proper depth of sealant (75-80%).
3. Before removing tape, press the surface of the sealant with a caulk spatula or similar tool to ensure an even surface.
4. Remove masking tape before sealant cures. If excess sealant adheres to panel, remove completely using a putty knife or soft cloth.



STARTER TRACK:

INSTALLING THE HORIZONTAL ULTIMATE STARTER TRACK - ALL APPLICATIONS

MINIMUM CLEARANCES

The Horizontal Ultimate Starter Track must be level and positioned to enable a minimum panel clearance of 6" (152mm) above finished soil grade or per local building codes (*the National Building Code of Canada requires minimum 200mm clearance*). Use a laser level to verify. When installing over a hard surface such as driveways or sidewalks, a 2" (51mm) panel edge clearance is acceptable.

Keep AWP at least 1" (25mm) above steep slope roofs. Otherwise, follow roofing manufacturer instructions and water management best practices.

The AWP bottom face edge will extend ¾" (18mm) below the Starter Track.

Essential Starter Flashing may be installed prior to the Starter Track to conceal the clearance gap above hard scape and decking. *Follow the WRB manufacturer instructions or local code with respect to flashing details for waterproofing.* Beginning with outside and inside corner segments, fasten the Flashing at each stud location or every 10" (254mm) to sill plate. Fasten Flashing inside and outside corner segments to framing on both sides, keeping at least 1" (25mm) from vertical edges. Main segments will slide into/overlap the corner segments.

Position Flashing and/or Starter Track to leave 1/4" (6mm) clearance between the panel edge and Flashing. This is also true for horizontal transitions to other claddings and finishes.

STARTER TRACK INSTALLATION

The Starter Track must be installed using corrosion resistant screws. Refer to page 9 for fastener specifications.

Locate and mark the studs. Terminate Starter Track 1/2" (13mm) short of inside and outside corners unless metal trim is used. With corner metal trims, terminate the Starter Track within 1/2" (13mm) of the trim's fastening flanges.

WOOD & METAL STUDS OR FURRING

Starter Track must be secured at every stud line. Max. 16" (406mm) o.c.

CONCRETE/MASONRY

When installing over concrete construction, the wall must be furred out with pressure treated lumber or metal hat channel. Starter Track must be secured at each furring location. Max. 16" (406mm) o.c.

STRUCTURAL INSULATING PANELS (SIP)

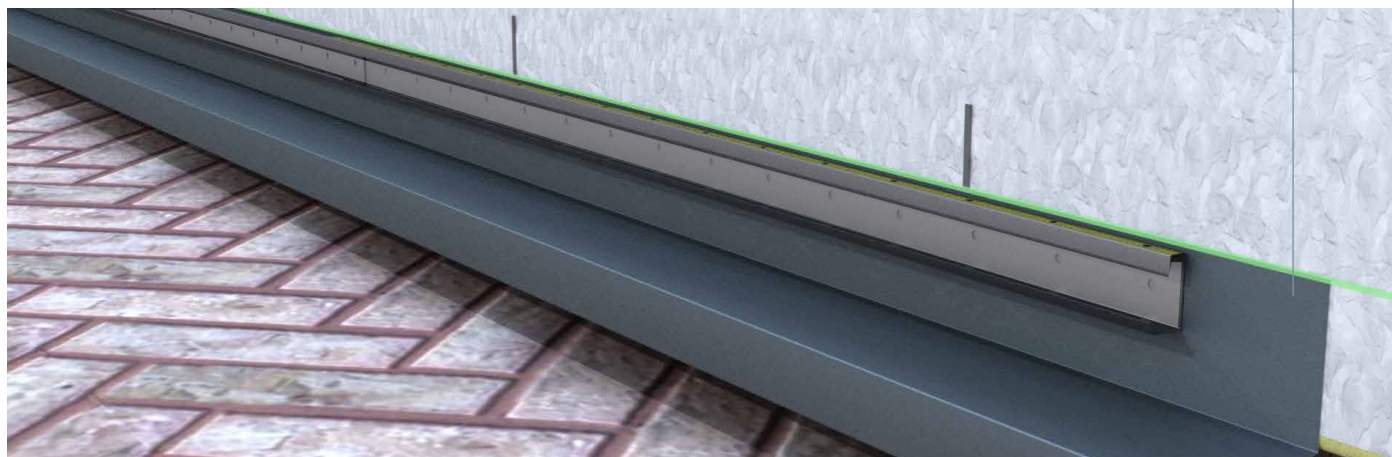
Secure Starter Track every 16" (406mm) o.c. max. to the sill plate.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

Fasten Starter Track at every metal panel rib at 12" (305mm) o.c. max.

Essential Starter Flashing

Always follow waterproofing best practices with respect to WRBs and metal flashings or trim.



PANELS BELOW STARTER TRACK

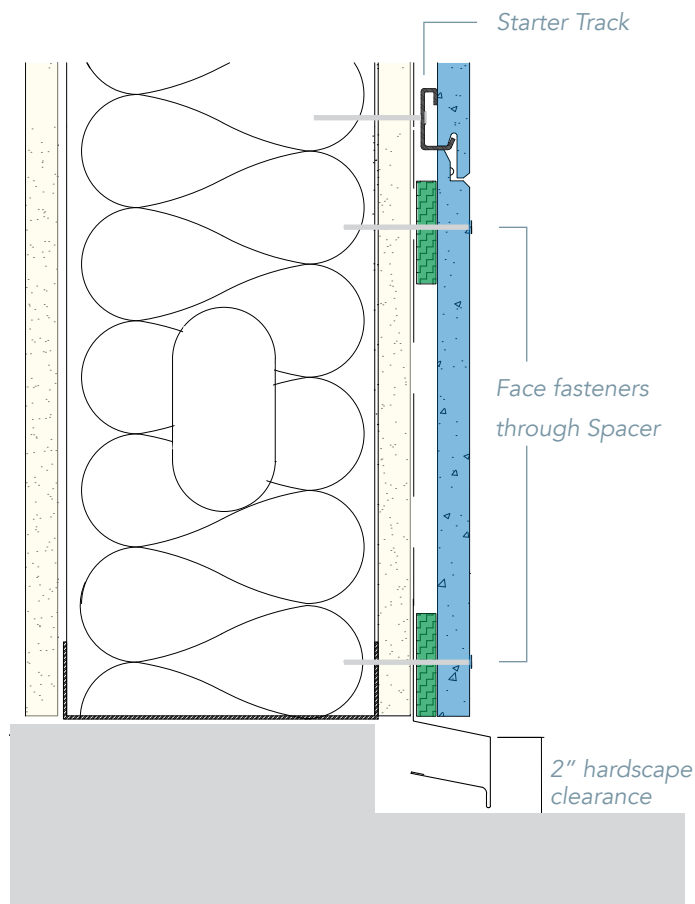
When panel layouts necessitate a partial panel at the bottom of the wall, it is best to add the cut panel below the Starter Track course. This is also true for sloped grade conditions.

Begin with Starter Track at lowest possible continual level line and install it as directed in this guide. To clad below Starter Track:

Add FS1010 Spacer below the Starter Track and at the termination point at the wall base.

Cut the bottom edge of the partial panel. Insert the top shiplate under the Starter Track. This will form the appearance of a regular horizontal joint with the bottom shiplate of the panel on the Starter Track.

Face fasten the bottom edge of the panel, one inch up from the cut edge. Also face fasten the top edge of this panel as shown in the drawing.



Cut, fill-in panel below Starter Track

SLOPED GRADE & MULTIPLE PANEL COURSES

Below the Starter, if installing more than one course of panels, install the full-sized course up under the Starter and fasten upside-down Panel Clips underneath, with every framing/furring member covered by a clip. It is necessary to pre-drill new fastener holes for clips used upside-down. Face fasten the top edge of the fill-in panel through corrugated Spacer. Keep fasteners 1" (25mm) from panel edges.

Add the next course and fasten upside-down clips unless that panel course is the final/terminal, cut/scribed one. Face-fasten the bottom/cut course with backing corrugated Spacer.

At outside corners using Nichiha Corners and Corner Clips, the same procedure can be followed.

Maintain minimum clearances above grade: 2" (51mm) above hardscape, 6" (152mm) above soil (200mm in Canada). Paint, prime, or otherwise seal all cut, exposed panel edges. Clean panels after cutting with a clean, dry cloth to remove dust.

If installing over a masonry/CMU foundation, furring is required. This should be taken into consideration when planning the depth of the exterior wall and cladding above so that the entire wall will have a uniform depth.

STARTER TRACK ABOVE LARGE OPENINGS

Large openings (full panel width or wider) such as storefront windows or garages should be taken into account with respect to Starter Track placement. Utilize Starter Track above these large openings to best support the weight of the panels above and for ease of installation.

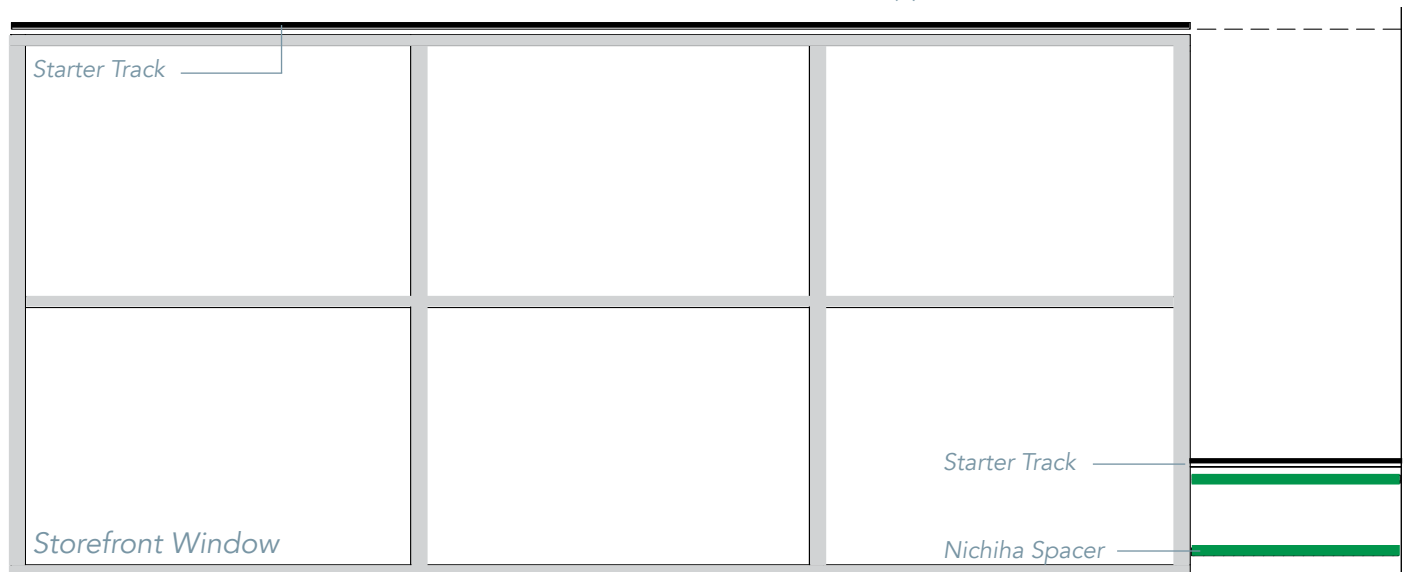
Install Starter Track above the opening with the normal procedure. Also refer to *Window/Door Headers*. Remember AWP are all 17-7/8" (455mm) tall and the bottom shiplapped edges hang below Starter Track by about 3/4" (18mm).

Maintain at least 1/4" (6mm) clearance for panel edges above horizontal flashings, storefront frames, trim, etc.

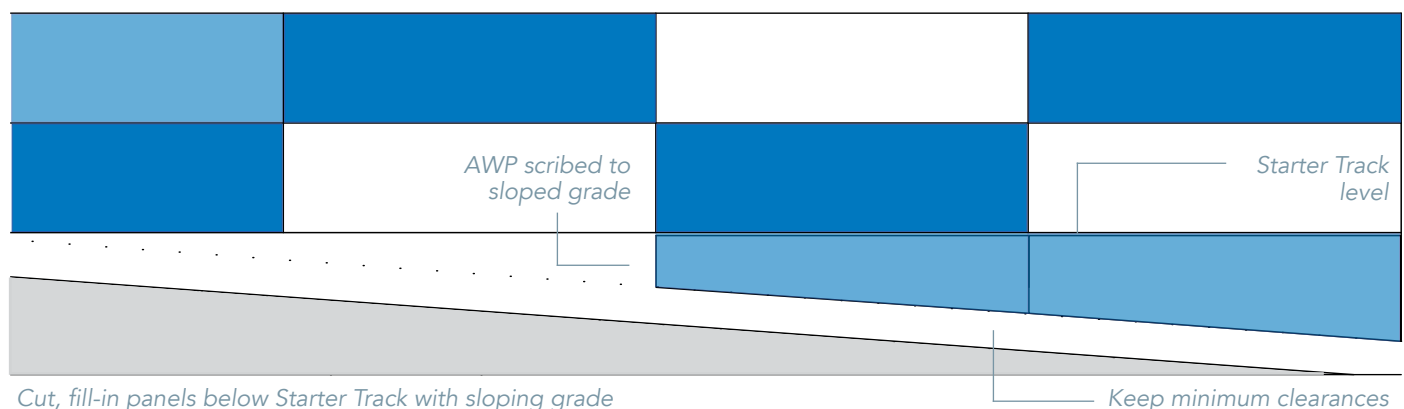
Establish a level line from the bottom of the header Starter Track out to the side on both ends with a laser level.

Use this line to measure down the wall (each side of the large opening) to attach the wall base Starter Track so that the panels will meet at the proper height with respect to the head of the large opening.

Use the *Panels Below Starter Track* procedure for adding fill-in panels below the wall base Starter Track(s).



Make strategic use of Starter Track above and flanking large openings to course and align horizontal joints of AWP.



AWP 1818

PANEL INSTALLATION

AWP installation proceeds by working from left to right. Refer to page 9 for fastener specifications.

WOOD, METAL, CONCRETE / MASONRY WITH FURRING

For AWP 1818, trim off the left side ship-lapped edge so the panel will fit against an already installed Inside Corner metal trim, Sealant Backer, or Outside Corner metal trim. If starting at an inside corner, predetermine which wall will include the Single Flange Sealant Backer for an inside corner detail. Consider the location to minimize the visibility of the sealant joint line. Clad the higher visibility wall without the sealant joint first so that the adjoining wall panels can terminate to it with the Single Flange Sealant Backer detail. Or use Inside Corner metal trim.

Set the first panel into the Starter Track and secure the top edge with a Panel Clip, placing the first clip about one inch (25mm) from the left edge of the panel. Fasten the clip at each stud location the clip reaches. Every clip will cover 2-3 studs and must be fastened to each. (Figure 21-a,b)

Proceed along the panel to the right, placing another clip 4-5 inches (102-127mm) from the end of the previously installed clip so that the second clip is roughly centered over the panel middle but DO NOT skip any studs. Fasten clips at each stud location.

Place the second panel next to the first, making sure the shiplap joint fits tightly together.

A rubber mallet or block of wood may be used to seat the panels firmly in place and tighten to the left. Do not hammer directly anywhere on the panels as direct contact may cause cracks, gouges, or chipping. (Figure 21c)

Place a clip on top of this vertical joint. Vertical joints must be spanned with a clip covering the top edge of where the panels meet. Fasten the clip to each stud it reaches. Do not skip any studs. Each long panel edge should be supported by about 2.5 clips. (Figure 21d)

Verify the first course of panels is level. Large commercial buildings require checking level around the entire building.

Start the second row in the same fashion as the first, but, in addition to the previous steps, add the **Vertical Joint Tab Attachment** against the bottom right hand corner of each panel. The Attachment seats inside the panel clip, with tabs that fit on clip's rainscreen flange. Fasten the Attachment to the panel clip with the provided fastener. (Figure 21e)

Fit panels tightly together on both horizontal and vertical joints, ensuring the panel edges are properly butted together.

Complete the second and remaining non-terminal rows in the same way, with the Vertical Joint Tab Attachments at the base of each vertical joint. Terminal rows such as under *Compression Joints* or at the *Last Course* are covered in subsequent sections of this guide.

Vertical Control/Expansion Joints may be required on walls wider than 30 feet (9.14m). Refer to page 23.

Horizontal/Compression Joints may be required on structures taller than three stories or 45 feet (13.72m). Refer to page 27.

FIG. 21A

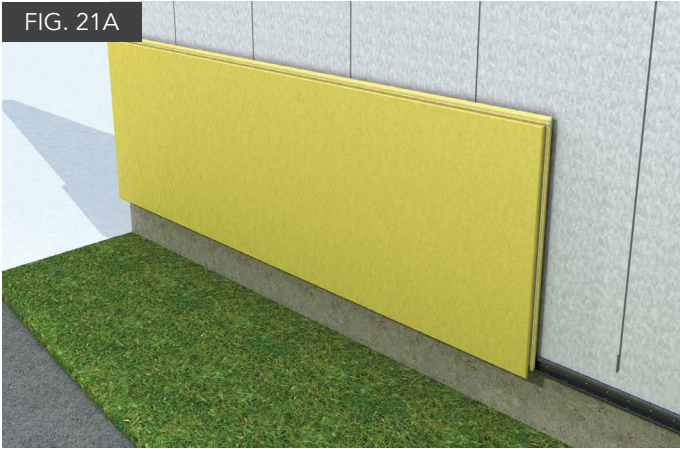


FIG. 21B

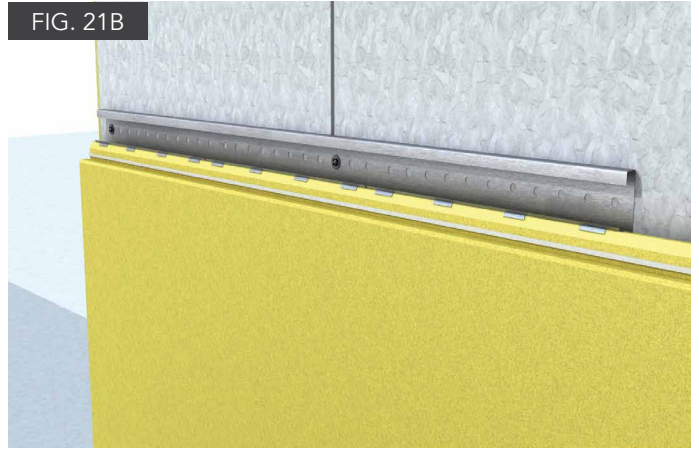


FIG. 21C



FIG. 21D



FIG. 21E



STRUCTURAL INSULATING PANELS (SIP)

In general, the steps mirror those for stud wall applications. However, double fastening per each panel clip (minimum of 4 screws per clip) is required as there are fewer or no studs to secure the system.

There must be about 2.5 clips per AWP 1818 edge, with vertical joints spanned by Panel Clips and the Joint Tab Attachment seated in and fastened to the Panel Clip at the lower right corner of each panel.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

Refer again to general requirements concerning PEMB installations in the *Framing and Sheathing Requirements* section.

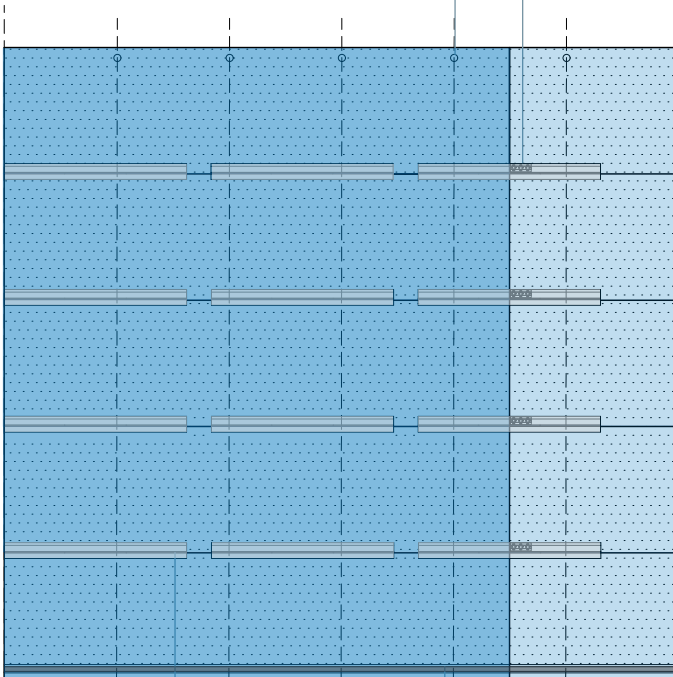
With metal panel ribs spaced no more than 12" (305mm) o.c., install AWP in the same manner as with stud wall applications but with Panel Clips fastened to each rib they reach. Screws (#10x1" (25mm)) applied at no more than 12" (305mm) o.c.

There must be about 2.5 clips per AWP 1818 edge, with vertical joints spanned by Panel Clips and the Joint Tab Attachment seated in and fastened to the clip at the lower right corner of each panel.

STACKED AND STAGGERED PANEL LAYOUTS
AWP 1818

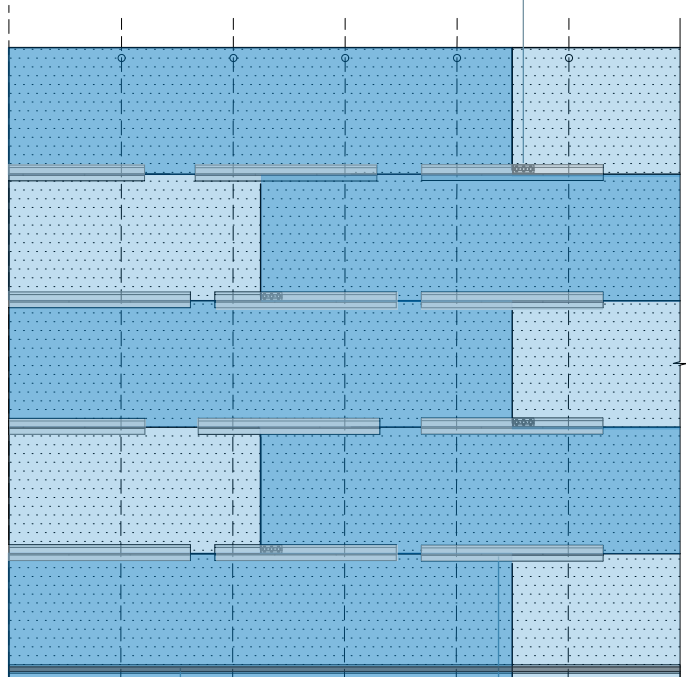
Centerline of Framing/Furring Members
(Spacing Shown at 16" (406mm) O.C.)

Face Fasten at Horizontal Terminations



Stacked Panel Layout

Joint Tab Attachment
at bottom right corner of each panel



Staggered Panel Layout

VERTICAL CONTROL/ EXPANSION JOINTS

AWP 1818

When using metal trim outside corners on walls wider than 30 feet (9.14m), Vertical Control/Expansion Joints (Double Flange Sealant Backers) are required within 2-12 feet (610-3,658mm) of both sides of outside corners and then approximately every 30 feet (9.14m) thereafter. Where cut panel edges terminate to trim channels, ensure the edges butt in moderate contact with them.

Projects using Nichiha Corners (see Figures on page 31) satisfy the 2'-12' Rule but still require expansion joints roughly every 30 feet (9.14m) beyond the Corner joints.

For example, a 60-foot (18.3m) wall with two outside corners would require three vertical control joints: one near each outside corner and one towards the center.

Install Double Flange Sealant Backer to butt up against the panels at pre-determined locations and secure the joint to substrate on one side (the right side flange) every 12"-14" (305-356mm). Sealant Backers must be fastened to plywood/OSB sheathing, framing/furring members (added if necessary to pre-planned joint locations), or blocking. The 17-7/8" (455mm) edges must be cut, fully removing the shiplaps.

H-Mold trim may not be used as a *substitute* for required AWP 1818 expansion joints. It may otherwise be used for design and layout purposes. Contact the Technical Department for H-Mold and AWP 1818 questions.

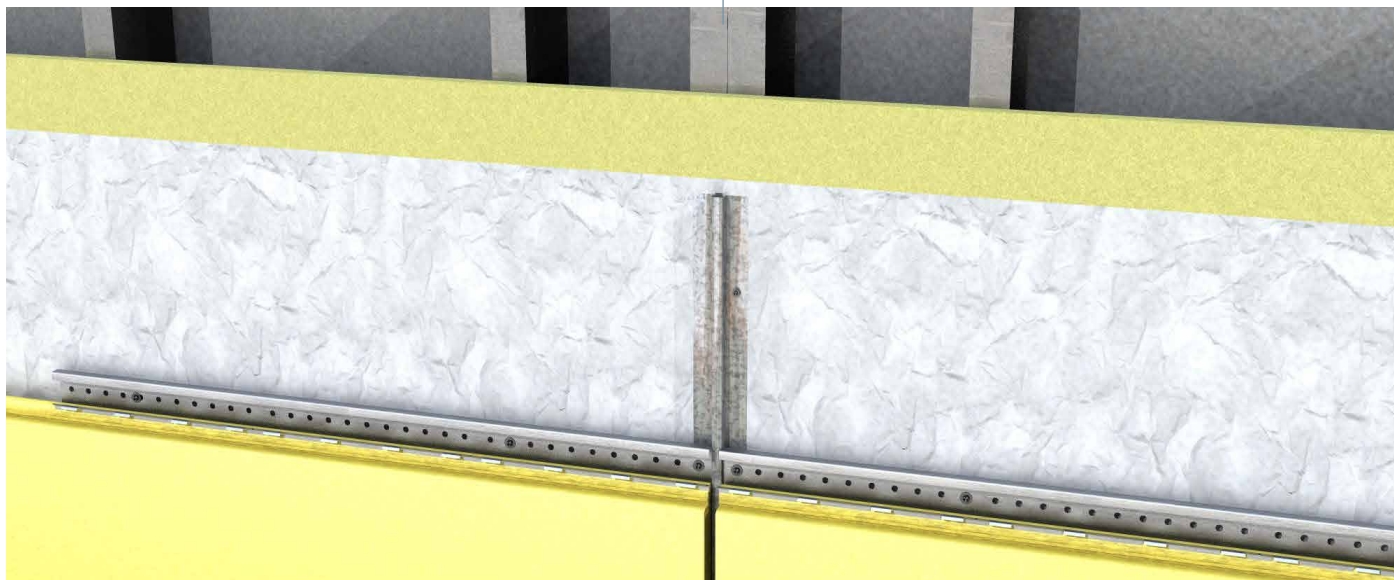
SEALANT APPLICATION (1818 & 3030)

Apply low-adhesive tape along the panel edges at Double Flange joints to protect panel finishes from sealant and for a smoother look when the sealant is applied and tape removed.

Apply ASTM C920, Class 35 (min.) compliant sealant into the expansion joint, starting at the bottom and pushing sealant into the gap.

Follow the contour of the panel edges so that the sealant depth always matches the face edge/depth of the panels.

Add framing/blocking to fasten Sealant Backers as necessary



AWP 3030 HORIZONTAL INSTALLATION

AWP installation proceeds by working from left to right. AWP 3030 may only be installed in a stacked bond. Refer to layout illustration on page 26. Refer to page 9 for fastener specifications.

WOOD, METAL, CONCRETE / MASONRY WITH FURRING

For AWP 3030, the left and right panel edges are flat and do not require initial cutting.

The panel will fit against an already installed Inside Corner metal trim, Sealant Backer, or outside corner trim. If starting at an inside corner, predetermine which wall will include the Single Flange Sealant Backer for an inside corner detail. Consider the location to minimize the visibility of the sealant joint line. Clad the higher visibility wall without the sealant joint first so that the adjoining wall panels can terminate to it with the Single Flange Sealant Backer detail. Or utilize Inside Corner metal trim.

Set first panel into the Starter Track and secure the top edge with an Ultimate Clip, placing the first clip about one inch (25mm) from the left edge of the panel. Fasten clip at each stud location the clip reaches. Every clip will cover 2-3 studs and must be fastened to each. (Figure 25a)

Proceed along the panel to the right, placing another clip 3-4 inches (76-102mm) from the end of the previously installed clip. DO NOT skip any studs. Fasten clips at each stud location. Each AWP 3030 long edge must be covered by four clips. (Figure 25b)

Since AWP 3030 do not have shiplaps on their short edges, a control joint or H-Mold trim detail is needed at each vertical joint. **Do not butt vertical edges directly.** The vertical joint is continuous and not split up or staggered.

Fasten the Double Flange Sealant Backer at vertical joints between panels. Fasten Sealant Backer on the right side flange every 12-14 inches (305-356mm) to framing, blocking, or plywood/OSB sheathing.

Install the next panel right up to the Double Flange Sealant Backer and secure it with clips at each stud location. The sealant joint is 10mm (3/8") wide. (Figure 25c,d)

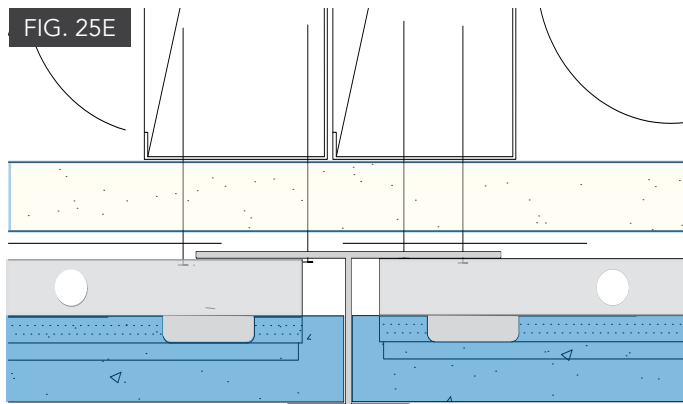
Alternatively, H-Mold metal trim can be used at vertical joints for horizontal AWP 3030. This trim, as well as Nichiha Sealant Backer must be fastened to plywood/OSB sheathing, framing, furring, or blocking. Fasten metal trim every 12-16" (305-406mm) in a staggered fashion on alternating flanges.

For H-Mold, leave a no more than a 1/8" (3.2mm) gap between the edge of the panel and the center flange of the trim. (Figure 25e)

Verify the first course of panels is level. Large commercial buildings require checking level around the entire building.

Complete the second and remaining non-terminal rows in the same way. Fit panels tightly together on horizontal joints, ensuring the panel edges are properly butted together. A rubber mallet or block of wood may be used to seat the panels firmly in place and tighten downward.

The **Joint Tab Attachments** are not used with AWP 3030. Terminal rows such as under *Horizontal/Compression Joints* or at the *Last Course* are discussed in subsequent sections of this guide.



H-Mold as the AWP-3030 vertical joint detail



STRUCTURAL INSULATING PANELS (SIP)

In general, the steps mirror those for stud wall applications. However, double fastening per each Panel Clip (minimum of four screws, evenly spaced per clip) is required as there are fewer or no studs to secure the system. There must be four clips per AWP 3030 edge.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

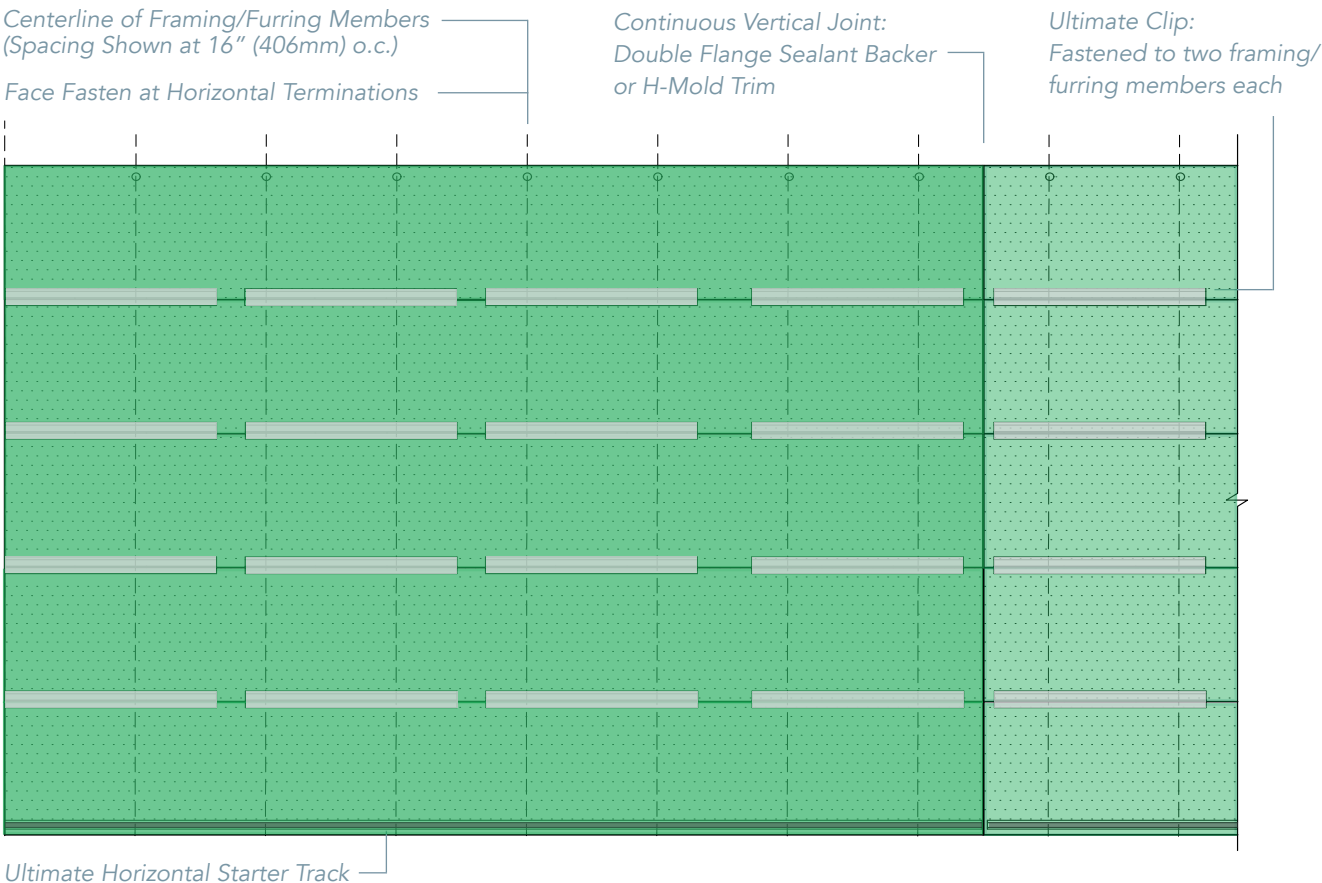
Refer again to general requirements concerning PEMB installations in the **Framing and Sheathing Requirements** section.

With metal panel ribs spaced no more than 12" (305mm) o.c., install AWP in the same manner as with stud wall applications but with Panel Clips fastened to each rib they reach. Screws (#10 x 1" (25mm)) applied at no more than 12" (305mm) o.c.

There must be four clips per AWP 3030 long edge.

STACKED PANEL LAYOUT ONLY - AWP 3030

AWP 3030 must be installed with continuous vertical joints. No panel staggering is permitted.



HORIZONTAL/ COMPRESSION JOINTS

ALL APPLICATIONS

Project designers must account for building compression when planning the cladding layout and incorporate horizontal/compression joints as appropriate. Nichiha is not liable for panel damage due to building compression. **In general, Nichiha recommends such joints at each floor level.**

With **metal framing** projects of more than three stories or 45 feet (13.7m), add a compression joint approximately every 25 feet (7.62m), located at the floor line(s) nearest this distance.

For **wood framing** projects of three stories or more, a compression joint is required at each floor.

Locate compression joints at floor lines.

Please contact the Nichiha Technical Department for assistance.

INSTALLING A HORIZONTAL COMPRESSION JOINT

Install **Essential Compression Joint Flashing** or a heavy gauge z-shaped metal flashing or drip cap over the top edge of the course of panels terminating under the horizontal compression joint location.

Fasten the Flashing at each stud location. Follow relevant WRB manufacturer instructions and local code for moisture management best practices and detailing for flashings.

The top ship-lapped edge of the bottom panel is cut and secured by face fastening (1" (25mm) below panel cut edge) to framing every 16" o.c. (406mm) with 10mm Spacer behind.

Install **Starter Track** above the flashing such that the next course of panels sit at least 1/2 inch (13mm) above the course below. Remember the bottom ship-lapped edge of panels extend 3/4" (18mm) below the Starter Track, so the Starter will need to be installed at least 1-1/4" (31mm) above the edge of the panel course below the joint.

Check for level.

Continue to install panels according to these guidelines with compression joints at the appropriate elevation(s).



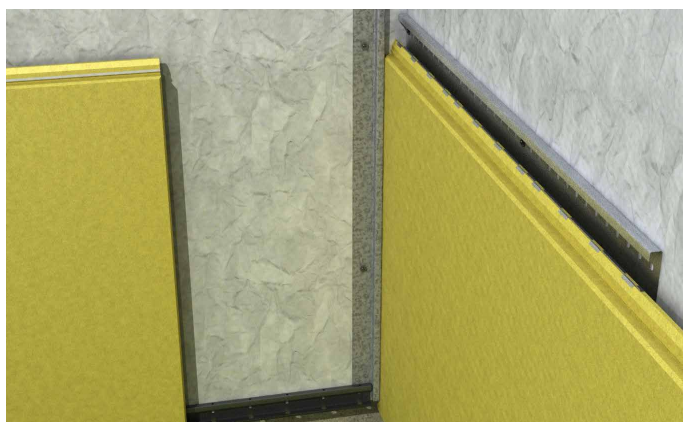
CORNERS & OPENINGS

ALL APPLICATIONS

Appropriate flashing and moisture management best practices must be used to prevent moisture penetration at all inside corners, doors, and windows. Follow moisture management best practices, WRB manufacturer's guidelines, window/door manufacturer instructions, and all local building codes. *Nichiha assumes no responsibility for moisture infiltration.*

Nichiha Cut and exposed panel edges must be primed or sealed with fiber cement sealer or paint.

As necessary, add trim, jamb/sill extenders, and/or other flashings at corners, windows, doors, and other openings prior to AWP installation.



INSIDE CORNERS

SINGLE FLANGE SEALANT BACKER

Decide the primary line of sight in order to minimize visibility of the sealant joint.

Install the panel (ship-lapped edges at the joint will need to be cut off) on the front wall (more visible) first. Ensure these panels are butted up in moderate contact to the inside corner wall.

Next, fasten the Single Flange Sealant Backer every 12-14" (305-356mm), onto the side wall, right up against the front wall panel faces.

Install the side wall panel directly against the sealant backer and secure with Panel Clips. Fill space with sealant.

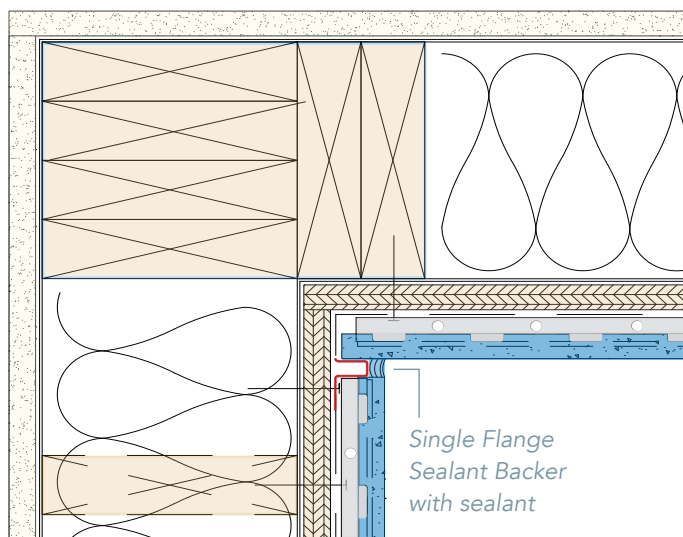
INSIDE CORNER METAL TRIM

Install Nichiha Inside Corner metal trim directly against the inside corner sheathing. Fasten metal trim to corner framing/furring every 12-16" (305-406mm) in a staggered fashion on alternating flanges.

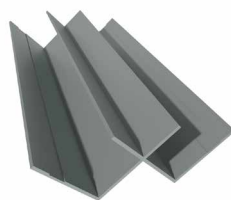
If installing AWP 1818, remove the left/right shiplapped edges, treating the cuts, and install panels normally, butting to the Inside Corner trim in moderate contact.

TRIM BOARDS

Install trim boards at inside corner first and butt the flat panel edges to Single Flange Sealant Backer. Add ASTM C920, Class 35 (min.) compliant sealant to the gap.



Plan view section at an inside corner



Inside Corner Trim

WINDOW SILLS

FACE FASTENING

For recessed windows, add the window manufacturer's sill flashing/extension attachments or other flashing cap where the panels will terminate so that the top edges are covered or capped at the sill.

As needed to match the window width, remove the panel top ship-lapped edge, cutting the panel to the required height to fit below the window sill, leaving a 1/4" (6mm) gap between the top of the cut panel edge and the window sill or trim board.

Cut panel edges must be sealed with 100% acrylic latex primer or paint, such as Kilz Premium or Kilz Max. **Clean any dust off the panels with a clean, soft, dry cloth or dust-filtered vacuum.**

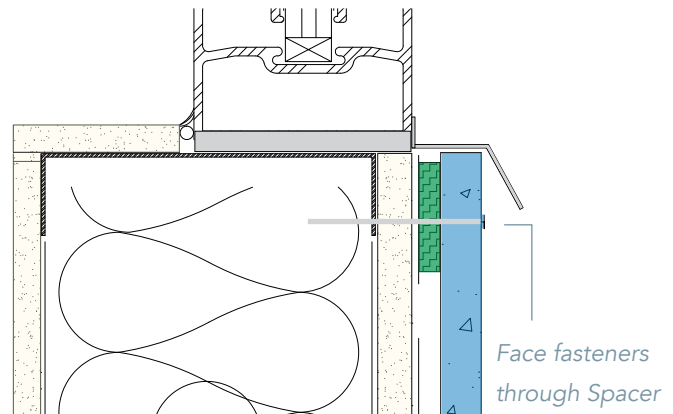
Add FS1010 Corrugated Spacer (10mm) at the sill. Set the panel on the clips of the panel(s) below and position the panel into place to seat properly. Then add the painter's tape per the **Face Fastening Best Practices** section, pre-drill with countersink before face fastening the top, cut edge of the panel at the sill, every 16" (406mm) o.c. max. Keep screws 1" (25mm) below the edge. This will avoid cracking or breaking the panel.

If the top edge of the panel is fully sheltered under the sill, it is not necessary to seal the 1/4" (6mm) gap. For better system performance, Nichiha recommends a vented approach.

J-Mold type trim (installed before AWP) may be used at window sills if AWP can be slid into position from the side(s).



Face fasten the top edge of panels at sills.



Use window manufacturer sill extensions/flashing or brake metal to cap over the panels at recessed sill returns.

WINDOW / DOOR JAMBS

A minimum gap of 1/4" (6mm) is required when butting panels directly into windows, doors, and trim boards. Refer to window/door manufacturer guidelines for spacing trims around openings.

SINGLE FLANGE SEALANT BACKER

Install the Single Flange Sealant Backer first, butting to the door/window jamb or trim pieces prior to installing the panels.

The Single Flange Sealant Backer must be fastened every 12"-14" (305-356mm) to studs, blocking, or structural sheathing.

Cut panels to the appropriate width, at least removing ship-lapped vertical edges. **Remember to clean freshly cut panels with a soft, dry cloth or a dust-filtered vacuum.**

Install panels and fill the gap with ASTM C920, Class 35 (min.) compliant sealant.

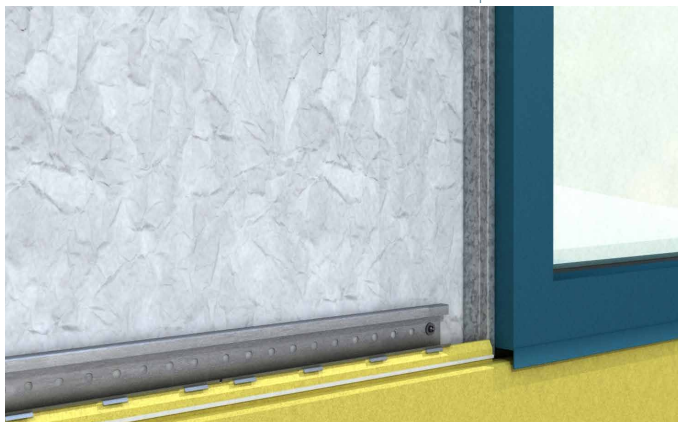
J-MOLD

Pre-install J-Mold trim at window and door jambs prior to AWP. For J-Mold positioning, refer to the window/door manufacturer instructions regarding trim attachments to determine if the J-Mold can be butted directly to the window or door jamb or if a gap is required.

AWP cut vertical edges must fit completely within the J-Mold, leaving no exposed panel edges.

Lastly, add closed-cell foam backer rod and sealant to any gap between the J-mold and jamb, if applicable.

Single Flange Sealant Backer



Flush window jamb with Sealant Backer

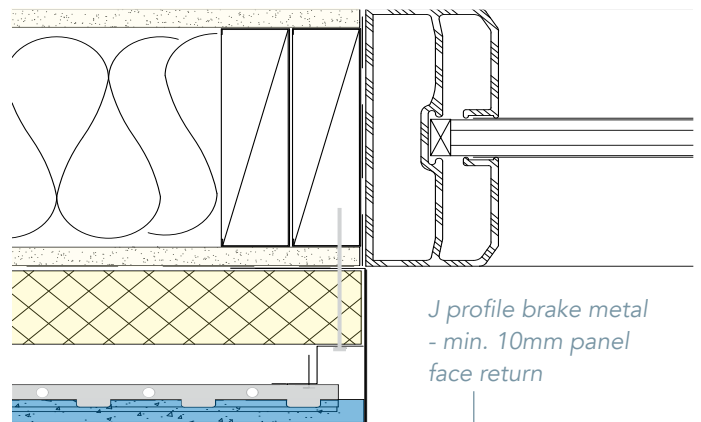
RECESSED JAMBS

At recessed openings, the best option for finishing the jamb returns/recesses is with jamb extension accessories from the window or door manufacturer. The extenders must account for the depth of the return, inclusive of the Nichiha system (1-1.25" (25-31mm)). With these in place, the standard Single Flange Sealant Backer or J-Mold steps can be followed.

BRAKE METAL

Another option at recessed jambs is to use brake metal to cover the return over furring, continuous insulation, or other assembly components that create the recessed window condition. Because of thermal expansion and contraction of AWP, the brake metal must be of a heavier gauge sheet steel (24 or thicker) or equivalent aluminum.

For an L-angle shaped metal, terminate the AWP to a Single Flange Sealant Backer meeting the outward fin, which must extend to just beyond the panel face. Or include a face return flange on the brake metal to form a J-Mold type profile. With a minimum 10mm (3/8") return leg covering the panel edge and face, the sealant joint can be eliminated. Insert the panel edge in moderate contact with the metal.



J profile brake metal at a recessed window jamb

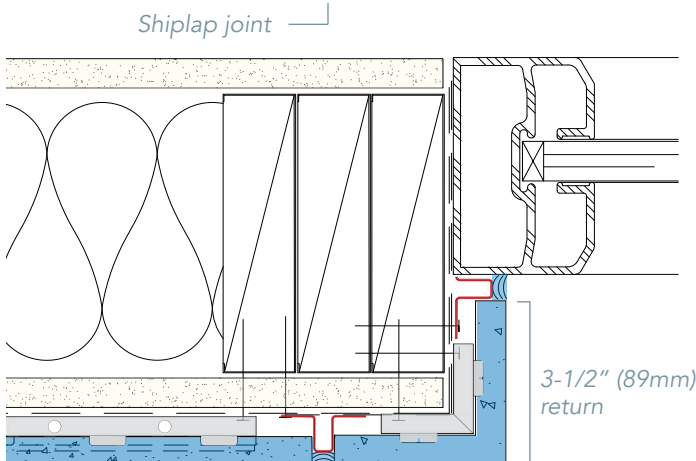
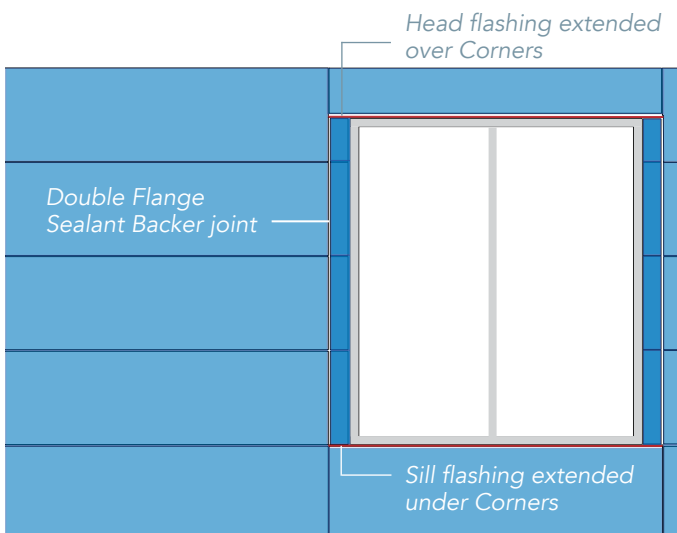
NICHIHA CORNERS

Nichiha Corners can be used to wrap recessed window jambs. Corners have returns of 3-1/2" (89mm) (face dimension). Cut the pieces as needed for shallower returns but there must be sufficient depth for use of Corner Clips.

Extend the opening's header and sill flashing to cover the width of the Corner pieces that will flank the opening. Add Single Flange Backer where the Corner will return and meet the recessed opening frame.

Wrap the base of the jamb with cut pieces of Starter Track (or FS1010 Spacer if face fastening). Maintain a min. 1/4" (6mm) clearance above the sill flashing. Install Corner pieces at the jamb using Corner Clips.

Through 10mm Spacer, face fasten shortened Corners under the head flashing. Then add Double Flange Sealant Backers to the sides of the Corners prior to the main panel installation.



Factory outside Corner at a recessed window jamb

WINDOW/DOOR HEADERS

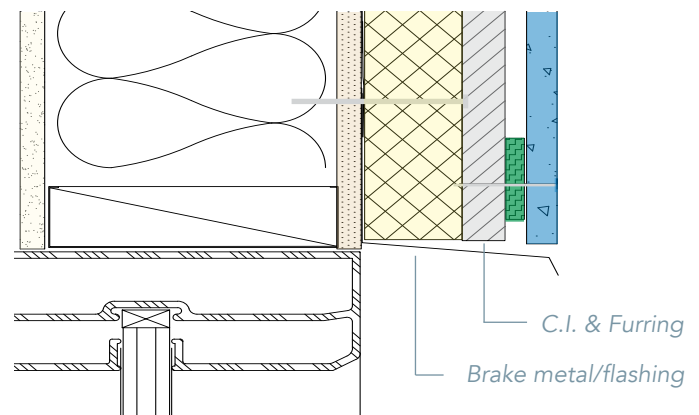
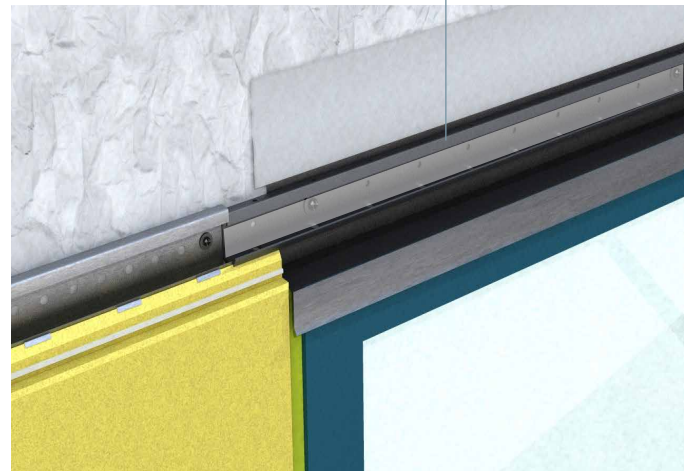
STARTER TRACK

When starting a course of whole panels above a window or door, add flashing and Horizontal Starter Track at the header, installed with fasteners at each framing/furring member or into header framing, every 16" (406mm). Follow the WRB installation instructions with respect to window heads and metal flashings. Refer to *Starter Track Above Large Openings* on page 15.

FACE FASTENING

When adding a cut panel above the opening, install drip edge flashing and 10mm corrugated Spacer first and follow WRB manufacturer installation instructions with respect to window/door heads and metal flashings. Then face fasten panels every 16" (406mm) to the header framing or at each vertical framing/furring member. Keep fasteners a min. 1" (25mm) from the panel bottom edge(s).

Starter Track over Z-flashing



Face fasten cut panels through 10mm Spacer at opening heads. Use extenders or brake metal for recessed returns.

OUTSIDE CORNERS

There are several Nichiha recommended outside corner installation options:

- Nichiha Corners
- Metal (Open Outside, Corner Key) and Vinyl Trim
- Fiber Cement and PVC Trim Boards

Appropriate flashing must be used as required to prevent moisture penetration on outside corners.

NICHIHA CORNERS

Install Nichiha Corners prior to panels. Corners may only be used in vertical applications. They may not wrap window heads and sills.

When using Nichiha Corners, terminate the Starter Track 1/2" (13mm) short of both sides of the wall corner. Set a Corner on the Starter Track and secure it with a Corner Clip. Fasten with screws into framing/structure on both sides of the Corner Clip.

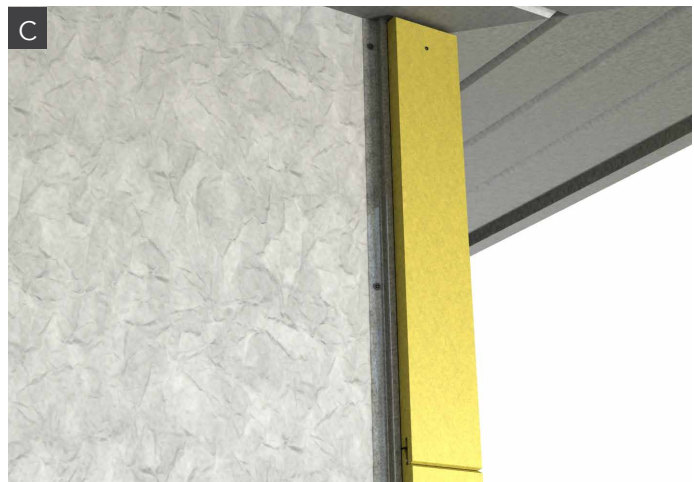
Place the next Corner on top of the first, fitting the ship-lapped edges together over the clips. Secure the top edge in the same manner with a Corner Clip. (Figure A, B)

Continue up the outside corner, stacking and securing the Corner pieces.

The top Corner will be cut to the appropriate height and face fastened over 10mm Spacer.

Add Double Flange Sealant Backer at the Corners on both sides, all the way down from the top of the wall section to the Starter Track. Secure Sealant Backer to structure every 12-14" (305-356mm) on the exposed fastening flanges. (Figure C)

After all the panels have been installed, apply ASTM C920, Class 35 (min.) compliant sealant to the Sealant Backers.



Double Flange
Sealant Backer flanking
stacked Corners

METAL & VINYL TRIM

Install trim channels, such as Nichiha Corner Key or Open Outside Corner, manufactured by Tamlyn, prior to Starter Track and panels. Fasten trim with corrosion resistant fasteners through the wall mounting flanges every 12-16" (305-406mm) into studs or corner blocking. Stagger the fasteners on alternating sides.

Cut off terminal panels' ship-lapped edges, enabling the cut panel edges to fit fully into the trim channels. Panel edges must not be left exposed. Butt the flat panel edges in moderate contact to the center flange of the trim. With Corner Key trim, this will necessitate miter cutting the panel edges.

Refer to *Vertical Control/Expansion Joints*.

Nichiha metal trim pieces are each 10 feet (3048mm) in length. To cut metal trim, a non-ferrous carbide miter saw blade is appropriate. When butting/stacking metal trim pieces, add a bead of polyurethane sealant at the seam/joint.

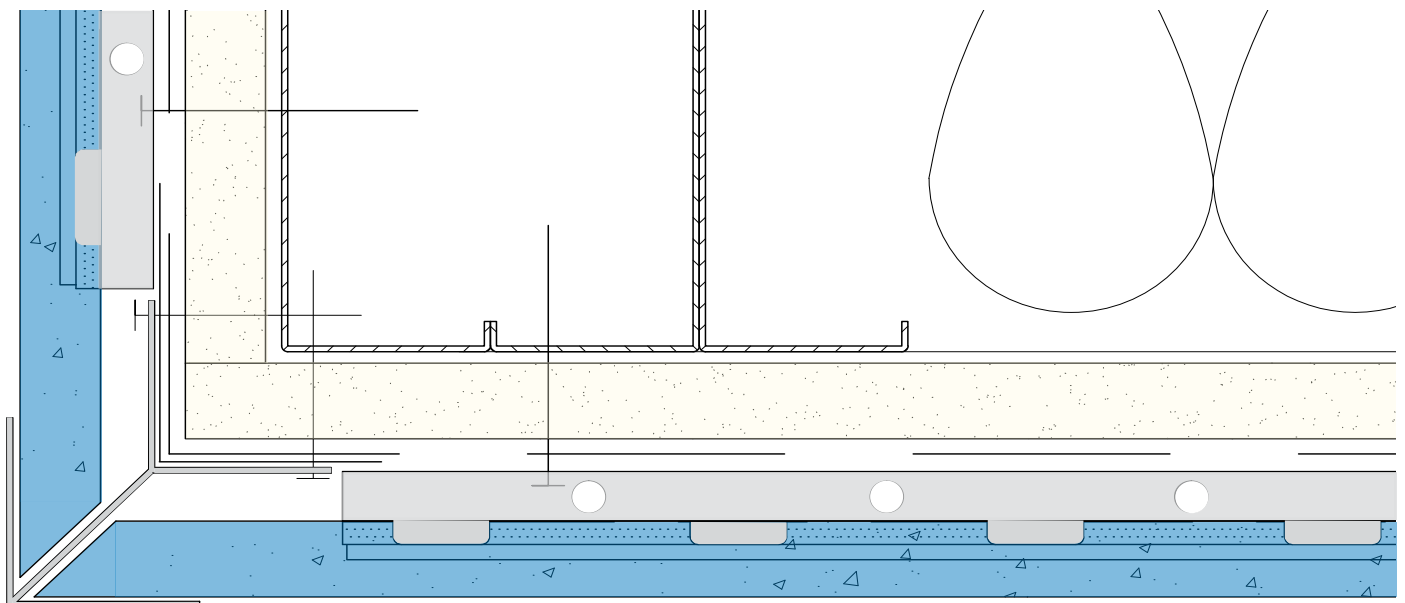
Metal trim can be pre-finished when purchased to match custom Nichiha Color Xpressions panels and some standard panel colors. Otherwise, for field painting metal trim, it is best to purchase Primed trim, which readily accepts a variety of exterior paints. See [Tamlyn's XtremeTrim Painting Guide](#).

FIBER CEMENT & PVC TRIM BOARDS

Nichiha manufactures a full line of fiber cement trim boards - NichiTrim™, which are available in the Southeast U.S. Refer to Nichiha.com for more information.

When panels are to be butted to fiber cement, wood or other trim pieces, use Nichiha Single Flange Sealant Backer between them.

Apply sealant compliant with ASTM C920, Class 35 (min.).



Corner Key Trim outside corner detail with miter cut panel edges

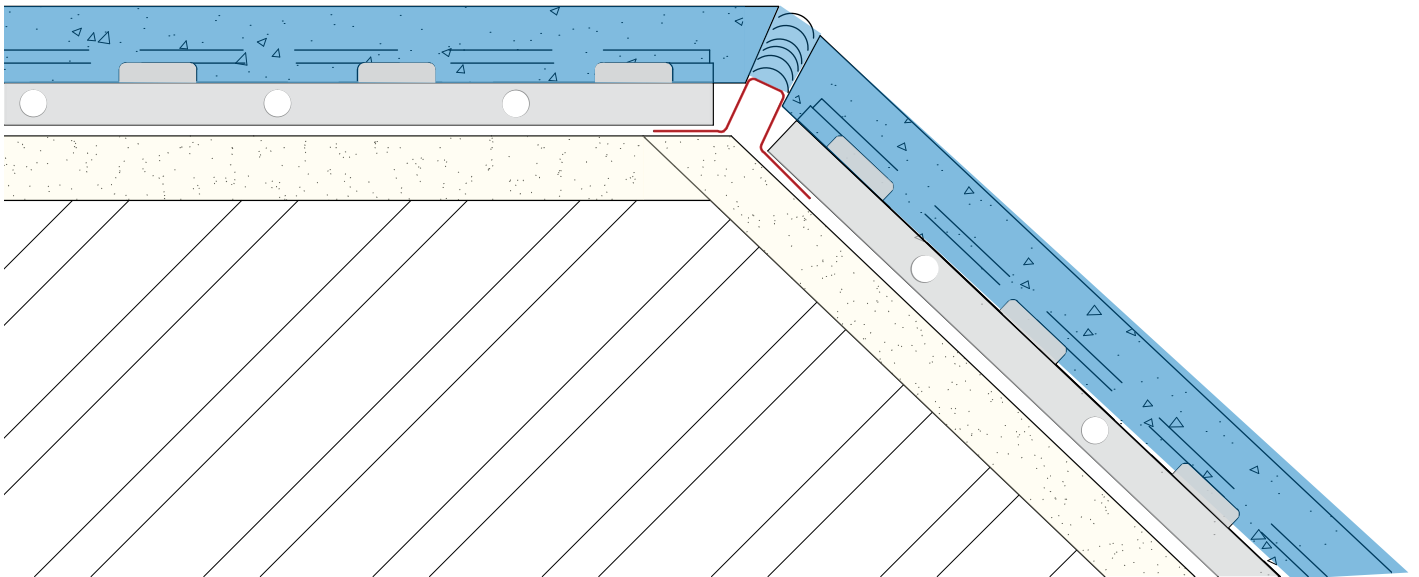
NON-90-DEGREE CORNERS

Corners other than 90 degrees can be achieved with custom metal trim or with the use of Double Flange Sealant Backer (refer to *Vertical Control/Expansion Joints*) to set cut panel edges at the desired corner angle. Miter cut panel edges as needed to create uniform sealant joints.

The Double Flange Sealant Backer detail can be utilized to accommodate install AWP on segmented, radius-like walls. Do not attempt to curve AWP.

Contact the Nichiha Technical Department for assistance.

Flat fiber cement or other trim boards can also be used to facilitate non-90 corners. Miter cut the trim boards to meet and joint at the appropriate angle. AWP can then terminate to the square edges of the trim boards with a J-Mold or Single Flange Sealant Backer and sealant.



Non-90 corner utilizing modified Double Flange Sealant Backer and miter-cut panel edges.

PENETRATIONS & ATTACHMENTS

ALL APPLICATIONS

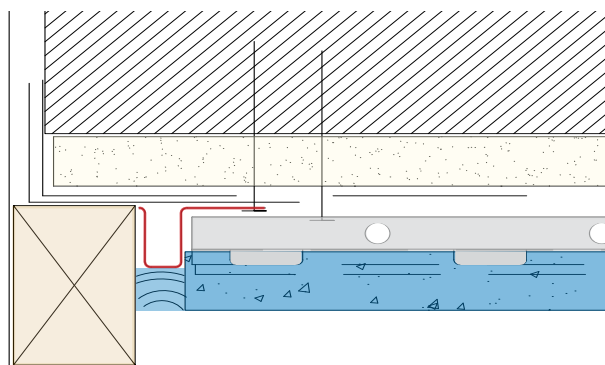
Openings for small penetrations for pipes or conduits may be cut through a panel and the hole sealed with ASTM C920 compliant sealant. For larger penetrations greater than 1.5" (38mm), it is best to block or frame out the opening. Treat the penetration like a small window.

Along the jambs of the opening install Single Flange Sealant Backer. Cut panel edges as needed to butt to Single Flange Sealant Backer and add recommended sealant.

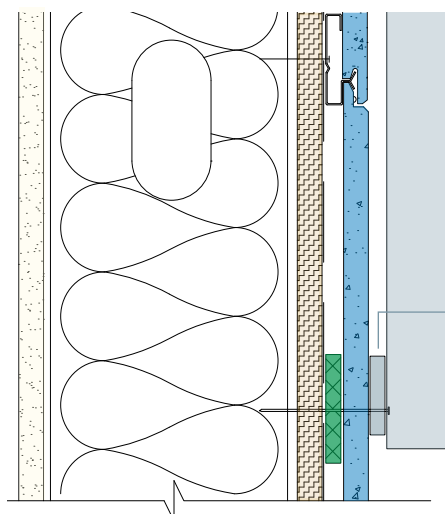
Underneath the opening block out, install FS1010 Spacer as needed for face fastening the top panel edge at framing locations. Terminate the panel with a 1/4" (6mm) gap. Sealant here is optional, depending on the depth of the blocking.

Above the penetration, add flashing and install FS1010 Spacer as needed for face fastening the panel edge at framing locations. Ensure a minimum 1/4" (6mm) gap between the bottom of the panel edge and penetration blocking. Keep any face fasteners 1" (25mm) away from panel edges.

If installing railings, signage, or other items directly over AWP, ensure the fasteners are secured through Spacers to the framing or other structural support. Do not fasten any attachment solely to AWP. Further, add a small spacer (up to 10mm) between signage/attachments and AWP to prevent moisture pooling on top of the attachment and seeping between it and the AWP, becoming trapped.



Blocked penetration jamb condition



Signage/Attachments detail

Signage/Attachment fasteners through shims, AWP, & 10mm Spacer into framing/blocking

LAST COURSE

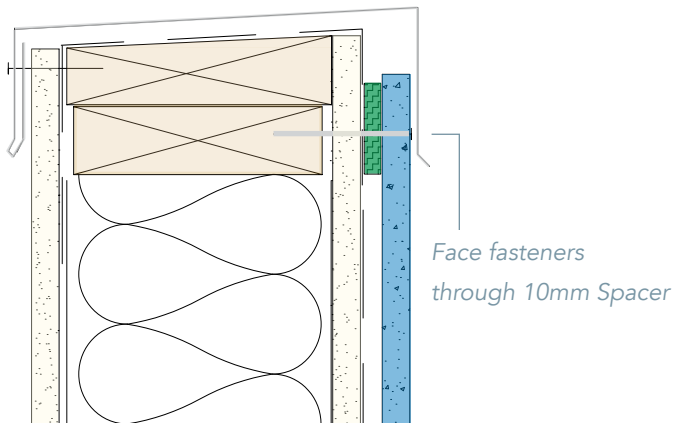
ALL APPLICATIONS

Fasten 10mm Spacer (FS 1010) to the wall where the last panel course will terminate. This is needed to maintain the rainscreen without use of the clips. Cut the panels (horizontally) to properly fit at the termination line. Apply low adhesive/painter's tape to panels at face fastening locations. Pre-drill with countersink 1" (25mm) down from the top (cut) edge. Face fasten at the studs and through the green Spacer (FS 1010) all along the top using bugle head type screws.

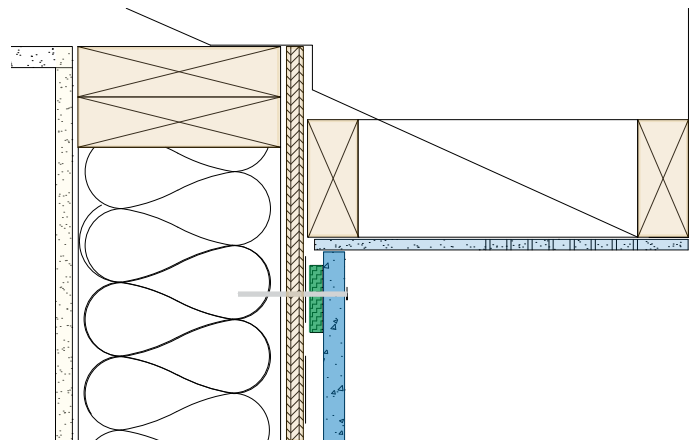
Fill counter-sunk fastener holes with exterior patching compound/filler, such as MH Ready Patch® and later dab touch-up paint with cotton swabs. Remove the painter's tape.

Cover the top panel row edge with a roof cap/coping, where applicable.

It is not necessary to seal between AWP and soffit. J-Mold is optional to cap AWP.



Parapet cap termination detail



Soffit termination detail

GABLES & OVERHANGS

ALL APPLICATIONS

Allow a minimum of 1" (25mm) clearance (as per local building codes) for AWP above a sloped roof line.

At the wall top, cut the panels to follow the slope of the gable roof.

Panels installed along gable edges must be face fastened along the angled edges. All face-fastened panel edges must be shimmed out with FS 1010 Spacer. Use Ultimate Clips wherever possible, positioning them as close to the end of the horizontal/shiplate edge as space permits. When adding face screws, apply the fasteners at least 1" (25mm) from any panel edge. This will avoid cracking or breaking of the panel. Fasten every 16" (406mm) max.

Seal all cut panel edges with 100% acrylic primer or paint. Do not leave any panel edges exposed. Clean any cut panels to remove dust.

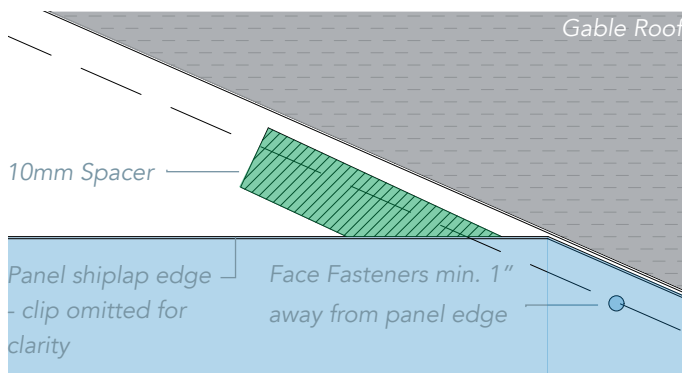
Essential Overhang Flashing may be used at the base of overhangs/bump-outs or porte-cocheres. Alternatively, Essential Compression Joint Flashing may also be used. Keep a minimum clearance of 1/4" (6mm) for the panel edge above flashings. Do not seal this gap. *Always follow WRB manufacturer instructions and local code with respect to moisture management best practices for treating and detailing metal through-wall flashings.*

Prior to panel installation, fasten Overhang Flashing at each stud location, beginning with corner segments.

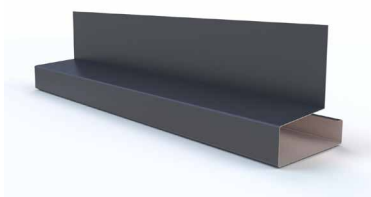
Main segments will slide under/overlap corner segments.

Use Joint Clip segments to join main segments together. After the first piece is secured, add a Joint Clip, fastening through both it and the first main segment. The next main piece will slide behind the Joint Clip.

Position Overhang Flashing so that its bottom/return flange overlaps soffit materials. The bottom return portion must extend beyond the face of the fascia substrate. Positioning the flashing too high can deform it from its normal shape. The bottom return should slope away from the soffit as pictured.



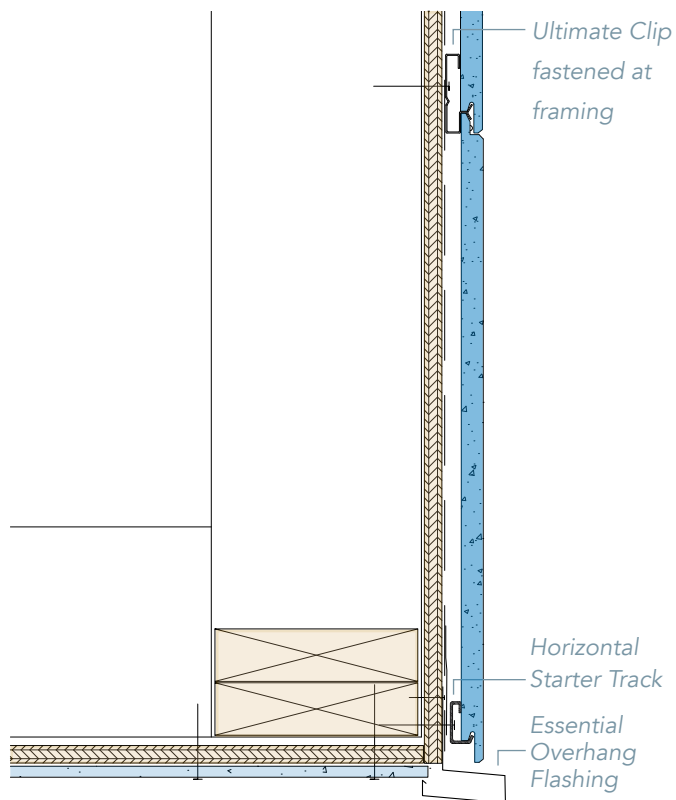
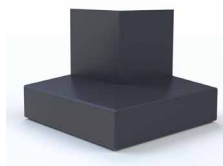
ESSENTIAL OVERHANG FLASHING & JOINT CLIP



OUTSIDE CORNER



INSIDE CORNER



SOFFITS & ANGLED (NON-VERTICAL) WALLS

Nichiha Architectural Wall Panels may be used in a soffit application and/or on non-vertical, angled walls (*leaning forward only*) when installed in strict accordance with the following provisions and requirements. Nichiha is not responsible for any actions or defects incurred as a result of incorrect installations using AWP as soffit. Those opting to deviate from these installation procedures incur all responsibility for their actions and any defects that result.

GENERAL REQUIREMENTS

If applicable, remove existing soffit materials and sheathing to accommodate blocking and (required) face fastening detailed in these instructions. Do not install AWP over existing soffit.

Framing spacing must be no greater than 16" (406mm) o.c. Add blocking as needed to enable Ultimate Clip and face fastening of the panels.

Nichiha AWP hardware (clips and tracks) must be used normally for soffit and angled wall panel installations but face fastening is also required at each framing member along the centerline of each panel.

Particularly with angled wall applications, ensure starter track and panels are horizontal/level. Check with a laser level regularly.

Soffit panels are oriented with the long dimension (1818 mm (71-9/16") or 3030 mm (119-5/16")) parallel to the wall and the short panel dimension (455mm (17-7/8")) perpendicular to the wall.

All short-edge (455mm) joints between panels must be factory shiplapped joints (AWP 1818) or H-mold joints (AWP 3030).

Treat all cut panel edges by coating them with exterior acrylic latex paint.

Utilize WRBs as prescribed by local code and/or manufacturer instructions for under horizontal surfaces.

Do not add attachments directly on AWP used on angled walls.

REQUIRED FASTENERS

ULTIMATE CLIPS AND STARTER TRACK:
Refer to and follow *Fasteners* on page 9.

FACE FASTENERS:

Minimum #7 or larger, stainless steel or corrosion-resistant exterior, full-headed screws are required. The length of the screws must enable minimum penetration of 1" into wood or 1/2" into min. 18 gauge steel framing.

PROCEDURES

AWP As SOFFIT

Begin soffit installation by measuring and adding 10mm Spacers to the framing or sheathing where the centerlines of each panel course will occur, accounting for the soffit depth, number of AWP courses, and reduced/cut panels.

At the wall-soffit angle/intersection, there are two options to secure the first edge of AWP:

1. Starter Track: Position the track to allow for the AWP shiplap edge which will extend 3/4" (18mm) past the track. Fasten the track to framing every 16" (406mm), or
2. Remove the panel shiplap and face fasten through 10mm Spacer, keeping screws 1" (25mm) from the panel edge.

If additional courses of panels will be utilized, add Ultimate Clips to the panel edges in the same fashion as normal/vertical wall installation. Fasten Clips to framing every 16" (406mm). Utilize Joint tab attachments for AWP 1818 normally. *Ensure panel edges are fully seated within the clips and joints are closed in moderate contact.*

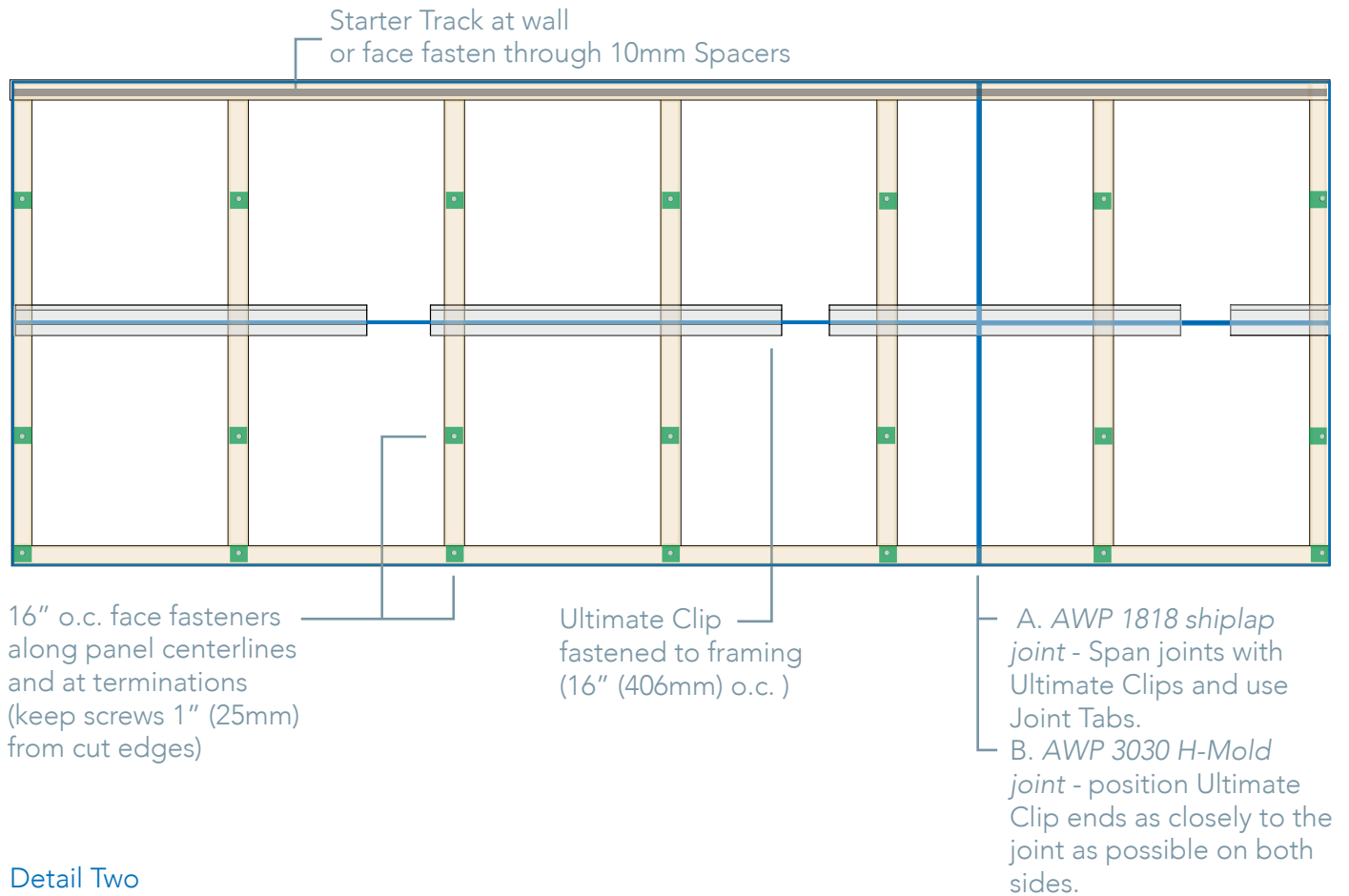
Along the centerline of each panel course, face fasten at intermediate framing members (field) every 16" (406mm) o.c.

The terminal edge must be cut and secured via face fasteners through 10mm Spacers. Add screws every 16" (406mm), keeping 1" from the cut edge. J-Mold trim may be utilized with cut panel edges.

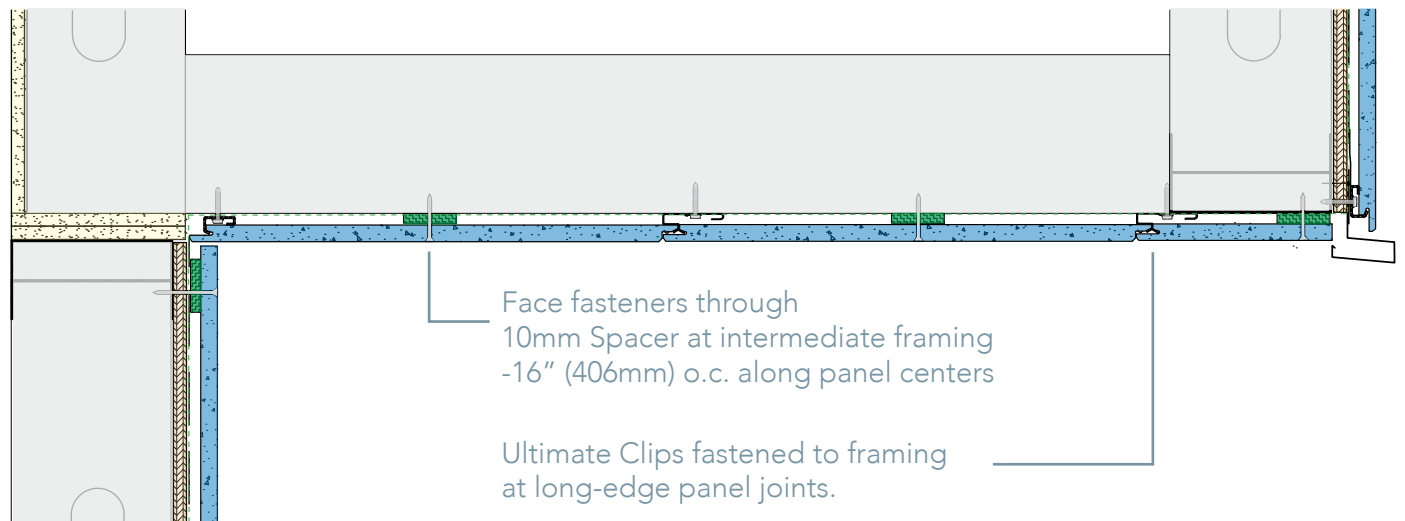
Pre-drill the panels at face fastener locations with a #6 countersink bit. Refer to and follow *Face Fastening Best Practices*.

Soffit vents may be added to or used in conjunction with soffit panels.

Detail One



Detail Two



For terminal course/cut panels less than 10" (254mm) in width, the center face fasteners are not needed.

ANGLED (NON-VERTICAL) WALLS

Angled walls must be pitched forward as shown in *Detail Three* (away from the interior) - to where the wall to grade angle is less than 90 degrees. Backward leaning walls create roofing-like conditions, greatly accelerating the weathering of AWP.

Begin angled wall installation with typical installation of Starter Track at the wall base, fastening to framing every 16" (406mm) o.c. *Ensure the track is level. Check with a laser level.*

Measure 7" (183mm) above the top of the Starter Track and add 10mm Spacers to the sheathing or furring where the centerline of the first panel course will occur.

Set the first panel on the Starter Track and secure the top shiplap edge with Ultimate Clips in the same manner as vertical wall (standard) installations. Each clip will be fastened to a minimum of two framing members. Add the second panel and span the panel joint with an Ultimate Clip (for AWP 1818 only). AWP 3030 vertical joints must follow the steps on pages 24-25. Continue working normally from left to right and low to high.

Beginning with the second course of panels, utilize the Joint Tab Attachment normally with AWP 1818.

Regularly check for level with a laser to ensure panel courses are horizontal.

Along the centerline of each panel course, face fasten at intermediate framing members (field) every 16" (406mm) o.c. through 10mm Spacer.

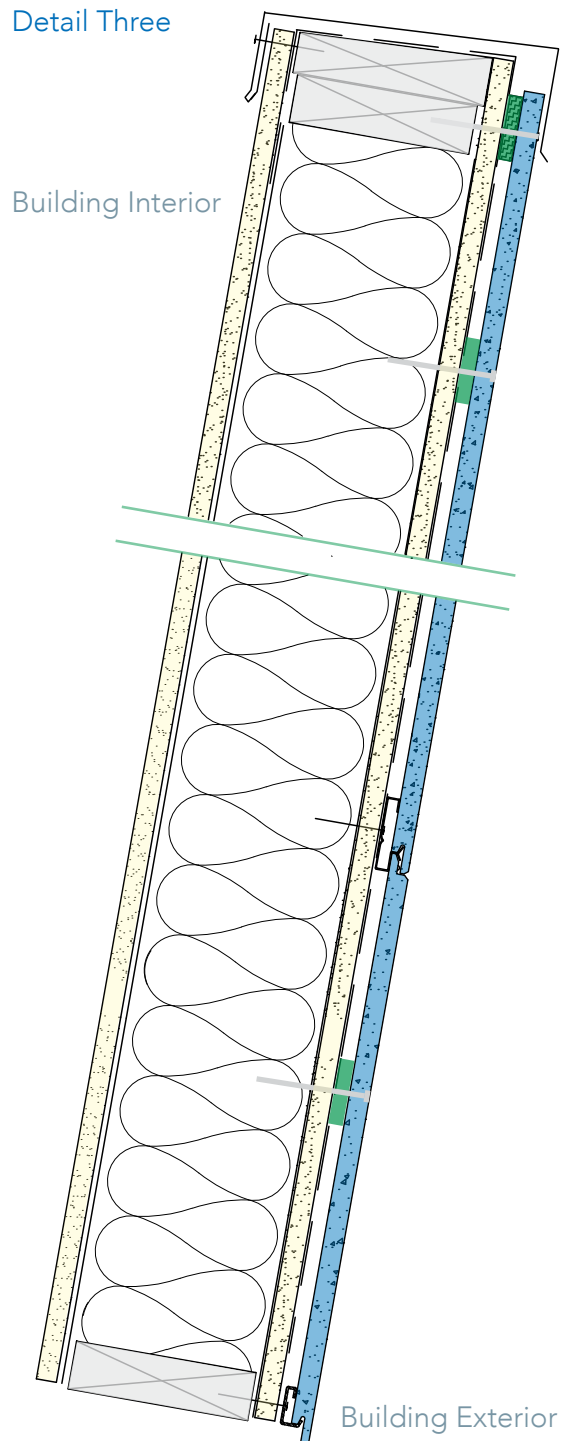
The terminal edge must be cut and secured via face fasteners through 10mm Spacer. Add screws every 16" (406mm), keeping 1" from the cut edge.

Pre-drill the panels at face fastener locations with a #6 countersink bit. Refer to and follow **Face Fastening Best Practices**.

Outside Corners: Metal trim corners are strongly recommended.

Reminder: do not add attachments such as light fixtures or signs on AWP on angled walls. Utilize blocked penetrations only.

Detail Three

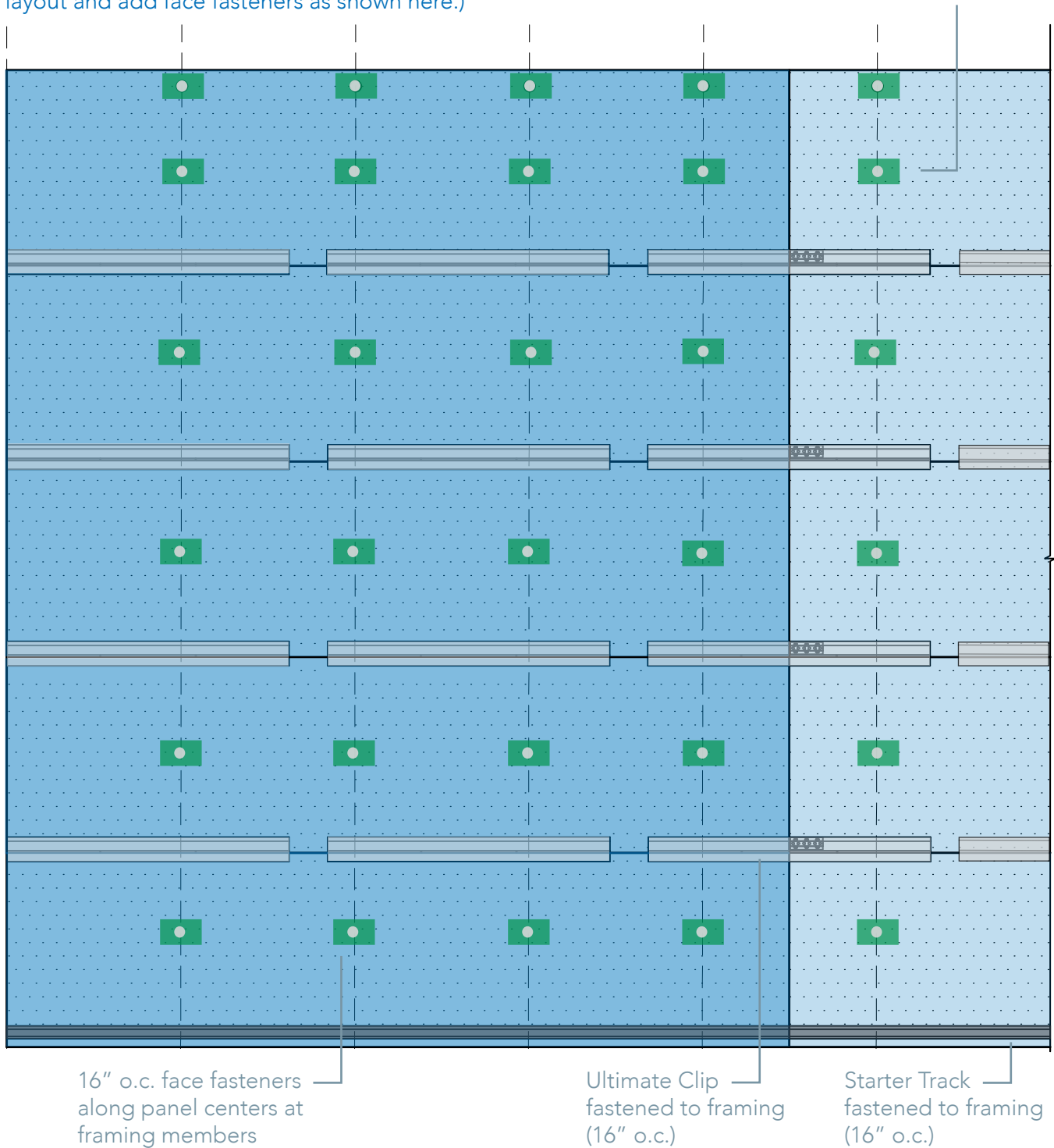


Only forward-leaning angled walls are acceptable. Face fasten the centerline of panels at intermediate (field) framing members.

Detail Four

(AWP 1818 depicted. Refer to p. 24 for AWP 3030 panel/clip layout and add face fasteners as shown here.)

For terminal course/shortened panels less than 10" (254mm) in height, the center face fasteners are not needed.



CLEANING & MAINTENANCE

ALL APPLICATIONS

CLEANING PANELS

After completion of the installation or for periodic maintenance, it may be necessary to clean panels.

When cleaning panels, use no more than 400 psi of water pressure at 10"-12" (254-305mm) away. **Do not pressure wash custom color panels.**

To clean heavily soiled areas, a mild household detergent and/or soft bristle brush may be required.

Do not allow any detergent/cleaner to dry on panels. Rinse immediately after cleaning.

PAINT TOUCH-UP

It is impossible to fully match the AWP factory finish sheen in the field. It is imperative that the least amount of touch-up paint be applied to AWP as possible.

Touch up paint must be exterior grade 100% acrylic latex and can be color matched by taking a panel sample to your local paint or home improvement store.

A small can of touch-up paint is supplied with your custom color panel order. Do not use for edge coating/sealing for larger projects as there will not be sufficient supply.

Isolate touch-up locations with low-adhesive/painter's tape. Where face fasteners have been used and patched by exterior filler compound, use a cotton swab to lightly dab touch-up paint.

For scratches, use a cotton swab for small ones or a 1" (25mm) foam brush for longer ones. Employ a dabbing motion rather than brushing in order to minimize the amount of paint applied.

REMOVAL OF EXTERIOR ACRYLIC LATEX PAINT

Wet Paint Removal - While the paint is still wet, flush the area with clean water, using mild abrasion with a clean cloth or soft brush.

Semi-Dry Paint Removal - If paint has set, but not dried, flush and clean as above, followed by light scrubbing with alcohol to remove any remaining paint residue. Rinse with water and a clean cloth.

Dry Paint Removal - Please refer to paint-removal guide in the next section.

OTHER PAINT & GRAFFITI REMOVAL

The following products have been tested on Nichiha panels to aid in the removal of graffiti type markings.* These citrus-based products can also be used for basic panel cleaning purposes. The panels were sprayed with an indoor/outdoor aerosol spray paint and left to dry overnight, and then the paint removal products were applied following the manufacturer's guidelines.

All products tested achieved good results. However, the outcome may vary depending on the amount of paint that needs to be removed. Be sure to follow all manufacturer's guidelines and first test in an inconspicuous area before working on a larger area.

Do NOT use these cleaners with custom color panels. *Nichiha is not liable for any damage caused by the use of these cleaners.

CITRISTRIP

www.citristrip.com

Products tested:

Citristrip Striping Gel - One Quart container

Citristrip Stripping Aerosol - 18 oz. spray can

GOOF OFF GRAFFITI REMOVER

www.goof-off.com

Products tested:

Goof Off Aerosol - 16 oz. spray can

Goof Off - 22 oz. trigger spray bottle

TAGAWAY

www.tagaway.com

Product tested:

Tagaway - 32 oz. trigger spray bottle

REPAIRING MINOR DAMAGE

Isolate the blemish with a low adhesive tape such as painters tape. This will help protect the surrounding area of the panel and aide in creating a more polished, clean repair.

Lightly brush/abrade the surface within the taped off area in order to remove any loose material.

Carefully fill and smooth the resultant prepped area with exterior grade patching compound such as MH Ready Patch®. Allow to dry/cure fully.

Gently smooth the patch and then apply touch-up paint to the affected area. Allow touch-up paint to dry and remove the tape.

PANEL REPLACEMENT

ALL APPLICATIONS

Set the depth of a circular saw blade slightly deeper than the panel so the saw blade does not cut into the building wrap or sheathing.

A. Make cuts into the damaged panel and break it into pieces for easier removal of the damaged panel.

B. Remove damaged panel.

C. Use a 10mm Corrugated Spacer and place it behind the new panel at bottom, just above exposed Panel Clips or Starter Track.

D. Cut 3/16" (4mm) off the back ship-lapped edge at bottom of panel.*

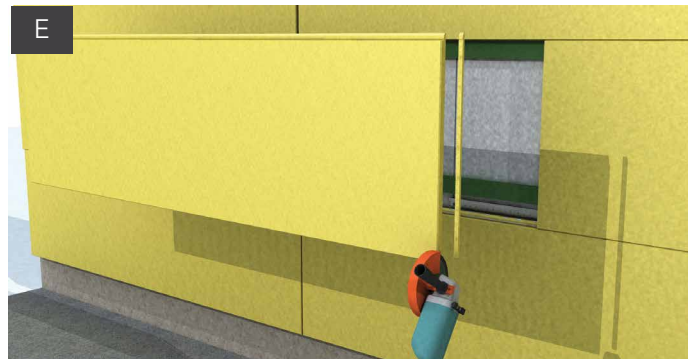
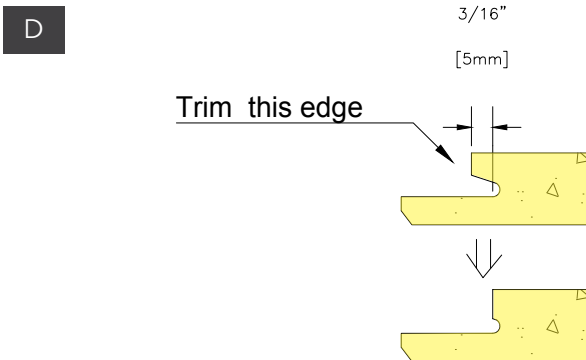
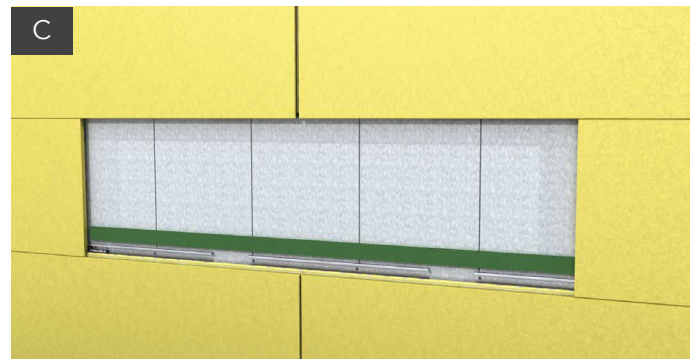
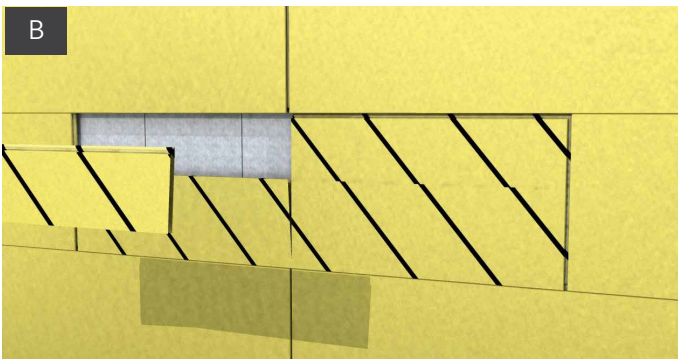
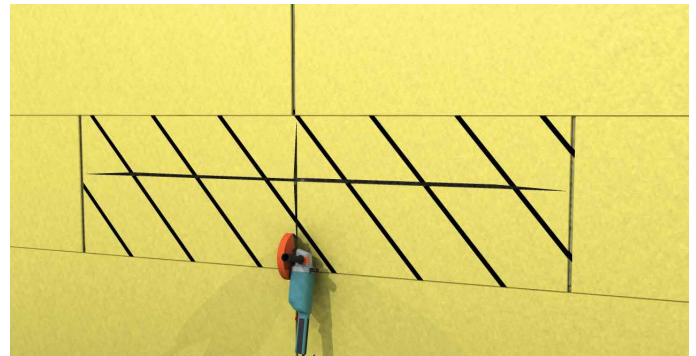
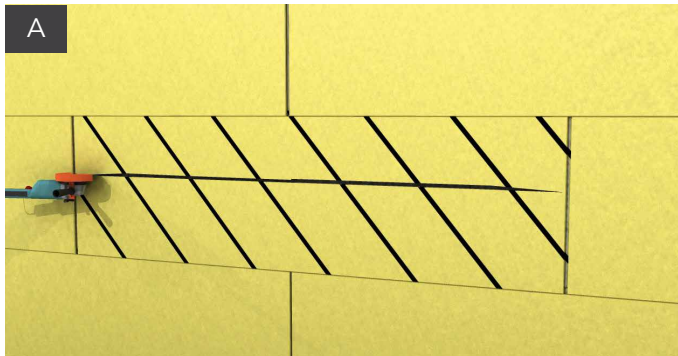
E. For AWP 1818, cut the right side ship-lapped edge off the panel.

Prepare to set the new panel in place.

F. Lift panel into place by prying from the bottom upward. Pre-drill and face fasten the panel with a screw into the framing members, 2" (51mm) from panel bottom.

Fill countersunk screw heads with color-matching cementitious patching material. Touch up with exterior grade acrylic latex paint

*If panel to be replaced is at the top course or under a window, cut the top edge of the panel as needed and leave the bottom shiplap intact. Add Spacer at top of uncovered wall space and face fasten the ripped top edge of the replacement panel.



Behind our Architectural Wall Panels is SOME SERIOUS TECHNOLOGY.



EASY INSTALLATION

Time-saving Clip Installation System that reduces construction time and minimizes mistakes.



NO MORTAR, NO MESS

Pre-finished panels that eliminate the need for messy mortar or costly masonry-skilled labor.



ANY WEATHER PRODUCT

Products that can be installed year round in any climate across the country. No geographical restrictions means more possibilities.



LOW MAINTENANCE

No-fuss products. Little ongoing cleaning or regular maintenance needed. You get to bring your vision to life and ensure it looks great for a long time.



ENGINEERED FOR PERFORMANCE

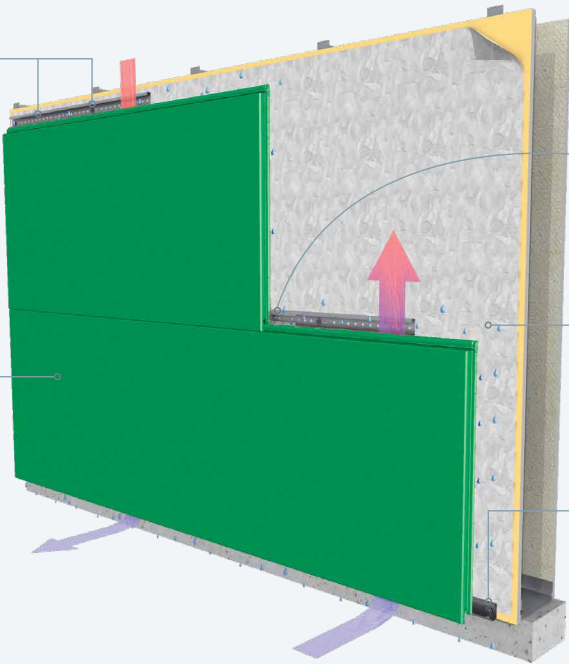
Go beyond our durable panels and discover a meticulously engineered moisture management system that provides a vertical drainage point for air and moisture to exit.

THE ULTIMATE CLIP

creates a hidden fastening system that all but eliminates face fastening. Installation is quick and easy and never requires specialty subcontractors.

NICHIHA ARCHITECTURAL WALL PANELS

are lightweight, easy to handle and available in a virtually endless color palette and a diverse offering of textural finishes.



NICHIHA'S JOINT TAB ATTACHMENT

is designed to support panel lateral stability, helping vertical joints stay tightly closed. The tab fits in place easily and is fastened to the Ultimate Clip with provided screw.

DRAINED AND BACK VENTILATED RAINSCREEN

design allows water to escape and air to circulate, reducing the risk of mold and water damage inside the building.

THE ULTIMATE STARTER TRACK

pulls double-duty. It ensures a fast, level installation and its patented drainage channel directs water out and away from the base of the wall.

Never underestimate the power of REALLY GOOD TOOLS.

Whether you are an architect, a builder or a contractor, Nichiha wants to ensure that you have all the information you need to make your project go as smoothly as possible. The way we see it, we are partners. Our website offers a comprehensive collection of technical information, installation videos, Architectural details, in-depth specifications and everything you'll ever need to know about installing Nichiha products. You can even schedule a Technical Design Review via nichiha.com/technical-design-review, and our Field Technical Services team can make site visits for installation training and/or preconstruction guidance.



DESIGN REVIEW GUIDE

Download our quick reference guide to get an overview on our Architectural Wall Panels.

nichiha.com/resource-center



ARCHITECTURAL DETAILS

Take a closer look and download our conceptual detail drawings.

nichiha.com/architectural-details



INSTALL VIDEOS

Watch our installation instructions come to life — check out our installation videos today!

nichiha.com/resource-center/install-support



SUPPORT

Our field and in-house technical teams are here to assist. If you have questions, comments, concerns, or wish to schedule a site visit or pre-con meeting, please call or email us.

1.866.424.4421 or technicalservices@nichiha.com

THE POWER OF POSSIBILITIES AND PARTNERSHIPS

Your creative vision is unique. That's why Nichiha wants to offer you the power of cooperation to help your project move from conception to completion. Our ever-expanding offering of textures and finishes lift buildings to new and unexpected places and we want to share them with you. We place a high value on our relationships and are proud to work with our dedicated partners across the country. Join us and discover the power of possibilities and partnerships with Nichiha.

NICHIHA WARRANTIES

- ILLUMINATION SERIES PANELS
15-year limited warranty* on panels,
15-year limited warranty* on finish.
- ARCHITECTURAL WALL PANELS
(Brick, Block, Stone, Wood, Kurastone)
15-year limited warranty* on panels,
15-year limited warranty* on finish.
- METAL TRIM
Tamlyn warrants defective-free products for a period of
10 years for the original purchaser. Please visit tamlyn.com for
detailed information on terms, conditions and limitations.

*See Nichiha warranties for detailed information on terms, conditions and limitations. Visit nichiha.com for easy downloadable warranties or call toll-free 1.866.424.4421 for a copy.

Nichiha SDS are available on nichiha.com.

CERTIFICATION & TESTING



C.C.R.R. 0299



WUI
8140-2029



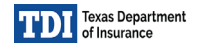
Florida Approval
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Miami-Dade
NOA 18-0522.05



CCMC 14366-R



Report EC-58



L.A.R.R. 26081



CRYSTALLINE SILICA DUST WARNING: Nichiha products may contain some amounts of crystalline silica [a.k.a. sand, silicone dioxide], which is a naturally occurring mineral. The amount will vary from product to product. Inhalation of crystalline silica into the lungs and repeated exposure to silica can cause health disorders, such as silicosis, lung cancer, or death depending upon various factors. To be conservative, Nichiha recommends that whenever cutting, sawing, sanding, sniping, or abrading the product, users observe appropriate safety protocols. For further information or questions, please consult Nichiha SDS, your employer, or visit osha.gov/silica and cdc.gov/niosh/topics/silica. The SDS for Nichiha products are available at nichiha.com/resources, at your local Nichiha dealer, or through Nichiha directly at 1.866.424.4421. FAILURE TO ADHERE TO OUR WARNINGS, SDS, AND OTHER INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

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