Vertical Installation Guide
AWP-3030
VERTICAL INSTALLATION GUIDE

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GENERAL

This guide is intended to provide the key information needed to successfully install Nichiha’s 3030mm Architectural Wall Panels (AWP-3030) in a vertical application. 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/resources.

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 May 2018.

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.
BASICS OF THE AWP-3030 SYSTEM

Nichiha AWP-3030 dimensions are 455 mm (h) x 3,030 mm (l) x 16 mm (t). It is important to keep in mind the actual metric dimensions when considering panel layout, placement of control and compression joints, and with respect to sizing window and door openings. Approximate Imperial dimensions are 17-7/8 inches (h) x 119-5/16 inches (l) x 5/8 inch (t).

AWP-3030 panel edges are shiplapped on the long edges and a factory sealant gasket is included on one edge, providing a factory seal on all vertical joints. AWP attachment hardware engages the long edges, holding the panels off the substrate surface by 10 mm (~3/8") and creating a closed-joint, drained/back-ventilated rainscreen system with concealed fastening. When accounting for the overall thickness of the AWP system, add this 10 mm plus the thickness of the panel (16 mm) for total system thickness of 26 mm.

AWP-3030 may be installed horizontally or vertically. See also Horizontal Installation Guide AWP-1818, AWP-3030.
LIMITATIONS, TECHNICAL REVIEWS AND 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, 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 Review and Special Application Form (SAF) 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 an SAF.

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 or Insulated Concrete Forms (ICFs). Installation of AWP products on modular structures that are factory-constructed and then transported to a final site are not approved; and further, excluded from the Limited Product Warranty, per Section 2.F.

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 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. Vacuum dust with a HEPA-filtered vacuum.
FRAMING AND SHEATHING REQUIREMENTS

Prior to Nichiha installation, closely inspect 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.

With conventional stud spacing, 7/16" or thicker APA rated OSB or Plywood sheathing must be used as the fastening base for Vertical AWP-3030 as the panel size module will not align with framing. Alternatively, studs or furring may be spaced at 45.5cm (17-7/8") o.c. to allow fastening of AWP hardware directly to framing.

Refer to PEI-PER 14088 for wind load data.

Nichiha AWP cladding may be installed on vertical walls only. No tilted/sloped walls, radius/curves, soffits, or ceilings. Vertical AWP installations are not compatible with PEMBs. AWP may be installed on wood or steel framing, concrete/masonry with furring, and Structural Insulating Panels (SIP) meeting the following requirements:

WOOD STUDS

Structural Sheathing Method
Size: minimum 2x4 studs
Spacing: 16” o.c max
Sheathing: APA rated exterior grade minimum 7/16” plywood/OSB required

Custom Stud Spacing Method
Size: minimum 2x4 studs
Spacing: 45.5 cm (17-7/8”) o.c.
Sheathing: APA rated exterior grade minimum 7/16” plywood/OSB, ½” or 5/8” gypsum

METAL STUDS

Structural Sheathing Method
Gauge: minimum 18
Spacing: 16” o.c max
Sheathing: APA rated exterior grade minimum 7/16” plywood/OSB required

Custom Stud Spacing Method
Gauge: minimum 18
Spacing: 45.5 cm (17-7/8”) o.c.
Sheathing: APA rated exterior grade minimum 7/16” plywood/OSB, ½” or 5/8” gypsum

CONCRETE/MASONRY

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

Wood Furring: pressure treated lumber 2x4 or 5/4x4’s, oriented vertically, spaced 45.5cm (17-7/8”) o.c. max

Metal Furring: hat channel, c-stud, or z-furring, minimum 18 gauge with 1-2” flanges, oriented vertically, spaced 45.5cm (17-7/8”) o.c. max

Sheathing: exterior grade minimum 7/16” plywood/OSB required with furring spacing other than 45.5cm (17-7/8”) o.c.

STRUCTURAL INSULATING PANELS (SIP)

SIPs should be installed in accordance with manufacturer’s instructions and local building codes. Additional special Nichiha installation requirements for SIPs are discussed in the Fasteners and Installing the First Course sections to follow.

For buildings greater than one story, contact Technical Department for assistance.
CONTINUOUS INSULATION

When exterior/continuous insulation is to be used with AWP-3030 in vertical applications, please contact Nichiha technical department for assistance. Framing/sheathing/furring alternatives will be necessary.

Also refer to the Technical Bulletin: Continuous Insulation and AWP available at Nichiha.com/resources/technical-bulletins.

VERTICAL AWP-3030 OVER C.I. ATTACHMENT REQUIREMENTS

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

Special attention must be paid to supporting the Vertical Starter Track, which bears the weight of AWP-3030 in vertical applications. The clips do not share the dead loads for vertical panels.

1. Shaped metal furrings (Z, hat channel, C, etc.)
   - Minimum 18 gauge
   - Aligned vertically
   - Spaced 16” o.c. (max)
   - Min. 7/16” APA Rated OSB or Plywood

2. Pressure treated lumber
   - Minimum 2x (1.5”) thickness
   - Aligned vertically
   - Spaced 16” o.c. (max.)
   - Min. 7/16” APA Rated OSB or Plywood

3. Shaped metal furrings (one layer)
   - Minimum 18 gauge
   - Aligned vertically at 17-7/8” o.c.
   - Additional vertical furring segments at Vertical Starter Track locations to enable 9” o.c. fastener spacing for track

4. Shaped metal furrings (two layers) (Z, hat channel, C, etc.)
   - Layer One
     - Minimum 18 gauge
     - Aligned horizontally
     - Spaced per engineer’s design
   - Layer Two
     - Minimum 18 gauge
     - Aligned vertically at 17-7/8” o.c.
     - Additional vertical furring segments at Vertical Starter Track locations to enable 9” o.c. fastener spacing for track.

*Consult a structural engineer to design the furring system to manage the AWP system dead load of minimum 4 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. Sealant backers must be fastened every 12-14" 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 is the maximum thickness of foam sheathing on which a furring can be added directly on top, spaced at 16” o.c. and fastened with #8 screws every 12”-16” (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:

1. SMARTCi GreenGirts
2. Knight Wall CI® and HCI™ Systems
3. Bracket and rail systems:
   a. Cascadia Clips®
   b. Knight Wall MFI®
WEATHER RESISTIVE BARRIERS

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

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

Permeable WRB is required for all commercial applications. A fluid applied WRB is acceptable.

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

All openings must have appropriate flashing to prevent moisture penetration. Follow manufacturer’s guidelines and all local building codes.

STORAGE & 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. Refer to storage information included on product pallets.

Ensure panels are completely dry before installing. Direct contact between the panels and the ground must be avoided at all times. It is necessary to keep panels clean during the installation process.

Cut panels face down.

Always clean panels with a clean, soft, dry cloth 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.
FASTENERS

All Applications

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”) were used as clip fasteners for AWP wind load testing. The minimum size for clip fasteners is #8. Clip and track screws must have a pan, wafer, or hex type full head.

Number 7 finish screws with a bugle or flat head (min. head diameter 0.255”) are appropriate for face fastening locations. These must penetrate framing per the minimum requirements below. Refer to the Face Fastening Best Practices section for face fastening procedure.

When installing AWP with the Structural Sheathing Method, ensure clip fasteners are at least 1” in length to fully penetrate the plywood or osb. Wherever possible when face fasteners are needed, screws must be long enough to penetrate all the way through the sheathing and into the framing.

For the Custom Stud Spacing Method, the fasteners must always penetrate the studs or furring with minimum 1” penetration for wood or ½” for metal.

FACE FASTENING BEST PRACTICES

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

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

2. Pre-drill panels 1” 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.

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

4. Remove the painter’s tape only after applying patch and touch up paint.
INSTALLATION HARDWARE & ACCESSORIES

ULTIMATE VERTICAL STARTER TRACK
Ultimate Vertical Starter Track serves as the foundational support for the AWP system while also providing faster and greater ease of installation. *With Vertical AWP-3030, the Starter Track carries the entirety of the dead loads and is required for each course.*

FA 710 T Vertical Starter Track – 10 mm rainscreen

ULTIMATE CLIP II
Ultimate Clips are secured to the vertical panels’ shiplaps, securing AWP to the wall while holding their back surface off the substrate to create the 10mm (3/8”) rainscreen space. *In vertical applications, clips do not support panel weight.*

JEL 778 CLIP Compatible with 16mm (5/8”) AWP - 10 mm rainscreen

Joint Tab Attachments included with Ultimate Clips are not needed for vertical panel installations.

FINISH CLIP (OPTIONAL)
The Finish Clip provides an alternative to face fastening of AWP at certain termination points where the panel shiplaps are removed. Install over 5mm Spacer. Refer to Finish Clip Usage section for general instructions.

JE 310 Finish Clip – 5 mm rainscreen but compatible with all AWP

CORRUGATED SPACER
At termination points where Ultimate 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 jambs and outside corners.

FS 1005 SPACER – 5 mm rainscreen

FS 1010 SPACER - 10 mm rainscreen
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 rainscreen

Double Flange Sealant Backer: FH 1015 – 10 mm rainscreen

METAL TRIM OPTIONS

Nichiha metal trim provides aesthetically pleasing design options for corners, openings, and transitions.

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<tr>
<td>Overhang*</td>
<td>Fascia-to-Soffit Transitions</td>
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</table>

* Inside and outside corner segments are available.
PLANNING AND PANEL LAYOUT

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

Reminder: AWP-3030 actual dimensions are metric: 455 mm (h) x 3,030 mm (l). Imperial equivalents: 17-7/8" (h) x 119-5/16" (l).

Horizontal/Compression Joints (Page 25): ½” (min.) Horizontal, flashed break detail to allow for building compression at floor lines. Horizontal joints may not be staggered.

Inside Corner Line of Sight (Page 20): 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, utilize Inside Corner metal trim.

Cut Panels: In general, it is best to avoid cutting AWP to short or narrow strips and segments of less than 9”. Specifically, when an individual panel is taller than a window or other opening and is used over the head or under the sill, do not cut it to less than 9” in width along the opening jamb. (see image A)

When an opening is taller 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” in width along the jamb. (see image B)

Design Wind Pressures: Refer to PER14088 when determining the best vertical panel installation method for a specific project. The Structural Sheathing Method and Custom Stud Spacing methods result in different allowable design pressures, dependent upon thickness of wood sheathing or type/gauge of custom spaced studs/furring. Refer also to Limitations, Technical Reviews and Special Applications section regarding Nichiha’s technical review process.
AWP-3030 - VERTICAL: INSTALLING THE FA 710 T VERTICAL STARTER TRACK

All Applications

Without custom stud/furring spacing outlined in the Framing & Sheathing Requirements section, 7/16” or thicker APA rated OSB or plywood sheathing MUST be used to enable vertical installation of AWP-3030. Plywood/OSB shall be secured to building framing in compliance with best practices and local building codes. In any case, Vertical Starter Track must be secured to framing and never sheathing alone as it fully carries the weight of the vertical panels. It must remain continuous as staggering of horizontal joints is not permitted.

MINIMUM CLEARANCES

The Starter must be level and attached at a minimum of 6” above finished soil grade or per local building codes (use a laser level to verify). When installing over a hard surface such as driveways or sidewalks, a 2” clearance is acceptable.

Keep AWP at least 1” above roofs.

Essential Starter Flashing may be installed prior to the Starter Track to conceal the clearance gap above hardscape and decking. Beginning with outside and inside corner segments, fasten trim at each stud location or every 10” o.c. to sill plate. Fasten inside and outside corner segments to framing on both sides of the trim, keeping at least 1” from trim vertical edges. Main segments will slide into/overlap the corner trim. Position Starter Track to leave 1/4” clearance between the panel edge and trim/flashings.

The Starter must be installed using corrosion resistant fasteners.

When applicable, locate and mark the studs/furring.

Vertical Starter Track fastened every 6 to 9” to framing.
ALL APPLICATIONS

To fully secure Vertical Starter Track, use corrosion resistant screws of sufficient length to ensure full penetration of the sheathing and into framing by 1” for wood or ½” for metal. Starter must be level.

WOOD & METAL STUDS

Vertical Starter Track must be secured every 6-9” into sill plate or studs and/or, if applicable, halfway between into the sheathing.

CONCRETE/MASONRY

When installing over concrete construction, the wall must be furred out with pressure treated lumber, metal hat channel, or z-furring. Install APA rated 7/16” OSB or plywood to furring for spacing other than 45.5cm (17-7/8”). Starter Track must be secured at each furring location and halfway between into the sheathing or blocking at 6-9” o.c.

STRUCTURAL INSULATING PANELS (SIP)

Secure Starter Track every 6” o.c. max.

FIG. 14
GENERAL PANEL & ACCESSORY BASICS

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.

Cut and exposed panel edges must be primed or sealed with fiber cement sealer (e.g. DryLock®) or paint such as Kilz Premium® or Kilz Max®. Do not use supplied Illumination Touch-Up paint. (Fig. 14)

Be sure to clean panels with a dry, soft, clean cloth after cutting to prevent dust from bonding to the finish.

CUTTING ULTIMATE CLIPS

JEL778 Ultimate Clips are 26” long. Where full length clips can be used, they are required. However, there may be conditions where clips must be cut to accommodate panels in smaller areas or segments such as short columns, pilasters, or insets/recesses.

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.
**FINISH CLIP USAGE**

The Finish Clip requires added preparation of the panels with the use of a biscuit joiner:

1. To route grooves into the top edge of a panel, use a biscuit/plate joiner, such as Makita’s PJ7000. A carbide blade is recommended.

2. Set the biscuit joiner’s angle guide at zero degrees and height to ¼”.

3. Set the depth of groove for a size 20 biscuit to ensure the grooves are wide and deep enough for JE310 clips to seat properly, ¼” from the back/unfinished face of the panel.

4. Route the cut edge with the unfinished panel surface facing up, lining the grooves up with stud locations (16” o.c. maximum).

5. The clip should fit snug but not too tightly when placed on the panel. Cut, routed panel edges must be sealed with 100% acrylic latex primer or paint, such as Kilz Premium or Kilz Max. Use 5mm Spacer with JE310 Finish Clips.
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

OSI® QUAD® may not be used for Nichiha expansion joints:

- It is a class 25 product.
- QUAD® MAX is acceptable since it is a Class 50.


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” o.c. with the 3/8” 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.

Place low-adhesive tape (masking or painter’s) over the panel along the areas requiring sealant joints for a clean caulk line.

Fill the gap between the panels with a color-matched/coordinating ASTM C920, Class 35 (min.) sealant. The Nichiha Sealant Backer allows for the proper depth of sealant (75-80%).

Before removing tape, press the surface of the sealant with a caulk spatula or similar tool to ensure an even surface.

Remove masking tape before sealant cures.

If excess sealant adheres to panel, remove completely using a putty knife or soft cloth.
AWP-3030 - VERTICAL INSTALLATION

Without custom stud/furring spacing outlined in Framing & Sheathing Requirements section, 7/16” or thicker APA rated OSB or plywood sheathing MUST be used to enable vertical installation of AWP-3030.

Use corrosion resistant screws of sufficient length to ensure full penetration of wood sheathing (Structural Sheathing Method), or the 17-7/8” o.c. studs with the Custom Stud Spacing Method (minimum penetration 1” into wood, ½” into metal), to secure Ultimate Clips. Face fasteners must be at least 1-1/2” in length.

Single Flange Sealant Backer and metal trim should be installed before panels. Refer to Inside Corners, Windows & Doors and Outside Corners sections.

AWP installation proceeds by working from left to right.

If starting at an inside corner, predetermine which wall will include the Single Flange Sealant Backer. Consider the location to minimize the visibility of the sealant 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.

Prior to installing the first vertical panel, add 10mm corrugated Spacer at the left edge of the wall at the starting point. The Spacer should extend upwards to where the panel will end.

Looking at an AWP-3030 oriented horizontally, remove the bottom ship-lapped edge and then rotate the panel 90 degrees clockwise to set the short panel edge on the FA 710T Vertical Starter Track. The freshly cut and sealed edge should butt to the corner/starting point and will cover the 10mm Spacer. Be sure to clean dust from cut panels with a dry, soft cloth or HEPA vacuum.

Pre-drill panels after applying low-adhesive tape to be removed after patching/touch-up. Fasten every 12-16” o.c., spaced vertically, with a minimum 1” distance from the edge (Fig. 19a).

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

Whenever possible, use face fastening screws long enough to penetrate all the way through the sheathing and into the framing by 1/2” for metal, 1” into wood. Refer to the Touch-up Paint, Minor Repairs sections for more info on patching face fasteners.

On the right, factory edge, add four Ultimate Clips evenly spaced along the full AWP-3030 panel, with the first at the Starter Track edge. Add four fasteners per clip, evenly spaced (Fig. 19b). In the Structural Sheathing Method, the clips will be fastened only to the plywood/osb sheathing. With the Custom Stud Spacing, the clips will align with vertical framing and the fasteners will be secured to the studs or furring (Fig. 19c).

Working from left to right, install the next panel with its ship-lapped edges intact. A rubber mallet or block may be used to seat panels firmly in place and tighten together on vertical panel joints. Do not hammer directly on the panels as direct contact may cause cracks, gouges, or chipping. Install four Ultimate Clips as with the first panel, each with four screws.
FIG. 19A

FIG. 19B

FIG. 19C

AWP-3030 VERTICALLY AlIGNED WEATHER RESISTANT BARRIER

17-7/8" (45.5cm)

FRAMING MEMBER

NICHIA PANEL CLIP AND FASTENERS LOCATED ON STUD SHEATHING
Continue likewise until reaching a termination or transition point. The factory edge must be removed from the last panel, and this cut edge must be face fastened over 10mm Spacer. Space the fasteners every 12-16” o.c. vertically, with a minimum 1” distance from the edge. Again, whenever possible, use face fastening screws long enough to penetrate all the way through the sheathing and into the framing, 1/2” into metal, 1” into wood. Refer to Face Fastening Best Practices for info on patching face fasteners.

To begin a second course of panels, install appropriate horizontal joint flashing or Essential Compression Joint Flashing above the top edge of the bottom/first course of panels. Then repeat the steps beginning with FA 710 T Vertical Starter Track a minimum ½” above the top edge of the first course of panels (See Horizontal/Compression Joint section). **Horizontal joints may not be staggered.**

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**INSIDE CORNERS, WINDOWS & DOORS**

*All Applications*

Appropriate flashing should be used to prevent moisture penetration on all inside corners, doors, and windows. Refer to local building codes for best practices.

Cut and exposed panel edges must be coated with exterior acrylic latex paint.

**INSIDE CORNERS**

**Single Flange Sealant Backer (FHK 1015):**

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

Install the panel on the front wall (more visible) first. Ensure panel is butted up tight to the inside corner wall. Fasten the Single Flange Sealant Backer onto the side wall right up against the front wall panel’s edge at 12-14” o.c. to framing, plywood/osb sheathing, or blocking.

Add 10 mm Spacer over the fastening flange of the Sealant Backer.

Install side wall panel, with factory edge removed and sealed, directly against the sealant backer, over the Spacer, and secure with face fasteners*. Fill space with ASTM C920, Class 35 (min.) sealant.
**Inside Corner Metal Trim:** Install Nichiha Inside Corner metal trim directly against the inside corner sheathing. Fasten metal trim every 12-16” in a staggered fashion on alternating flanges.

Remove the shiplapped edges that will be inserted into the trim, 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 then add Single Flange Sealant Backer. Add ASTM C920, Class 35 (min.) compliant sealant to the gap.

**Finish Clip:** Alternatively, the JE310 Finish Clip can be used as an alternative to face fastening* at corners. Refer to Finish Clip Usage for panel preparation instructions. Use 5 mm Spacer at Finish Clip (5 mm) locations to maintain the 10 mm rainscreen space created by JEL 778 Ultimate Clips. Finish Clips require a minimum 3/8” gap between the panel edge and corner or trim board. Add foam backer and ASTM C920, Class 35 (min.) compliant sealant to gap.

*Face fasteners and Finish Clip fasteners should fully penetrate OSB or plywood sheathing and into the framing whenever possible. Refer to Face Fastening Best Practices for info on patching face fasteners.

**WINDOWS AND DOORS**

**Window Sills (J-Mold optional):** For recessed windows, add a flashing where the panels will terminate so that the top edge is covered or capped.

As needed, cut the panel to the required height to fit below the window sill, leaving a ¼” 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 exterior primer or paint, such as Kilz Premium or Kilz Max. **Clean any dust off the panels with a dry, soft clean cloth.**

Fasten Ultimate Clips along the sides of the panel to sheathing, framing, or furring with a clip positioned within an inch of the top end of the panel meeting the sill and the lowest clip at Vertical Starter Track edge.

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

If desired, install J-Mold trim, fastened every 12-16”, under the sill prior to panels.
A minimum gap of 1/4” is required when butting panels into windows, doors, and trim boards. Refer to window/door manufacturer guidelines for spacing trims around windows.

**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 a minimum of 12” to 14” o.c. to framing, plywood/osb sheathing, or blocking.

Add 10mm Corrugated Spacer along the jamb.

Remove appropriate ship-lapped edge of panel, clean off dust with soft, dry cloth, and treat cut edge.

Install panels, face fastening through Spacer along the jamb edge every 12-16”, keeping a minimum 1” from panel edge. Use face fasteners long enough to penetrate framing.

Fill gap with recommended sealant.

**J-Mold:** Pre-install J-Mold trim, fastening every 12-16”, with a ¼” gap between it and the jamb or per window/door manufacturer instructions.

After installing the next-to-last panel, measure from the edge of the face of this panel to the J-Mold edge (the 90 degree angle edge). From this measurement, subtract 1/4” and cut the last panel to this width. Paint or prime cut edges and clean off dust from panel.

Install 10mm Corrugated Spacer next to the metal trim.

Install panels by inserting the cut edge into the metal channel and then shifting the panel over onto the side Ultimate Clips along the adjacent panel, fitting ship-lapped edges together.

Face fasten through Spacer along the jamb edge every 12-16”. Use face fasteners long enough to penetrate framing.

Lastly, add foam backer rod and sealant to the ¼” gap between the J-Mold and jamb.
**JE310 Finish Clip:** The Finish Clip can be utilized as an alternative to face fastening along the side edges of vertical panels at termination points. The Finish Clip Requires a minimum 3/8” gap between the panel edge and jamb.

Use biscuit joiner to route notches every 12-16” along the panel cut edge (Refer to Finish Clip Usage). Seal all cut panel edges with 100% acrylic primer or paint, such as Kilz Premium or Kilz Max. Do not leave any panel edges exposed. Clean any cut panels to remove dust with a soft, dry cloth.

Add FS 1005 corrugated Spacer (5mm) along jamb.

Place panel and seat Finish Clips into the notches, fastening each clip through the Spacer to the OSB or plywood sheathing and into the framing (whenever possible).

Add backer rod and ASTM C920, Class 35 (min.) sealant to gap, concealing Finish Clips.

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**WINDOW/DOOR HEADERS**

Starter Track: When starting a course of vertical panels above a window or door, add flashing and FA 710 T Vertical Starter Track at the header, installed with fasteners every 6-9” into the opening header.

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**OUTSIDE CORNERS**

There are two primary outside corner installation options for vertical AWP-3030:

Trim Boards: Fiber Cement, Wood, or PVC

Metal (Open Outside, Corner Key) or Vinyl Trim Channels.

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

**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.
Add 10mm Spacer, remove the appropriate panel shiplap, and face fasten panel edge every 12-16”, vertically, keeping 1” from edge. Apply sealant to joint width. Sealant must be compliant with ASTM C920, Class 35 (min).

**JE310 Finish Clip:** The Finish Clip can be utilized as an alternative to face fastening along the side edges of vertical panels at termination points.

Use biscuit joiner to route grooves every 12-16” along the panel cut edge (Refer to Finish Clip Usage section).

Add FS 1005 corrugated spacer (5mm) along corner edge, next to trim board.

Place panel and seat Finish Clips into the notches, fastening each clip through the Spacer to the OSB or plywood sheathing and into the framing or blocking (wherever possible).

Add backer rod and sealant to gap, concealing Finish Clips.

**METAL & VINYL TRIM**  
(including Nichiha Corner Key and Open Outside Corner trim)

When installing Nichiha AWP-3030 in a vertical orientation, pre-fasten corner trim channels, securing trim to framing every 12-16”, alternating/staggering the fasteners on both flanges.

If the starting point is an outside corner, remove panel edge, add 10mm Spacer, set panel on Starter and into the corner trim channel, and face fasten panel as described at the beginning of the *AWP-3030 Vertical Panel Installation* section.

Working from left to right, when reaching the next outside corner, follow the steps for the appropriate trim profile:

**Corner Key:** After installing the next-to-last panel, measure from the edge of the face of this panel to the Corner Key edge (the 90 degree corner angle edge). From this measurement, subtract 1-3/8” and cut the panel to this width. Paint or prime cut edges and clean off dust from panel. *(Fig. 24a)*

**Open Outside Corner:** After installing the next-to-last panel, measure from the edge of the face of this panel to the Open Outside Corner edge (the 90 degree angle edge). From this measurement, subtract 1/4” and cut the panel to this width. Paint or prime cut edges and clean off dust from panel.

Install 10mm Spacer next to the metal trim. Install panels by inserting the cut edge into the metal channel, rotating into the wall plane, and then shifting the panel over onto the side clips along the adjacent panel, fitting ship-lapped edges together.
Face fasten panels through Spacer along the corner edge every 12-16” (Fig. 24b). Use face fasteners long enough to penetrate framing.

Fit panels into channel trim so that panel edges are not exposed.

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

Prior to installation of panels into the trim channels, add a foam backer rod into the trim channel to aid in spacing panel edges 1/8” off center flange of trim.

Metal trim can be pre-finished when purchased to match Illumination Series color(s). Otherwise, for field painting metal trim, use Direct to Metal (DTM) paint. See Tamlyn’s XtremeTrim Painting Guide.

**NON-90 DEGREE CORNERS**

Corners other than 90 degrees can be achieved with custom metal trim, butting panels to trim board with a minimum ¼” sealant gap, or with the use of Double Flange Sealant Backer to set cut panel edges at the desired corner angle. Please contact Nichiha Technical.

**VERTICAL CONTROL/EXPANSION JOINTS**

*All Applications*

Because thermal expansion occurs in the long (3030mm) dimension of the panels, Vertical Control/Expansion Joints are not required for vertical installations of AWP-3030.

**HORIZONTAL/COMPRESSION JOINTS**

*All Applications*

The module of Vertical AWP-3030 necessitates a continuous Horizontal/Compression Joint every 119-5/16 inches (repeating after each course). *Do not stagger horizontal joints.*

Do not span floor lines with panels.

**INSTALLING A HORIZONTAL COMPRESSION JOINT**

Install Essential Compression Joint Flashing or 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 Essential Flashing at each stud location.

Install Vertical Starter Track over the flashing and check for level. Place Vertical Starter at least 1/2 inch above the course below and ¼” above flashing/trim. Best practice is to add flashing tape to cover the fasteners of the flashing.

Continue to install panels according to these guidelines with compression joints every 119-5/16 inches (max).
LARGE OPENINGS

All Applications

Install Vertical Starter Track at the wall base in keeping with standard instructions on both sides of the opening.

Install Vertical Starter Track at the head of the opening, either the width of the opening or all the way across the wall.

Add panels per standard procedure as in a typical Window or Door Opening for the jamb conditions.

Do not span floor lines with panels. Plan for a Horizontal/Compression Joint at the head of the opening or above, at the same level where the panels along the sides of the opening terminate, assuming the garage or other large opening is shorter than full length panels.

PENETRATIONS, RAILINGS, AND SIGNAGE

Openings for small penetrations for pipes or conduits may be cut through a panel with the hole sealed with ASTM C920 compliant sealant. For larger penetrations greater than 1.5”, 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 edge as needed to butt to Sealant Backer and add recommended sealant.

Underneath the opening block out, terminate panel with ¼” 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 panel edge at framing locations. Ensure minimum ¼” gap between bottom of panel edge and penetration blocking.

Keep any face fasteners 1” away from panel edges.

If installing railings or signage over AWP, ensure fasteners are secured through to framing or other structural support. Do not fasten any attachments solely to panels.
LAST COURSE

All Applications

Cut panels (horizontally) to properly fit at the roof line under soffit or parapet cap (or at the proper transition point). Ensure Ultimate Clips along factory edges are secured no more than 1-2 inches from the top of the panels.

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

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 first piece is secured, add a Joint Clip, fastening through both it and the first main segment. The next main segment will slide behind the Joint Clip.

Position Overhang so that its bottom/return flange butts to or overlaps soffit. The bottom return portion must extend beyond the face of the fascia substrate.

GABLE & OVERHANG

Allow a minimum of 1” clearance (as per local building codes) above the roof line.

At the top, cut the panel to follow the slope of the gable or overhang.

When installing soffit, the wall panels should be installed first, with the soffit installed over the panels.

Seal all cut panel edges with 100% acrylic primer or paint. Do not leave any panel edges exposed.

Essential Overhang Flashing may be used at the base of overhangs/bump-outs or porte-cochères.
TRANSITIONS WITH HORIZONTAL AWP

On projects also utilizing horizontally-installed AWP, expansion and compression type joints will be required as there is no way to naturally joint horizontal and vertical AWP directly.

VERTICAL JOINTS

A Double Flange Sealant Backer or H-Mold trim is necessary at vertical joints/transitions between horizontally oriented panels and vertically oriented ones.

HORIZONTAL JOINTS

A horizontal/compression joint style detail is necessary to transition between horizontal and vertical AWP. Please refer to Horizontal/Compression Joints on page 25.

Horizontal panel to Vertical panel Transitions
Face fasten the top, cut edge of the horizontal AWP, cap it with Essential Compression Joint Flashing or Z-flashing. To then install vertical AWP, add the Vertical Starter Track following the standard procedure and fastening requirements.

Vertical panel to Horizontal panel Transitions
Install vertical panels to the desired transition level and cap with Essential Compress Joint Flashing or Z-flashing. Install the Horizontal Starter Track 1-1/4” above the flashing, following the standard procedure and fastening requirements. Refer to the Horizontal Installation Guide AWP-1818, AWP-3030.
Horizontal transition joint: Compression Joint details
CLEANING & MAINTENANCE

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” to 12” 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

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 amount of touch-up paint is supplied with your custom color panel order. Do not use touch-up paint for edge treatment/sealing due to the limited quantity provided.

Utilize low-adhesive tape to isolate patching and touch-up locations such as face fastened areas. Where face fasteners have been used and patched by cementitious filler, use a cotton swab to lightly dab touch-up paint.

For scratches, use a cotton swab for small ones or 1” foam brush for longer ones, again using 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

ZINSSER
www.zinsser.com

Product tested:
Zinsser Graffiti Remover and Stripper - 16 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 cementitious patching material 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

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

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

Remove damaged panel.

If necessary, cut new panel to appropriate height.

Looking at the panel oriented horizontally, cut the top ship-lapped edge off the panel (Figure 33a).

Clean off dust and seal the cut edge.

Add 10 mm Spacer along the right side of the uncovered wall surface. (Figure 33b)

Set the new panel in place on the Vertical Starter Track with the intact factory edge fitting on the exposed clips on the left side of the uncovered space.

Pre-drill and face fasten the right edge of panel through the Spacer with a screw every 12-16” (Figure 33c).

Fill countersunk screw heads per Paint Touch Up and Minor Repairs.
Trim this edge

Face fasteners 1" from edge

Ultimate Clips (partially exposed)

added 10mm Spacer

panel removed

Vertical Starter Track (exposed)

new panel

Vertical Starter Track (concealed)
Behind our Architectural Wall Panels is SOME SERIOUS TECHNOLOGY.

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

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.

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.

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 RAINFOREST 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.

**DESIGN REVIEW GUIDE**
Download our quick reference guide to get an overview on our Architectural Wall Panels.

**ARCHITECTURAL DETAILS**
Take a closer look and download our conceptual detail drawings.
nichiha.com/resources/cad

**INSTALL VIDEOS**
Watch our installation instructions come to life — check out our installation videos today!
nichiha.com/commercial/install

**SUPPORT**
Our in-house technical team is here to assist. If you have questions, comments or concerns, 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 defect-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

- Report EC-58
- Florida Approval 12875
- Report PER-14088
- WUI 8140-2029

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.