**GENERAL**

This guide is intended to provide the key information needed to successfully install Nichiha’s 10-foot Architectural Wall Panels (AWP) in a vertical application. Further installation information and technical resources such as animated instructional videos, 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.
BASICS OF THE 10-FOOT AWP SYSTEM

Nichiha 10-foot AWP 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. Nominal dimensions (18 inches (h) x 10 feet (l) x 5/8 inch (t)) should only be used for conceptualization and general understanding purposes. (Fig. 1)

Ten-foot 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.

Ten-foot panels may be installed horizontally or vertically. See also Installation Guide for Ten-Foot Panels - Horizontal.

Fig. 1
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 and are not for use on high-rise buildings. Do not use AWP on open screen walls.

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), requires 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.

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 MSDS for more information.

Always cut fiber cement panels outside or in a well-ventilated area. 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.
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 10-foot Vertical AWP 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.

Nichiha AWP cladding may be installed on wood or steel framing, concrete/masonry with furring, Structural Insulating Panels (SIP), and pre-engineered metal buildings (PEMB) 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: None, 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: None, 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.
PRE-ENGINEERED METAL BUILDINGS (PEMB)
Secure 7/16” OSB or plywood to structure with the guidance of a structural engineer.

Metal buildings must be new construction. No retrofits/remodels. Metal R-panels must be installed reversed with ridges facing the interior and ribs spaced no more than 12” O.C.

EXPOSURE CATEGORY B AREAS
Fully enclosed metal buildings must have minimum 24 gauge, 50 ksi yield strength metal R-panels.
Partially open buildings, such as those with open bays, must have girts every 3’ with minimum 18 gauge R-panels.
Building height can be no greater than 30 feet.

EXPOSURE CATEGORY C AREAS
Wainscot style installations up to three panel courses are acceptable in Exposure Category C areas without additional requirements.
For installations taller than 3 courses, contact Nichiha technical department for assistance.

CONTINUOUS INSULATION
Where exterior/continuous insulation is used, AWP may be installed directly over up to 1” of foam plastic insulation, depending on sheathing type. Amounts greater than one inch require a structural solution to provide attachment points for the AWP system such as a furring grid or third-party specialized system. Please contact Nichiha technical department for further assistance.

WEATHER RESISTIVE BARRIERS
A weather resistive barrier (WRB) is required when installing Nichiha panels. Use an approved WRB as defined by the 2015 IRC. Refer to local building codes.

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

Breathable WRB is required for all commercial applications. However, fluid applied WRB is acceptable.

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

Fig. 2
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.

STORAGE & HANDLING

Panels must be stored flat and kept dry before installation. Refer to storage information included on product pallets. If panels are exposed to water or water vapor prior to installation, allow to completely dry before installing.

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.

The custom color finish of Illumination Series panels requires 30 days to fully cure and extra care must be taken to avoid damage to the paint during the installation process. Cut panels face down. Always clean panels with a clean, soft, dry cloth after cutting, as dust may bind to finish.

FASTENERS

ALL APPLICATIONS

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

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 should 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.
INSTALLATION HARDWARE AND ACCESSORIES

STARTER TRACK
Starter Track serves as the foundational support for the AWP system while also providing faster and greater ease of installation. With 10-foot Vertical AWP, 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
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.

JEL 777 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 5 mm 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 C-920. Higher quality polyurethane or hybrid sealants are preferred.

Single Flange Sealant Backer: FHK 1017 – 10 mm rainscreen
Double Flange Sealant Backer: FH 1020 – 10 mm rainscreen

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

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ESSENTIAL FLASHING SYSTEM

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*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 (every 10 feet max), and line of sight regarding inside corners decided. Reminder: Ten-foot AWP actual dimensions are metric: 455 mm (h) x 3,030 mm (l).

HORIZONTAL/COMPRESSION JOINTS: ½” (min.) Horizontal, flashed break detail to allow for building compression at floor lines.

INSIDE CORNER LINE OF SIGHT: 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.

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: The average ultimate pressure for the Structural Sheathing Method is 124 psf. For the Custom Stud Spacing approach, the average ultimate pressure is 148 psf. This AWP test data should be considered, along with the appropriate safety factor, in determining the appropriate installation method for a specific project. Refer also to Limitations, Technical Reviews and Special Applications section regarding Nichiha’s SAF process.
10-FOOT PANELS - VERTICAL:
INSTALLING THE FA 710 T
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 10-foot AWP. Plywood/OSB should be secured to building framing in compliance with best practices and local building codes. In any case, Starter Track must be secured to framing and never sheathing alone as it fully carries the weight of the vertical panels.

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. (Fig. 11)

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.

Essential Starter Flashing
ALL APPLICATIONS

To fully secure 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.

WOOD & METAL STUDS
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.

PRE-ENGINEERED METAL BUILDINGS (PEMB)
Secure 7/16” OSB or plywood to structure. Fasten Starter Track every 6” o.c. into the reversed R-panels.
GENERAL PANEL & ACCESSORY BASICS

PANEL SELECTION
Nichia 10-foot 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. 12)

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

CUTTING ULTIMATE CLIPS
JEL77 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 (Fig. 13, 14). 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: To route grooves into the side edge of a panel, use a biscuit/plate joiner, such as Makita’s PJ7000. A carbide blade is recommended.

Set the biscuit joiner’s angle guide at zero degrees and height to ¼”. 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. Route the cut edge with the unfinished panel surface facing up, spacing the grooves every 16” o.c. maximum.

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.
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 C-920 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 C-920 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.

Fig. 19

Single Flange Sealant Backer
10-FOOT PANEL - 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 10-foot AWP.

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 a 10-foot panel 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 700 T 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.

Secure the panel along the cut edge with face fasteners every 12-16” o.c. spaced vertically, with a minimum 1” distance from the edge (Fig. 20). 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 Touch-up Paint, Minor Repairs sections for info on patching face fasteners.

On the right, factory edge, add four Ultimate Clips evenly spaced along the full 10-foot panel, with the first at the Starter Track edge. Add four fasteners per clip, evenly spaced (Fig. 21). 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. 22).

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.
PANEL INSTALLATION

Fig. 20

Fig. 21

Fig. 22

17-7/8" (45.5cm) FRAMING MEMBER

NICHIHA 10' VERTICAL PANEL
WEATHER RESISTANT BARRIER

NICHIHA 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 Touch-up Paint, Minor Repairs sections 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).

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 primed or sealed with fiber cement sealer (e.g. DryLock®) or exterior acrylic latex paint.

INSIDE CORNERS

Single Flange Sealant Backer (FHK 1017)
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 sealant.

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* FACE FASTENER: PROVIDE (1) 1" FROM TOP AND (1) 1" FROM BOTTOM OF PANEL AND MAX. 16" O.C. VERTICALLY

SEALANT OVER SINGLE FLANGE SEALANT BACKER

10 MM SPACER

Fig. 23
**Trim Boards**
Install trim boards at inside corner first and butt panel edges with a minimum ¼” gap. Single Flange Sealant Backer can also be used where panels butt to trim boards. Add ASTM C920 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 777 Ultimate Clips. Finish Clip requires a minimum 3/8” gap between panel edge and corner or trim board. Add foam backer and ASTM C920 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 Touch-up Paint, Minor Repairs sections 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 sill prior to panels.
**Window/Door Jambs**
A minimum gap of 1/4” is required when butting panels into windows, doors, and trim boards.

**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 window/door jamb.

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.

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*Fig. 26*
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 sealant to gap, concealing Finish Clips.

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.

OUTSIDE CORNERS

There are two primary outside corner installation options for vertical 10-foot AWP:

Fiber Cement, Wood, or PVC Trim Boards

Metal (Open Outside, Corner Key) or Vinyl Trim Channels. Appropriate flashing must be used as required to prevent moisture penetration on 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, a gap of 1/4” width is required.

Use Nichiha Single Flange Sealant Backer or commercially-available backer rod.
Add 10mm Spacer, remove 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 C-920.

**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 10-foot panels in a vertical orientation, pre-fasten corner trim channels, securing trim to framing every 12-16”, alternating/staggering the fasteners on both flanges.

If 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 10-Foot 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. 29)

**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. 30). 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 1/4” sealant gap, or with the use of Double Flange Sealant Backer to set cut panel edges at the desired corner angle.

VERTICAL CONTROL/EXPANSION JOINTS

ALL APPLICATIONS
Because thermal expansion occurs in the long (10 foot) dimension of the panels, Vertical Control/Expansion Joints are not required for vertical installations of 10-foot AWP.

HORIZONTAL/COMPRESSION JOINTS

ALL APPLICATIONS
The module of Vertical 10-foot AWP necessitates a Horizontal/Compression Joint every 10 feet.

Avoid spanning 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 1/4” 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 10 feet (max).

Contact Nichiha Technical Department regarding Horizontal/Compression Joints as a Technical Review and Special Application Form (SAF) may be required.
ALL APPLICATIONS
Install Vertical Starter Track at 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 10 foot panels.

Openings for small penetrations for pipes or conduits may be cut through a panel with the hole sealed with ASTM C-920 compliant sealant. For larger penetrations greater than 1.5”, it is best to block or frame out the opening.

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 attachment only 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.

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

At 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.

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 facia substrate (**Fig 35**).

**Fig. 34**

![Metal Coping](Fig. 34) **METAL COPING**

**Fig. 35**

![Essential Overhang Flashing and Joint Clip](Fig. 35) **VENTED NICHISOFFIT**

**Essential Overhang Flashing and Joint Clip**

**Outside Corner** **Inside Corner**
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.

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.

One gallon of Illumination Series touch-up paint is supplied with your custom color panel order. Do not use touch-up paint for edge treatment/sealing due to 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 FROM NICHIHA PANELS
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.
PAINT AND 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.

* * *NOT use these cleaners with Illumination Series.

*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
MINOR REPAIRS

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 with cotton swab. 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 (Figs 36, 37).

If necessary, cut new panel to appropriate height.

Looking at the panel oriented horizontally, cut the top ship-lapped edge off the panel (Fig. 38).

Clean off dust and seal the cut edge.

Add 10 mm Spacer along the right side of the uncovered wall surface.

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” (Fig. 39).

Fill countersunk screw heads with color-matching ASTM C920 sealant or patch per Paint Touch Up and Minor Repairs.
Fig. 36
Panel to be replaced

Vertical Starter Track (concealed)

Fig. 37
Ultimate Clips (partially exposed)

Added 10mm Spacer

Panel removed

Vertical Starter Track (exposed)

Fig. 38
Trim this edge

Fig. 39
New panel

Face fasteners 1" from edge
Behind our Architectural SERIOUS TECH

EASY INSTALLATION:
Timesaving Clip Installation System that reduces construction time and minimizes mistakes.

PROTECTION:
Backed by some of the best warranties in the industry. Strong 50-year limited lifetime warranty.

NO MORTAR, NO MESS:
Prefinished panels that eliminate the need for messy mortar or costly masonry-skilled labor.

LOW MAINTENANCE:
No-fuss products. No ongoing cleaning and regular maintenance needed. Your customers get to create it then enjoy it for a long, long time.

ANY WEATHER PRODUCT:
Products that can be installed all year round.

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

watch our installation instructions come to life - check out our install videos today!

www.NICHIA.COM/AWP Install Videos

Nichiha products are easy to install...you just need a few basic tools to get started.*
**MOISTURE MANAGEMENT**

1/4" [NOMINAL] AIR SPACE

**OUR UNIQUE STARTER TRACK**

**ENGINEERED ARCHITECTURAL WALL PANEL**

**STACKABLE ENGINEERED MOUNTING SYSTEM**

**EASY INSTALLATION:**
Timesaving Clip Installation System that reduces construction time and minimizes mistakes.

**ENGINEERED FOR PERFORMANCE:**
Go beyond our durable panels and discover a meticulously engineered moisture management system that provides a vertical drainage point for air & moisture to exit.

**NO MORTAR, NO MESS:**
Prefinished panels that eliminate the need for messy mortar or costly masonry-skilled labor.

**LOW MAINTENANCE:**
No-fuss products. No ongoing cleaning and regular maintenance needed. Your customers get to create it then enjoy it for a long, long time.

**ANY WEATHER PRODUCT:**
Products that can take a punch from the brutal mid-west winters and can be installed all year round.

**PROTECTION:**
Backed by some of the best warranties in the industry. Strong 50-year limited lifetime warranty.

Visit nichihia.com for comprehensive installation requirements for each product.
Never underestimate the power of really good tools

Whether you’re an architect, a builder or a contractor, Nichiha wants to see to it that you have all the information you need to make your project go as smoothly as possible. The way we see it, we’re partners.

Our website offers a comprehensive collection of technical information, Architectural details, in depth specifications and everything you’ll ever need to know about installing Nichiha products. We invite and encourage you to visit our website at nichia.com.

And by all means, if you have a troublesome question or comment, our ears are always open. Call us at 1.866.424.4421 or visit us at nichia.com.

### Nichiha Warranties

- **Illumination Series Panels** – 50-year limited warranty* on panels, 15-year limited warranty* on finish.
- **Nichiha Block, Stone, Brick, VintageWood™ and EmpireBlock™ Panels** – 50-year limited warranty* on panels, 15-year limited warranty* on finish.
- **KuraStone™ Panels** – 50-year limited warranty* on panels, 10-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 nichia.com for easy downloadable warranties or call toll-free 1.866.424.4421 for a copy.

Nichiha MSDS is available at nichia.com, at your local NICHIA dealer or call NICHIA direct, toll-free 1.866.424.4421.

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**Certification & testing:**

- **tdi**
  - Report No. EC 58

- **Canadian Construction Materials Centre**
  - Report No. 13083 R
  - Report No. 13205-R

- **Cal Fire**
  - Report No. 14088

**Silica Dust Warning:** NICHIA products may contain some amounts of crystalline silica (a.k.a. sand, silicon 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, drilling or abrading the product, users observe Safety Instructions. For further information or questions, please consult the MSDS, your employer, or visit www.osha.gov/SLTC/silicacrystalline/index.html and www.cdc.gov/niosh/topics/silica. The MSDS for Nichiha products are available at www.nichia.com, at your local Nichiha dealer or through Nichiha directly at 1.866.424.4421. FAILURE TO ADHERE TO OUR WARNINGS, MSDS, AND OTHER INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

**2.16 750 L.C.**