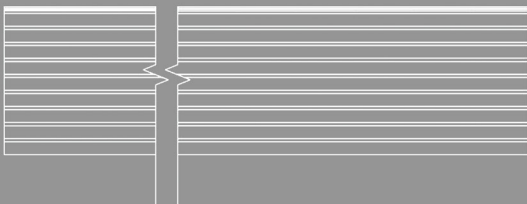


NICHIHA ARCHITECTURAL WALL PANELS

DESIGN REVIEW GUIDE

AWP 1818
AWP 3030 - HORIZONTAL
AWP 3030 - VERTICAL



AWP DESIGN GUIDE

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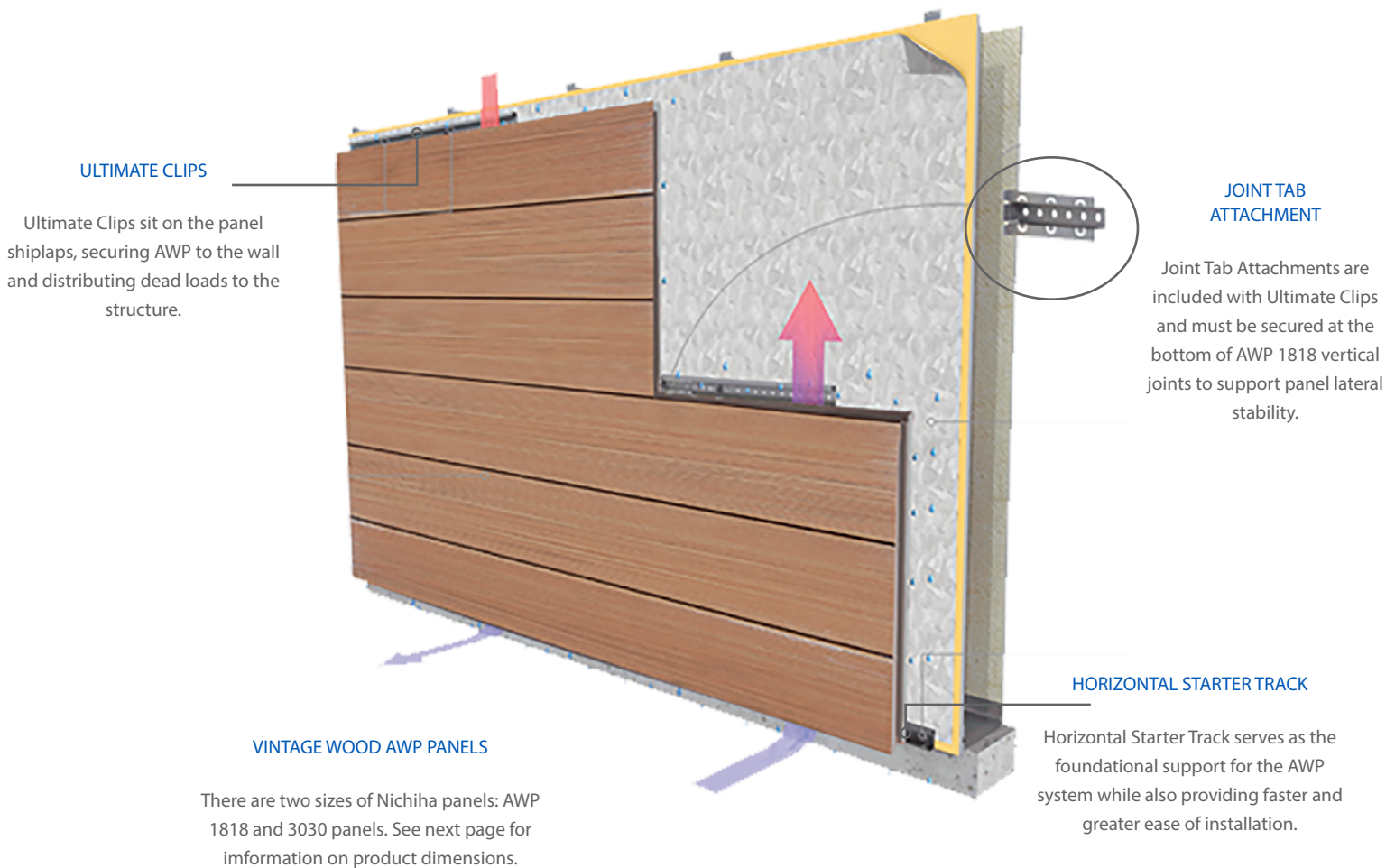
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Always install products in accordance with the latest installation guidelines and all applicable building codes and other laws, rules, regulations and ordinances. Review all installation instructions and other applicable product documents before installation. This design guide does not include Stacked Stone or Ledge Stone products.

THE NICHIIHA RAINSCREEN

Moisture intrusion in a wall system can be the cause of building defects, as well as health ailments for the building's occupants, making rainscreens a very important tool in water mitigation. Rather than attacking the symptoms of moisture intrusion, rainscreens tackle the source –the forces that drive water into the building shell. Nichiha's concealed installation system creates a 10mm (3/8") drainage and ventilation plane behind our panels.



THE PRODUCTS

Before you jump into the design process, we recommend taking a minute to familiarize yourself with the dimensions of Nichiha's family of Architectural Wall Panels.

AWP1818

Horizontal Installation Allowed

Stacked or Staggered Layout Only

Dimensions: 17-7/8" [H] x 71-9/16" [L]

455mm [H] x 1818mm [L]

Thickness (unless noted): 5/8" (16mm)

Architectural Block+
Canyon Brick
Illumination+
Miraia
PlymouthBrick
Novenary Tile 7/8" (21 mm) Thickness
SandStone 3/4" (18mm) Thickness
Tuff Block+
VintageBrick 3/4" (18mm) Thickness
VintageWood
Corbosa
Riftsawn
Natura (New!)
Latura V-Groove (New!)

AWP3030

Horizontal or Vertical Installation Allowed

Stacked Layout Only

Dimensions: 17-7/8" [H] x 119-5/16" [L]

455mm [H] x 3030mm [L]

Thickness: 5/8" (16mm)

EmpireBlock
Illumination*
IndustrialBlock
Ribbed
RoughSawn
VintageWood
Latura V-Groove

+ Factory Joint profiles of Illumination 1818 and ArchitecturalBlock differ from TuffBlock's, which has a wide perimeter reveal.

* Illumination 3030 panels have a wider, soft-U factory joint profile.

Only panels of the same dimension and thickness may be used directly together without separation via control and/or compression joints.


Custom color finish of Illumination, Ribbed, TuffBlock panels requires a lead-time.

Contact a Sales Representative for more information.



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[PRODUCTS](#)
[APPLICATIONS](#)
[RESOURCES](#)
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the power of possibilities™

ARCHITECTURAL DETAIL FINDER

BROWSE BY


CATEGORIES +

PRODUCTS -

- ArchitecturalBlock
- CanyonBrick
- EmpireBlock
- Illumination
- IndustrialBlock
- LedgeStone


0 SEARCH RESULTS

[SELECT ALL](#)



VintageWood AWP-1818

A dimension detail of an individual VintageWood-1818 panel.



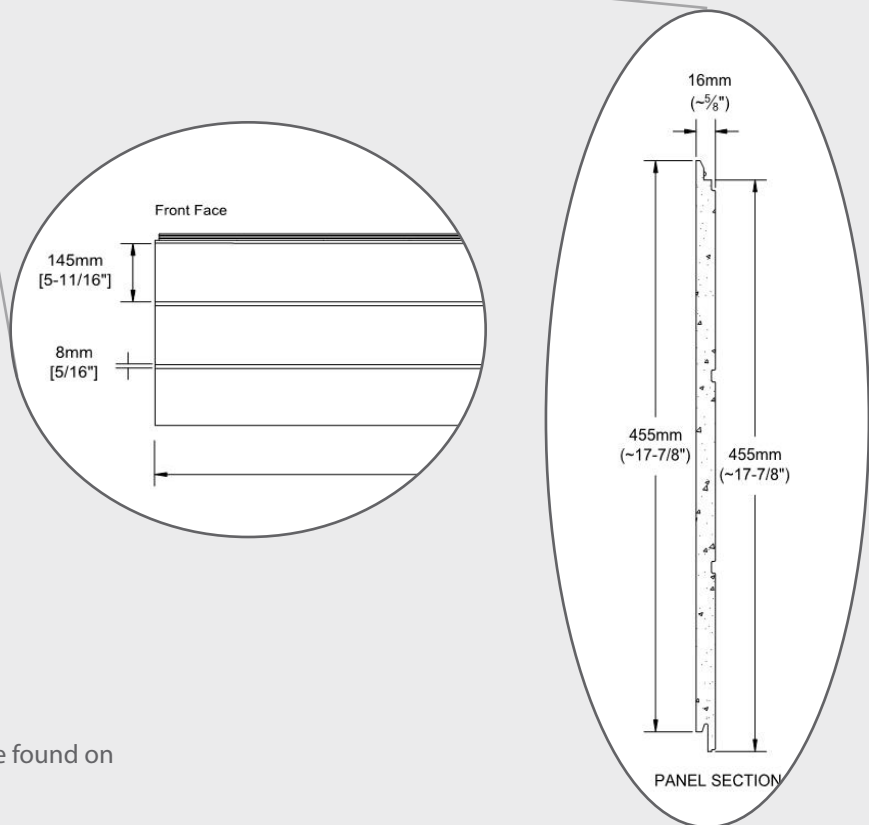
VintageWood AWP-3030

A dimension detail of an individual VintageWood-3030 panel.

The architectural detail finder will help you with your specification, filter down to what you need. Not sure what you need to filter by? Grab all the details or search on the top.

On the architectural detail finder you'll find anything from installation over continuous insulation, various different types of wall framing and even panel dimension and clip dimension. Looking for a specific product? We've got details for more than just our AWP panels on the site.

Individual, dimensioned panel profiles can be found on Nichiha's Detail Finder at: nichiha.com/architectural-details



PLANNING & LAYOUT

The Nichiha system works most efficiently when full panels are used.

Designing panel layouts symmetrically from the inside-out will help to create less product waste. It is important to keep in mind the actual metric dimensions when considering the modular panel layout, including placement of control and compression joints, and also with respect to sizing window and door openings.

Detailing around openings involves a number of variables such as the depth of the opening and the overall thickness of the wall assembly. For example, a continuous insulation and furring condition with recessed windows will necessitate a jamb, head, and sill return material/finish. Depending on the dimensions, Nichiha factory Corners or cut panels may be used at jambs, or an alternate material such as metal may be necessary. Nichiha Corners and panel segments may not be used for head and sill return conditions. Please reach out to Nichiha Technical for detailing recommendations.

VERTICAL CONTROL/EXPANSION JOINT REQUIREMENTS

On walls wider than 30 feet, when using AWP1818 panels and metal trim outside corners, Vertical Control/Expansion Joints (Double Flange Sealant Backers) are required within 2 to 12 feet of outside corners (on both sides of corner) and then approximately every 30 feet thereafter.

When using AWP1818 panels and Nichiha factory Corners, control joints are required at the factory Corner and then approximately every 30 feet thereafter.

When using AWP3030 panels installed horizontally, vertical control joints or H-molds are required at each vertical joint. Panels may not be butted together and these vertical joints may not be split up or staggered.

Control/Expansion Joints are 10mm (3/8") wide.

HORIZONTAL/COMPRESSION JOINT REQUIREMENTS

Metal Framed projects taller than three stories/45 feet:
Place compression joints approximately every 25 feet.

Wood Framed projects three stories or taller:
Compression Joints required at each floor.

Compression Joint requirements:
Compression Joint Flashing - heavy gauge z-shaped metal flashing or similar, 1/2" (min.) gap between panels at floor lines/plate, and Starter Track.



CONTINUOUS INSULATION

Nichiha AWP (horizontal) may be installed directly over up to one inch of foam plastic insulation such as polyiso or EPS over wood or gypsum sheathing. Insulation compressive strength of 25 psi or greater is strongly recommended. Continuous insulation (c.i.) thicker than one inch and mineral wool c.i. of any thickness must be paired with a furring or other solution to satisfy the *Framing & Sheathing Requirements* set out in the AWP install guides and is subject to a required Technical Review process. Refer to the guides for complete installation requirements and instructions. This guide is not intended to prohibit options or furring combinations not covered herein. Please contact the Technical Department for assistance.

Exterior
Continuous Insulation
Requirements
Greater than 1 inch

Horizontal Panel Installation

Shaped Metal Furrings
(Z, hat channel, C, etc.), Min. 18 ga.

2x P.T. Lumber

Energy Code Option

Aligned vertically at 16" o.c. (max)

Vertical Panel Installation

a. Furring for vertical panels requires either 18 ga shaped metal furring aligned vertically with an additional layer of Min. 7/16" (11mm) APA Rated OSB or Plywood required for Ultimate Clip fastening

b. Another option for furring for vertical panels is a furring grid the first layer will need to be 18 ga shaped furring aligned vertically, the second layer can be shaped 18 ga metal furring or 2X lumber aligned horizontally at 16" OC.

c. Horizontal furring can be used as a direct attachment. The Furring must be metal and 18 ga spaced at 16" OC. If Z furring is used at the starter track a hat channel will be needed. No wood furring allowed.

Energy Code Friendly Options

Engineered third party systems

Cascadia Clips
CL Talon
FERO Cladding Support
ISO Clip
Knight Wall CI and HCI Systems
SmartCI Green Girt

IBC 2021 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.



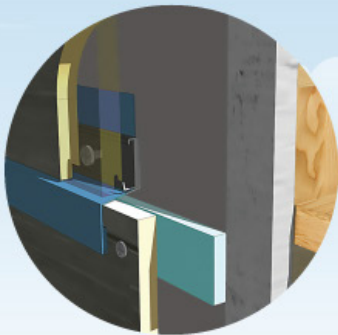
*Consult a structural engineer to design the furring system to manage the AWP system dead load of minimum 4 psf and also meet the project wind load design criteria. Furring must account for expected building compression. Nichiha does not provide fastener design for anchoring the furring to structure. Refer to IBC 2015 Table 2603.12.2 for more info.

ARCHITECTURAL LA



WINDOW SILL

Face fasten 1" from cut edges with
10mm Spacer at framing/furring @
16" o.c.

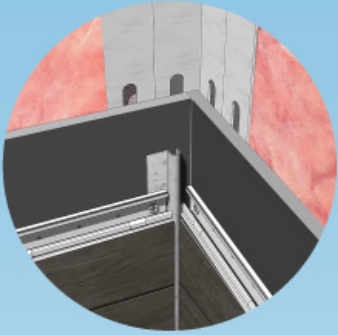


COMPRESSION JOINT

Add compression joint flashing at min.
1/2" breaks between course at floor
framing for multi-story applications

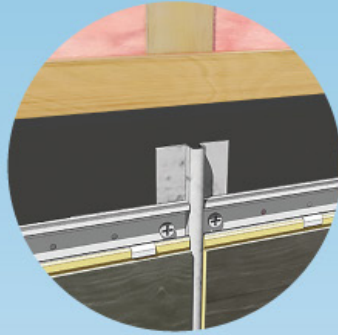


LAYOUT WITH NICHIIHA



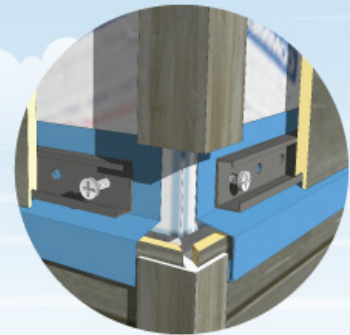
INSIDE CORNER

Butt line-of-sight panels to corner.
On opposite wall, add Single Flange Sealant Backer and caulk or use Inside Corner metal trim.



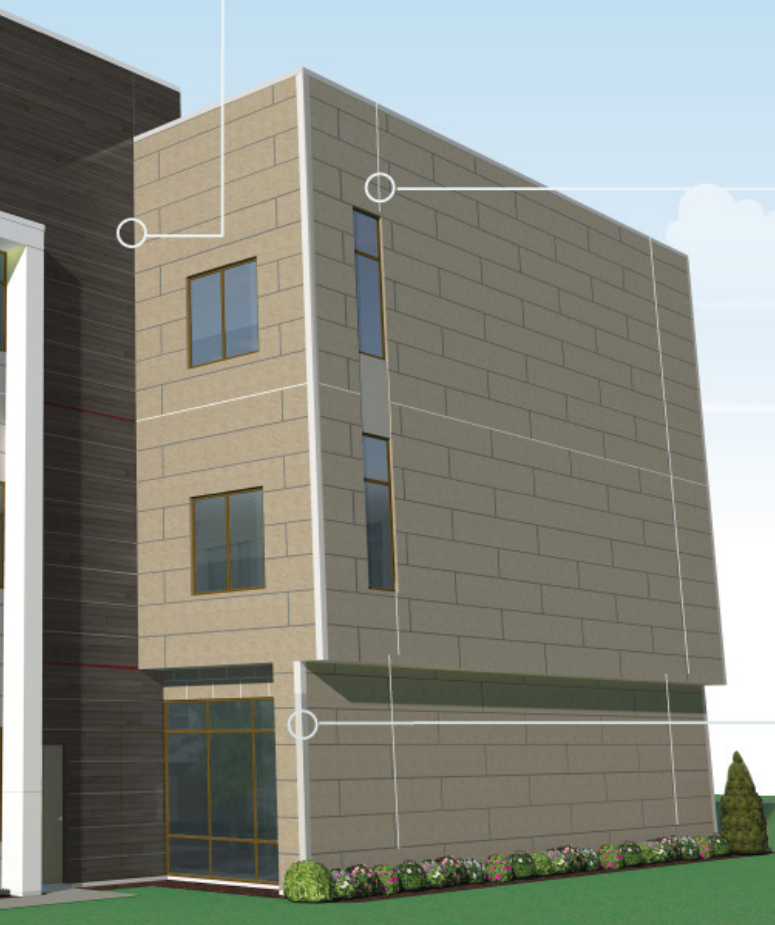
VERTICAL CONTROL JOINT

Often aligned with window jambs, Double Flange Sealant Backer is fastened to framing/furring, wood sheathing, or blocking.



OUTSIDE CORNER

- Factory Corners with 3-1/2" Face Returns
- Corner Key Trim
- Open Outside Corner
- Fiber Cement Trim Boards



HORIZONTAL DESIGN REQUIREMENTS

AWP1818 - HORIZONTAL

- Ultimate Horizontal Starter Track - *always level*
- Ultimate Clip II – JEL778 for most panels (JEL788 for SandStone, VintageBrick, and CinderBlock only) - 2-1/2 clips per panel edge | 10mm (~3/8") rain screen
- Joint Tab Attachments required between panels at vertical factory joints
- Vertical Control/Expansion Joints (Double Flange Sealant Backer) on 30'+ walls with metal trim outside corners: 2'-12' from edges + every ~30' thereafter
- Vertical Control/Expansion Joints with Nichiha Corners plus every ~30' thereafter
- Vertical Control/Expansion Joints every ~30' on walls with no outside corners.
- Horizontal/Compression Joints: **Wood Framing** three stories or more = joint at every floor
- Horizontal/Compression Joints: **Metal Framing** over three stories/45' = joint about every 25'
- Sealant Joints (Single Flange Sealant Backer) or Inside Corner trim at inside corners
- Horizontally cut edges require face fastening with Spacer
- MIN. Clearances: 6" above soil grade, 2" above hardscape and decking, 1" above roof
- 1/4" clearance between the panel edge and flashings
- Panel Thickness – 16-21mm | 5/8" -7/8"
- Total Wall System Depth – 26-31mm | 1-1/32" - 1-7/32"

See table for Framing & Sheathing Requirements
Reference page 3 for panel thickness

HORIZONTAL CONTINUOUS INSULATION REQUIREMENTS

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Exterior Continuous Insulation Requirements</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Greater than 1 inch</p>	<p>Horizontal Panel Installation</p> <p>Shaped Metal Furrings (Z, hat channel, C, etc.), Min. 18 ga.</p> <p>2x P.T. Lumber</p> <p>Energy Code Option</p> <p>Aligned vertically at 16" o.c. (max)</p>	<p>Energy Code Friendly Options</p> <p>Engineered third party systems</p> <p>Cascadia Clips CL Talon™ FERO Cladding Support ISO Clip Knight Wall CI and HCI Systems SmartCI Green Girt</p>



AWP3030 - HORIZON-

- Ultimate Horizontal Starter Track - *always level*
- Ultimate Clip II – JEL778 for all 3030mm panels - 4 clips per panel edge | 10mm (~3/8") rain screen
- Vertical Control/Expansion Joints (Double Flange Sealant Backer) or H-Mold trim at each vertical joint
- Stacked layout only - no staggering of vertical joints
- Horizontal/Compression Joints: **Wood Framing**
three stories or more = joint at every floor
- Horizontal/Compression Joints: **Metal Framing**
over three stories/45' = joint about every 25'
- Sealant Joints (Single Flange Sealant Backer) or Inside Corner trim at inside corners
- Horizontally cut edges require face fastening with Spacer
- MIN. Clearances: 6" above soil grade, 2" above hardscape and decking, 1" above roof
- 1/4" clearance between the panel edge and flashings
- Panel Thickness – 16mm | 5/8"
- Total Wall System Depth – 26mm | 1-1/32"

See table for Framing & Sheathing Requirements

HORIZONTAL AWP FRAMING & SHEATHING REQUIREMENTS

WALL TYPES			SHEATHING
Metal Studs	18 gauge min.	16" o.c. max.	Min. 7/16+" OSB/Plywood 1/2" or 5/8" Gypsum
Wood Studs	2X Lumber	16" o.c. max.	Min. 7/16+" OSB/Plywood 1/2" or 5/8" Gypsum
Concrete Furring is required	18 ga shaped metal or P.T. 2X Lumber	16" o.c. max.	N/A
SIPs	Per SIP Standard (sips.org)		
PEMB	24 gauge up to -31.41 PSF 22 gauge up to -39.29 PSF	#10 fastener @12" o.c., with deflection L/120 #10 fastener @12" o.c., with deflection L/120	

VERTICAL DESIGN REQUIREMENTS

AWP3030 - VERTICAL

- Ultimate Vertical Starter Track - *always level and continuous, bearing the dead loads of vertical AWP3030 - no staggering*
- Ultimate Clip II – JEL778 for all 3030mm panels - 4 clips per panel edge | 10mm (~3/8") rain screen
- Vertical Control/Expansion Joints not required
- Horizontal/Compression Joints after each course
- Don't span floors
- Sealant Joints (Single Flange Sealant Backer) or Inside Corner trim at inside corners
- Vertically cut edges require face fastening with Spacer
- MIN. Clearances: 6" above soil grade, 2" over hardscape and decking, 1" over roof
- 1/4" clearance between the panel edge and flashings
- Panel Thickness – 16mm | 5/8"
- Total Wall System Depth – 26mm | 1-1/32"
- Structural Sheathing Method or Custom Stud/Furring Spacing Method required for installation

See table for Framing & Sheathing requirements

WALL TYPES			SHEATHING
Metal Studs	18 gauge min.	16" o.c. max.	Min. 7/16+" OSB/Plywood
Wood Studs	2X Lumber	16" o.c. max.	Min. 7/16+" OSB/Plywood
Concrete Furring is required	18 ga shaped metal or P.T. 2X Lumber	17-7/8" o.c. max plus additional 9" o.c. Furring at Starter Track	N/A
SIPs	Per SIP Standard (sips.org) and Starter Track		
PEMB	Not intended for this application		



VERTICAL CONTINUOUS INSULATION REQUIREMENTS

Continuous Insulation – refer to [Technical Bulletin - AWP and Continuous Insulation](#) and the [installation guides](#)

Standard Stud Walls w/ C.I.

Shaped metal furring grid - No wood Sheathing

Layer One:

Minimum 18 gauge
 Aligned Vertically
 Spaced per engineer's design

Layer Two:

Minimum 18 gauge
 Aligned horizontally at 16" OC.

Standard Stud Walls w/ C.I.

Vertical Furring with Wood Sheathing

Minimum 18 gauge or 2X lumber
 Aligned vertically at 16" o.c. (max)
 Additional Layer Min. 7/16" APA Rated Plywood/OSB

Horizontal Furring

Horizontal furring can be used as a direct attachment. The Furring must be metal and 18 ga spaced ay 16" OC. If Z furring is used at the starter track a hat channel will be needed. No wood furring allowed.

Specialty 3rd Party Systems

CL Talon™
 SmartCI Green Girt
 Custom Engineered Options*

*Nail Based Insulation Sheathing: Additional furring segments, blocking may be necessary for Vertical Starter Track fastening (max. 9" o.c.)

*Contact Nichiha Technical Department

TECHNICAL



STANDARD REQUIREMENTS

Let's start with the basics. Each of the following criteria must be met in order for Nichiha Architectural Wall Panels to perform as intended.

- Refer to Intertek CCRR-0299 (make the crr text a hyperlink to document) for product building code compliance certification as well as wind load engineering requirements.
- Continuous Insulation — refer to [Technical Bulletin - AWP and Continuous Insulation](#) and the [installation guides](#)
- Vapor Permeable Weather Resistive Barriers — required over stud walls and SIPs. CMU/concrete - defer to local code. Sheathings and C.I. with integrated code compliant WRB are acceptable
- Flashing/Furring/Corners/Trim — See install guide for various options
- Minimum Clearances — a minimum of 6" above soil grade, 2" above hard surfaces, 1" above roofing, or per local building codes
- Single Flange Sealant Backers — at inside corners, along window & door jambs and transition points with other cladding
- Double Flange Sealant Backers — Vertical Control/Expansion joints, Non-90-Degree Corners and at Nichiha Corners
- Sealants — refer to [Technical Bulletin - Sealants](#)
- 10mm Spacer — required at all face fastening locations
- Face fastening — every 12-16" o.c. to framing/furring spaced min. 1" distance from the panel edge
- Fasteners must penetrate: Wood Studs a min. 1", Metal Studs a min. 1/2" with three threads needed for grab
- Fasteners — must be stainless steel or corrosion resistant: such as, hot dipped zinc or ceramic coated - pan, wafer, or hex head required for clip and track fastening
- Equipment/Mechanical Screens - must be fully enclosed wall system
- Soffit applications limited to install guide parameters and are not covered by warranty



ADDITIONAL REQUIREMENTS

- Structural Insulating Panels (SIPs)
- Nail-base insulation sheathings
- Continuous Insulation (C.I.) greater than one inch in thickness
- Insulated Concrete Forms (ICFs) require additional measures.
- Retrofits and atypical applications

All require a technical review by Nichiha to evaluate feasibility via our Technical Design Review (TDR) process. Submission of a TDR does not imply or guarantee project approval.



TECHNICAL DESIGN REVIEWS

If your project meets any of the criteria listed below, or you simply wish to take advantage of the service, your Nichiha Sales Representative can connect you to Technical Department staff for a Technical Design Review. It's our way of assuring that your project will be implemented without the slightest hitch. Refer to nichiha.com/

- Any project of more than three stories or 45 feet
- Those located in high wind coastal areas (Exposure Categories C and D with Basic Wind Speed in excess of 130 mph (Vult))
- Those with any wall assembly not described in the *Framing & Sheathing Requirements*
- *Continuous Insulation* projects (thicker than 1")

NOs

Even *the power of possibilities* has limitations. If your project includes any of the following attributes, contact Nichiha Technical Services for clarification and advice. Refer also to nichiha.com/resources/technical-bulletins.

- No Radius/Curved Walls, Sloped/Tilted Walls
- No existing or new masonry w/o furring
- No remodels over hard coat & synthetic stucco/ EIFS
- No Pre Engineered Metal Building retrofits. New construction only with horizontal installation, no vertical installation allowed
- Do not use AWP on open screen walls
- Do not cut panels to less than 4" in width or length
- Do not use AWP on modular structures that are factory-constructed and then transported to a final site (Installation on site is allowed)
- For Vertical Panels: do not span floors with panels. Place compression joints at each floor line. No staggering of joints

DETAILS

For complete offerings of AutoCAD and Revit details visit nichiha.com/architectural-details

For Installation hardware, accessories and full installation requirements/details visit: nichiha.com/resource-center

TechnicalServices@nichiha.com | Phone: 866-424-4421

THE POWER OF POSSIBILITIES AND PARTNERSHIPS

The way we see it, we're in this together. Our mutual success is the only real success. If you have questions or concerns let your Nichiha Sales Representative know and they'll do everything they can to keep your project moving in the right direction... up.

If you're not sure who your local sales representative is, visit nichiha.com/rep and we'll direct you to the representative closest to you.



Silica Dust Warning: NICHHA 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, sniping or abrading the product, users observe Safety Instructions. For further information or questions, please consult the SDS, 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.nichiha.com, at your local Nichiha dealer or through Nichiha directly at 1.866.424.4421. FAILURE TO ADHERE TO OUR WARNINGS, SDS, AND OTHER INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

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