

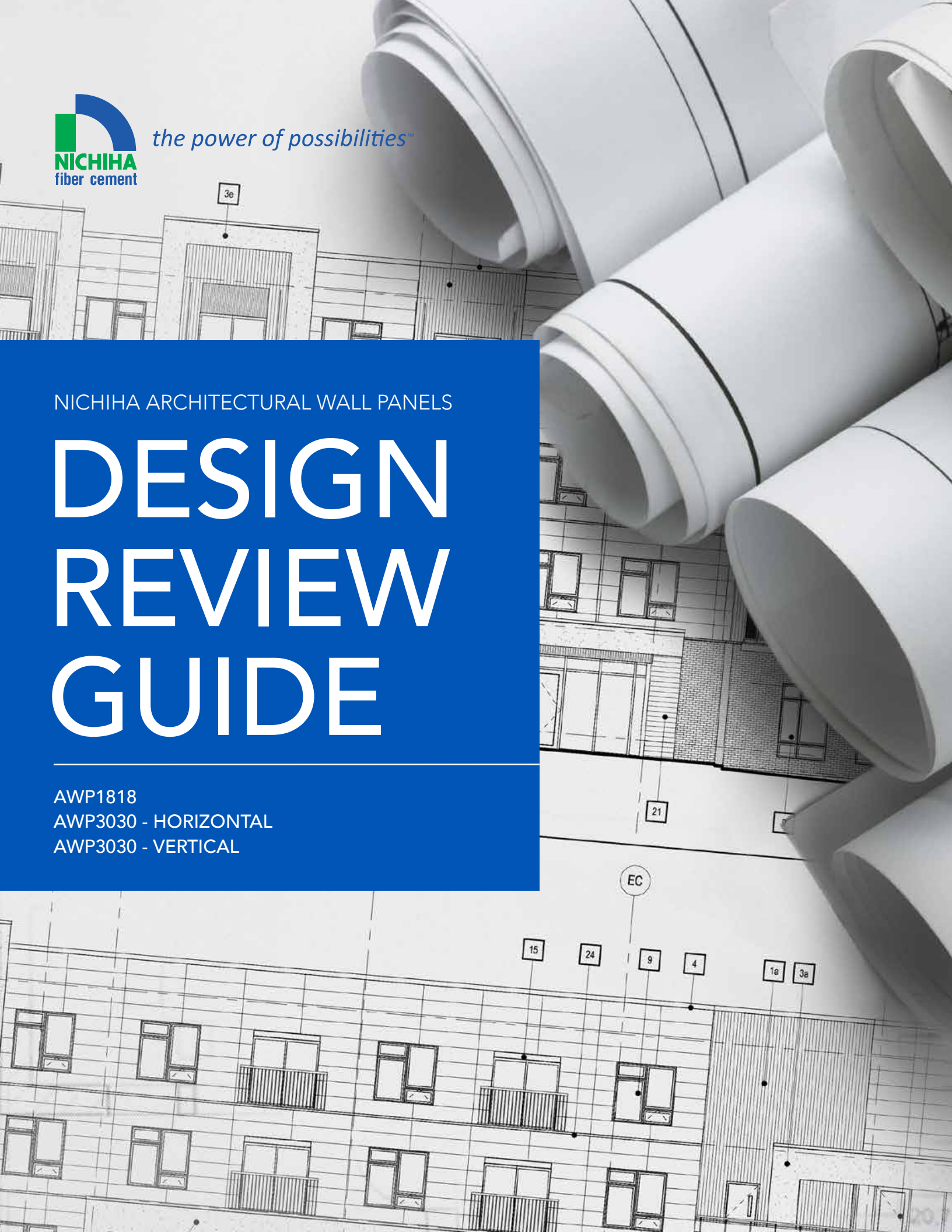


the power of possibilities™

NICHHA ARCHITECTURAL WALL PANELS

DESIGN REVIEW GUIDE

AWP1818
AWP3030 - HORIZONTAL
AWP3030 - VERTICAL



AWP DESIGN GUIDE

HOW TO USE THIS GUIDE

This is a quick reference document intended to provide a wide overview of essential Nichiha Architectural Wall Panels design information. For greater detail and specifics, please also refer to the full installation guides, videos, architectural details, and technical bulletins available at nichiha.com/resources.

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 StackedStone and LedgeStone products.



THE FUNDAMENTALS

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 Only
Stacked or Staggered Layout

Dimensions: 17-7/8" [H] x 71-9/16" [L]
455mm [H] x 1818mm [L]
Thickness (unless noted): 5/8" (16mm)

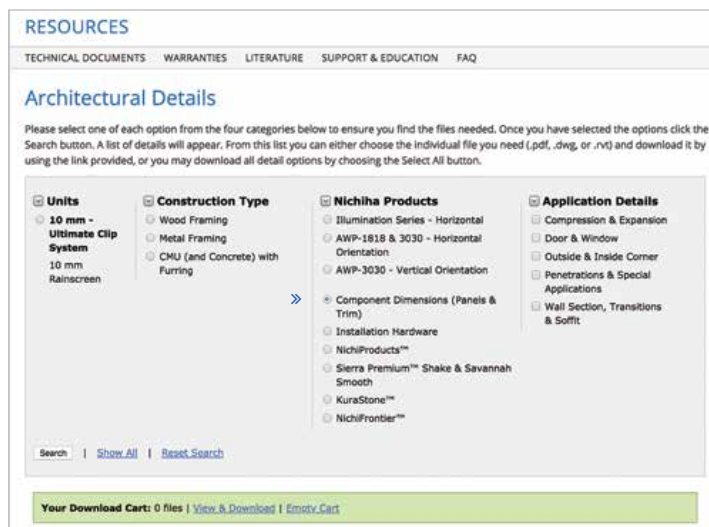
Illumination*
Architectural Block*
Tuff Block*
PlymouthBrick
Canyon Brick
Miraia
SandStone 3/4" (18mm) Thickness
VintageBrick 3/4" (18mm) Thickness
CinderBlock 7/8" (21mm) Thickness

AWP3030

Horizontal/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)

Illumination*
Ribbed
VintageWood
RoughSawn
EmpireBlock
IndustrialBlock



Individual, dimensioned panel profiles can be found on Nichiha's Detail Finder at nichiha.com/resources/cad

+ 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.

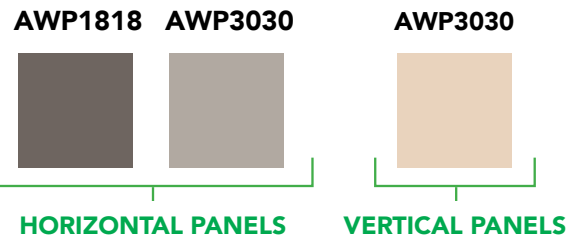
Only panels of the same dimension and thickness may be used directly together without separation via control and/or compression joints.

Custom color finish of Illumination, TuffBlock panels requires a lead-time.
Contact a Sales Representative for more information.

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

When using AWP1818 panels and metal trim corners, Vertical Control/Expansion Joints (Double Flange Sealant Backers) are required within 2-10 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-mold are required. 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:
Essential Compression Joint Flashing - heavy gauge z-shaped metal flashing or similar, 1/2" (min.) gap between panels at floor lines/plate, and Starter Track.

HORIZONTAL DESIGN REQUIREMENTS

AWP1818 - HORIZONTAL

- Ultimate Horizontal Starter Track - *always level*
- Ultimate Clip II – JEL778 for 16mm (5/8") thick panels or JEL788 for 18mm (3/4") and 21mm (7/8") thick panels - 2-1/2 per panel edge | 10mm (~3/8") rain screen
- Joint Tab Attachments between panels at vertical factory joints
- Vertical Control/Expansion Joints (Double Flange Sealant Backer) with metal trim corners: 2-10' from edge + ~30' thereafter
- Vertical Control/Expansion Joints with Nichiha Corners every ~30'
- 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 or Inside Corner trim at inside corners
- Horizontally cut edges require face fastening with Spacer
- 6" clearance above soil grade, 2" over hardscape, 1" over roof
- 1/4" clearance between the panel edge and Flashing
- 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



AWP3030 - HORIZONTAL

- Ultimate Horizontal Starter Track - *always level*
- Ultimate Clip II – JEL778 for 16mm (5/8") thick panels - 4 per panel edge | 10mm (~3/8") rain screen
- Vertical Control/Expansion Joints (Double Flange Sealant Backer) or H-Mold trim at each panel
- 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 or Inside Corner trim at inside corners
- Horizontally cut edges require face fastening with Spacer
- 6" clearance above soil grade, 2" over hardscape, 1" over roof
- 1/4" clearance between the panel edge and Flashing
- Panel Thickness – 16mm | 5/8"
- Total Wall System Depth – 26mm | 1-1/32"

See table for Framing & Sheathing Requirements

HORIZONTAL AWP FRAMING & SHEATHING REQUIREMENTS

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

WALL TYPES	STUD SPACING	GAUGE	SHEATHING
Metal Studs	16" o.c. max	18 min.	Min. 7/16" OSB/Plywood 1/2" or 5/8" Gypsum
Wood - 2"x4" studs, min.	16" o.c. max	---	Min. 7/16" OSB/Plywood 1/2" or 5/8" Gypsum
Concrete - Furring is required*	16" o.c. max	see below	N/A

*Concrete w/ wood furring: pressure treated (2"x4") aligned vertically
Concrete w/ metal furring: Hat channel, C-stud, Z-furring (18 ga. min.) aligned vertically

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 16mm (5/8") thick panels - 4 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 or Inside Corner trim at inside corners
 - Vertically cut edges require face fastening with Spacer
 - 6" clearance above soil grade, 2" over hardscape, 1" over roof
 - 1/4" clearance between the panel edge and Flashing
 - 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*



VERTICAL AWP FRAMING & SHEATHING REQUIREMENTS

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

WALL TYPES	STUD SPACING	GAUGE	SHEATHING
Structural Sheathing Method - Metal Studs	16" o.c. max	18 min.	Min. 7/16" APA Rated OSB or Plywood
Structural Sheathing Method - Wood – 2"x 4" Studs, Min.	16" o.c. max	--	Min. 7/16" APA Rated OSB or Plywood
Custom Stud Spacing Method - Concrete [^] , Metal, Wood	17-7/8" o.c.*	18 min.	APA rated Min. 7/16" OSB or Plywood, 1/2" or 5/8" Gypsum, (none - concrete only)

[^]Concrete w/ wood furring: pressure treated (2"x 4") aligned vertically

Concrete w/ metal furring: Hat channel, C-stud, Z-furring (18 ga.) aligned vertically

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

COMPLETING THE DESIGN



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.

- **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
- **Equipment/Mechanical Screens** - must be fully enclosed wall system



RECOMMENDATIONS *(Contact Nichiha Technical Team for recommendations not listed)*

Nichiha has collaborated on literally thousands of installations. Along the way we've found a few practices that can make the process go a little smoother. Although not required, we suggest that you give the following recommendations some consideration.

- #10-16 Pan-head screws (HD .365") used during testing, minimum size requirement, #8
- Finish Clips – can be used in replacement of face fastening – non-dead load conditions
- Compression Joint Flashing – heavy gauge z-shaped metal flashing or drip cap over top edge of course
- Essential Starter Flashing – may be installed prior to the Starter Track to conceal the clearance gap above hardscape
- Non-90-degree corners – use Double Flange Sealant Backer or custom corner trim
- It is best to avoid cutting AWP to short or narrow strips and segments of less than 9"



TECHNICAL REVIEWS

If your project meets any of the criteria listed below, your Nichiha Sales Representative will work with you on completing a Special Application Form (SAF) as a part of the technical review process. It's our way of assuring that your project will be implemented without the slightest hitch.

- 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* and *Continuous Insulation* sections of the installation guides

NOs

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

- No Radius/Curved Walls, Sloped/Tilted Walls
- Do not use AWP and Nichiha Corners in non-vertical conditions such as soffits, ceilings, heads & sills of openings
- 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
- No Insulated Concrete Forms (ICFs)
- 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
- Do not cut panels to less than 4" in width or length

DETAILS

For a list of AutoCAD and Revit details visit nichiha.com/resources/cad

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

PLEASE CONTACT NICHIBA TECHNICAL DEPARTMENT FOR ASSISTANCE WITH:

- Structural Insulating Panels (SIP)
- Nail-base insulation sheathings
- Continuous Insulation (C.I.) over one inch in thickness

All require a technical review by Nichiha to evaluate feasibility via our Technical Review and Special Application Form (SAF) process. Submission of a SAF for review does not imply or guarantee project approval.

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

BUILDING IS A COLLABORATIVE PROCESS.

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.



the power of possibilities™

Silica Dust Warning: NICHIHA 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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