

Continuous Insulation and AWP

General

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 bulletin is not intended to prohibit options or furring combinations not covered herein. Please contact the Technical Department for assistance.

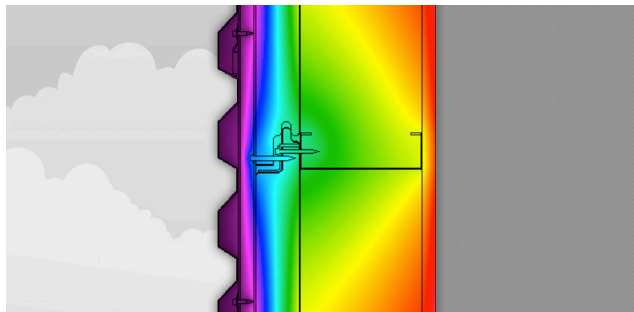
No Thermal Bridges!

The energy code, in its definition of c.i., does not allow for thermal bridges, excluding fasteners, to penetrate through the exterior (or interior) layer of "continuous" insulation. This means that simple z furring is not compliant with the c.i. definition since the metal bridging through the insulation board provides a major pathway for energy transfer, particularly when fastened over metal stud wall framing. This lowers the *effective* value of the insulation layers overall and the building's energy efficiency.

Fasteners are allowed to penetrate continuous insulation, but because the insulation does not provide much, if any, support for fasteners holding up exterior claddings, there are natural limits to "cantilevered fastening." As an example, if you wanted to hang a large painting in your living room, would you rest the frame's wire out on the head of the nail or directly at the drywall? If you think of exterior cladding and c.i., the same forces are at work. You want the weight of the cladding as close to the framing as possible and not out on the ends of the fasteners since the foam is non-structural. Over time the cladding could creep downward if the fasteners begin to succumb to the shear/torquing action.

Designers (rightfully so!) demand more exterior finish choices than just EIFS, so this means cladding options require energy code friendly attachment methods, of which there are many...

Thermal profile with bridging



Thermal profile without bridging

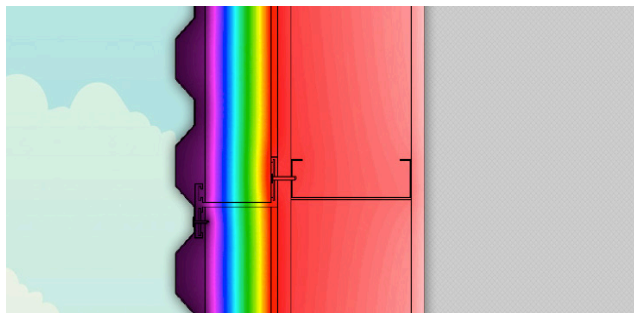


image credit: SMARTci/AAP

AWP Attachment Requirements

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

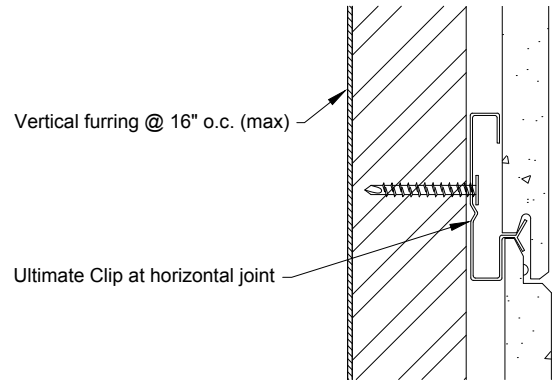
AWP-1818 and AWP-3030 Horizontal Applications

1. Shaped metal furrings (Z, hat channel, C, etc.)
 - a. Minimum 18 gauge
 - b. Aligned vertically
 - c. Spaced 16" o.c. (max.)

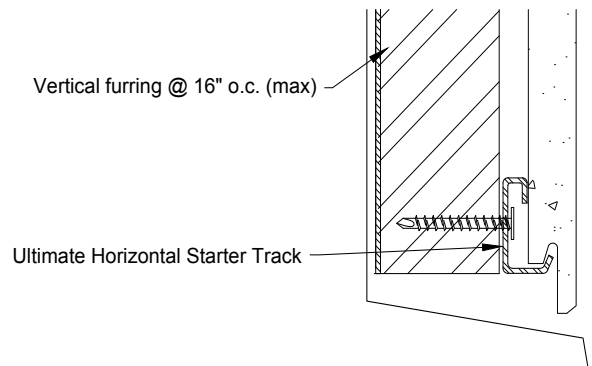
- or -
2. Pressure treated lumber (*Do not use strips of wood sheathing as furring.*)
 - a. Minimum 2x (1.5") thickness
 - b. Aligned vertically
 - c. Spaced 16" o.c. (max.)

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

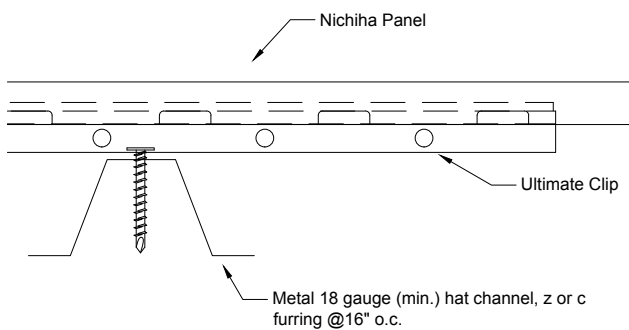
***Consult a structural engineer to design the furring system to manage the AWP system dead load of minimum 4 psf and also meet the project wind load design criteria. Furring must account for expected building compression. Nichiha does not provide fastener design for anchoring the furring to structure.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



Section view - clip to furring



Section view - starter track to furring



Plan view - clip to furring

AWP-3030 Vertical Applications

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.)
 - a. Minimum 18 gauge
 - b. Aligned vertically
 - c. Spaced 16" o.c. (max.)
 - d. Min. 7/16" APA Rated OSB or Plywood

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

- or -
3. Shaped metal furrings (one layer)
 - a. Minimum 18 gauge
 - b. Aligned vertically at 17-7/8" o.c.
 - c. Additional vertical furring segments at Vertical Starter Track locations to enable 9" o.c. fastener spacing for track (Figure 3-4)

- or -
4. Shaped metal furrings (two layers)
(Z, hat channel, C, etc.)
 - Layer One
 - a. Minimum 18 gauge
 - b. Aligned horizontally
 - c. Spaced per engineer's design
 - Layer Two
 - d. Minimum 18 gauge
 - e. Aligned vertically at 17-7/8" o.c.
 - f. Additional vertical furring segments at Vertical Starter Track locations to enable 9" o.c. fastener spacing for track (Figure 3-4)



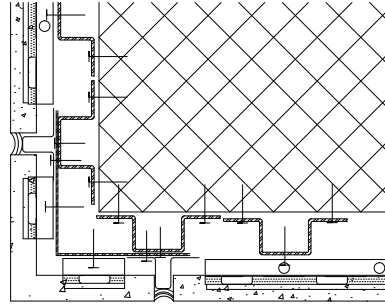
3-4. Vertical furring at 17-7/8" o.c. over horizontals. Additional vertical segments added to enable 9" o.c. Vertical Starter Track fastening. (Knight HCI™ System girts shown)

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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 can be fastened to the flat stock, as can metal trim corners. (Figure 1).



1. Wrapped outside corner with 18 gauge flat stock

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. Knight Wall CI® and HCI™ Systems
2. Bracket and rail systems:
 - a. Cascadia Clips®
 - b. Knight Wall MFI®
 - c. FERRO Cladding Support
 - d. ISO Clip
3. SMARTci GreenGirts