



Scope: This Technical Bulletin covers considerations that should be taken into account when choosing to use a rain screen system, including; methods of attachment to different types of furring, design responsibility, choosing alternative fasteners and methods of fastening, and product specific considerations.

The Optional Use of Rain Screen Systems:

Wall cladding is one part of a rainscreen system. The structure design and installation of the exterior wall cladding is important for proper moisture management. Understanding the mechanisms and how moisture enters and leaves the wall leads to better moisture control in building envelope design and material selection, therefore a more durable building.

James Hardie will support the use of its exterior siding products with rainscreen systems, but does not take responsibility for the entire wall assembly or system. James Hardie expects the designer or builder using our components as part of the rainscreen system to:

- Adhere to all the installation requirements listed in the relevant product installation instructions.
- Provide adequate details for water management.
- Make the decision about the use of rainscreen.
- Understand the interaction between system components and how each of the components in the system interacts.
- Design of the building envelope accounting for both interior and exterior moisture control.

Installation Over Furring:

When installing James Hardie Siding products over furring the question arises what thickness of furring can be used as an alternate to normal metal or wood studs specified in the National Evaluation Services, Inc. NER-405 Report. General rule of thumb is, the specific NER-405 fastener must be installed into a material that has the same or better holding power than that specified in the NER-405 and with the same penetration as the NER-405 fastener.

Note: The NER-405 is the primary code compliance document James Hardie utilizes, but for other common applications and/or products, additional code compliance documentation and/or fastener specifications may exist. For special circumstances outside the scope of the NER-405 please contact James Hardie's Technical Services.

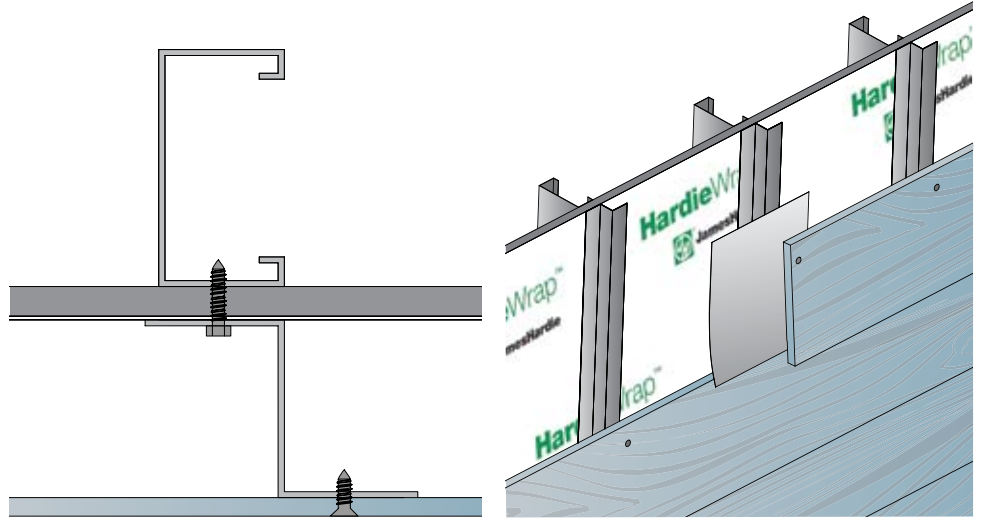
When reviewing the following details for attaching to wood furring or framing an important consideration is that the fastener chosen must be fully encompassed by a wood substrate – the furring may count as all or part of the necessary penetration if it has been proven that the furring and/or wood substrate has the same or better holding power as a timber stud. James Hardie does not specify the fastening requirements for wood or steel furring to the building and will not take the liability of such structural elements. The attachment of wood or steel furring should be incorporated into the overall building design and should be approved by the responsible parties.

IMPORTANT: Failure to install and finish this product in accordance with applicable building codes and James Hardie written application instructions may affect system performance, violate local building codes, void the product-only warranty and lead to personal injury.

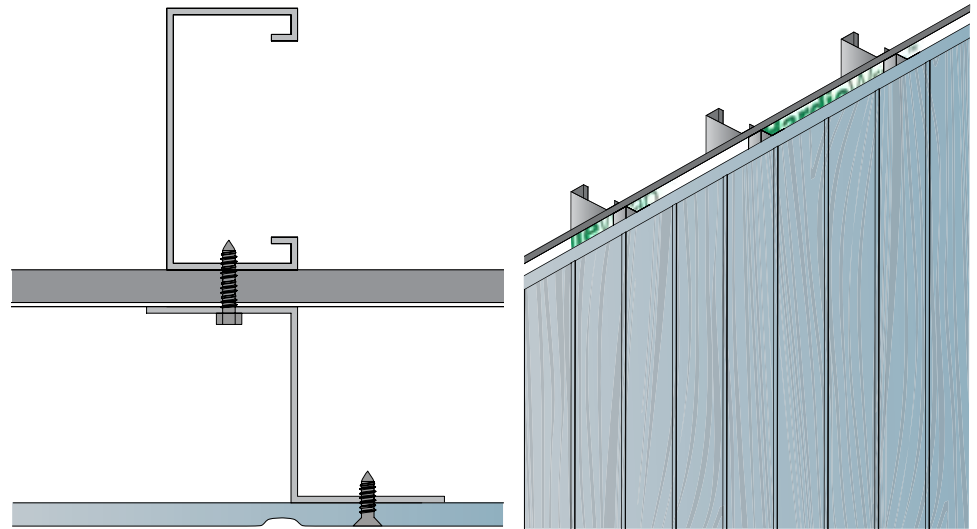
DESIGN ADVICE: Any information or assistance provided by James Hardie in relation to specific projects must be approved by the relevant specialists engaged for the project eg. builder, architect or engineer. James Hardie will not be responsible in connection with any such information or assistance.

Attaching lap and panel siding to steel furring:

When attaching lap siding products to steel furring the steel must be a minimum of 20 gauge. A fastener should be chosen out of the NER-405 which is approved for attaching to steel framing. Two general rules that should be considered when choosing a fastener is that a nail (pin) must penetrate steel furring $\frac{1}{4}$ " and screws must penetrate steel furring 3 full threads. Therefore, if the rules for steel fastening are followed given plank reveal, stud spacing, building height, and exposure category the values are the same as NER-405 Table 2 states for the chosen fastener.



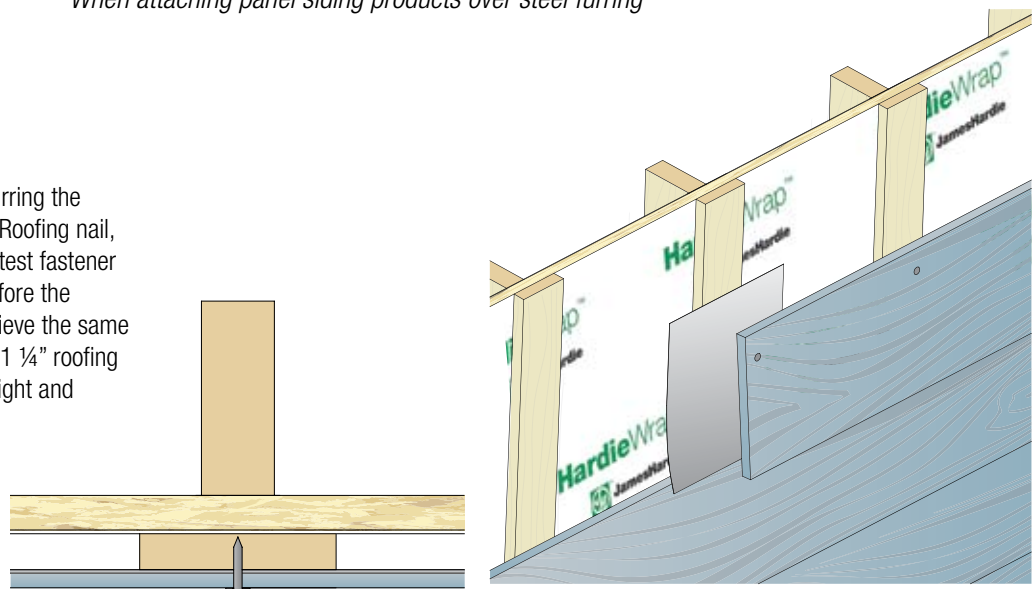
When attaching lap siding products over steel furring



When attaching panel siding products over steel furring

Attaching lap siding to wood furring:

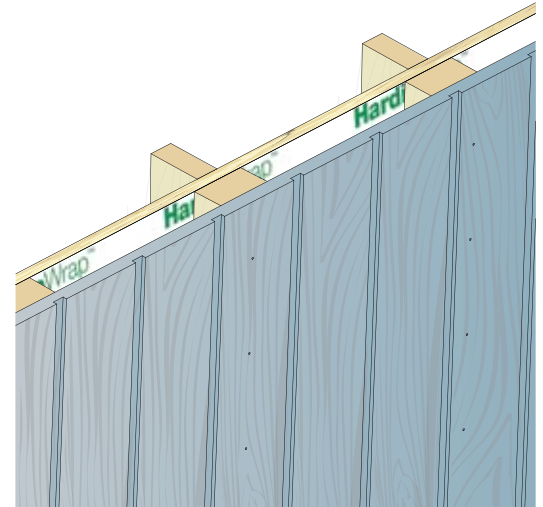
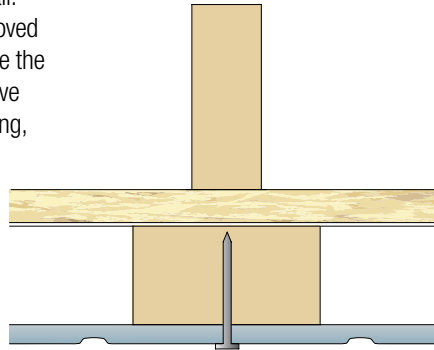
When attaching lap siding products over wood furring the typical fastener used is the $1\frac{1}{4}$ " long No.11 ga. Roofing nail, blind nailed. This fastener is going to be the shortest fastener approved for fastening lap siding products, therefore the furring must be a minimum of 0.75" thick to achieve the same values as NER-405 Table 2 states for the 11 ga. $1\frac{1}{4}$ " roofing nail given plank reveal, stud spacing, building height and exposure category.



When attaching lap siding products over wood

Attaching panel siding to wood furring:

When attaching panel siding products over wood furring the typical fastener used is the 6d common 2" long nail. This fastener is going to be the shortest fastener approved for fastening panel siding products into wood, therefore the furring must be a minimum of 1-11/16" thick to achieve the same values as NER-405 Table 2 given stud spacing, building height and exposure category.



When attaching panel siding products over wood

James Hardie Requirements for Alternate Fasteners and Methods:

The fastening requirements for each product are stated in one or more of the following technical documents and in some cases fastener products may be referenced. Below are the steps that can be used to demonstrate an alternate fastener's equivalency to the James Hardie published fastening requirements.

James Hardie® Technical Documents¹:

- Product Installation (application) Instructions
- ICC-ES Legacy Report NER-405;
- City of Los Angeles Research Report No. 24862;
- State of Florida listing FL#889;
- Dade County, Florida NOA No. 07-0418.04;
- U.S. Dept. of HUD Materials Release 1263d;
- Texas Department of Insurance Product Evaluation EC-23;
- City of New York MEA 223-93-M;
- California DSA PA-019.

1. It is the responsibility of either the property owner, design professional, contractor, or installer to consult:
 - a. The fastener Manufacturer for a Product Listing Specification or Code Compliance report that covers the installation method in question, or;
 - b. A licensed Architect or Professional Engineer to make an equivalency statement linking the alternate fastener (or fastening method) to the fastening requirements published within the relevant James Hardie technical document;
2. Once in possession of the information fathered in step one it is the responsibility of the property owner, design professional, contractor, or installer to make his or her case to the Building Official¹.

¹The Building Official reserves the right to approve alternate materials, design and methods of construction, 2006 International Building Code® Section 104.11, 2006 International Residential Code® Section R104.11, and 1997 Uniform Building Code™ Section 104.2.8.

All national, state, and local building code requirements must be followed and where they are more stringent than the James Hardie installation requirements, state and local requirements will take precedence.

IMPORTANT: Failure to install and finish this product in accordance with applicable building codes and James Hardie written application instructions may affect system performance, violate local building codes, void the product-only warranty and lead to personal injury.

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Additional Installation Information, Warranties, and Warnings are available at www.jameshardie.com

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