

# Hardie® Architectural Panels

Multifamily / Commercial Installation Requirements

EFFECTIVE SEPTEMBER 2022



Shiplap with V-Groove Aesthetic

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## 1 Introduction

The material contained herein provides installation guidelines for the Hardie® Architectural Panel System by James Hardie. This document is intended for use by builders, cladding installers, and other contractors who may be involved with the installation of the Hardie® Architectural Panel System.

**Before you begin** your siding project read the instruction manual completely and thoroughly. This document describes and illustrates the minimum steps required to install the Hardie® Architectural Panel System. No instruction manual can anticipate every condition, circumstance, or situation that might arise during installation over the course of the project. When in doubt about assembly details, contact the architect, specifier, or a building official. Contact your James Hardie Sales and Install Representative for product support 1-800-9HARDIE (1- 800-942-7343).

### PREPARATION

Ensure the drainage plane is intact and all penetrations are sealed. Plan your work, use the proper tools, techniques, and follow installation procedures as covered in this installation manual. It is important that builders, specifiers, and installers recognize requirements and information pertaining to:

- Safety
- Storage and Handling
- Cutting
- Wall Preparation
- Fastening

For best results, before installation, ensure your panels are clean and free of dirt, dust, chalking, oil, grease, organic contaminants, or mold. Dust from cutting and construction should be removed immediately upon installation.

### PRACTICE INSTALLING MATERIAL

Utilize a mock-up to evaluate installation and finishing techniques, with a focus on specific applications designed by a design professional or engineer. The fastening practice and/or fastening tools shall be properly adjusted to avoid overdriving. Do not proceed with remaining work until workmanship, color, and sheen are approved. Repeat mock-up area as required to produce acceptable work.

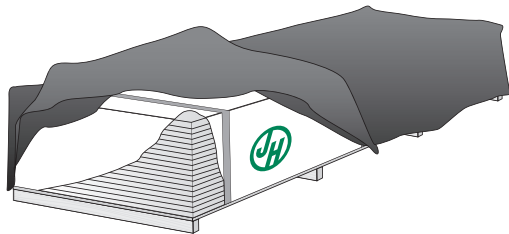




## 2 Safe Working Practices

### STORAGE & HANDLING

Store flat and keep dry and covered prior to installation. Installing siding wet or saturated may result in shrinkage. Protect edges and corners from breakage. James Hardie is not responsible for damage caused by improper storage and handling of the product.



### CUTTING INSTRUCTIONS

#### OUTDOORS

1. Position cutting station so that airflow blows dust away from the user and others near the cutting area.
2. Cut using one of the following methods based on jobsite requirements:
  - a. **Best:** Circular saw equipped with a HardieBlade® saw blade and attached vacuum dust collection system.
  - b. Shears (manual, pneumatic or electric) or the score and snap method may also be used.
  - c. **Better:** Circular saw equipped with a dust collection feature and a HardieBlade® saw blade.
  - d. **Good:** Circular saw equipped with a HardieBlade® saw blade.

#### INDOORS

1. NEVER grind or cut with a power saw indoors.
2. Cut only using shears (manual, pneumatic or electric) or the score and snap method.

#### GENERAL

- During clean-up of dust and debris, wet dust and debris down with a fine water mist, apply a dust reducing sweeping compound in sufficient quantities, or use a vacuum to collect dust and debris. DO NOT use compressed air. DO NOT dry sweep without first applying a dust reducing control measure.
- For best performance when cutting with a circular saw, James Hardie recommends using HardieBlade® saw blades.
- Go to [jameshardiepros.com](http://jameshardiepros.com) for additional cutting and dust control recommendations.

**IMPORTANT:** The Occupational Safety and Health Administration (OSHA) regulates workplace exposure to silica dust. For construction sites, OSHA has deemed that cutting fiber cement with a circular saw having a blade diameter less than 8 inches and connected to a commercially available dust collection system per manufacturer's instructions results in exposures below the OSHA Permissible Exposure Limit (PEL) for respirable crystalline silica, without the need for additional respiratory protection.

If you are unsure about how to comply with OSHA silica dust regulations, consult a qualified industrial hygienist or safety professional, or contact your James Hardie technical sales representative for assistance. James Hardie makes no representation or warranty that adopting a particular cutting practice will assure your compliance with OSHA rules or other applicable laws and safety requirements.

### HANDLING PANELS

When handling Hardie® Architectural Panels care should be given to prevent damage to the machined edges and/or the ColorPlus finish.

- Utilize 2 persons to carry product.
- Carry panels along the long edges whenever possible (Fig. 2.1).
- When handling panels on short edges, carry panels with the underlap edge of the shiplap facing down. (tongue/long edge) (Fig. 2.2). Doing so will:

- Prevent damage to top edge (visible edge) of panel if dropped or dragged.
- Help prevent scratches to ColorPlus finish.

Figure 2.1

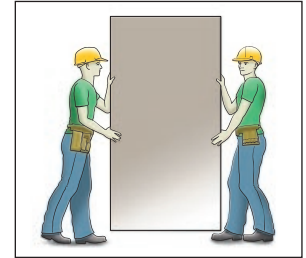
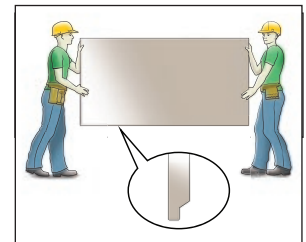


Figure 2.2



#### ColorPlus Tip:

- When possible, carry with plastic covering in place. This will help to protect the ColorPlus finish.
- Wearing gloves will help prevent fingerprint smudges to the ColorPlus finish

### CUT STATION & CUTTING

Setup cutting station (Fig. 2.3), and locate close to installation area.

Use a HardieBlade® to cut James Hardie fiber cement products. A track saw with vacuum system (Fig. 2.4) is best for cutting Hardie® Architectural Panels.

- a. Cleaner cuts
- b. Panels can be cut facing up (minimize panel movements)
- c. If using a traditional circular saw with vacuum system, place panel face down to prevent marring of the finished surface caused by friction from the saw.

Figure 2.3

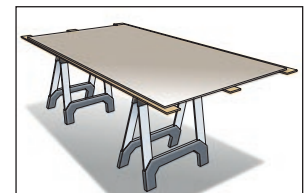
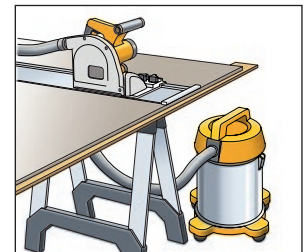


Figure 2.4



#### ColorPlus Tip:

- A scratch proof platform is a good idea to prevent from scratching the ColorPlus surface while cutting. The cardboard cover from the top of the pallet makes a great non marking surface.
- Keep a spray bottle (filled with water) and soft cloths to wipe cut dust off immediately after cutting to keep your ColorPlus finish looking fresh.
- Touch-up all cut edges





# 3 Design

## PANEL JOINT CONSIDERATIONS

Hardie® Architectural Panels have been designed to feature a “V” groove look at panel joints. When considering the location of panel joint layout, use the following guidelines:

1. Installation requirements
  - a. Clearances
  - b. Floor break (panels cannot be placed across floors)  
(horizontal flashing / trim is required)
  - c. Framing, sheathing, and fastener attachment  
(see Panel V-Groove joint placement options section within this document)
2. Align/center to key features  
(ex. windows, doors, etc.) (fig. 3.1)
3. Align/center to the structure  
(ex. walls, gables, etc.) (fig. 3.2)

Figure 3.1 Align to Key Feature

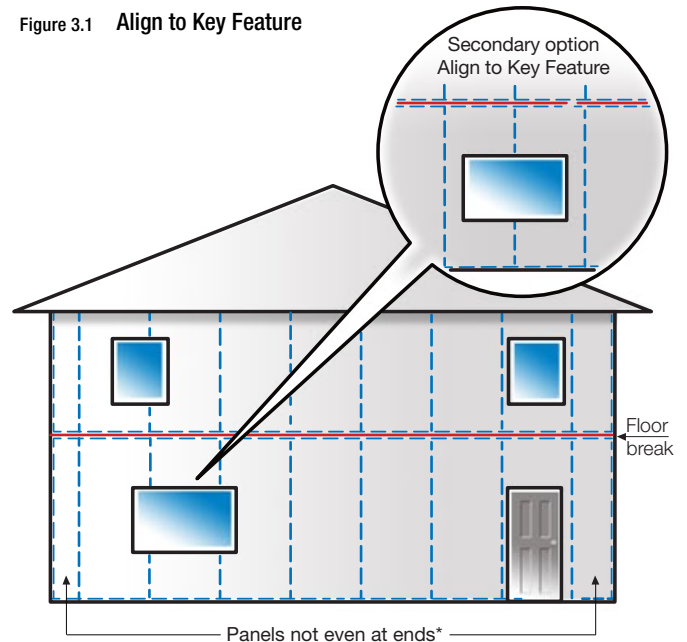
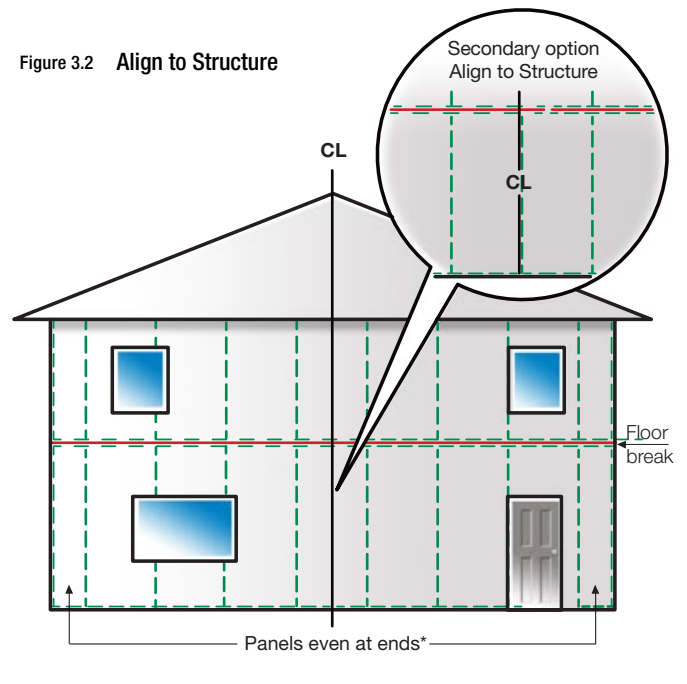


Figure 3.2 Align to Structure



**\* Design Advice:**

It is okay for panel widths to be equal or unequal at structure ends.



# 4 General Requirements

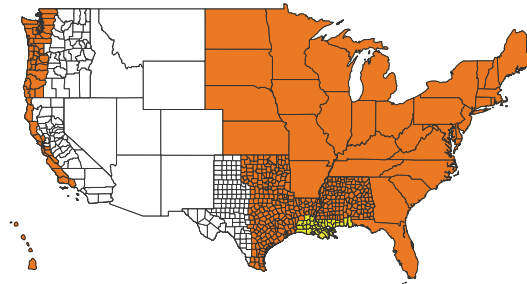
**IMPORTANT:** Read these instructions in their entirety before attempting installation.

- Refer to table 1 for multifamily/commercial drainage requirements for Hardie® Textured Panels.
- These instructions to be used for installation on Commercial / Multi-Family only. \*\*For Single Family installation requirements go to [www.JamesHardiePros.com](http://www.JamesHardiePros.com)
- Hardie® Architectural Panels can be installed over braced wood. See General Fastening Requirements. Irregularities in framing and sheathing can mirror through the finished application. Correct irregularities before installing siding.
- Hardie® Architectural Panels may be installed on flat vertical wall applications only.
- Information on installing James Hardie® products over non-nailable substrates (ex: gypsum, foam, etc.) can be located in [JH Tech Bulletin 19 at www.jameshardie.com](http://www.jameshardie.com)
- A water-resistive barrier (WRB) is required in accordance with local building code requirements. The WRB must be appropriately installed with penetration and junction flashing in accordance with local building code requirements. James Hardie will assume no responsibility for water infiltration. James Hardie manufactures Hardie™ Weather Barrier, a non-woven non-perforated housewrap<sup>1</sup>, which complies with building code requirements.
- When orienting Hardie® Architectural Panels horizontally, a WRB with minimum 90% drainage efficiency per ASTM E2273 is required.
- Adjacent finished grade must slope away from the building in accordance with local building codes - typically a minimum of 6 in. in the first 10 ft.
- Do not use Hardie® Architectural Panels in Fascia or Trim applications.
- Do not install James Hardie® products such that they may remain in contact with standing water.
- For larger projects, where the span of the wall is significant in length, the designer and/or architect should take into consideration the coefficient of thermal expansion and moisture movement of the product in their design. These values can be found in the [Technical Bulletin](http://www.jameshardie.com) in “Expansion Characteristics of James Hardie Siding Products” at [www.jameshardie.com](http://www.jameshardie.com).
- James Hardie Building Products provides installation/wind load information for buildings with a maximum mean roof height of 85 feet (Refer to the product Technical Data Sheet or ESR report). For information on installations above 60 feet, please contact JH technical support.
- Minimum standard panel design size is 12” x 16”. Note: Panels may be notched and cut to size to fit between windows, doors, corners, etc.
- Straight 16 gauge stainless steel finish nails.

<sup>1</sup>For additional information on Hardie™ Weather Barrier, consult James Hardie at 1-866-4Hardie or [www.hardiewrap.com](http://www.hardiewrap.com)

**Table 1: Hardie® Textured Panels Wall Drainage Requirements**

All national, state, and local building codes must be followed, and where they are more stringent than James Hardie Installation requirements, state and local requirements will take precedence. Consult the “Exterior Wall Drainage Requirements” bulletin at [www.jameshardiecommercial.com](http://www.jameshardiecommercial.com) for additional guidance and a more detailed list of drainage required areas.



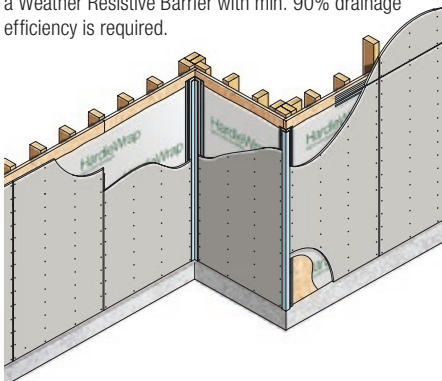
MINIMUM REQUIREMENTS BY STATE/COUNTY	
(A)	WRB <sup>1</sup> Dry Climates Drainage Plane <sup>2</sup> When orienting Hardie® Textured Panels horizontally
(B)	DRAINAGE PLANE (E.G. DRAINABLE WRB) WITH 90% DRAINAGE EFFICIENCY <sup>2</sup> Moist and Marine Climates
(C)	RAINSCREEN (MIN. 3/8 IN. AIR GAP) <sup>3</sup> Severe Wind Driven Rain Climate

1 Water-resistive Barrier and drainage requirements as defined by building code.  
 2 Water-resistive Barrier as defined by local building code that is manufactured in a manner to enhance drainage; must meet minimum 90% drainage efficiency when tested in accordance with ASTM E2273 or other recognized national standards.  
 3 Water-resistive Barrier (WRB) as defined by building code and a minimum 3/8 in. (10mm) air space between the WRB and the panel siding (formed by minimum 3/8 in. furring).

Note: When installing preservative-treated wood/furring, a non permeable membrane shall be installed between the furring and aluminum trims.

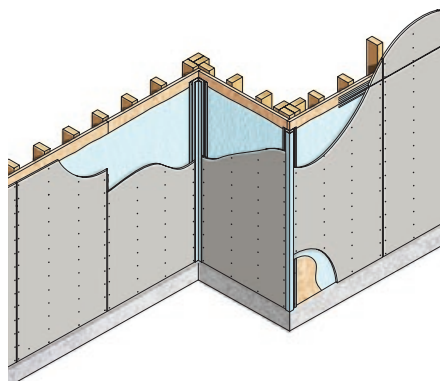
### A: Dry Climates: Weather Resistive Barrier

Note: When orienting Hardie® Textured Panels horizontally, a Weather Resistive Barrier with min. 90% drainage efficiency is required.

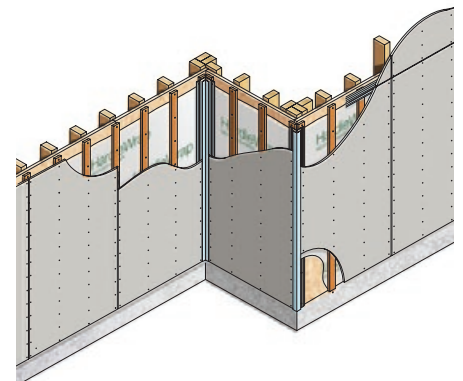


### B: Moist and Marine Climates: Drainage Plane

(Drainable WRB with min. 90% drainage efficiency)



### C: Wind Driven Climates:



**Note: When installing preservative-treated wood/furring, a non permeable membrane shall be installed between the furring and aluminum trims.**



### CLEARANCE AND FLASHING REQUIREMENTS

Figure 4.1  
Roof to Wall

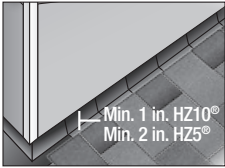


Figure 4.2  
Horizontal Flashing

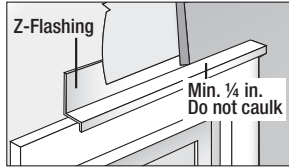


Figure 4.3  
Kickout Flashing

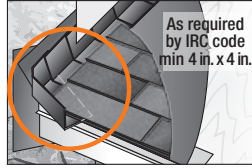


Figure 4.4  
Slabs, Path, Steps to Siding

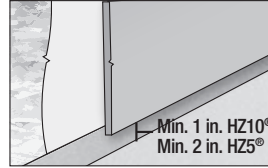


Figure 4.5  
Deck to Wall

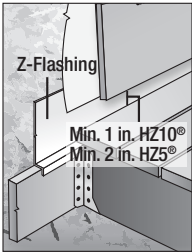


Figure 4.6  
Ground to Siding

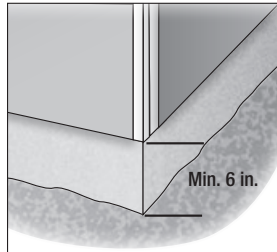


Figure 4.7  
Gutter to Siding

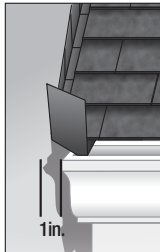


Figure 4.8  
Sheltered Areas

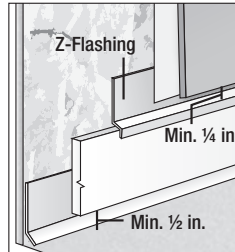


Figure 4.9  
Mortar/Masonry

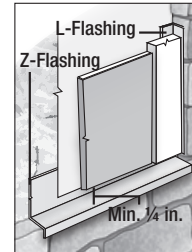


Figure 4.10  
Drip Edge

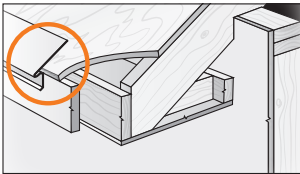


Figure 4.11  
Block Penetration  
(Recommended for HZ10®)

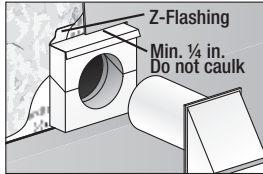


Figure 4.12  
Valley/Shingle Extension

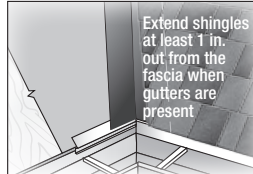
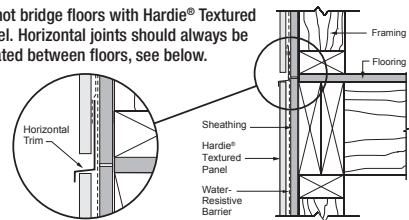


Figure 4.13  
Bridging Floors

Do not bridge floors with Hardie® Textured Panel. Horizontal joints should always be created between floors, see below.





### FASTENING REQUIREMENTS

Refer to TDS (Technical Data Sheet) for Hardie Architectural Panels in the back of this document for wind load ratings (page 19).

### FINISH NAIL REQUIREMENTS

- Minimum 1-1/2 inch.
- Stainless steel only.
- 16 gauge straight. **DO NOT** use 15 gauge angled finish nails.

### FASTENING GUIDELINES

The following guidelines should be followed to achieve the desired aesthetics from the fastening of stainless steel finish nails to attach Hardie® Architectural Panels:

1. In-Line Regulator (Fig. 4.15)
  - a. Control variable air supply from compressor
  - b. 75-90 psi (average setting) if difficulty maintaining psi and/or depth control, check nailer for wear and replace or repair accordingly
2. No-Mar Tips (fig. 4.16)
  - a. Avoid surface damage
  - b. Depth control
3. Gun angle to wall (fig. 4.14)
4. Nails should be driven flush or proud. If left proud, then tap flush immediately with a smooth face hammer
5. Do Not over drive fasteners
  - a. Will appear after painting
  - b. Will increase need for patching & touch-up
6. Test nail depth on scrap prior to panel installation

### GENERAL

Finish nails must be stainless steel. Fasteners must be corrosion resistant, galvanized, or stainless steel. Electro-galvanized are acceptable but may exhibit premature corrosion. Unless otherwise directed, James Hardie recommends the use of quality, hot-dipped galvanized nails. James Hardie is not responsible for the corrosion resistance of fasteners.

Stainless steel fasteners are recommended when installing James Hardie® products near the ocean, large bodies of water, or in very humid climates. Note: Ring shank (not smooth) shall be used when specifying stainless steel nails.

Manufacturers of ACQ and CA preservative-treated wood recommend spacer materials or other physical barriers to prevent direct contact of ACQ or CA preservative-treated wood and aluminium products. Fasteners used to attach HardieTrim Tabs, aluminium trim, or flashing to preservative treated wood shall be of hot dipped zinc-coated galvanized steel or stainless steel and in accordance to the latest versions of the IRC/IBC.

- Consult applicable product evaluation or listing for correct fasteners type and placement to achieve specified design wind loads.
- **NOTE:** Published wind loads may not be applicable to all areas where Local Building Codes have specific jurisdiction. Consult James Hardie Technical Services if you are unsure of applicable compliance documentation.
- Drive fasteners perpendicular to siding and framing.
- Fastener heads should fit snug against siding (no air space).

### PNEUMATIC FASTENING

James Hardie® products can be hand nailed or fastened with a pneumatic tool. Pneumatic fastening is highly recommended. Set air pressure so that the fastener is driven snug with the surface of the siding. A flush mount attachment on the pneumatic tool is recommended. This will help control

the depth the nail is driven. If setting the nail depth proves difficult, choose a setting that under drives the nail. (Drive under driven nails snug with a smooth faced hammer - Does not apply for installation to steel framing).

### COLORPLUS FASTENERS

Color matched stainless steel finish nails are available for Hardie® Architectural Panels with ColorPlus technology Nails installed the same as described above. Touch- up fasteners as needed using the touch applicator brush Fig.16

Figure 4.14

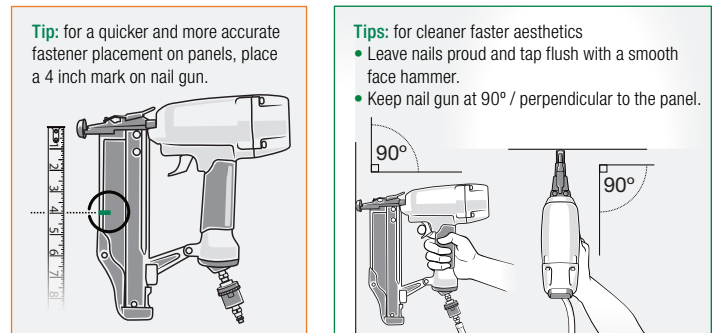


Figure 4.15

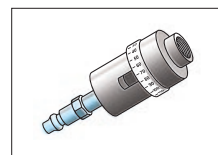


Figure 4.16

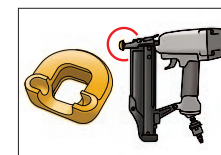


Figure 4.17



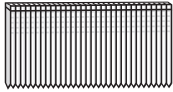
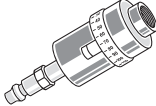
<b>BEST</b>				<b>Finish Nail</b> <b>Tips:</b> for fastener depth control: <ul style="list-style-type: none"> <li>• Oil nail guns regularly.</li> <li>• If excessive air pressure (above 90psi) is needed or having difficulty controlling nail depth. Nail gun may be worn.</li> </ul> *Use a smooth face hammer and lightly tap flush.
<b>FLUSH</b>	<b>PROUD*</b>	<b>OVER DRIVEN</b>		

<b>SIDING NAIL</b>		
	<b>SNUG</b>	<b>FLUSH</b>

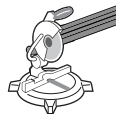


<b>DO NOT</b>	<b>DO NOT</b>	<b>DO NOT USE</b>
<b>UNDER DRIVE</b>	<b>OVER DRIVE</b> <b>SLANT</b>	<b>ALUMINUM FASTENERS</b>
<b>IF, THEN</b>		
<b>WOOD FRAME</b>	<b>STEEL FRAME</b>	<b>CLIPPED HEAD NAILS</b>
<b>HAMMER FLUSH</b>	<b>REMOVE &amp; REPLACE</b>	<b>STAPLES</b>
<b>IF, THEN ADDITIONAL NAIL</b>		
<b>FACE NAIL</b>		
<b>COUNTERSINK &amp; FILL</b>		

# 5 Tools

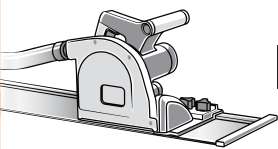
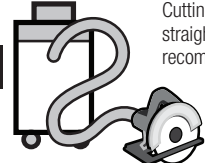
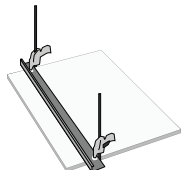

## TOOLS FOR FASTENING

<p><b>1</b> Straight 16 Gauge Stainless Finish Nails</p>	<p><b>2</b> Straight Finish Nailer</p>	<p><b>3</b> Inline Air Regulator</p>
		
<p>Fasten using minimum 1-1/2 inch straight 16 gauge stainless steel nails. DO NOT use 15 gauge angled finish nails.</p>	<p>16 gauge straight finish nailer for attaching trims and panels.</p>	<p>An inline pressure regulator will assist in better fastener depth control. Nails shall be underdriven as opposed to overdriven if depth control is an issue</p>

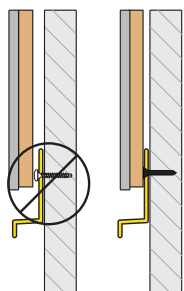
## TOOLS FOR CUTTING METAL TRIMS

<p><b>1</b> Miter Saw</p>	<p><b>2</b> Non-Ferrous Metals Blade</p>	<p><b>3</b> Tin Snips</p>
		
<p>To cut metal trims</p>	<p>80-tooth</p>	<p>Cutting flashings</p>

## TOOLS FOR CUTTING HARDIE® ARCHITECTURAL PANELS

<p><b>1</b> Track Saw With Vacuum dust collection system</p>	<p><b>2</b> 7-1/4 in Circular Saw with Vacuum dust collection system</p>	<p><b>3</b> HardieBlade® Saw Blade</p>
	<p>OR</p>  <p>Cutting against straight edge is recommended.</p> 	 <p>Poly-diamond blade for James Hardie® fiber cement.</p>

## FASTENING METAL TRIMS



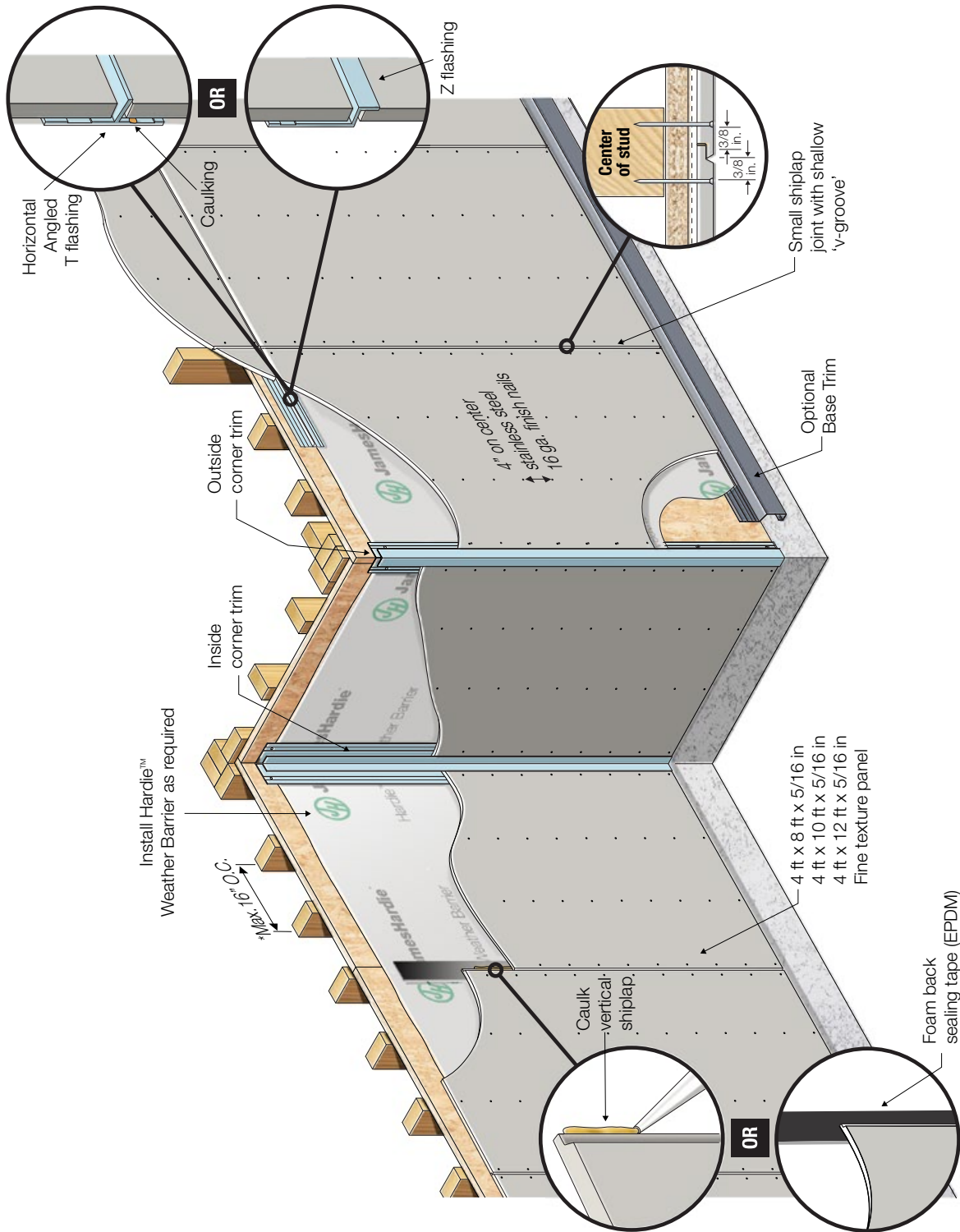
**Attach trims to:**  
Wood - using a staple, or finish nail or flat head nail.

DO NOT use a button or bugle headed fastener when attaching trims.



# 6 Products and Accessories

## INSTALLATION EXAMPLE



\*Max 16 in. O.C. stud spacing applies to finish nail direct to stud application only. See Technical Data Sheet for nail spacing and additional framing options.


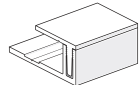


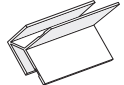
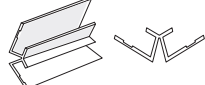




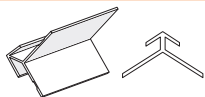


### ACCESSORIES

<p><b>1</b> Joint Sealant</p>  <p>General purpose polyurethane exterior grade joint sealant. Not supplied by James Hardie.</p>	<p><b>2</b> Hardie™ Weather Barrier</p>  <p>Water barrier and vapor permeable membrane.†</p>	<p><b>3</b> Seam Tape</p>  <p>Hardie™ Seam Tape or equivalent.</p>	<p><b>4</b> Flex Flashing</p>  <p>Hardie™ Flex Flashing or equivalent.</p>	<p><b>5</b> Pro-Flashing</p>  <p>Hardie™ Pro-Flashing or equivalent.</p>	<p><b>6</b> Foam Back Sealing Tape (EPDM)</p>  <p>Minimum 2 in. x 1/16 in. thick. Installed under vertical joints to improve water tightness.</p>
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

### TRIM

<p><b>7</b> J Trim</p>  <p>Aluminium extrusion to be used as a trim at abutments. (e.g. soffits, masonry, etc. Not recommended for windows &amp; doors)</p>	<p><b>8</b> 2-Piece J Trim</p>  <p>Aluminium extrusion to be used as a trim at abutments. (e.g. windows, doors, soffits, masonry, etc.)</p>	<p><b>9</b> Low-Profile Inside Corner Trim</p>  <p>Aluminium extrusion to be used for inside corners.</p>	<p><b>10</b> Inside Corner Trim</p>  <p>Aluminium extrusion to be used for inside corners.</p>	<p><b>11</b> Low-Profile Outside Corner Trim</p>  <p>Aluminium extrusion to be used for outside corners.</p>	<p><b>12</b> Low Profile 45° Inside Corner Trim</p>  <p>Aluminium extrusion to be used for bay windows.</p>
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

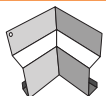


### VERTICAL TRIM OPTIONS

<p><b>13</b> Low Profile 45° Outside Corner Trim</p>  <p>Aluminium extrusion to be used for bay windows.</p>	<p><b>14</b> Vertical T Trim</p>  <p>Aluminium extrusion to be used along vertical butt joints. For horizontal panel orientations only.</p>	<p><b>15</b> Vertical H Trim</p>  <p>Aluminium extrusion to be used along vertical butt joints. For horizontal panel orientations only.</p>
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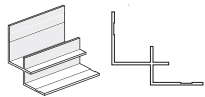
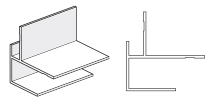
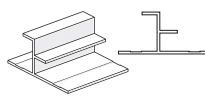
### HORIZONTAL TRIM OPTIONS

<p><b>16</b> Horizontal Angled T Flashing Trim</p>  <p>Aluminium extrusion to be used along horizontal control joints.</p>	<p><b>17</b> Horizontal Z Flashing Trim</p>  <p>Aluminium extrusion to be used along horizontal control joints.</p>
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### OPTIONAL ACCESSORIES

<p><b>18</b> Base Trim</p>  <p>Aluminium extrusion to be used as a base edge solution.</p>	<p><b>19</b> Base Outside Corner Trim</p>  <p>To be used as an outside corner connection for Base trim.</p>	<p><b>20</b> Base Inside Corner Trim</p>  <p>To be used as an inside corner connection for Base trim.</p>	<p><b>21</b> Base Jointer</p>  <p>To be used to connect Base trims.</p>	<p><b>22</b> HardieTrim® Boards</p>  <p>Fiber cement trim for corners and windows. Can be mounted horizontally or vertically.</p>
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### TRANSITIONAL TRIMS

<p><b>23</b> Low-Profile Inside Corner Transition Trim</p>  <p>Aluminium extrusion to be used for transitions at inside corners.</p>	<p><b>24</b> Low-Profile Outside Corner Transition Trim</p>  <p>Aluminium extrusion to be used for transitions at outside corners.</p>	<p><b>25</b> Low-Profile Vertical Transition Trim</p>  <p>Aluminium extrusion to be used for transitions at mid-wall</p>
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### FASTENER DETAILS

<p><b>26</b> Straight 16 Gauge Stainless Finish Nails</p>  <p>Min. 1 1/2 in. straight 16 gauge stainless steel finish nails. DO NOT use 15 gauge angled finish nails.</p>
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**BEST**



**FLUSH**



**PROUD\***



**OVER DRIVEN**

**Finish Nail**  
**Tips:** for fastener depth control:

- Oil nail guns regularly.
- If excessive air pressure (above 90psi) is needed or having difficulty controlling nail depth. Nail gun may be worn.

\*Use a smooth face hammer and lightly tap flush.

Refer to the Hardie® Architectural Panel Technical Data Sheet for fastening options.

†When orienting panels horizontally a weather resistive barrier (WRB) with minimum 90% drainage efficiency per ASTM E 2273 is required.

Note: When installing preservative-treated wood/furring, a non permeable membrane shall be installed between the furring and aluminium trims.

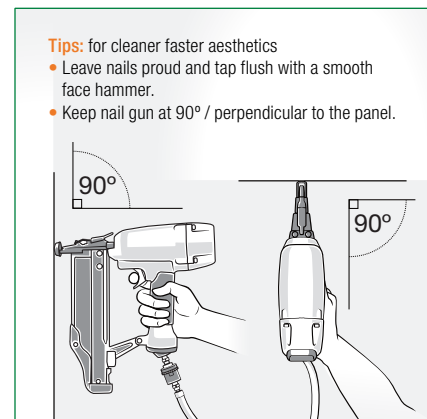
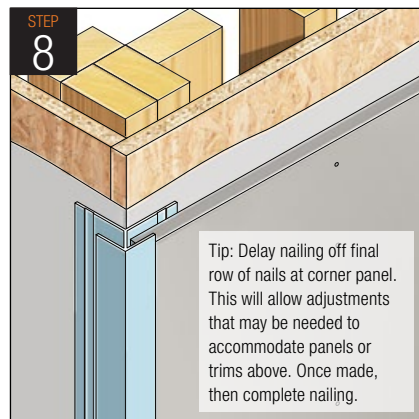
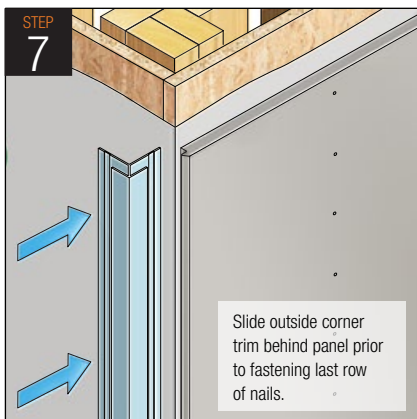
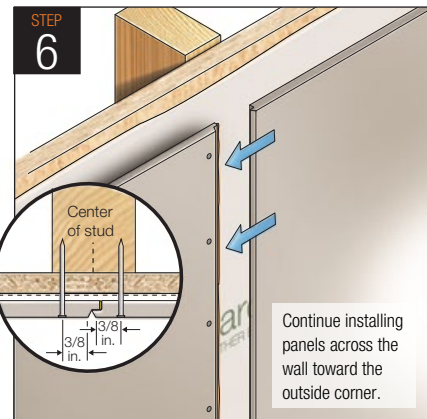
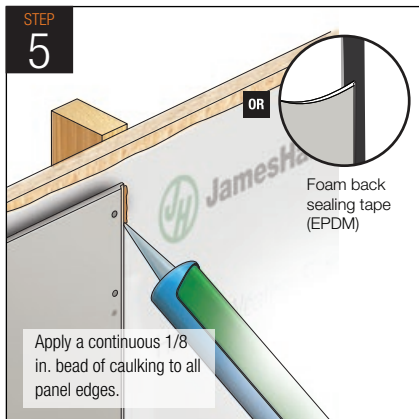
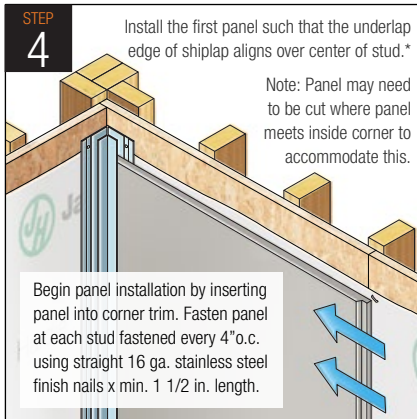
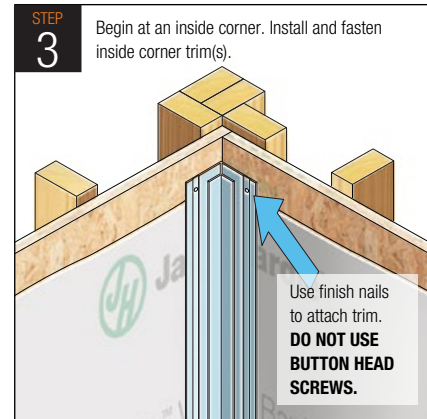
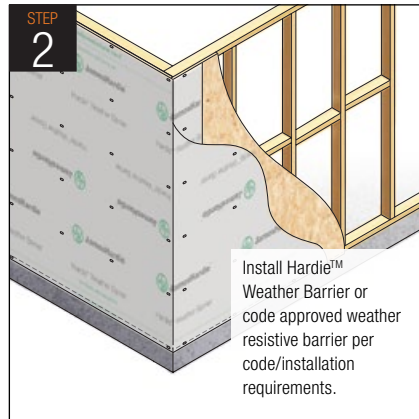


# 7 Panel Installation

## PANEL INSTALLATION PROCESS - VERTICAL ORIENTATION

Follow Table 1 on page 4 for wall drainage requirements:

- A. Dry Climate: Code approved WRB required.
- B. Moist and Marine Climate: Drainage wrap required.
- C. Severe Wind Driven Rain Climate: 3/8 in. rainscreen required.



\*Refer to the Hardie® Architectural Panel Technical Data Sheet for fastening options.

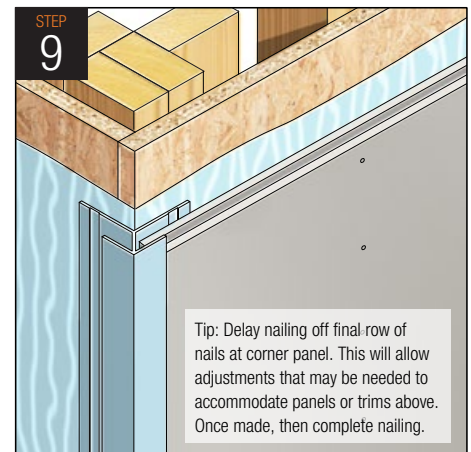
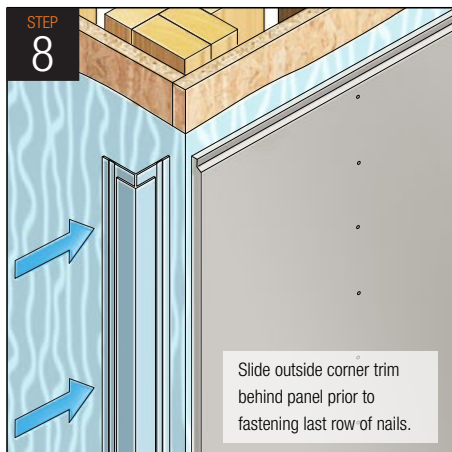
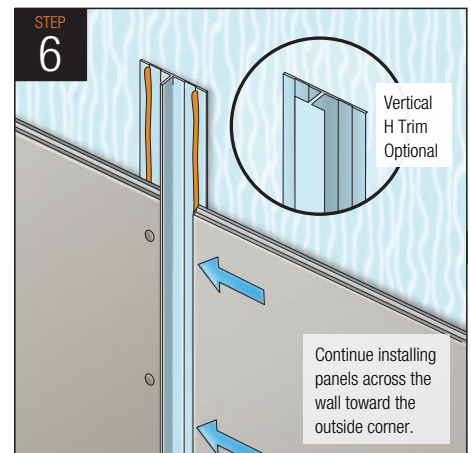
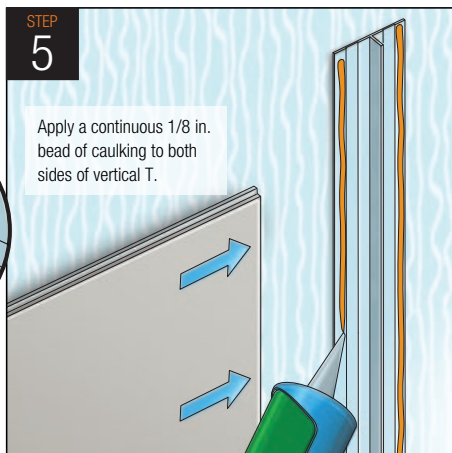
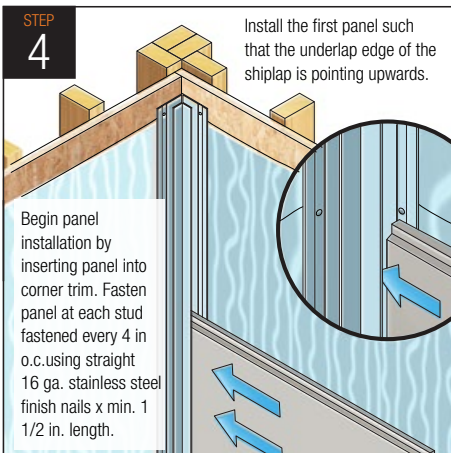
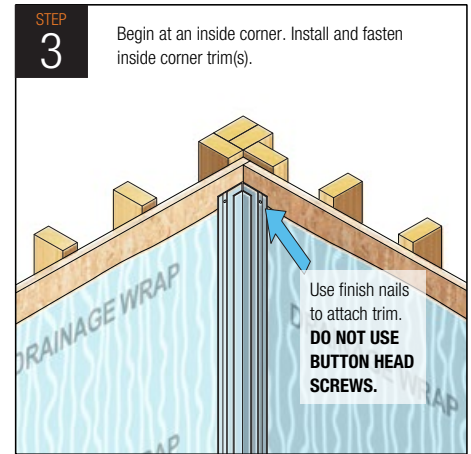
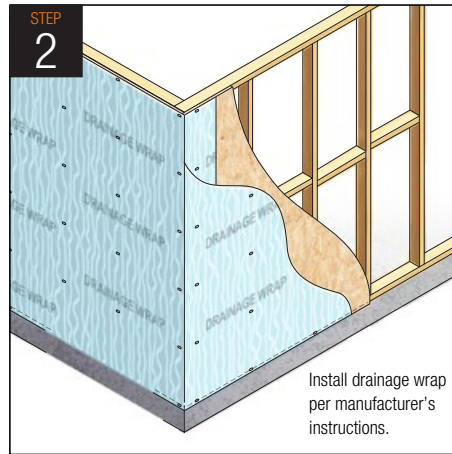
†Requires code approved drainage wrap - a weather resistive barrier (WRB) with minimum 90% drainage efficiency per ASTM E 2273



### PANEL INSTALLATION PROCESS - HORIZONTAL ORIENTATION

Follow Table 1 on page 4 for wall drainage requirements:

- A. Dry Climate: Drain wrap\* required.
- B. Moist and Marine Climate: Drain wrap\* required.
- C. Severe Wind Driven Rain Climate: 3/8 in. rainscreen required.



\*Minimum 90% drainage efficiency when tested in accordance with ASTM E2273.



# 8 Construction Details

## CONSTRUCTION DETAILS - JUNCTIONS

Figure 8.1 - Slab Junction Detail

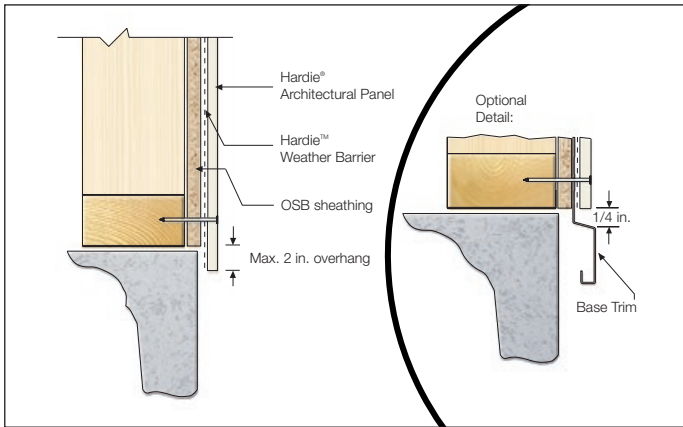


Figure 8.2 - Eave Junction Detail

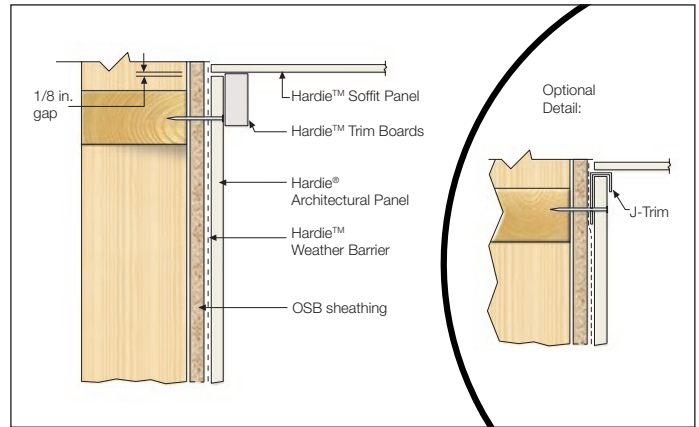


Figure 8.3 - Upper Floor Junction Option 1 - Angled T Flashing

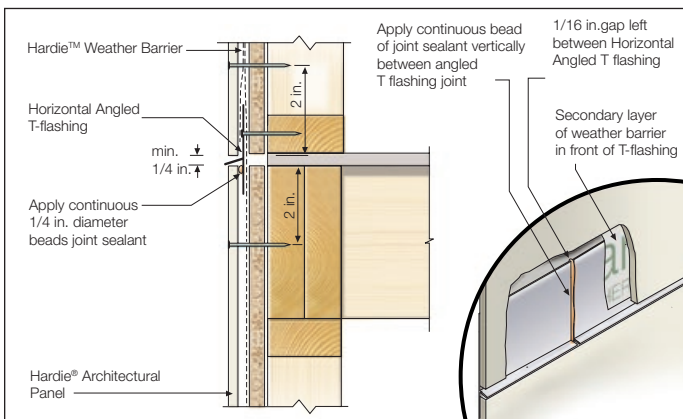


Figure 8.4 - Upper Floor Junction Option 2 - Z Flashing

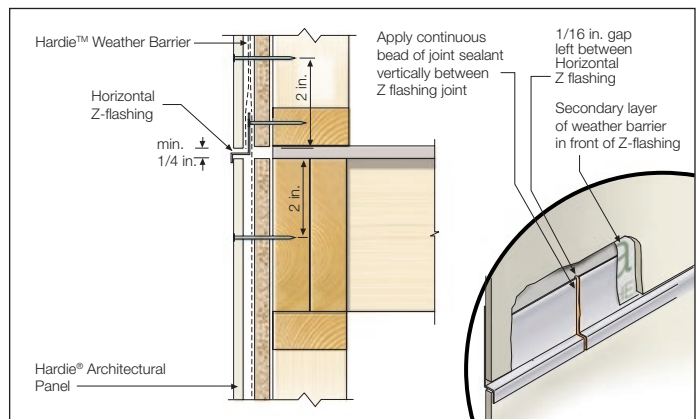
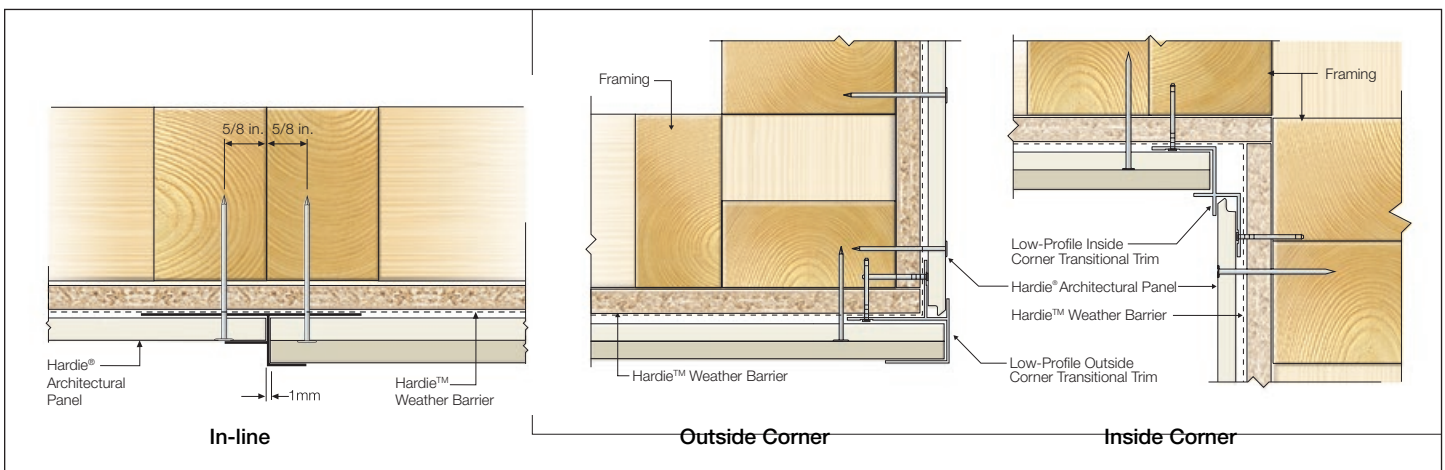


Figure 8.5 - Transitions to additional James Hardie® products





### CONSTRUCTION DETAILS - CORNER DETAILS

Figure 8.6 - Trim Over Outside Corner Option

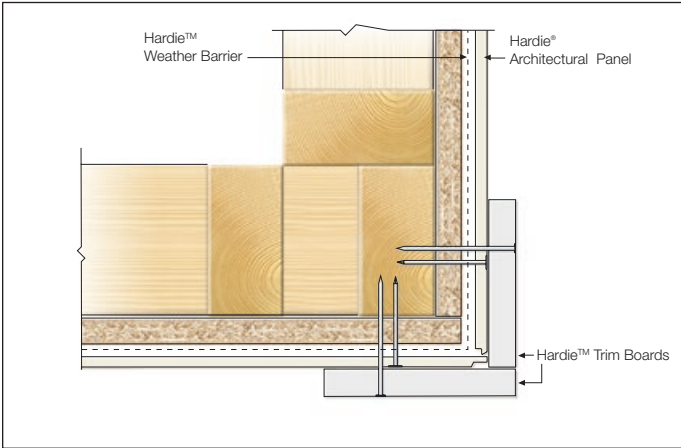


Figure 8.7 - Aluminium Outside Corner Option

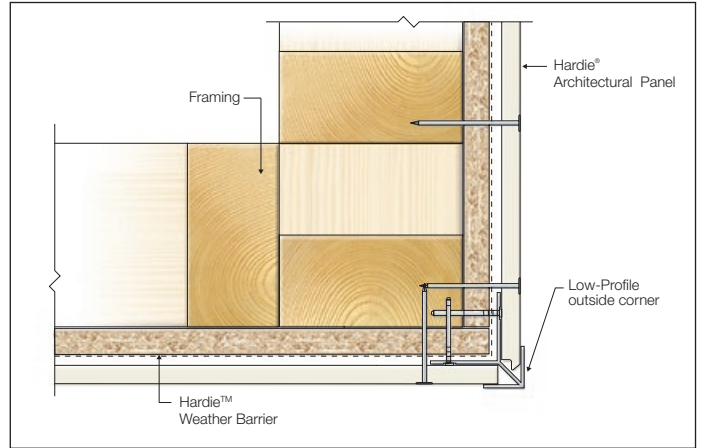


Figure 8.8 - Trim Over Inside Corner Option

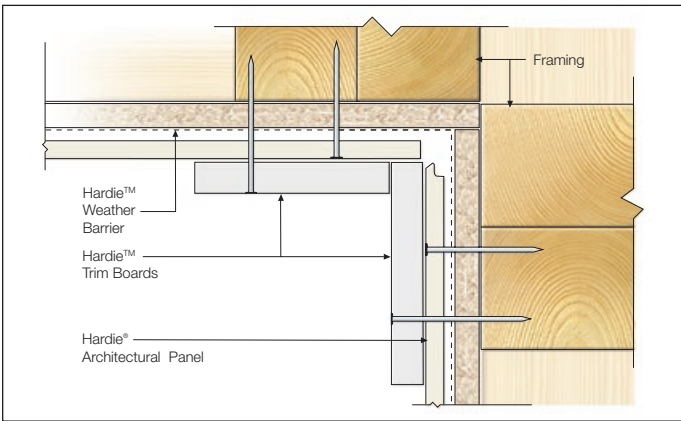


Figure 8.9 - Aluminium Inside Corner Detail

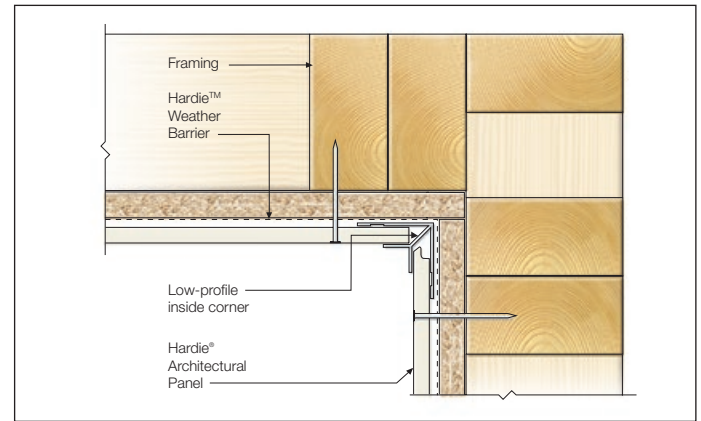
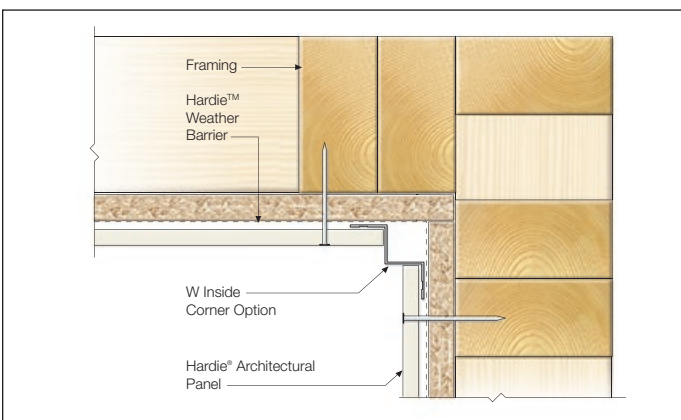


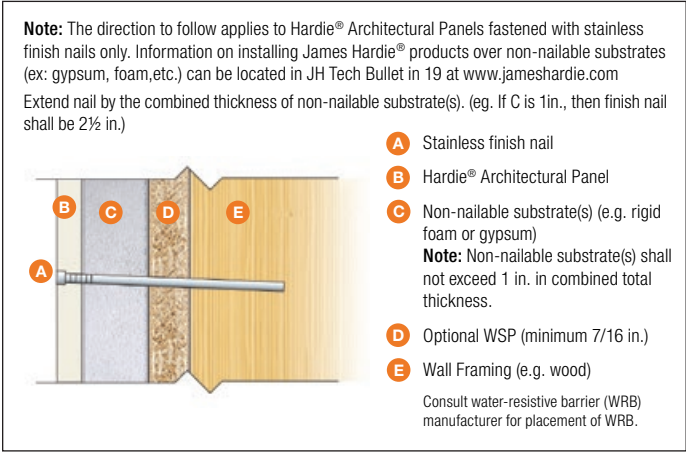
Figure 8.10 - W Inside Corner Option



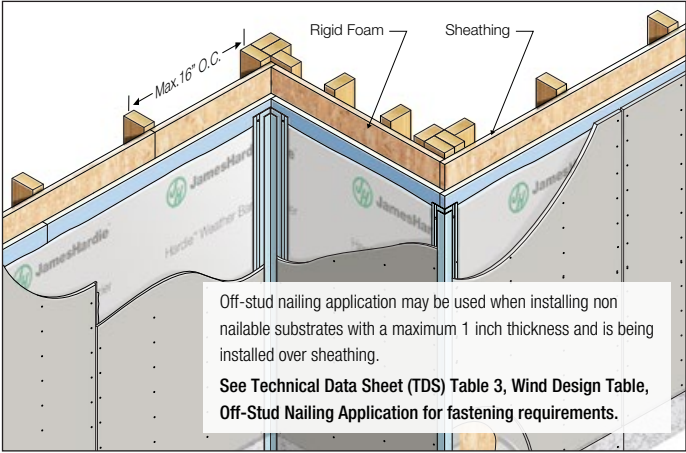


**NON-NAILABLE SUBSTRATES 1in. OR LESS (eg. foam & gypsum)**

**Figure 8.11 - Fastening over non-nailable substrates**

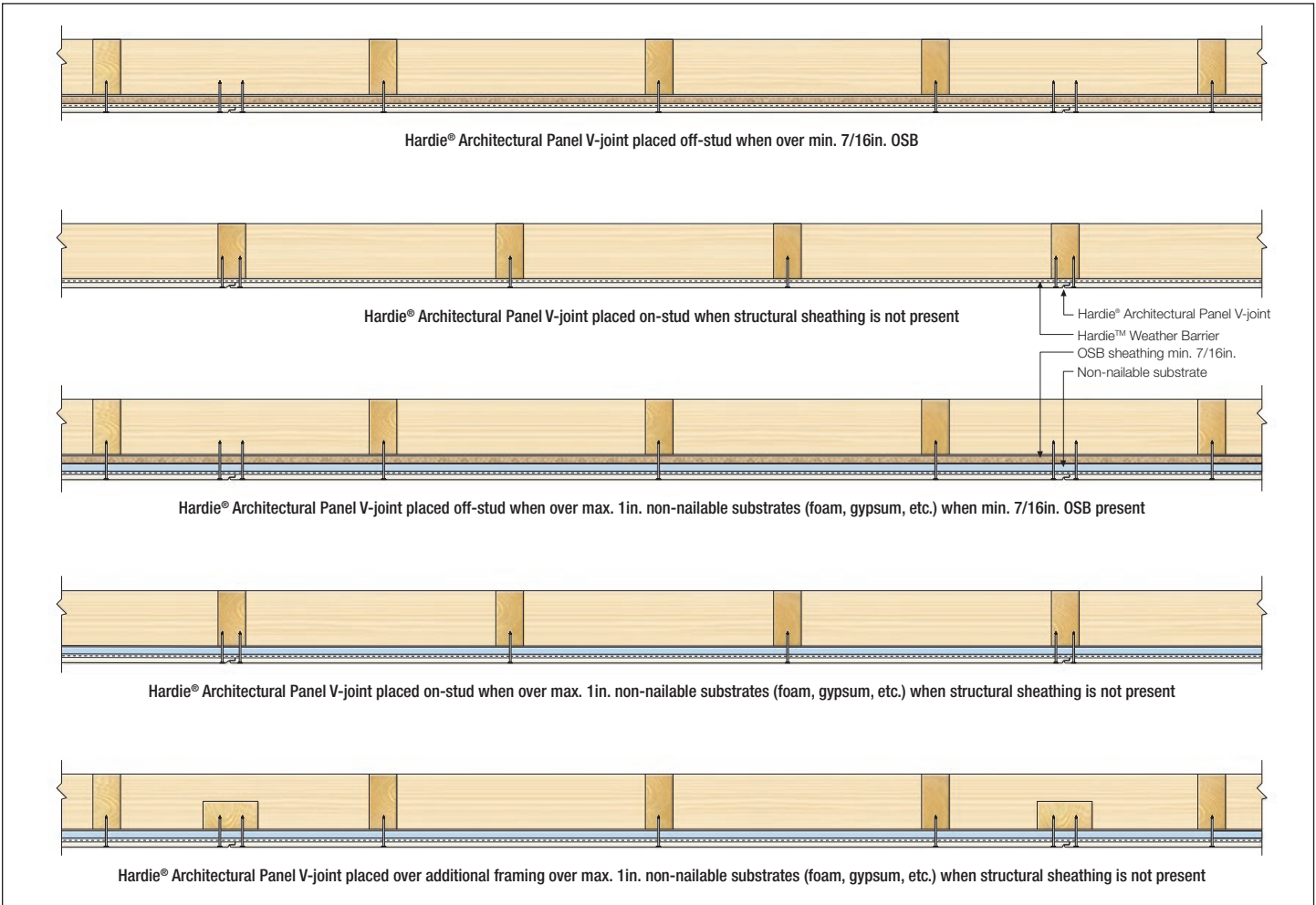


**Figure 8.12 - Off-stud nailing when installing non-nailable substrates**



**V-GROOVE JOINT PLACEMENT OPTIONS**

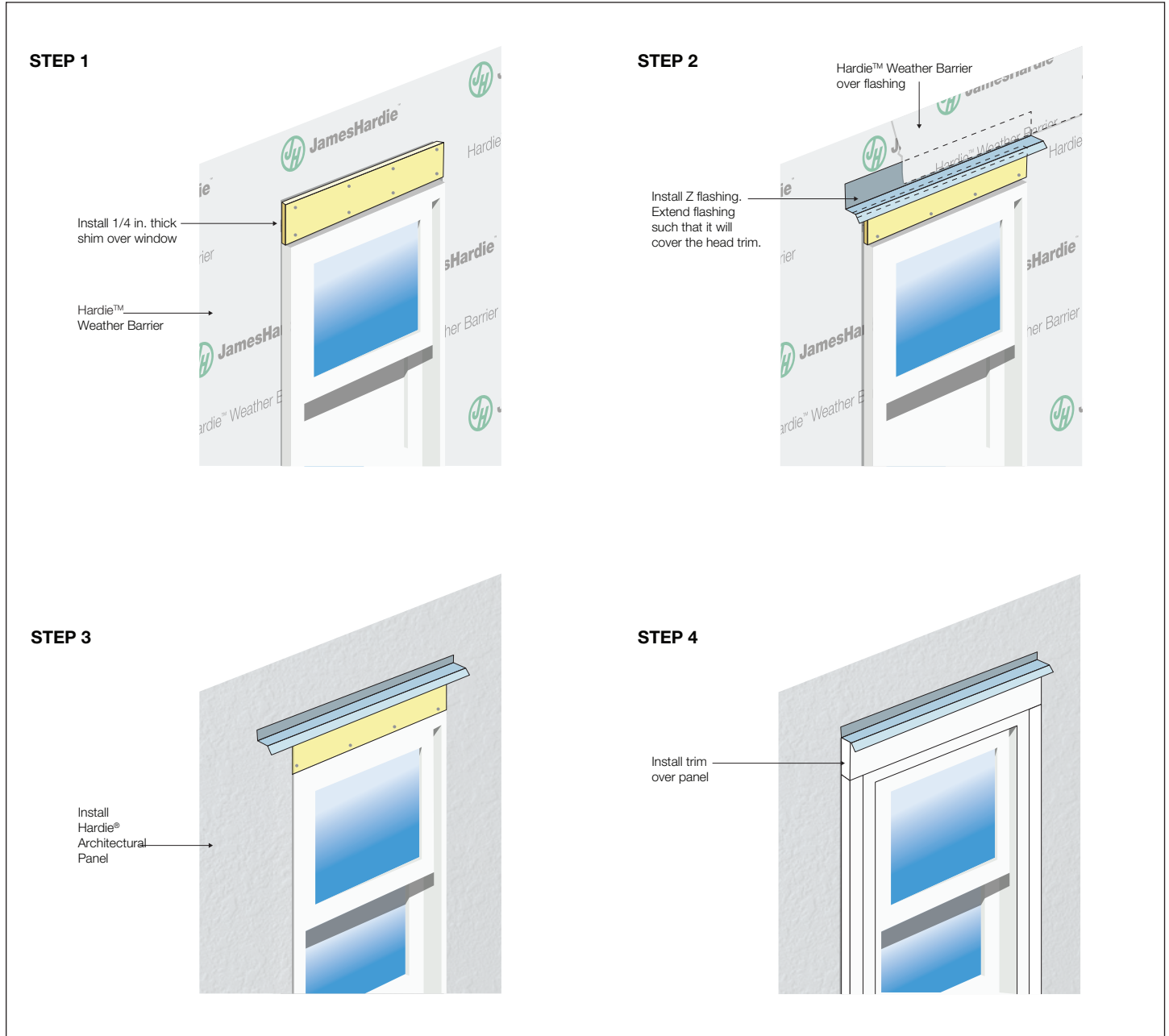
**Figure 8.13 - Panel V-Groove joint placement options**





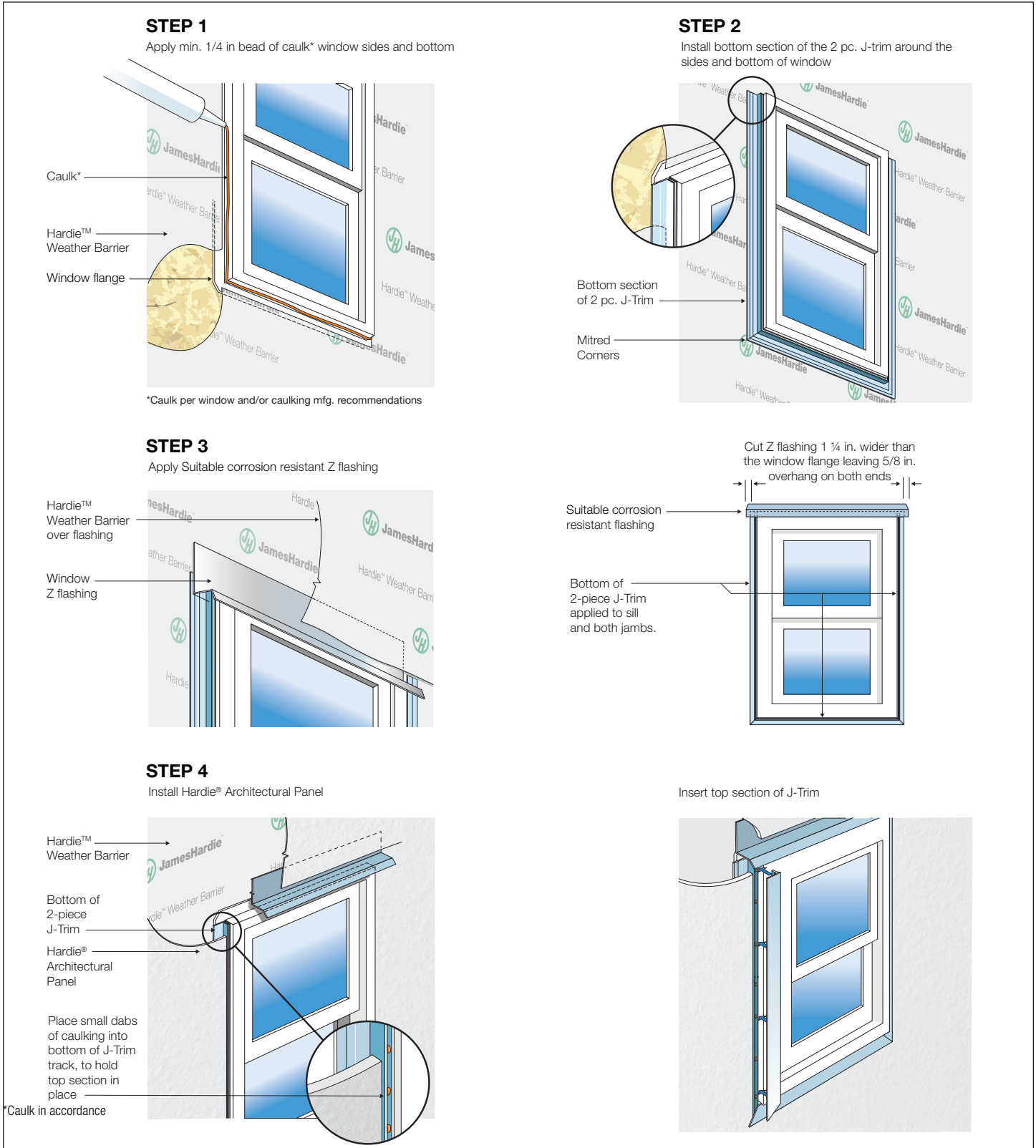
CONSTRUCTION DETAILS - WINDOW DETAIL OPTIONS

Figure 8.14 - Window With 'Trim Over' Option



CONSTRUCTION DETAILS - WINDOW DETAIL OPTIONS CONTINUED

Figure 8.15 - Window With '2pc. J-Trim' Option

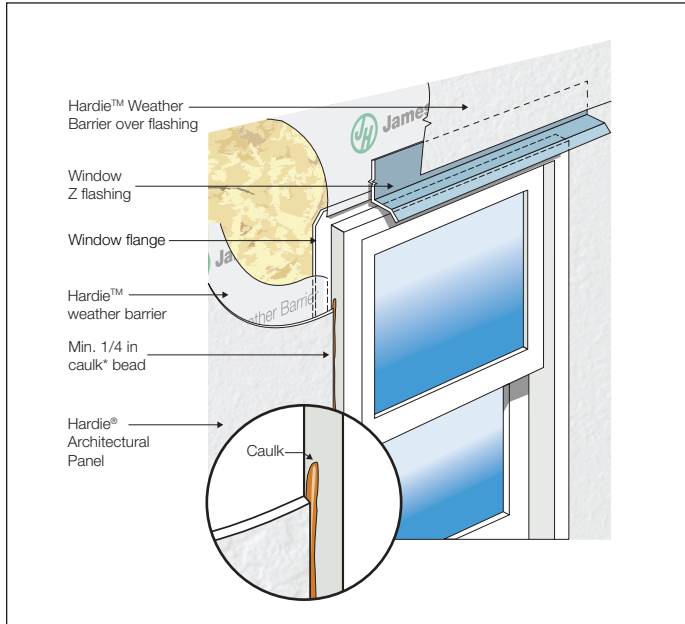






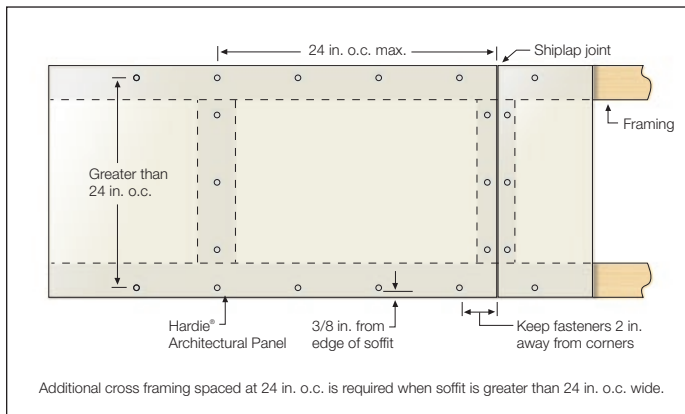
**CONSTRUCTION DETAILS - WINDOW DETAIL OPTIONS CONTINUED**

**Figure 8.16 - Window With Panel Butt Option**



\*Caulk in accordance with caulk manufacturers instructions.

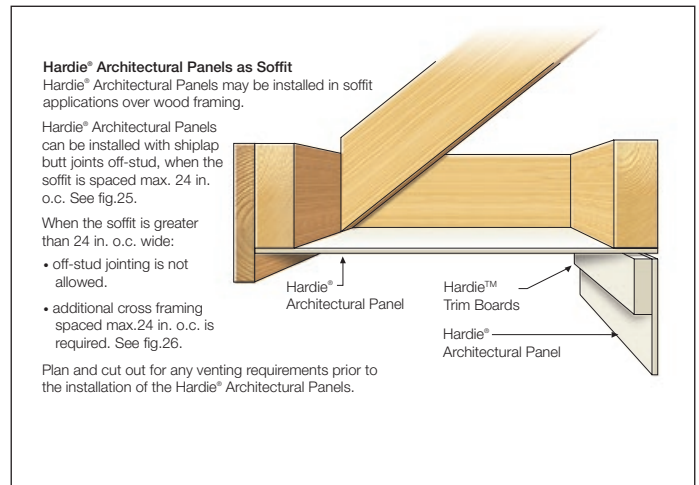
**Figure 8.18 - Greater than 24in. Wide Soffit**



**CONSTRUCTION DETAILS - SOFFIT DETAILS**

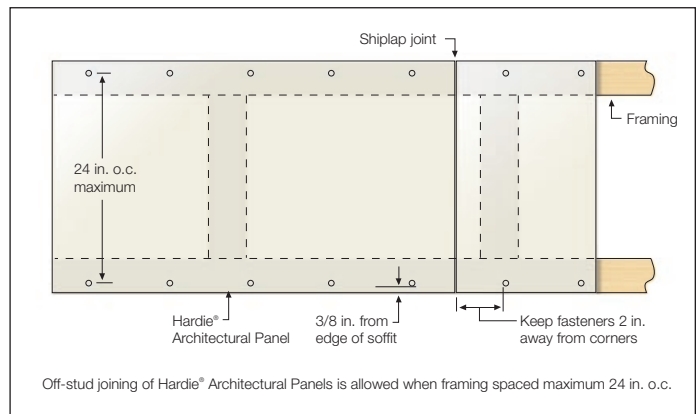
- Finish nails are not allowed when installing Hardie® Architectural Panels as a soffit. Full headed nails only.
- Multi-Groove panels can not be used in soffit applications.
- For proper fastener selection, spacing and wind load rating refer to ESR 1844.

**Figure 8.17 - Hardie® Architectural Panels as Soffit**



**Note: For proper fastener selection, spacing, and wind load rating refer to ESR 1844**

**Figure 8.19 - Maximum 24in. Wide Soffit**





## 9 Finishing & Maintenance

### CUT EDGE TREATMENT

**IMPORTANT:** Caulk, paint or prime all field cut edges. James Hardie touch-up kits are required to touch-up James Hardie® products with ColorPlus® Technology finishes.

### CARE & MAINTENANCE

Routinely perform the following to help maintain the appearance and performance of James Hardie® siding and trim products:

- Washing down the exterior surfaces every 6 to 12 months with a garden hose or low pressure water spray to remove dirt and debris.
- Re-applying of exterior finishes.
- Maintaining the exterior envelope and connections including joints, penetrations, flashings, and sealants (caulking) to prevent moisture entry behind the siding.
- Cleaning out gutters, blocked pipes, and overflows as required.
- Prune vegetation to prevent contact with the siding.
- Ensuring required external ground clearances and drainage slopes are maintained.

### CAULKING

For best results use an Elastomeric Joint Sealant complying with ASTM C920 Grade NS, Class 25 or higher or a Latex Joint Sealant complying with ASTM C834. Caulking/Sealant must be applied in accordance with the caulking/sealant manufacturer's written instructions.

**NOTE:** some caulk manufacturers do not allow "tooling".

### PAINTING

DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® products. James Hardie factory primed products must be painted within 180 days of installation. 100% acrylic topcoats are recommended. Do not paint when James Hardie® products are wet. Follow paint manufacturer's instructions and application rates. Back rolling is recommended if spray application is used.

#### Tips: for a beautiful finish

- Surface preparation - Ensure the surface is dry, clean and any blemishes are patched using a suitable exterior grade cementitious patching compound and blend with surrounding texture using a sponge or scouring pad.
- Prevent paint bridging by applying thin even coats of paint. If bridging occurs, take a paint brush and brush bridging out. When rolling or brushing paint with the joint lines. Do not paint across the joint lines, this may result in bridging.
- Avoid excess painting of the "V" joint.

### COLORPLUS® TECHNOLOGY FINISH CAULKING, TOUCH-UP & LAMINATE

- Care should be taken when handling and cutting James Hardie® products ColorPlus® Technology finishes. During installation, use a wet soft cloth or soft brush to gently wipe off any residue or construction dust left on the product, then rinse with a garden hose.
- Touch up nicks, scrapes and nail heads using the ColorPlus® Technology touch-up applicator. Touch-up should be used sparingly. If large areas require touch-up, replace the damaged area with a new piece of siding with ColorPlus Technology.
- Laminate sheet must be removed immediately after installation of each course.
- Terminate non-factory cut edges into trim where possible, and caulk. Color matched caulks are available from your James Hardie® products ColorPlus® Technology finishes dealer.
- Treat all other non-factory cut edges using the ColorPlus® Technology edge coat, available from your James Hardie® products ColorPlus® Technology finishes dealer.

**NOTE:** James Hardie does not warrant the usage of third party touch-up or paints used as touch-up on James Hardie® products with ColorPlus® Technology finishes.

### PAINTING JAMES HARDIE® SIDING AND TRIM PRODUCTS WITH COLORPLUS® TECHNOLOGY FINISHES

When repainting James Hardie® products with ColorPlus® Technology finishes, James Hardie recommends the following regarding surface preparation and topcoat application:

- Ensure the surface is clean, dry, and free of any dust, dirt, or mildew.
- Repriming is normally not necessary.
- 100% acrylic topcoats are recommended.
- DO NOT use stain or oil/alkyd based paints on James Hardie products.
- Apply finish coat in accordance with paint manufacturers' written instructions regarding coverage, application methods, and application temperature.
- DO NOT caulk nail heads when using James Hardie® products with ColorPlus® Technology finishes, refer to the ColorPlus® Technology touch-up section.

### WARNING

High pressure water blast and sand blasting may damage the surface of the fiber cement product. Low pressure water spray, a soft medium bristle (nonmetal) brush is most suitable for cleaning fiber cement products. Acid washing can damage fiber cement surface and is not recommended.

**NOTE:** if using a pressure washer, care must be taken to ensure that the water stream does not damage the surface of the siding. Use wide fan tips that are kept a minimum of 6 feet from the wall and at a pressure under 1500 psi to minimize the chance of damaging the siding. Damage arising from improper cleaning or maintenance is not covered under applicable James Hardie warranties.

# TECHNICAL DATA SHEET

## Hardie® Architectural Panels

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

### Document Scope

This document applies to the following Hardie® Architectural Panel- Fine Sand, Hardie® Architectural Panel- Fine Sand-Grooved, Architectural Panel-Mounded Sand, Architectural Panel- Sea Grass, and Architectural Panel- Sculpted Clay. The use of this product is limited to buildings not exceeding 95 feet in height.

### General Description

Hardie® Architectural Panels are non-combustible fiber-cement panel, manufactured by James Hardie Building Products Inc.

### Product Dimensions

Thickness – 0.3125 inches      Length – 96, 120, & 144 inches      Width – 48 inches      Vertical Joint – Shiplap

### Product Composition

Hardie® Architectural Panels are *Grade II, Type A*, fiber-cement sheets as defined by ASTM C 1186. The panels are manufactured by the Hatschek process and cured by high pressure steam autoclaving.

### Code Compliance

**Hardie® Architectural Panels complies with:**

- *The 2009, 2012, and 2015 International Building Code® (IBC) Section 1404.10, 2018 and 2021 International Building Code® (IBC) Section 1403.10 and 2009, 2012, 2015, 2018, and 2021 International Residential Code® (IRC) Table R703.3(1) and Section R703.10.1 as ASTM C 1186 Grade II, Type A Fiber Cement.*
- *The 2017 and 2020 Florida Building Code® (FBC) Section 1404.10 and 1405.16 as ASTM C 1186 Grade II, Type A Fiber Cement.*

### Wind Design:

- Design Tables 2 & 3 provide allowable capacity in mph for transverse load conditions for the Hardie® Architectural Panels attached to either wood framing, furring or WSP, tested in accordance to ASTM E 330.
- Wood framing shall have a specific gravity of 0.42 or greater unless otherwise stated.
- Wood Structural Sheathing (WSP) panel must have a specific gravity of 0.50 or higher unless otherwise stated.

### Fire Characteristics:

- Hardie® Architectural Panels are classified as non-combustible when tested in accordance with ASTM E136.
- Hardie® Architectural Panels may be used in ASTM E119 fire resistance rated assemblies as listed by Warnock Hersey.
- Hardie® Architectural Panels are a Class A material according to *2017 and 2020 FBC, 2018 and 2021 IBC Section 803.1.2; Surface Burning Characteristics* when tested in accordance with ASTM E 84: Flame Spread Index = 0 and Smoke Developed Index = 0.
- The building official reserves the right to approve alternate materials, design and methods of construction based on research reports and/or tests based on *2018 IBC, 2017 & 2020 FBC Section 104.11.*

### Installation Requirements

- Test reports can be furnished to the building official upon request, contact your local James Hardie sales representative.
- Hardie® Architectural Panels shall be installed on exterior walls braced in accordance with the applicable building code.
- A water-resistive barrier complying with *Section R703.2 of the IRC or Section 1403.2 of the FBC* is required to be installed.
- Install the Hardie® Architectural Panels in accordance with this report and the James Hardie published installation requirements. For a copy contact your local James Hardie sales representative or visit [www.JamesHardiePros.com](http://www.JamesHardiePros.com).

**Table 1, Hardie® Architectural Panels ASTM C 1186 Physical Properties and Supplementary Requirements**

	ASTM Test Method	General Property	Unit or Characteristic	Requirement	Result	
Physical Attributes	ASTM C1185	Dimensional Tolerances	Length	± 0.5% or ±1/4in	Pass	
			Width	± 0.5% or ±1/4in		
			Thickness	± 0.04 in		
			Squareness	<1/32 in/ft of length		
			Edge Straightness	<1/32 in/ft of length		
ASTM C1185	Density, lb./ft <sup>3</sup>		As reported	<83		
ASTM C1185	Water Tightness		Physical Observations	No drop formation	Pass	
ASTM C1185	Flexural Strength		Wet conditioned, psi	>1015 psi	Pass	
			Equilibrium conditioned, psi	>1450 psi	Pass	
ASTM C1185	Warm Water Resistance, Observations		Physical Observations	No visible cracks or structural alteration	Pass	
Durability	ASTM C1185	Heat/Rain Resistance		Physical Observations	No visible cracks or structural alteration	Pass
	ASTM C1185	Freeze/Thaw Resistance		Physical Observations Mass Loss, %	No visible cracks or structural alteration	Pass
			Freeze/Thaw, % strength retention	≤ 3.0%	≥ 80%	
Fire Characteristics	ASTM E84	Surface Burning Characteristics	Flame Spread Index (FSI) Smoke Developed Index (SDI) Fuel Contributed International Building Code®	As reported	0 0 0 A	
	ASTM E136	Non-combustibility		As reported	Pass	



## Hardie® Architectural Panels

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

**Table 2, Wind Design Table, Exposed Fastening**
**Allowable Wind Speed (mph) for Hardie® Architectural Panels (Analytical Method in ASCE 7-10, 7-16 Chapter 30)**

Product <sup>1</sup>	Minimum Thickness (in.)	Fastener Type	Fastener Spacing	Frame Type	Stud Spacing (in.)	Allowable Design load (psf)	Building Height (ft.) <sup>2,3</sup>	2017 & 2020 FBC, 2012 & 2015 IBC, 2015 & 2018 IRC (Ultimate Design Wind Speed, Vult), 5,9 2018 IBC (Basic Design Wind Speed, V) <sup>11</sup>			2006, 2009 & 2012 IRC 2006 & 2009 IBC (Nominal Design Wind Speed, V <sub>asd</sub> ) <sup>4,10,12,13</sup>		
								Wind exposure category			Wind exposure category		
							B	C	D	B	C	D	
Hardie® Architectural Panel <sup>1</sup>	5/16	16 Gauge, 1 1/2" long, stainless Finish Nail	4 inches along studs	2X4 wood <sup>6</sup>	16	33.8	0-15	153	139	126	119	108	98
							20	153	135	123	119	105	95
							40	147	126	116	114	97	90
							60	139	120	112	108	93	87
Hardie® Architectural Panel <sup>1</sup>	5/16	16 Gauge, 1 1/2" long, stainless Finish Nail	4 inches along studs	2X4 wood <sup>7</sup>	16	37.0	0-15	160	145	132	124	113	102
							20	160	141	129	124	109	100
							40	154	131	121	119	102	94
							60	145	126	117	113	98	91
Hardie® Architectural Panel <sup>1</sup>	5/16	16 Gauge, 1.25" long, stainless Finish Nail	4 inches o.c. vertically into furring only	2x4 wood or 20 ga. (33 mils) steel framing with 3/4" thick by 3.5" wide WSP furring (SG=0.50) <sup>14</sup>	16	27.7	0-15	139	126	114	107	97	89
							20	139	122	112	107	95	86
							40	133	114	105	103	88	81
							60	126	109	101	97	85	78
Hardie® Architectural Panel <sup>1</sup>	5/16	16 Gauge, 1.25" long, stainless Finish Nail	4 inches o.c. vertically into furring only	2x4 wood or 20 ga.(33 mils) steel framing with 3/4" by 3.5" wide SPF furring (SG=0.42) <sup>14</sup>	16	21.4	0-15	122	110	100	94	85	78
							20	122	107	-	94	83	-
							40	117	-	-	90	-	-
							60	110	-	-	85	-	-

- Installation must be in accordance with manufacturer's installation instructions
- Building heights are the mean roof height (ft) of a building except the eave height shall be used for the roof angles of less than or equal to 10° (2-12 roof slope)
- Linear interpolation of building height (≤ 60ft) and wind speed is permitted.
- Wind speed design coefficient assumptions per Analytical Method in ASCE 7-05: I=1, Kzt=1, Kd=0.85, GCp=-1.4, GCpi=-0.18
- Wind speed design assumptions per Analytical Method in ASCE 7-10 & ACE 7-16 Section 30.4: Kzt=1, Kd=0.85, GCp=-1.4, GCpi=0.18
- Wood framing species must have a specific gravity of 0.42 gravity or higher.
- Wood framing species must have a specific gravity of 0.46 gravity or higher.
- Wood Structural Sheathing panel must have a specific gravity of 0.50 or higher.
- Vult = ultimate design wind speed.
- Vasd = nominal design wind speed.
- V = basic design wind speed
- Basic Design Wind Speed per ASCE 7-16 or 2017 FBC/2018 IBC Figures 1609.3(1) through 1609.3(8). Where design is based on the fastest mile wind speeds, the basic wind speed shall be converted to the fastest mile wind speed V<sub>fm</sub> per Section R301.2.1.3 of the 2012 IRC.
- 2017 & 2020 FBC, 2018 IBC Section 1609.3.1 Eq. 16-33, V<sub>asd</sub> = Vult (0.6)<sup>0.5</sup>
- The NDS published specific gravities of SPF Lumber & Wood Structural Panel (WSP) furring are 0.42 and 0.50 respectively. Attachment of the furring to the structural framing must be determine by the project design engineer to resist the allowable design wind loads for the maximum wind speeds as tabulated.



## Hardie® Architectural Panels

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

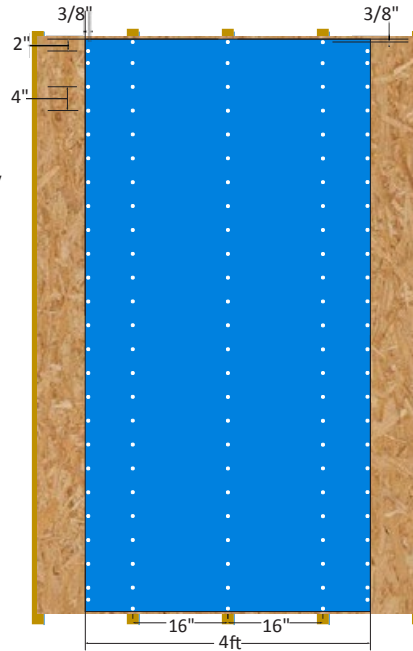
**Table 3, Wind Design Table, Off-Stud Nailing Application**
**Allowable Wind Speed (mph) for Hardie® Textured Panels (Analytical Method in ASCE 7-10, 7-16 Chapter 30)**

Product <sup>1</sup>	Minimum Thickness (in.)	Fastener Type	Fastener Spacing	Frame Type	Stud Spacing (in.)	Allowable Design load (psf)	Building Height (ft.) <sup>2,3</sup>	2017 & 2020 FBC, 2012 & 2015 IBC, 2015 & 2018 IRC (Ultimate Design Wind Speed, Vult), 5,9 2018 IBC (Basic Design Wind Speed, V) <sup>11</sup>			2006, 2009 & 2012 IRC 2006 & 2009 IBC (Nominal Design Wind Speed, V <sub>asd</sub> ) <sup>4,10,12,13</sup>		
								B	C	D	B	C	D
Hardie® Architectural Panel <sup>1</sup>	5/16	16 Gauge, 1 1/2" long, stainless Finish Nail	4 inches along studs & panel edges. See figure 1	2X4 wood <sup>7</sup> with min 7/16" Wood Structural Panel <sup>9</sup> Sheathing attached per code	16	42.7	0-15	172	156	142	133	121	110
							20	172	152	138	133	117	107
							40	165	141	130	128	109	101
							60	156	135	126	121	105	97
Hardie® Architectural Panel <sup>1</sup>	5/16	16 Gauge, 1 1/2" long, stainless Finish Nail	4 inches along studs & panel edges. See figure 2	2X4 wood <sup>8</sup> with min 7/16" Wood Structural Panel <sup>9</sup> Sheathing attached per Code	24	31.2	0-15	147	133	121	114	103	94
							20	147	130	118	114	100	92
							40	141	121	111	109	93	86
							60	133	116	-	103	90	-
Hardie® Architectural Panel <sup>1</sup>	5/16	16 Gauge, 1 1/2" long, stainless Finish Nail	4 inches along studs & panel edges. See figure 2	2X4 wood <sup>7</sup> with min 7/16" Wood Structural Panel <sup>9</sup> Sheathing attached per code	24	28.0	0-15	139	126	115	108	98	89
							20	139	123	112	108	95	87
							40	134	114	-	104	89	-
							60	126	-	-	98	-	-

- Applies to Hardie® Architectural Panel – Fine Sand, Hardie® Architectural Panel – Mounded Sand, Hardie® Architectural Panel – Sea Grass, Hardie® Architectural Panel – Sculpted Clay only.
- Installation must be in accordance with manufacturer's installation instructions
- Building heights are the mean roof height (ft) of a building except the eave height shall be used for the roof angles of less than or equal to 10° (2-12 roof slope)
- Linear interpolation of building height (≤ 60ft) and wind speed is permitted.
- Wind speed design coefficient assumptions per Analytical Method in ASCE 7-05: I=1, Kzt=1, Kd=0.85, GCp= -1.4, GCpi= -0.18
- Wind speed design assumptions per Analytical Method in ASCE 7-10 & ACE 7-16 Section 30.4: Kzt=1, Kd=0.85, GCp= -1.4, GCpi= 0.18
- Wood framing species must have a specific gravity of 0.42 gravity or higher.
- Wood framing species must have a specific gravity of 0.46 gravity or higher.
- Wood Structural Sheathing panel must have a specific gravity of 0.50 or higher.
- Vult = ultimate design wind speed.
- Vasd = nominal design wind speed.
- V = basic design wind speed
- Basic Design Wind Speed per ASCE 7-16 or 2017 FBC/2018 IBC Figures 1609.3(1) through 1609.3(8). Where design is based on the fastest mile wind speeds, the basic wind speed shall be converted to the fastest mile wind speed V<sub>fm</sub> per Section R301.2.1.3 of the 2012 IRC.
- 2017 & 2020 FBC, 2018 IBC Section 1609.3.1 Eq. 16-33, Vasd = Vult(0.6)0.5

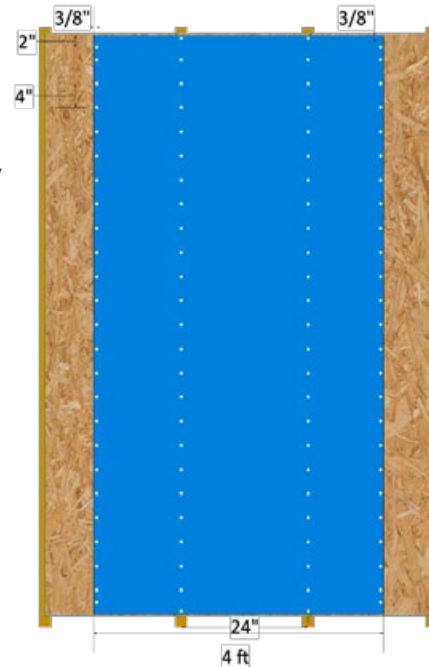
**Figure 1, Fastening Configuration for 16" O.C. Wood Frame: Off-Stud Application**

- 4 in o.c. along studs
- 4 in o.c. along panel edges
- Edges may be attached to WSP sheathing only



**Figure 2, Fastening Configuration for 24" O.C. Wood Frame: Off-Stud Application**

- 4 in o.c. along studs
- 4 in o.c. along panel edges
- Edges may be attached to WSP sheathing only



COM2201 P 22/22 09/22

**SILICA WARNING**

**DANGER:** May cause cancer if dust from product is inhaled. Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product. Refer to the current product Safety Data Sheet before use. The hazard associated with fiber cement arises from crystalline silica present in the dust generated by activities such as cutting, machining, drilling, routing, sawing, crushing, or otherwise abrading fiber cement, and when cleaning up, disposing of or moving the dust. When doing any of these activities in a manner that generates dust you must (1) comply with the OSHA standard for silica dust and/or other applicable law, (2) follow James Hardie cutting instructions to reduce or limit the release of dust; (3) warn others in the area to avoid breathing the dust; (4) when using mechanical saw or high speed cutting tools, work outdoors and use dust collection equipment; and (5) if no other dust controls are available, wear a dust mask or respirator that meets NIOSH requirements (e.g. N-95 dust mask). During clean-up, use a well maintained vacuum and filter appropriate for capturing fine (respirable) dust or use wet clean-up methods - never dry sweep.

**WARNING:** This product can expose you to chemicals including respirable crystalline silica, which is known to the State of California to cause cancer. For more information go to P65Warnings.ca.gov.

**RECOGNITION:** James Hardie® Hardie® Architectural Panels complies with ASTM C1186 and meets the following Fiber-Cement siding code requirements; Sections 1404.10, 1405.16, and 1405.16.1 (2006, 2009, 2012, 2015 IBC), Sections 1403.10, 1404.16 & 1404.16.1 (2018, 2022 IBC), Table R703.4 (2006, 2009, 2012 IRC), Table R703.3 (2015, 2018, 2022 IRC) and Section R703.10. Hardie® Architectural Panel is also recognized for application with the following product approval agencies: State of Florida Product Approval FL#13223.