



HardieReveal^{2.0}™

Effective August 2013

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Technical Services:
1-800-942-7343

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Architectural Details and Technical Guide



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1 | Application 3

1.1 APPLICATION

The James Hardie Architectural Details and Technical Guide for HardieReveal2.0™ Panel system provides guidance on the most common details and design considerations and assists to support quality workmanship that is consistent with industry practices for light commercial and multifamily construction. The HardieReveal2.0 Panel System is intended for use as a vertical wall cladding on buildings up to six stories in height.

If you are an architect, designer or other responsible party for a project

Ensure the information in these specifications is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

If you are an installer

Ensure that you follow the design, moisture management and associated details and material selection provided by the designer and the Installation Guide for HardieReveal2.0 Panel System.

Make sure your information is up to date

When specifying or installing James Hardie products, ensure you have the most current and updated manual. Additional installation information, warranties and warnings are available at www.jameshardiecommercial.com.



1.2 SCOPE

This Guide is intended to provide guidance to designers and architects when specifying the James Hardie HardieReveal2.0™ Panel System.

The Panel package comprises the following components:

- HardieReveal2.0 Panel
- HardieReveal2.0 Panel vertical trims
- HardieReveal2.0 Panel horizontal trims
- HardieReveal2.0 Panel corner trims
- HardieReveal2.0 Panel vertical 'F' trims
- HardieReveal2.0 Panel Horizontal Edge Trims
- HardieReveal2.0 Panel Drainage Flashing
- Countersinking drill bit
- Screws
- Filler

James Hardie requires the use of a rainscreen assembly designed with a minimum 3/4" nominal, 23/32" actual, air space behind the panel when utilizing HardieReveal2.0 Panel. The maximum stud spacing should be 24" OC and can be installed up to maximum 6 stories high.

The HardieReveal2.0 Panel system may be installed over steel framing, wood framing, and masonry and over exterior insulation per the details and requirements included in this guide.

1.3 RESPONSIBILITY

While care has been taken to provide these construction details it is the responsibility of the licensed architect, designer, specifier or builder to ensure that the construction details are suitable for the intended application of their project.

The responsible party shall also identify moisture related risks associated with any particular building design. The wall design and construction must effectively manage moisture from all sources. All junctions and penetrations in the weather resistive barrier and cladding elements must be appropriately detailed.

James Hardie conducts stringent quality checks to ensure that our manufactured products fall within our specifications. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. The responsible party and end users shall also utilize products, materials and assemblies that meet local building codes. James Hardie will not be responsible for rectifying obvious aesthetic surface variations subsequent to installation.

1.4 PANEL SELECTION

HardieReveal2.0 Panel vertical siding is part of the HardieZone® System. This means that it is Engineered for Climate® and is available as HZ5® (for freezing wet climates) or HZ10® (for high moisture, humid and hot climates) products. Check www.hardiezone.com to find out which zone you are building in to identify the product that you need to specify for your project. For full details about the HardieZone® system refer to www.jameshardie.com; for additional James Hardie details refer to www.jameshardiecommercial.com. The installation guide is available at www.jameshardiecommercial.com

HardieReveal2.0 Panel vertical siding is a 7/16" thick primed panel available in 4ftx8ft size (47.5in. by 95.5in. actual panel size to accommodate 0.5" reveals).

1.5 WARRANTY

James Hardie Building Products Inc. provides a "30 year Express Limited Transferable Product warranty" on HardieReveal2.0™ Panel vertical siding.

¹ Multifamily dwellings consist of two stories or more with multiple dwelling units. e.g. duplexes, triplexes, quadruplexes, complexes or apartment buildings.

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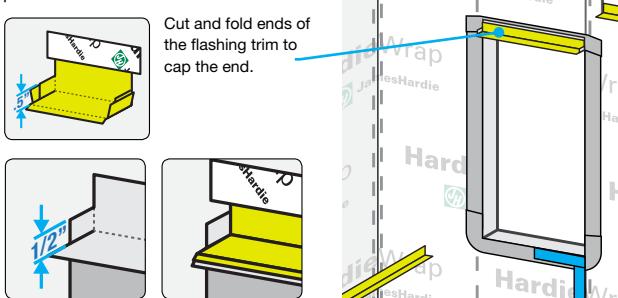
2.1 MOISTURE MANAGEMENT

Wall design and construction must effectively manage moisture, considering both the interior and exterior environments of the building.

Construction best practices and international building codes promote removing of bulk water as a principle guideline. "The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water resistive barrier behind the exterior veneer and a means for draining water that enters the assembly to the exterior."²

James Hardie HardieReveal2.0 Panel is installed over a drained and ventilated cavity applying a rainscreen principle. This type of construction allows some amount of moisture to drain behind the cladding into the cavity. The moisture is then drained or vented from the cavity. In areas of high moisture, it may be necessary to take further action (such as sealing of joints) to mitigate moisture entry behind the cladding.

A code compliant weather resistive barrier (refer to figures in section 4) must be continuous at all junctions and penetrations including wall openings, fenestrations, connections, window sills, head and jambs and must incorporate end dams to divert water away. The cladding must be detailed to minimize water entry at junctions and penetrations.



Flashing behind the through flashing trim can also be used to cap the end.

2.2 FIRE RATED ASSEMBLIES

HardieReveal2.0 Panel vertical siding is deemed a noncombustible building material in accordance with ASTM E136 and may be used in ASTM E119 fire resistance rated assemblies as listed by Warnock Hersey. A fire rating of up to 60 minutes can be achieved when using JH/WA 60-01, JH/WA 60-09 or JH/WA 60-10 designs. 120 minute designs can be achieved with JH/WA 120-02 or JH/WA 120-04 designs. The use of HardieReveal2.0 Panel siding in a rainscreen assembly designed with a minimum 3/4" nominal, 23/32" actual, air cavity does not affect fire rated performance.

The HardieReveal2.0 Panel fire rated assemblies can be found in the Technical Data section at: <http://www.jameshardiecommercial.com>

2.3 FRAMING REQUIREMENTS

HardieReveal2.0 Panel vertical siding is compatible with light commercial and multifamily construction and can be installed over wood or steel framing. Stud spacing is to be a maximum of 24" on center; and additional framing or wider furring may be required at key locations, such as panel joints. Irregularities in framing and sheathing can mirror through the finished application.

² 2012 International Building Code, Chapter 14, page 303.

³ Woods must have a specific gravity of 0.42 or greater to assure fastening hold integrity

⁴ Southern Pine Council (SPC) and American Wood Preservers' Association (AWPA) recognizes that certain preservatives in pressure treated lumber are highly corrosive and are not to be used with carbon-steel or aluminum products in direct contact. Spacers or physical barriers are necessary to prevent direct contact with treated wood, and shall remain intact for intended service life. Electroplated galvanized metals are not the same as hot-dipped galvanized and high quality fasteners are recommended.

⁵ Metal Construction Association (MCA). July 28, 2008. Metal Roof and Wall Panel Components in Contact with Preservative Treated Lumber.

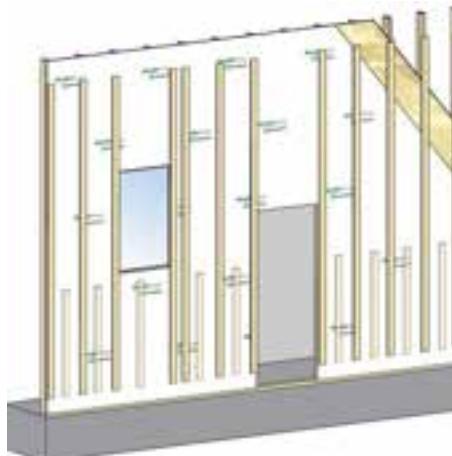
2.3.1 FURRING REQUIREMENTS

James Hardie rainscreen construction requires a minimum 3/4" nominal, 23/32" actual, capillary break to be installed between the code approved water resistive barrier (WRB) and the HardieReveal2.0™ Panel cladding; and shall be adequately fastened to the framing by a suitable fastener. Furring strips must be attached to accommodate the design wind loads. Acceptable materials are:

- Minimum 3/4" nominal, 23/32" actual, thick, 4" wide Treated Plywood or Treated Dimensional wood:
 - BEST: MCA or MCQ treated wood
 - BETTER: CA or ACQ treated wood with a peel and stick barrier applied to the furring to separate it from the aluminum trim
 - GOOD: CA or ACQ treated wood with no barrier; this solution may not be used within 1 mile of a saltwater coast
- Minimum 20 gauge, maximum 18 gauge, steel z-girts.
- Wood furring strips and steel Z-girts must be attached to the studs.
- Recommendation: Timber furring fastener should be an 8d common spaced 8" apart or a #8 (0.285" HD) corrosion resistant wood screw that is predrilled and spaced 12" apart. Self-drilling screws of equal or greater shear and withdrawal must be approved by an engineer.
- Recommendation: steel furring fastener should be a #8 (0.285" HD) corrosion resistant screw that is predrilled for gauge and spaced 12" apart. Minimum penetration into steel framing must exceed three threads.

James Hardie does not support drainage mats or drainage boards, and are not recommended in this application.

In high traffic areas increased levels of impact resistance may be required as specified by the designer, such that additional support at 8" O.C., or solid backing extending from an elevation of 4 feet to 6 feet from the sidewalk level. Care must be taken that these supports do not obstruct the drainage capability of the system.



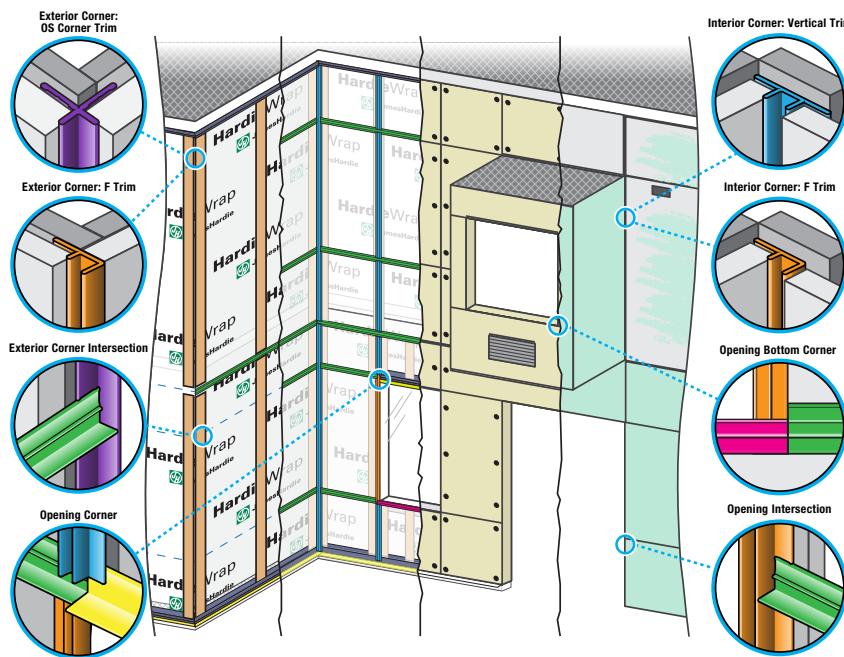
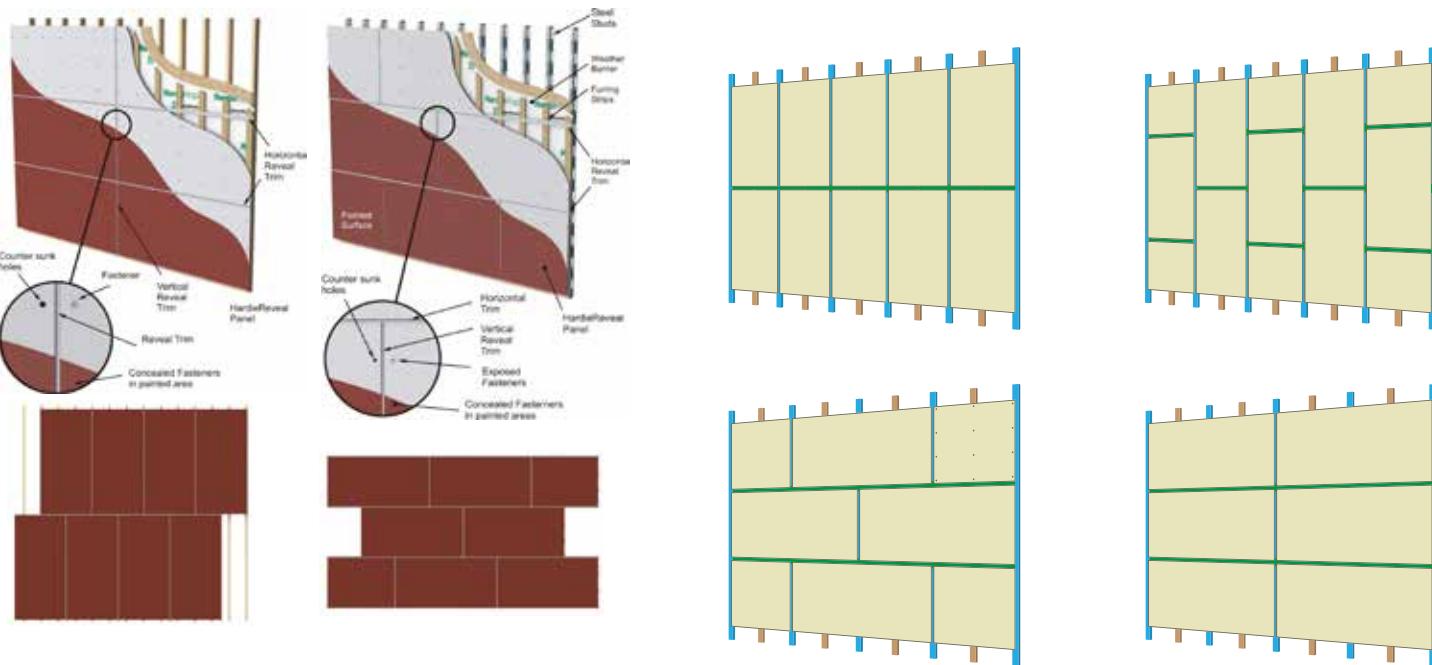
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2.4 GENERAL FASTENER REQUIREMENTS

Stainless steel fasteners are required for fastening James Hardie HardieReveal2.0 Panel. Refer to the section A2 for fastener schedule and fastener selection choices. Position fasteners a minimum of $\frac{3}{4}$ " from panel edges and no closer than 2" from the top or bottom edge when at corners. Fasteners may be countersunk or exposed. Countersunk fasteners must be filled with the provided filler; the filler is then sanded flat and painted over to conceal the fastener. Refer to the James Hardie HardieReveal2.0 Panel Installation Instruction for all installation details.

2.5 PANEL LAYOUT

HardieReveal2.0 Panels are 4ft x 8ft panels (47.5" x 95.5" actual to accommodate 1/2" reveal). Optimize panel layout to minimize cuts and utilize full panels. The minimum size of the panel should be 2' x 1'. HardieReveal2.0 Panel vertical siding can be installed in a vertical or horizontal manner, and allowance for positioning can accommodate the following: Panel must be fastened to furring, and furring must be fastened to studs, in accordance to the fastening schedule in Section A2.

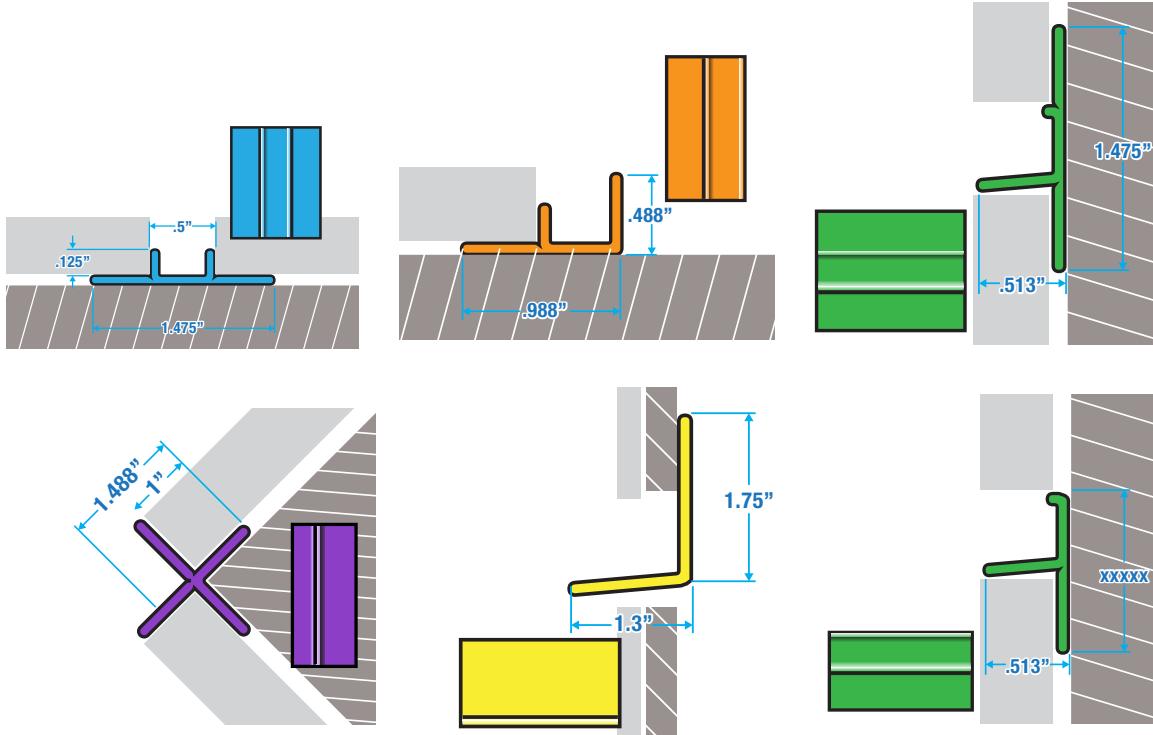


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VERTICAL JOINTS

Additional framing may be required at internal/external corners and at vertical joints to accommodate attaching panel and trim. Vertical trim must not be used as horizontal or drainage flashing.

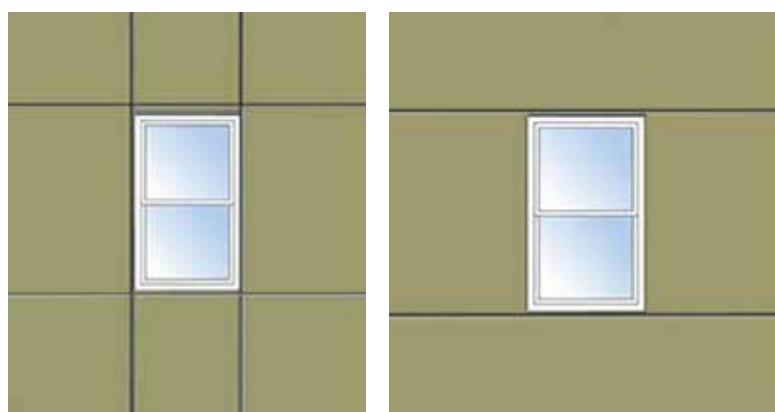
Off stud vertical joints are allowed only in the middle of a 16" OC stud cavity, so that the joint is 8" away from each stud. Additional wood furring or 20 gauge steel strap-ping shall be added at the joint to support the vertical trim piece.



HORIZONTAL JOINTS

Use only the horizontal joint flashing at Horizontal joints. Do not bridge floors with HardieReveal2.0 Panel siding or furring; leave a minimum 1/2" gap to accommodate anticipated building movement. The Horizontal joint can be placed at the top or bottom of the floor joist but should not be placed in the middle. Drainage flashing is required to be installed at every other floor break. The Drainage Flashing shall extend to the code approved water resistive barrier (WRB) (refer to drawings 1.01 and 2.01).

Options for panel layout with window penetrations are as follows:



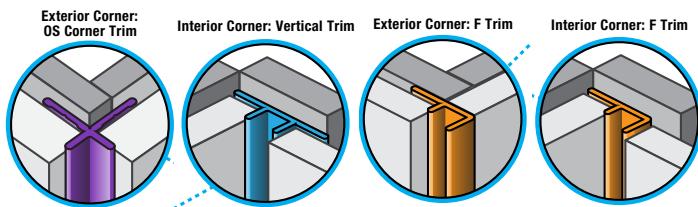
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2.6 CONTINUOUS USE OF TRIM

The horizontal trim may be used in continuous form in the field, except at corners and when the horizontal joint is designed to not be continuous. It is unnecessary to notch the flanges of a continuous horizontal trim. However, where the horizontal breaks at the corner or vertical trim, it is recommended to notch the back flange of the vertical/corner piece. Refer to the HardieReveal2.0 Panel Installation Manual for notching instructions.

2.7 CORNER ORIENTATION

Two design options are available for the inside and outside corners as seen in the figures to the right. For ease of construction it may be preferred to fix the corner angle to one or both of ends of the trim (refer to drawings 1.05 and 2.05 in section 4). Orientation of internal corner is a design decision.



2.8 DRAINAGE FLASHING

Drainage flashing is to be used as a horizontal flashing on top of windows, doors, block penetrations, as well as at clearances and every other floor break.

2.9 CLEARANCES

Install siding and trim in compliance with local building code requirements for clearances between the bottom edge of the siding and the adjacent finished grade. James Hardie requires:

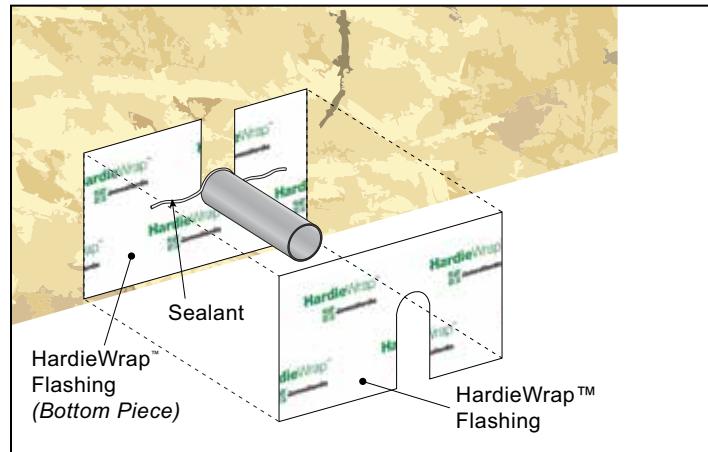
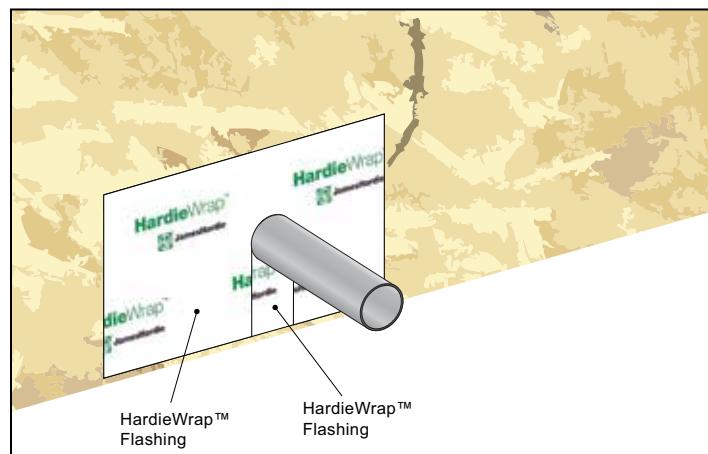
- Minimum 6" clearance to finished grade on the exterior of the building.
- Install kick out flashing at roof-wall junctions.
- Ensure gutters have end caps and must have a minimum 1" clearance between end cap and siding or trim.
- Every horizontal break surface must be flashed.
- A minimum 1/2" clearance is required between product bottom and the flashing.
- Do not caulk the gap between flashing and product.

James Hardie requires maintaining a 2" clearance between product and roofs, decks, paths, steps, decks, balconies or driveways. Refer to drawings 1.01 and 2.01 in section 4.

2.10 PENETRATIONS

All penetrations shall be treated to manage any moisture. Backer rod and sealant or gasket cover plates should be used where applicable. For penetrations less than 1½" diameter, excluding hose bibs, no blocking is necessary. The penetration may be sealed with barrier foam and/or caulked. Do not intersect penetration with aluminum trims. Electrical outlets need to be mounted flush with the face of the blocking.

At penetrations, the use of a flexible flashing tape is important in order to restore the water resistive barrier of the building after cutting a hole for the penetration. Suggested practices follow the EEBA Water Management Guide.



For penetrations in the building envelope such as hose bibs and holes 1½" diameter or larger blocking is required around the point of penetration. James Hardie recommends the use of fiber-cement trim block with furring surrounding the perimeter supplemented with horizontal flashings. To install a block it may be necessary to cut the block into two pieces and provide a minimum 22.5° weather-cut. Install cap flashing over the top of the trim block.

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3.1 HARDIEREVEAL2.0 PANEL VERTICAL SIDING INFORMATION

Fiber cement panelized products

Product	Description	Thickness	Width	Length
	HardieReveal2.0 Panel Vertical Siding Is a primed product and is available in smooth textures.	7/16"	47-1/2"	95-1/2"

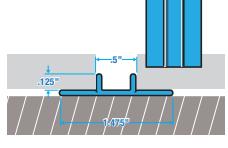
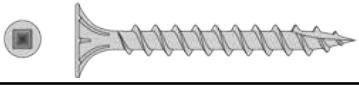
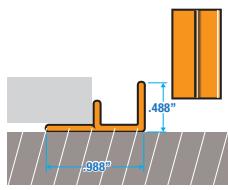
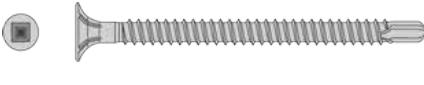
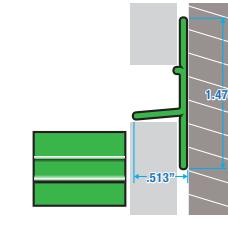
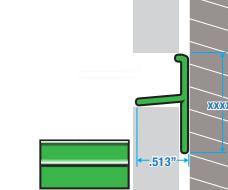
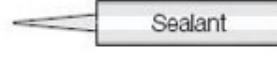
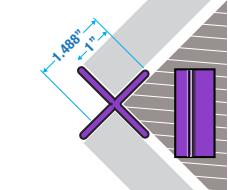
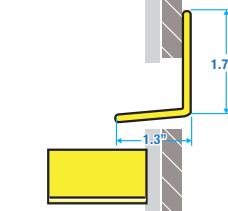
3.2 TECHNICAL DATA

HardieReveal2.0 Panel vertical siding complies with ASTM C1186 physical properties and supplementary requirements

Property	ASTM Requirement	
Dimensional Tolerances <ul style="list-style-type: none">• Length• Width• Thickness• Squareness• Edge Straightness	$\pm 0.5\%$ $\pm 0.5\%$ $\pm 1.6\text{mm}$ $<10.9\text{mm}$ $<10.9\text{mm}$	Pass
Dimensional Variation (mm) <ul style="list-style-type: none">• Length Width• Width• Thickness	<6.0 <6.0 <2.4	Pass
Water Absorption, % by mass	As reported	As reported
Density, kg/m ³	As reported	As reported
Moisture Movement, % Linear Change <ul style="list-style-type: none">• 30-90% Relative Humidity• After 48 hr saturation	As reported	As reported
Moisture Movement, % Linear Change <ul style="list-style-type: none">• 30-90% Relative Humidity• After 48 hr saturation	>7.0 >10.0 $\geq 80\%$ $\geq 85\%$	Pass
Moisture Content, %	As reported	As reported
Water Tightness	No drop formation	Pass
Warm Water Resistance, Observations	No visible cracks or structural alteration	Pass
Heat/Rain Resistance	No visible cracks or structural alteration	Pass
Freeze/Thaw Resistance <ul style="list-style-type: none">• Observations• Mass Loss, %	No visible cracks or structural alteration ≤ 3.0	Pass
Surface Burning Characteristics	FSI=0 SDI<_5	Pass

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3.3 ACCESSORIES

Profile	Description	Profile	Description
	Vertical Trim		Countersunk panel screw for wood - # 8 1-1/2" Bugle head stainless steel screw for wood
	Vertical F Trim		Countersunk panel screw for steel # 8 1-1/2" stainless steel self-drilling bugle head screw for steel.
	Horizontal Trim		Exposed Fastener: 10-18 – 1 1/2" long x 0.375" HD pan head screw, stainless steel
	Horizontal Edge Trim		Caulking Elastomeric Joint Sealant complying with ASTM C920 Grade NS, Class 25.
	Outside Corner Trim		Fillers Paintable, sandable putty, see section A3.
	Drainage Flashing Trim		HardieBlade® saw blades (10" & 12") For cutting of fiber cement.
			Nonferrous Blade (96 tooth, 10" & 12") For cutting of aluminum extruded trims on chop-saw or table saw

3.4 FINISHING

Primed boards require painting to meet requirements of the warranty. Sheets must be dry and free of dirt or debris before coating. Coating must be completed within 180 days of sheet installation. Two coats of 100% acrylic premium grade topcoats are required. For application rates refer to paint manufacturer's specification. Back-rolling is recommended if the siding is sprayed. Do not paint when product is wet. Do not use semi-transparent stain on James Hardie® products. All field-cut ends or cut-outs shall be sealed using the provided sealer. All fastener holes must be filled in and painted over.

Countersunk fastener filler must be sanded flat to the surface of the board and the sanded area must be painted. The standard curing time for the filler is 1-2 days.

3.5 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 manufacturer's written instructions or ASTM C1193.

3.6 CLEANING AND MAINTENANCE

It is recommended that normal maintenance occur to the exterior envelope and at the connections of joints, penetrations, flashings and sealants.

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REFERENCE PICTURES



T-Intersection; Horizontal and Vertical trim as seen in drawings 1.02, 2.02, 1.03, 2.03, 1.04 and 2.04



Inside Corner as seen in drawings 1.06 and 2.06



Outside Corner as seen in drawings 1.05 and 2.05



Trim intersection around window as seen in drawings 1.11, 2.11, 1.12, 2.12, 1.13, 2.13, 1.14, 2.14



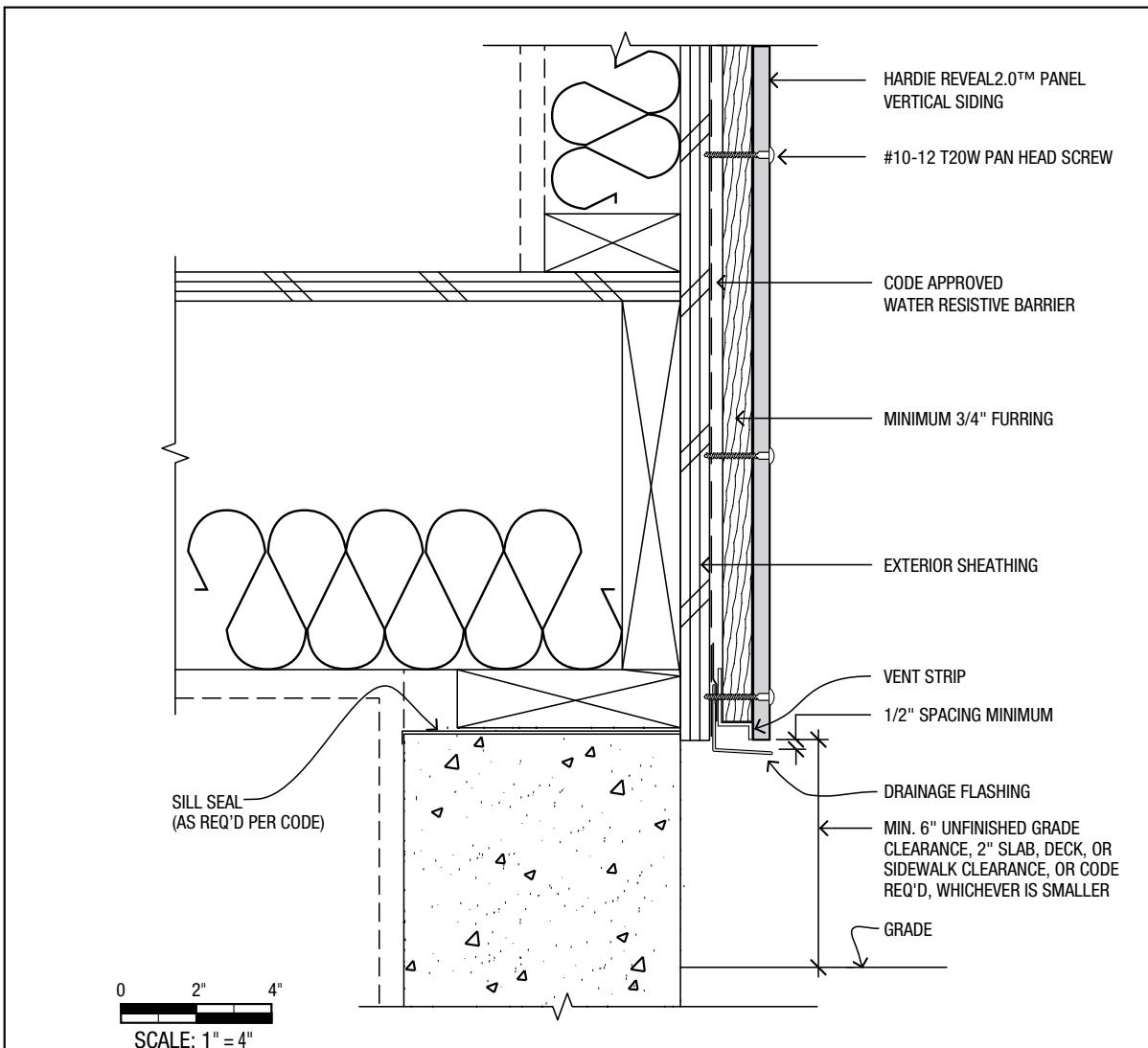
Door Header intersection as seen in drawings 1.10 and 2.10

Various details are outlined in this section to cover multiple scenarios regularly expected. For download of CAD drawings visit www.jameshardiecommercial.com

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FIGURE 1.01: SECTION DETAIL – FOUNDATION @ GRADE

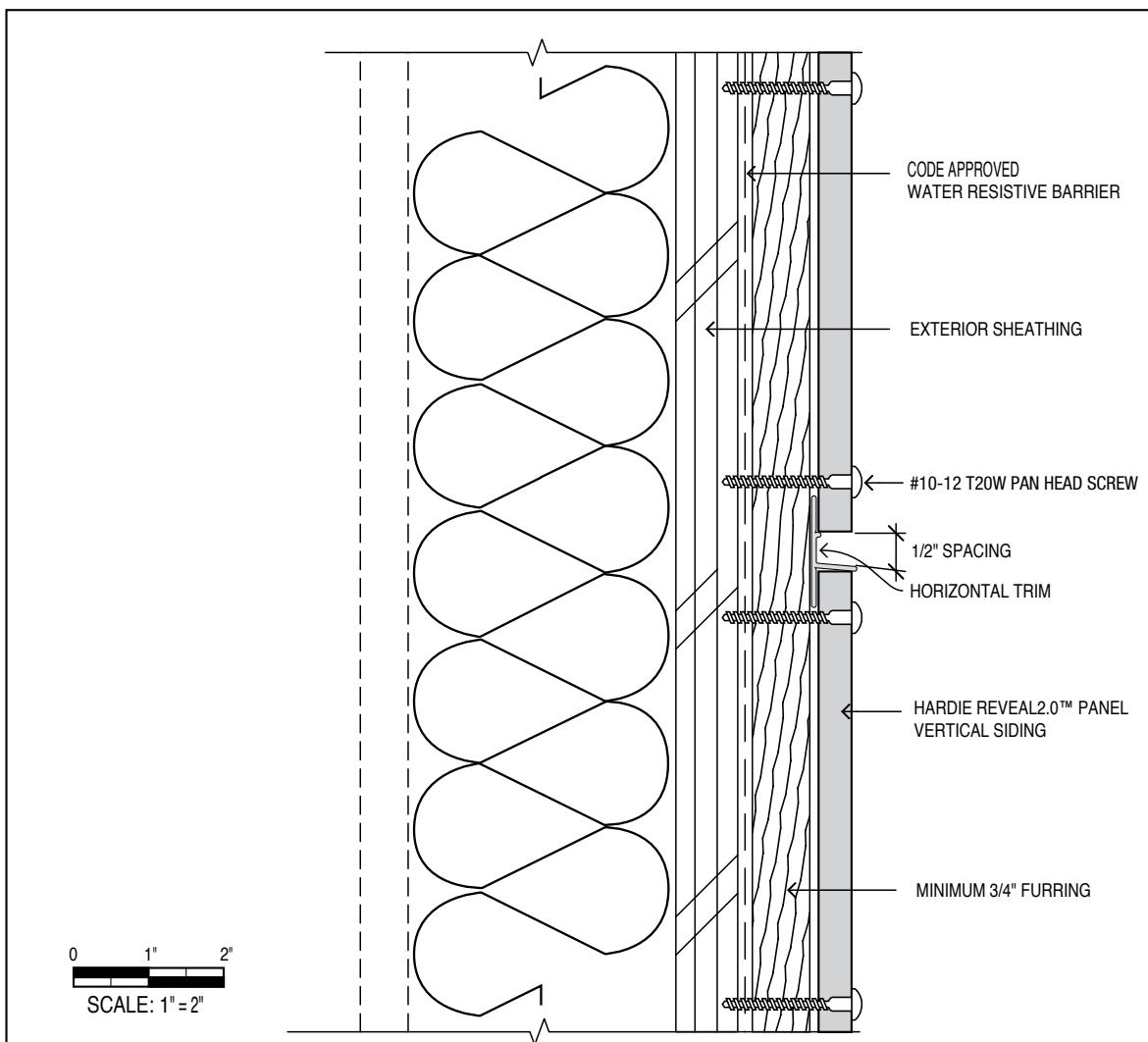


These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardiecommercial.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.01 Rev. 4 (2013)	<p>SECTION DETAIL – FOUNDATION @ GRADE</p> <p>Hardie Reveal2.0™ Panel Vertical Siding (7/16 " Thick)</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 James Hardie Commercial
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FIGURE 1.02: SECTION DETAIL – PANEL WITH HORIZONTAL TRIM



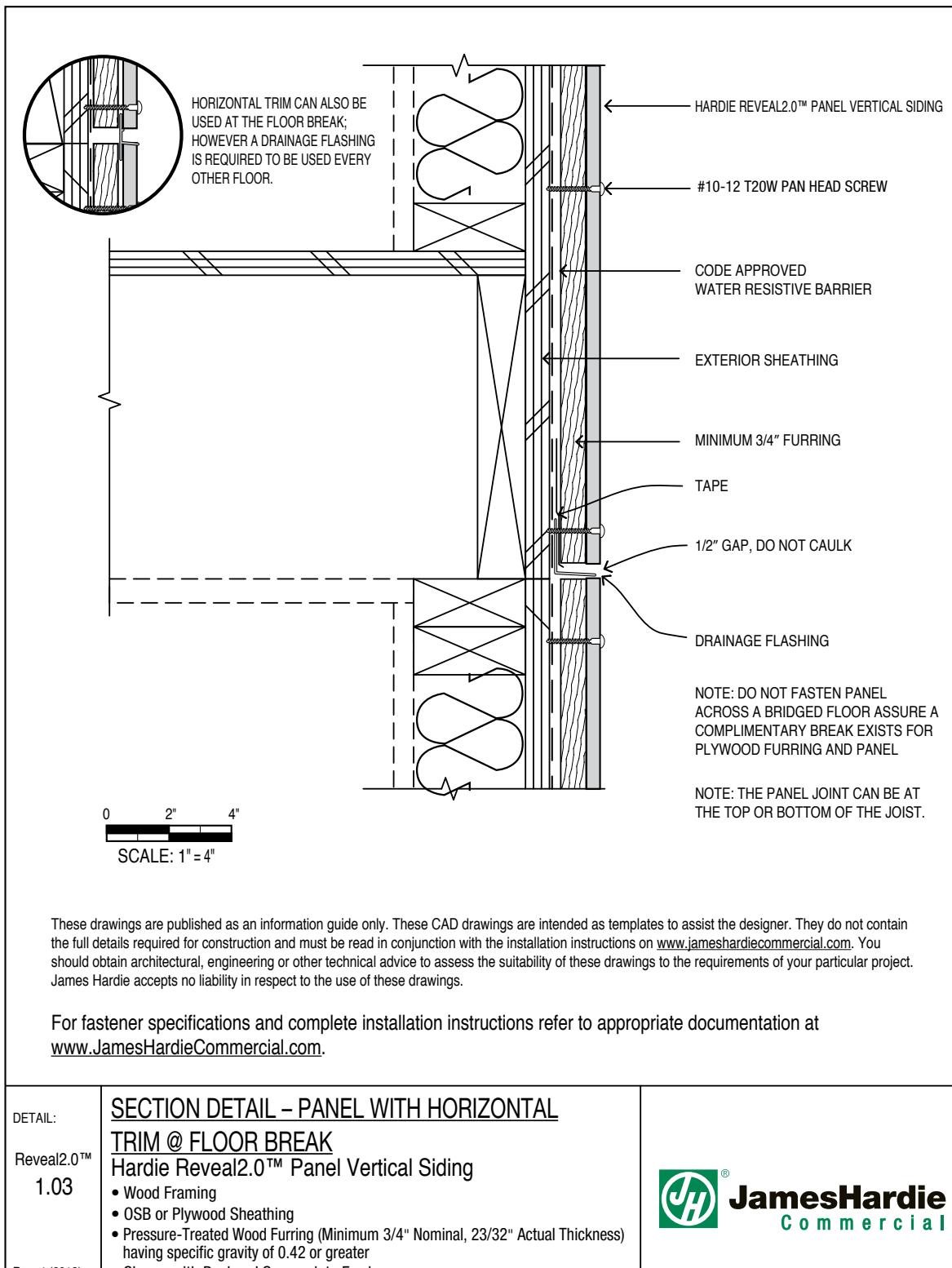
These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardiecommercial.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.02 Rev. 4 (2013)	<u>SECTION DETAIL – PANEL WITH HORIZONTAL TRIM</u> Hardie Reveal2.0™ Panel Vertical Siding <ul style="list-style-type: none"> • Wood Framing • OSB or Plywood Sheathing • Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater • Shown with Panhead Screws into Furring 	 James Hardie Commercial
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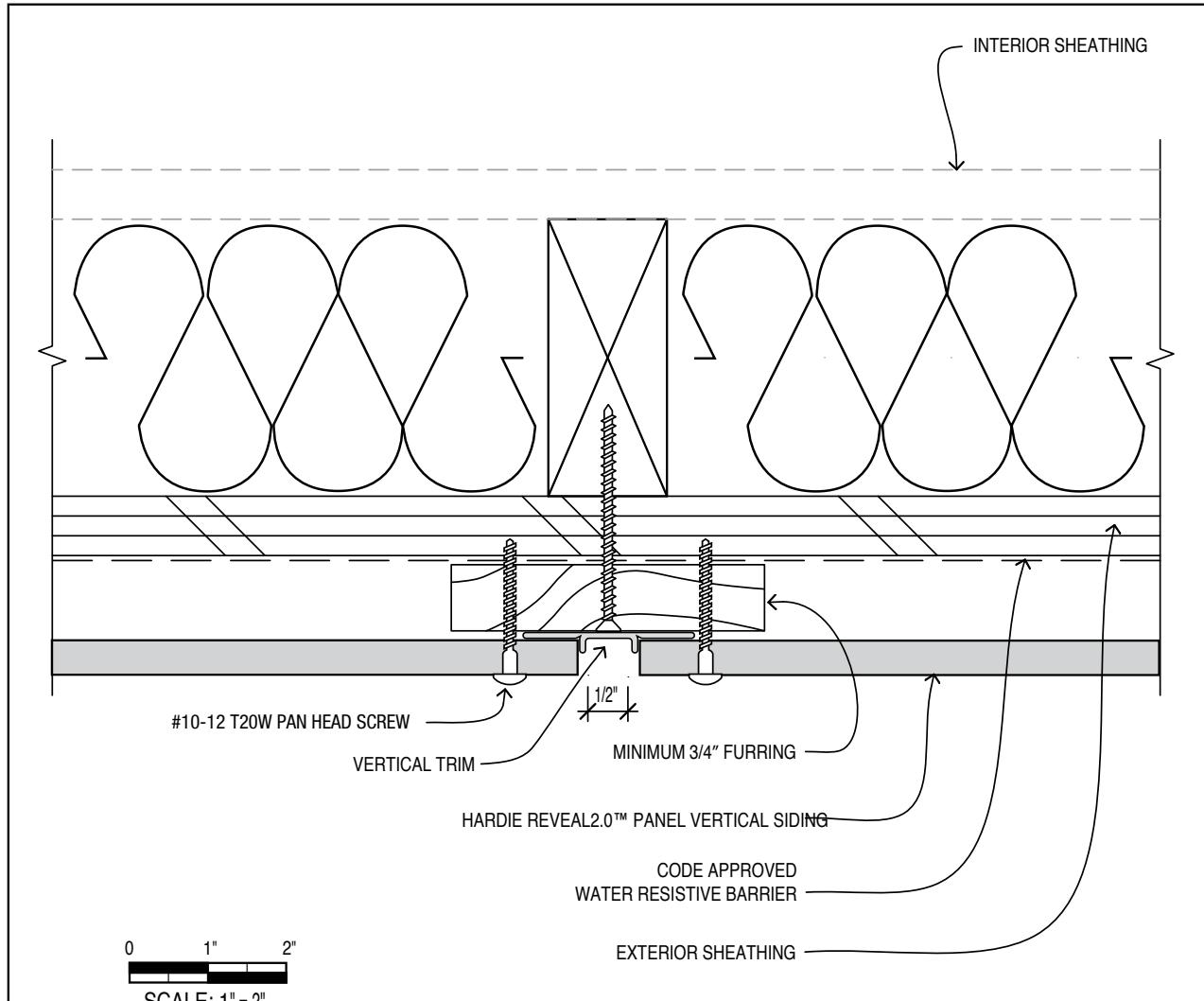
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FIGURE 1.03: SECTION DETAIL – PANEL WITH HORIZONTAL TRIM @ FLOOR BREAK



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FIGURE 1.04: PLAN DETAIL – PANEL WITH VERTICAL TRIM

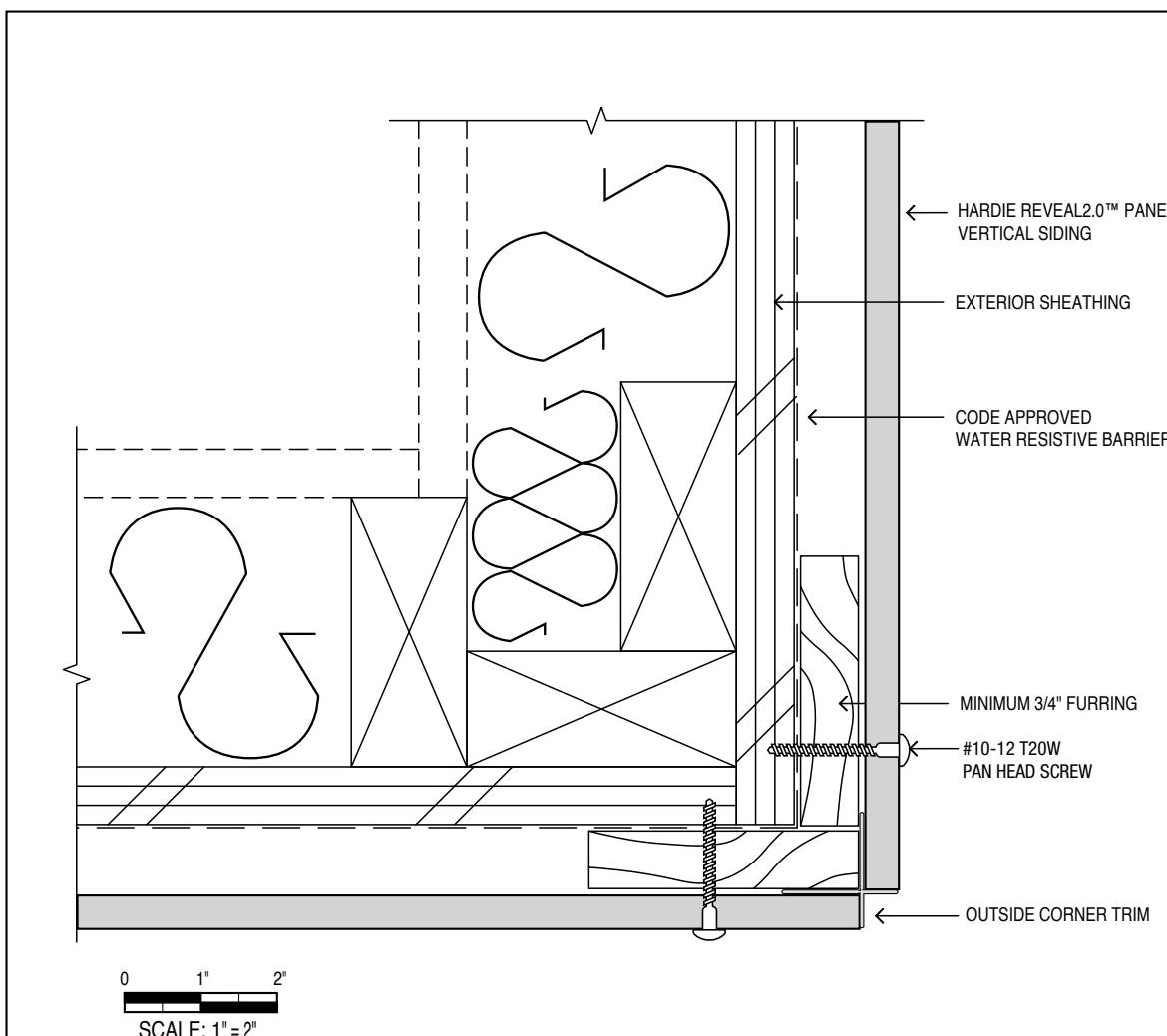


These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardiecommercial.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.04 Rev. 4 (2013)	<p><u>PLAN DETAIL – PANEL WITH VERTICAL TRIM</u></p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Countersunk Screws into Furring	 James Hardie C o m m e r c i a l
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FIGURE 1.05: PLAN DETAIL – OUTSIDE CORNER TRIM



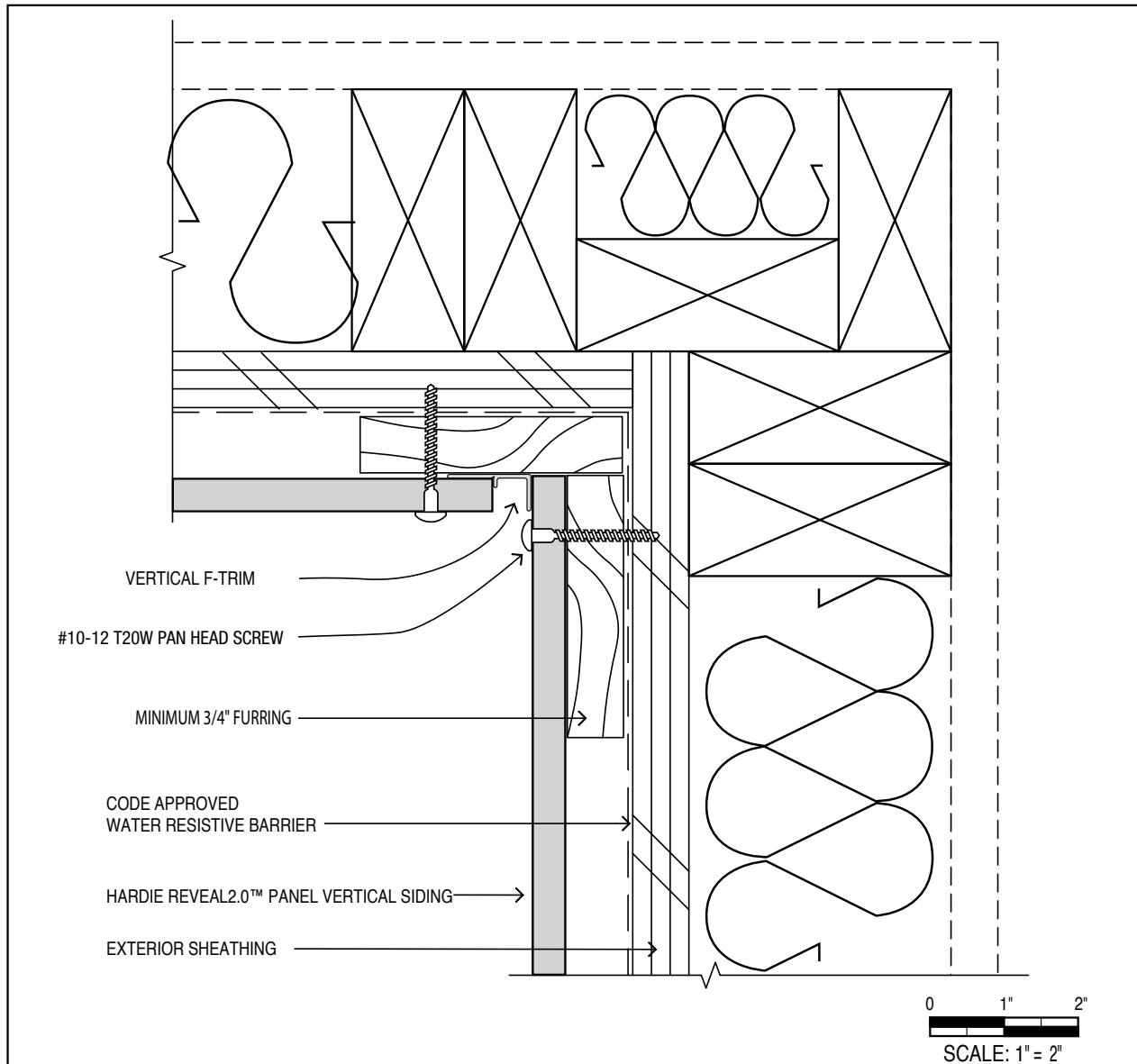
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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.05 Rev. 4 (2013)	PLAN DETAIL – OUTSIDE CORNER TRIM Hardie Reveal2.0™ Panel Vertical Siding <ul style="list-style-type: none"> • Wood Framing • OSB or Plywood Sheathing • Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater • Shown with Panhead Screws into Furring 	 James Hardie Commercial
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FIGURE 1.06: PLAN DETAIL – INSIDE CORNER TRIM

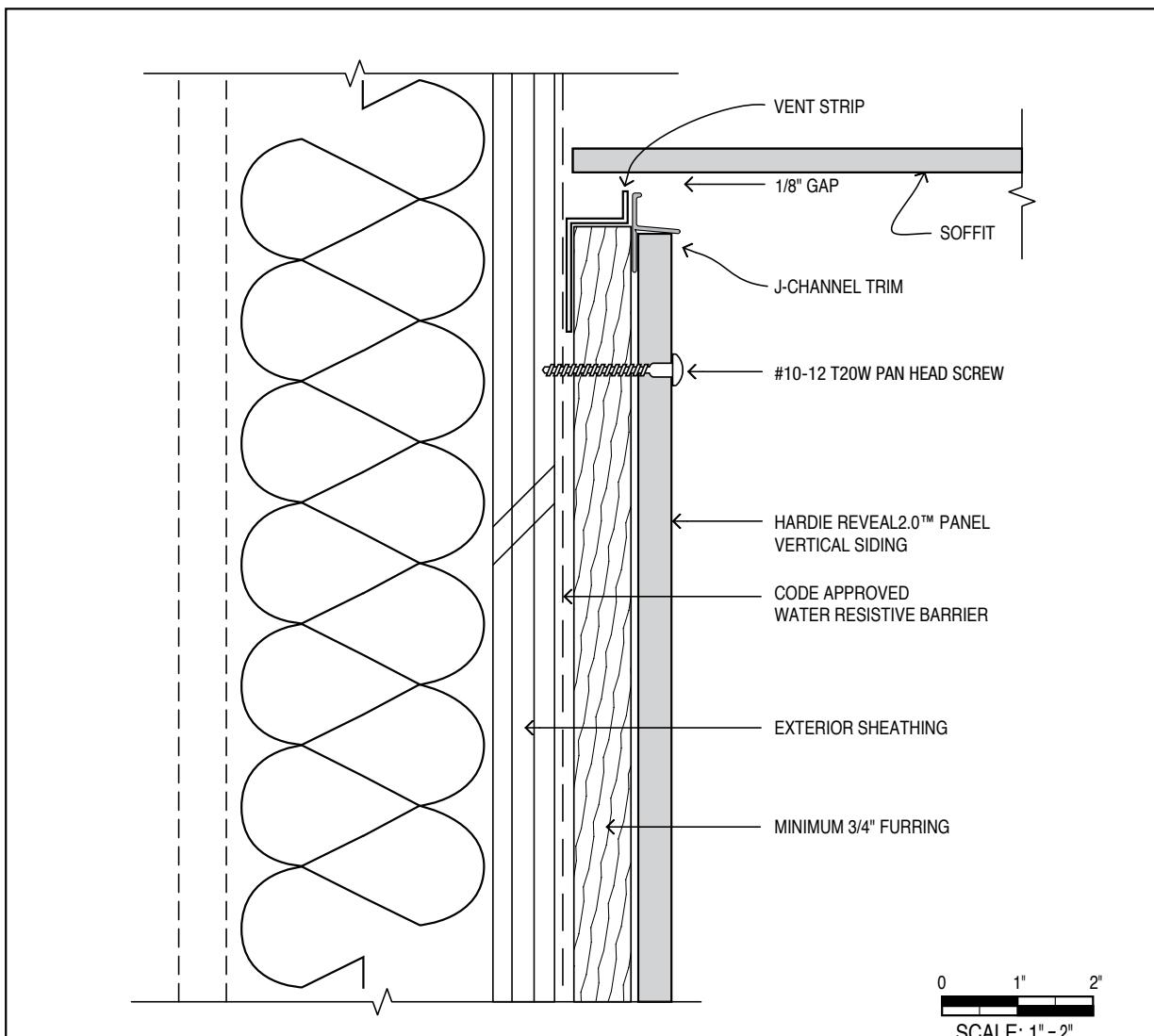


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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.06 Rev. 4 (2013)	<p>PLAN DETAIL – INSIDE CORNER TRIM</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 James Hardie Commercial
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FIGURE 1.07: SECTION DETAIL – WALL & SOFFIT FOR VENTILATED RAINSCREEN



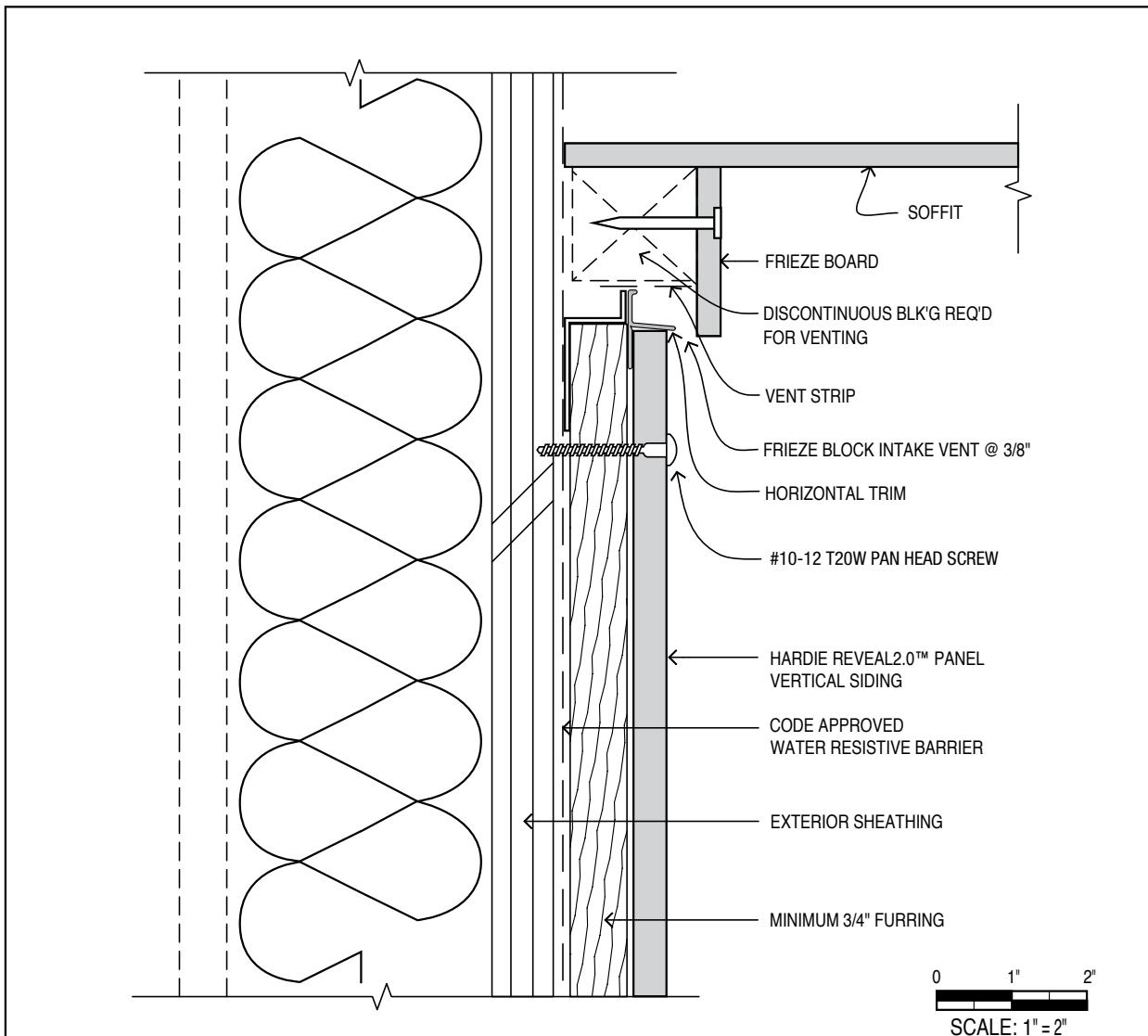
These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardiecommercial.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.07 Rev. 4 (2012)	<p>SECTION DETAIL – WALL & SOFFIT FOR VENTED RAINSCREEN</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none"> • Wood Framing • OSB or Plywood Sheathing • Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater • Shown with Panyhead Screws into Furring 	 James Hardie Commercial
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FIGURE 1.08: SECTION DETAIL – WALL & SOFFIT FOR VENTILATED RAINSCREEN



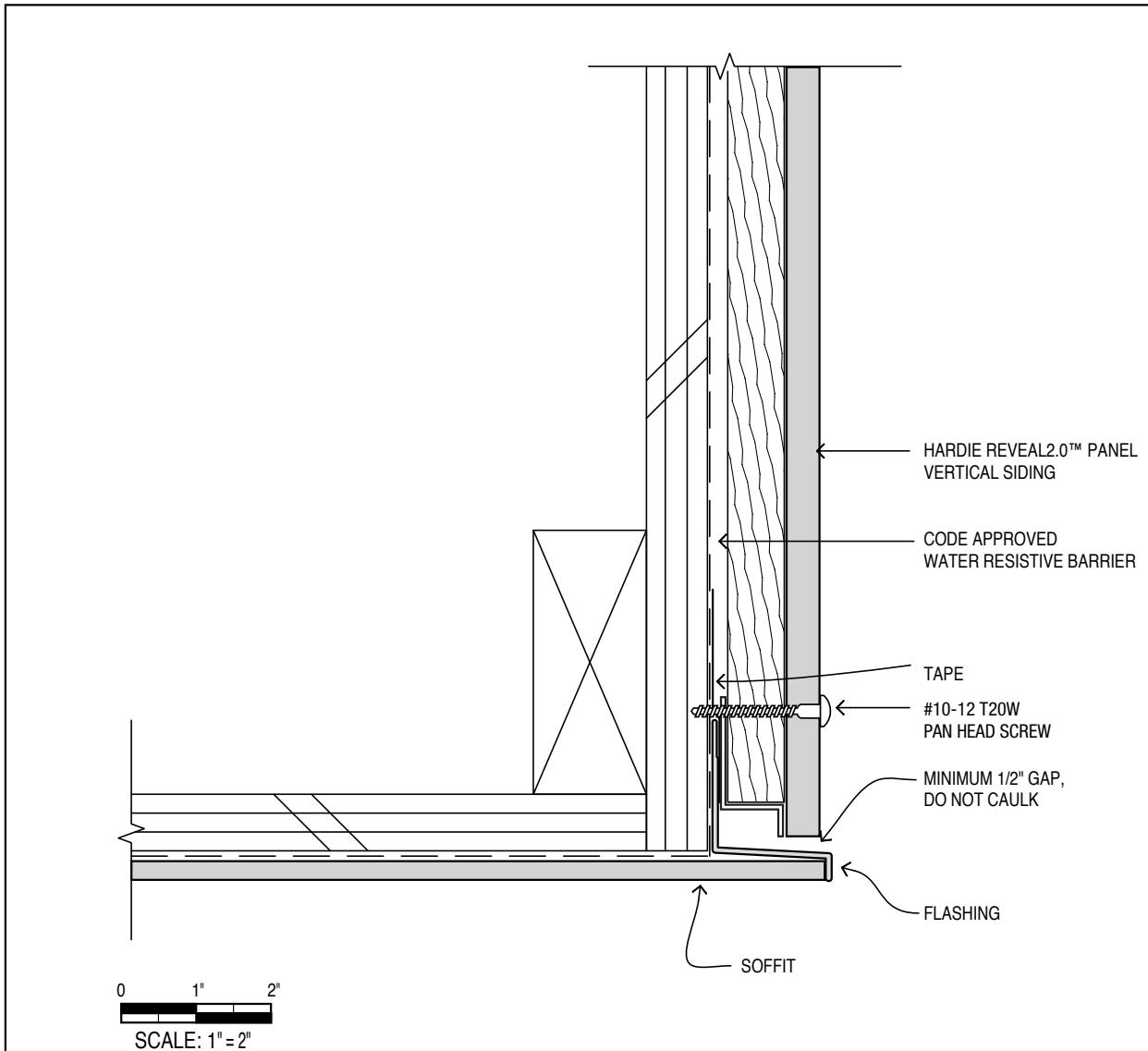
These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardiecommercial.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.08	<p>SECTION DETAIL – WALL & SOFFIT FOR VENTILATED RAINSCREEN</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater	 James Hardie Commercial
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FIGURE 1.09: SECTION DETAIL – SOFFIT FLASHING INTERSECTION



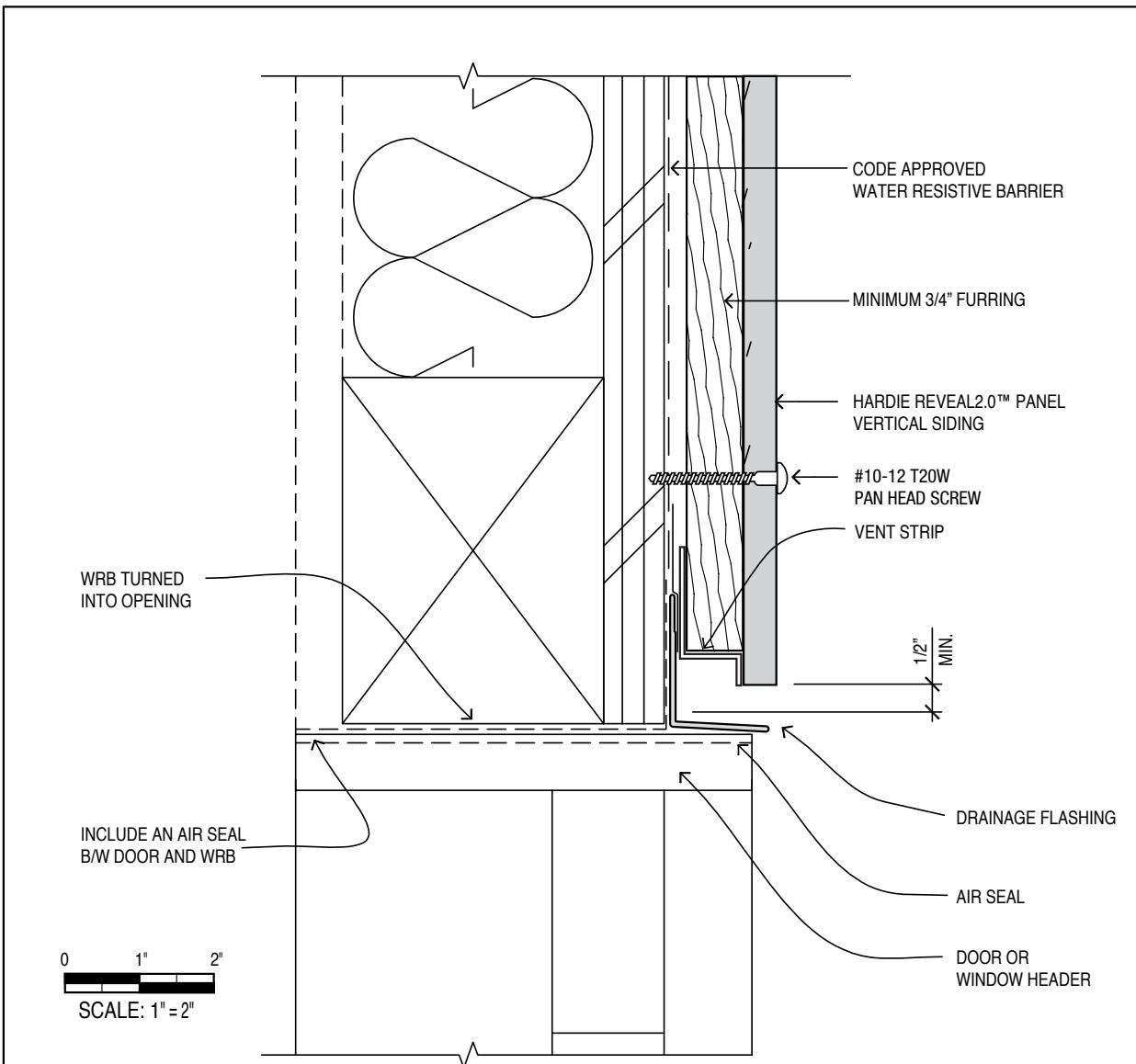
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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.09 Rev. 4 (2013)	<p>SECTION DETAIL – SOFFIT FLASHING INTERSECTION</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 <p>James Hardie Commercial</p>
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FIGURE 1.10: SECTION DETAIL – DOOR HEADER INTERSECTION



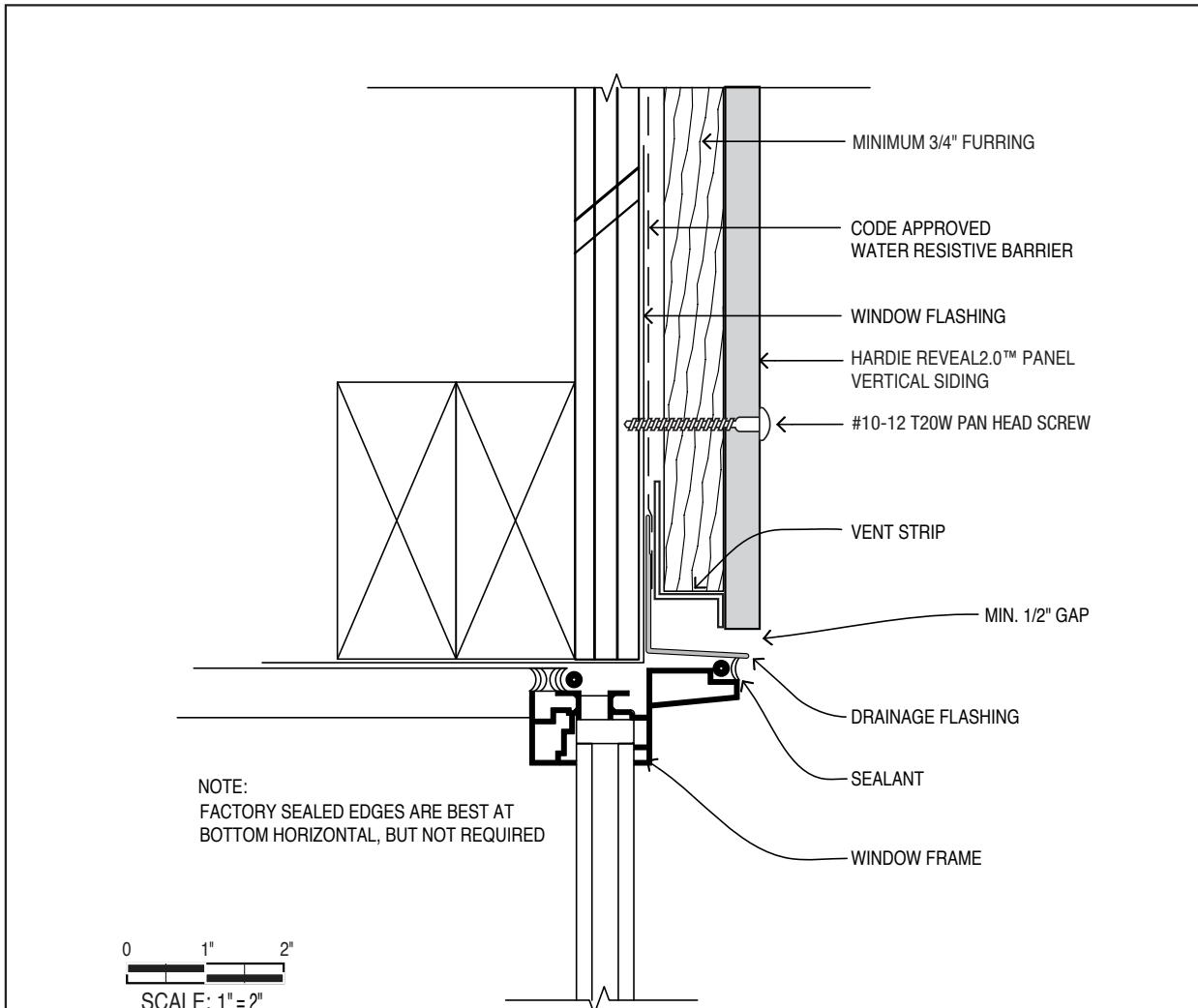
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DETAIL: Reveal2.0™ 1.10 Rev. 4 (2013)	<p>SECTION DETAIL – DOOR HEADER INTERSECTION</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 James Hardie Commercial
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FIGURE 1.11: SECTION DETAIL – ALUMINUM WINDOW HEAD



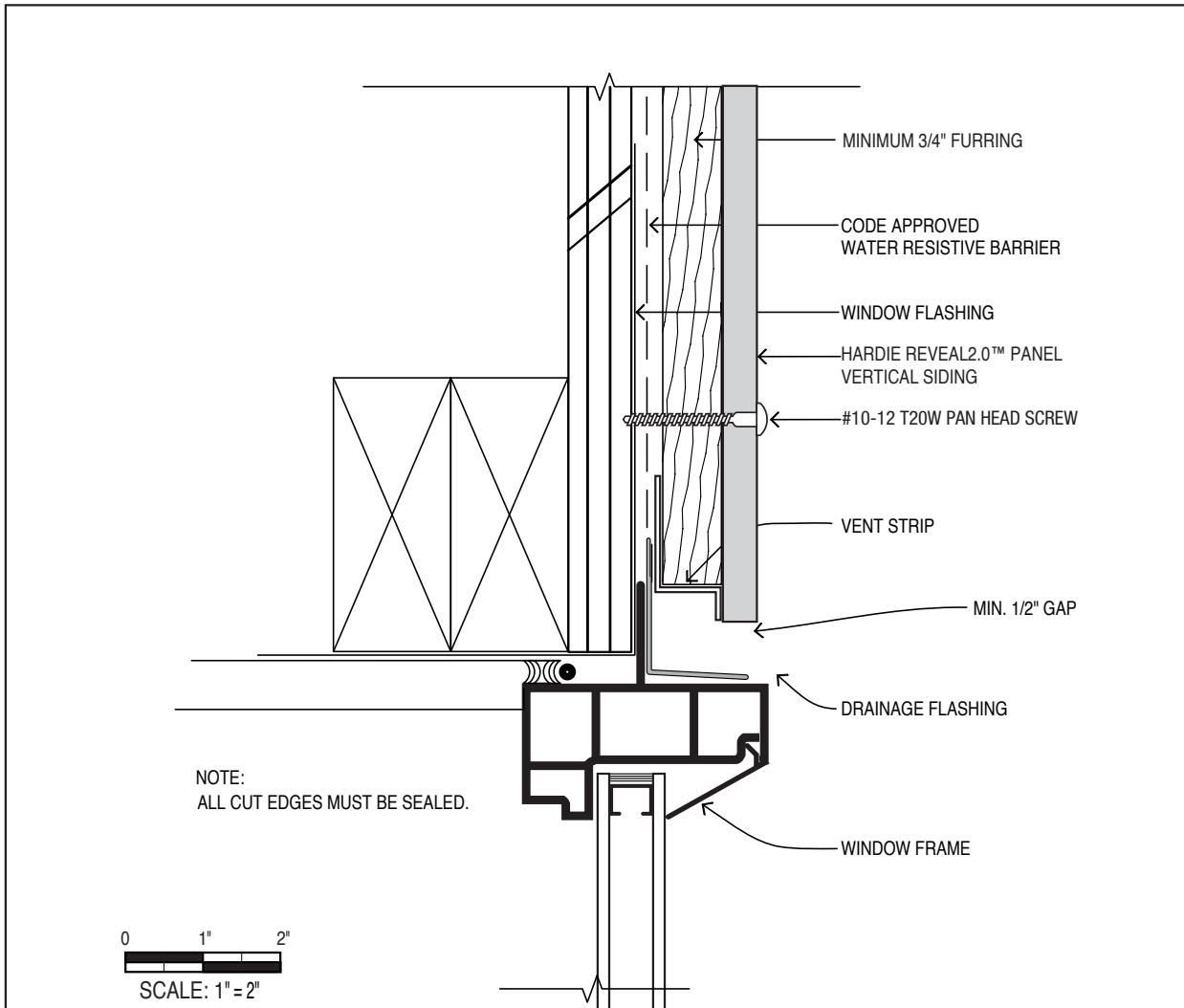
These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardiecommercial.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.11 Rev. 4 (2013)	<p>SECTION DETAIL – ALUMINUM WINDOW HEAD</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 <p>James Hardie Commercial</p>
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FIGURE 1.11b: SECTION DETAIL – ALUMINUM WINDOW HEAD



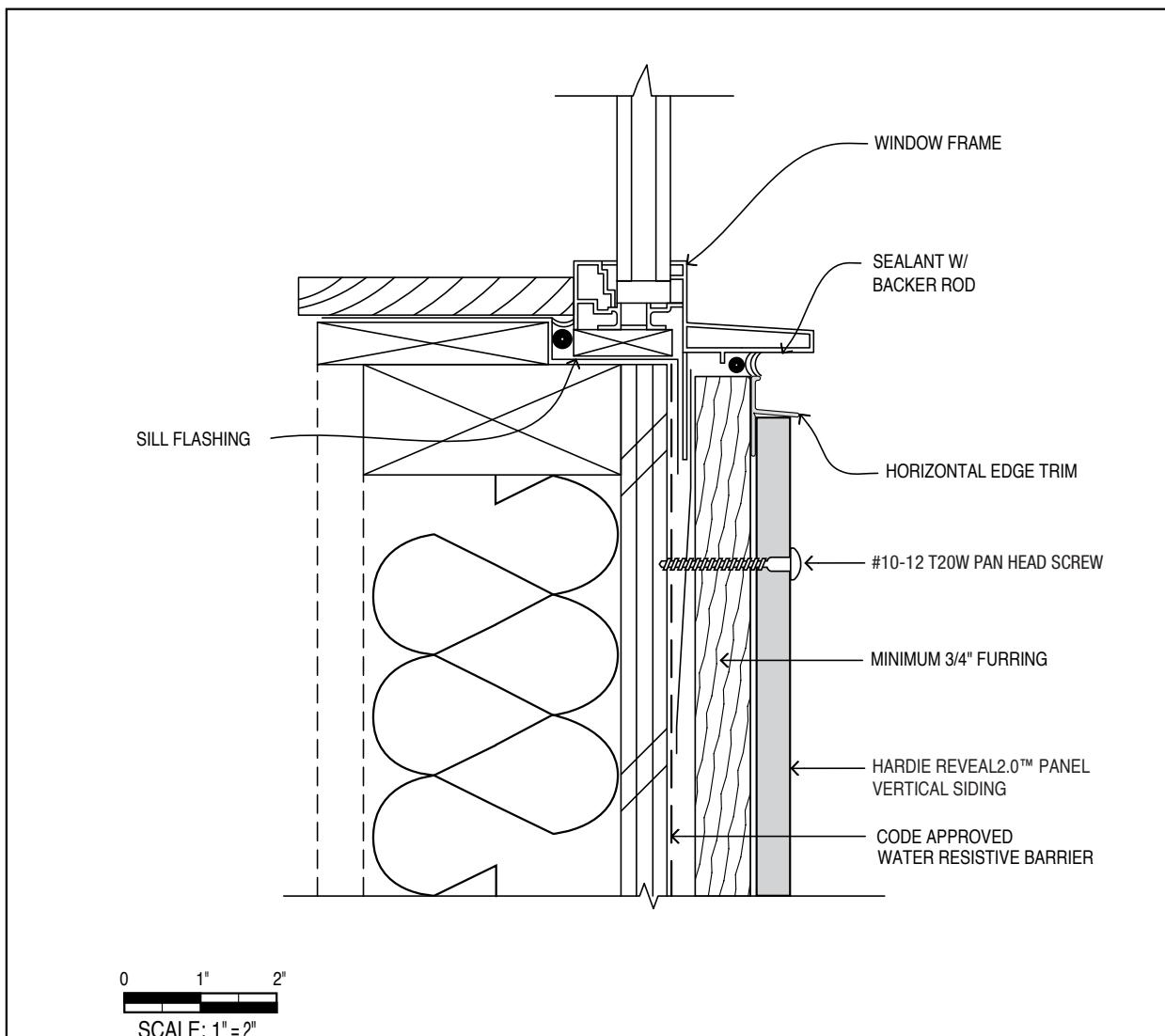
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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.11b Rev. 4 (2013)	<p>SECTION DETAIL – ALUMINUM WINDOW HEAD</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 James Hardie Commercial
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FIGURE 1.12: PLAN DETAIL – ALUMINUM WINDOW SILL



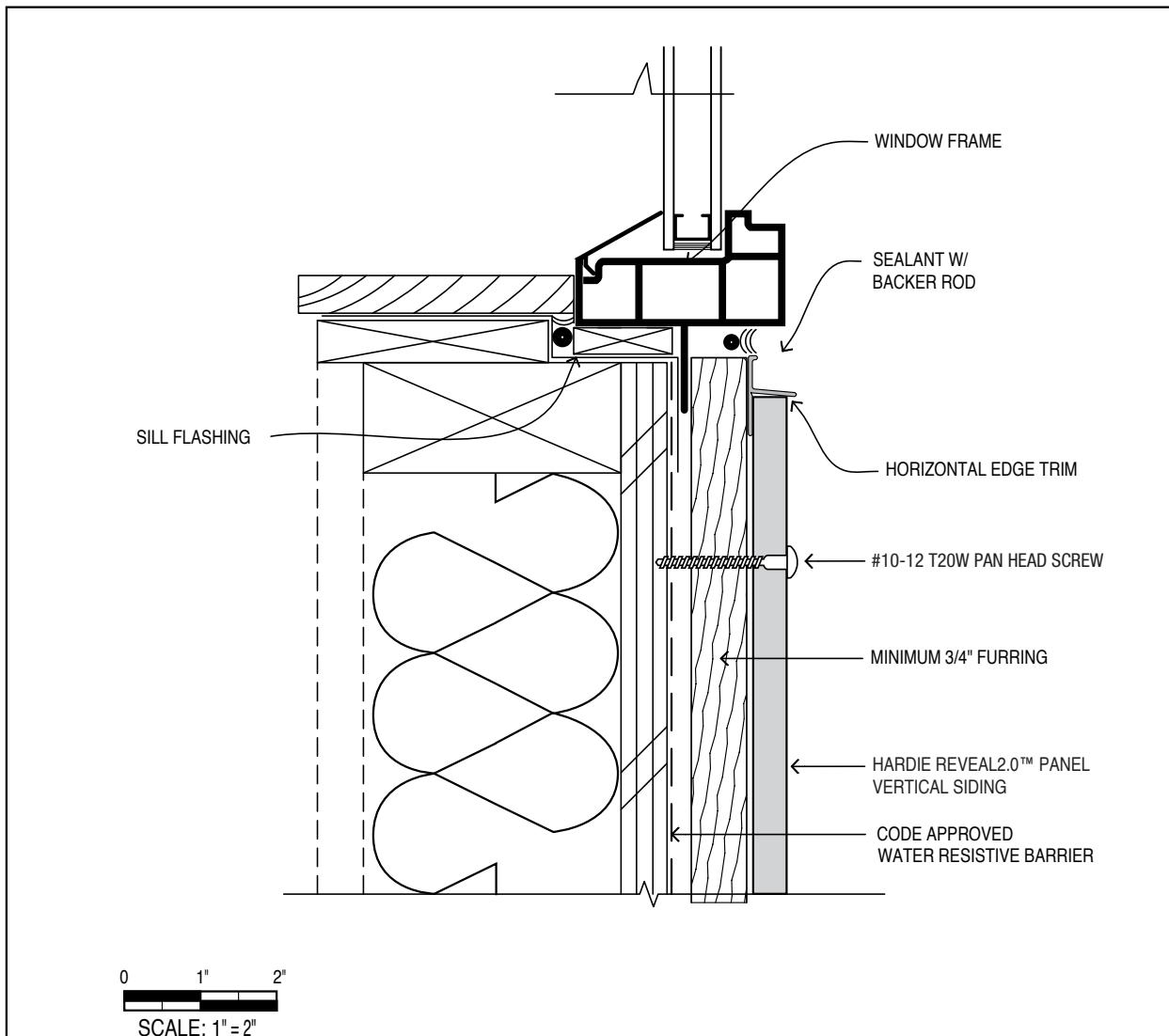
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DETAIL: Reveal2.0™ 1.12 Rev. 4 (2013)	<p>SECTION DETAIL – ALUMINUM WINDOW SILL</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 JamesHardie
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FIGURE 1.12b: SECTION DETAIL – FLANGED WINDOW SILL



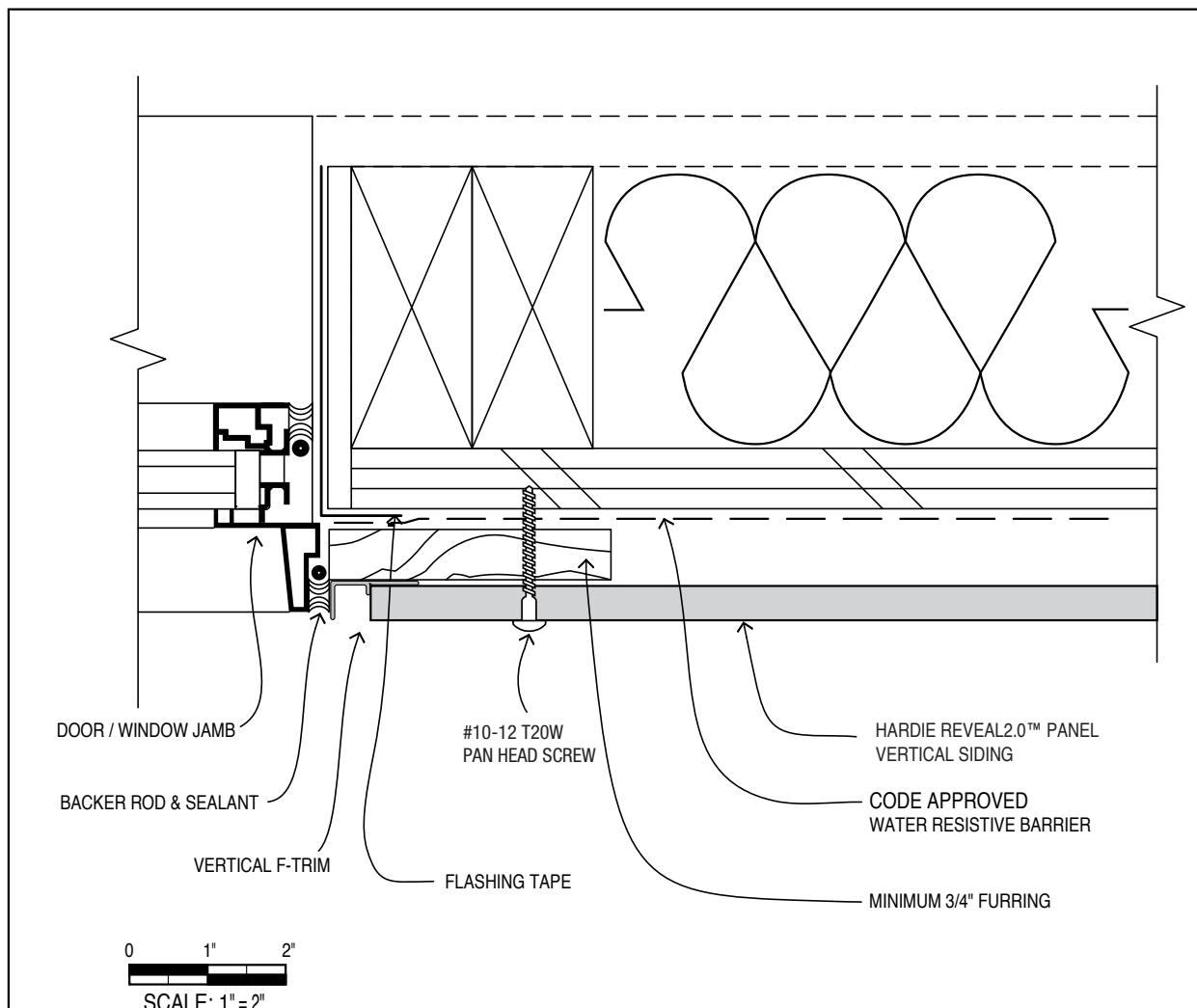
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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.12b Rev. 4 (2013)	<p>SECTION DETAIL – FLANGED WINDOW SILL</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 <p>James Hardie Commercial</p>
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FIGURE 1.13: SECTION DETAIL – ALUMINUM WINDOW FLANGE WITH METAL TRIM



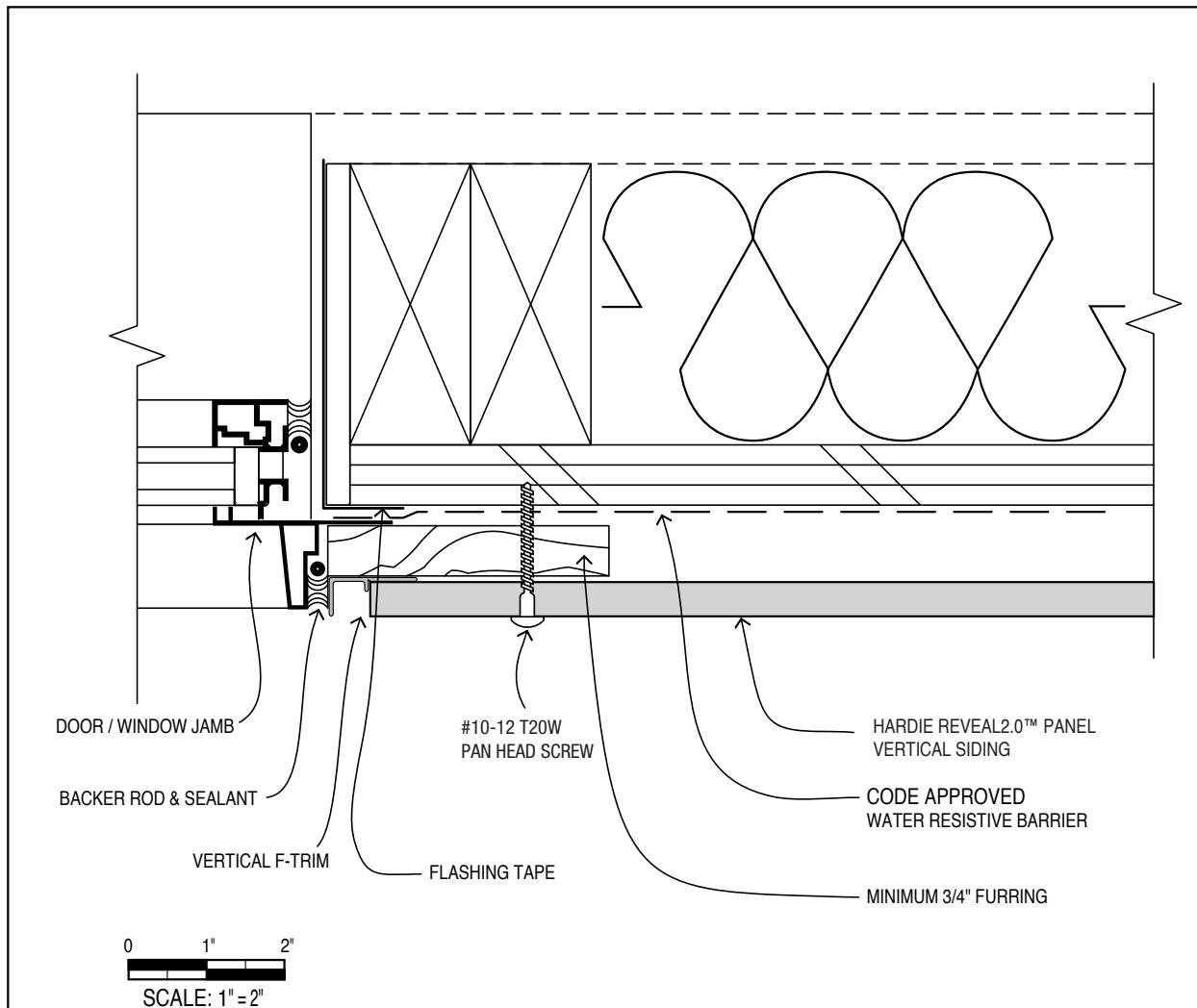
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DETAIL: Reveal2.0™ 1.13 Rev. 4 (2013)	<p>PLAN DETAIL – ALUMINUM WINDOW FLANGE WITH METAL TRIM</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 <p>James Hardie Commercial</p>
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FIGURE 1.13b: SECTION DETAIL – ALUMINUM WINDOW FLANGE WITH METAL TRIM



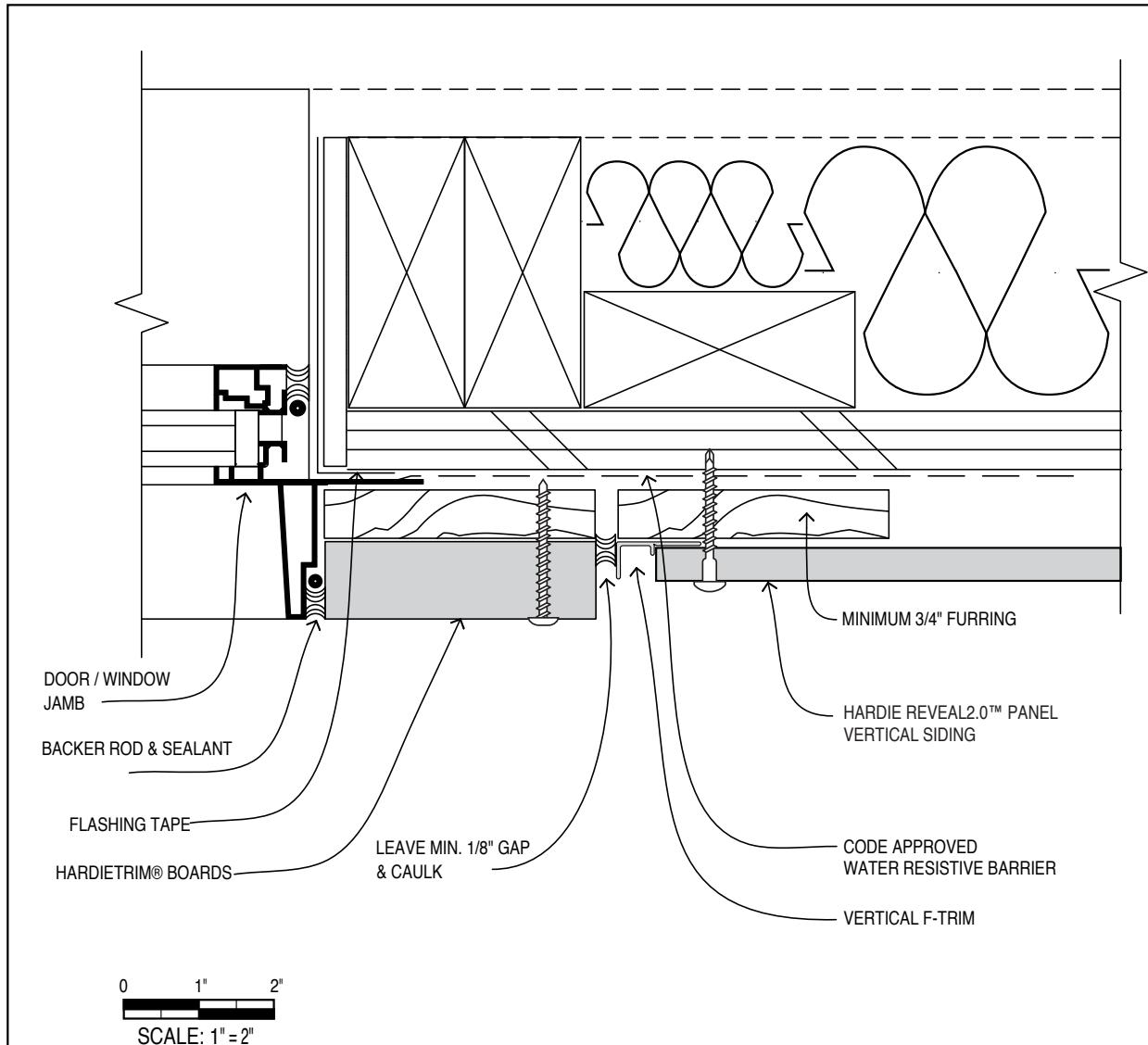
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DETAIL: Reveal2.0™ 1.13b Rev. 4 (2013)	<p>PLAN DETAIL – ALUMINUM WINDOW FLANGE WITH METAL TRIM</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 <p>James Hardie Commercial</p>
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FIGURE 1.14: SECTION DETAIL – ALUMINUM WINDOW FLANGE WITH TRIM BOARDS



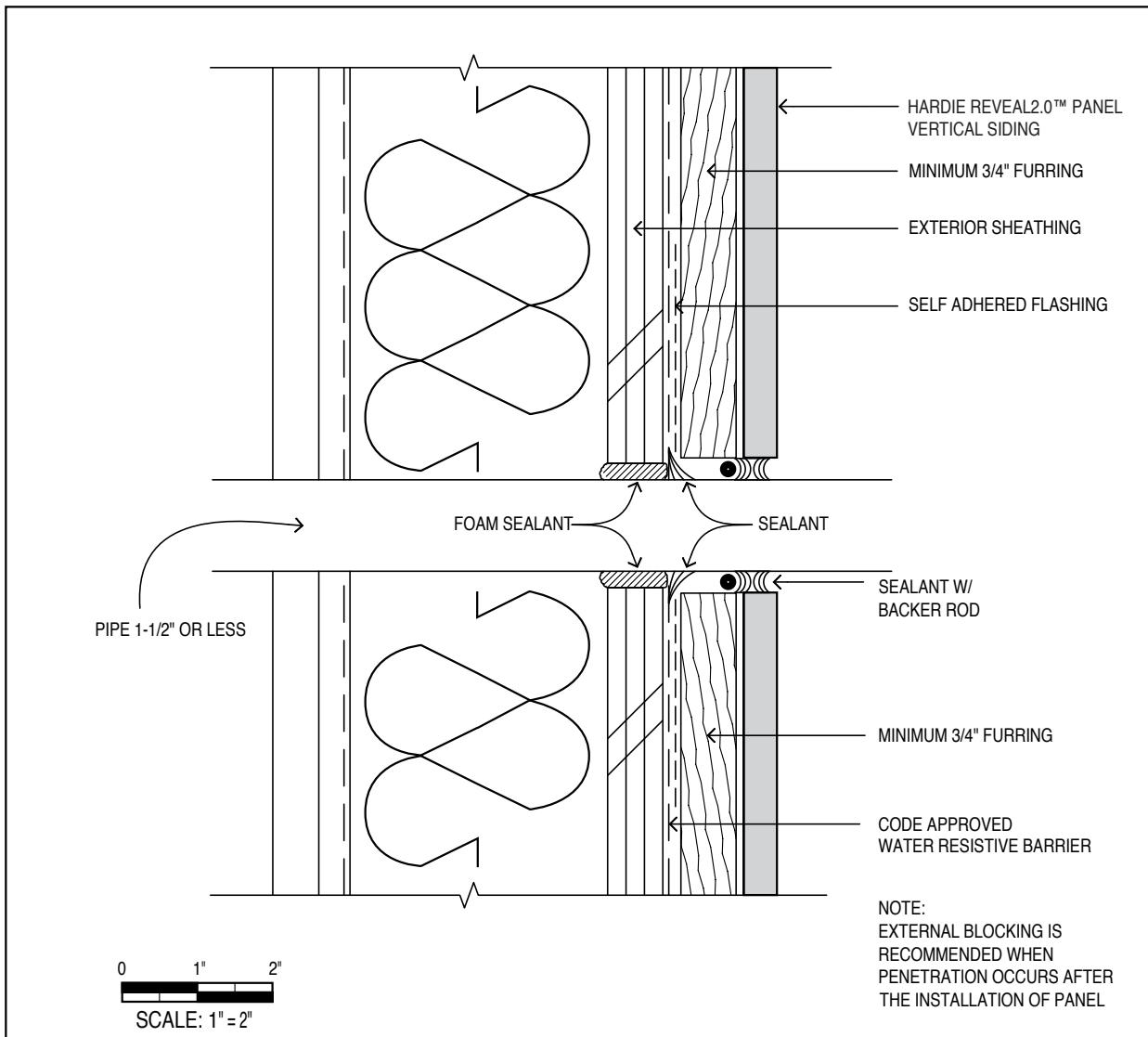
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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.14 Rev. 4 (2013)	<u>PLAN DETAIL – ALUMINUM WINDOW FLANGE WITH TRIM BOARDS</u> Hardie Reveal2.0™ Panel Vertical Siding <ul style="list-style-type: none"> • Wood Framing • OSB or Plywood Sheathing • Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater • Shown with Panhead Screws into Furring 	 James Hardie Commercial
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FIGURE 1.15: SECTION DETAIL – 1-1/2" OR LESS HOLE PENETRATION TREATMENT



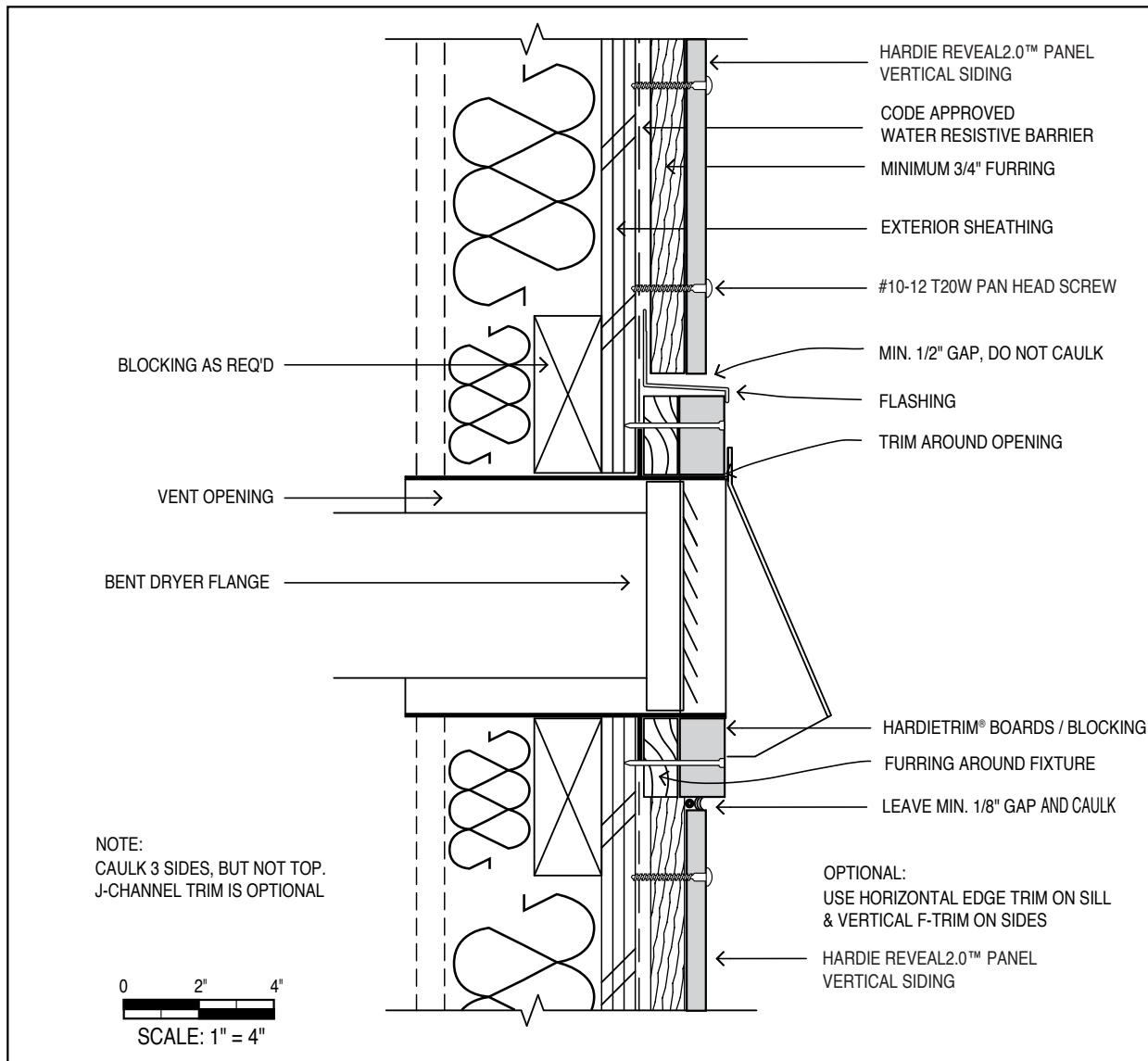
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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.15 Rev. 4 (2013)	SECTION DETAIL – 1 1/2" OR LESS HOLE PENETRATION TREATMENT Hardie Reveal2.0™ Panel Vertical Siding <ul style="list-style-type: none"> • Wood Framing • OSB or Plywood Sheathing • Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater • Shown with Panhead Screws into Furring 	 James Hardie Commercial
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FIGURE 1.16: SECTION DETAIL – BLOCK PENETRATION TREATMENT



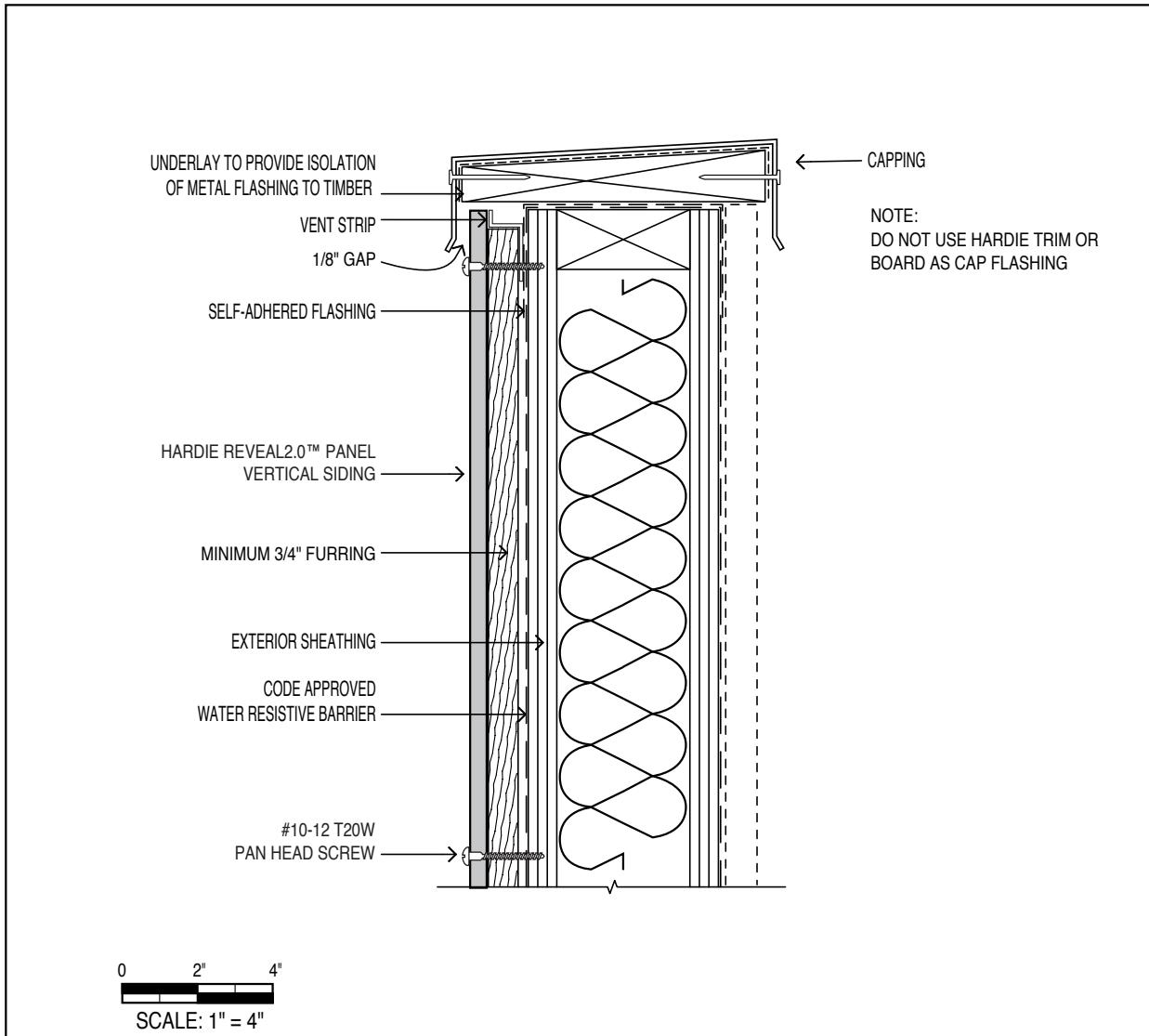
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For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.16 <small>Rev. 4 (2013)</small>	SECTION DETAIL – BLOCK PENETRATION TREATMENT Hardie Reveal2.0™ Panel Vertical Siding <ul style="list-style-type: none"> • Wood Framing • OSB or Plywood Sheathing • Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater • Shown with Panhead Screws into Furring 	 James Hardie Commercial
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FIGURE 1.17: SECTION DETAIL – VENTED PARAPET WALL



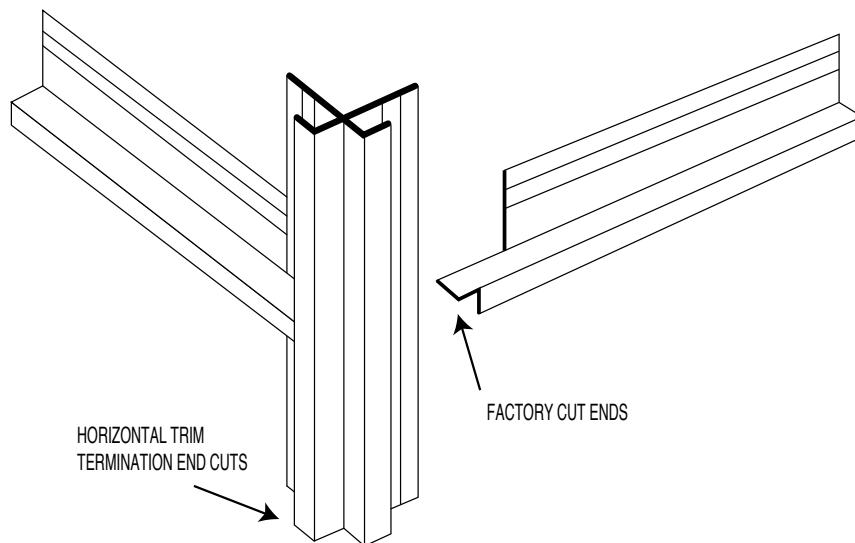
These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardiecommercial.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

For fastener specifications and complete installation instructions refer to appropriate documentation at www.JamesHardieCommercial.com.

DETAIL: Reveal2.0™ 1.17 Rev. 4 (2013)	<p>SECTION DETAIL – VENTED PARAPET WALL</p> <p>Hardie Reveal2.0™ Panel Vertical Siding</p> <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 James Hardie Commercial
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FIGURE 1.18: SECTION DETAIL – HORIZONTAL TRIM TERMINATION



DETAIL: Reveal2.0™ 1.18 Rev. 4 (2013)	<u>HORIZONTAL TRIM - TERMINATION</u> Hardie Reveal2.0™ Panel Vertical Siding <ul style="list-style-type: none">• Wood Framing• OSB or Plywood Sheathing• Pressure-Treated Wood Furring (Minimum 3/4" Nominal, 23/32" Actual Thickness) having specific gravity of 0.42 or greater• Shown with Panhead Screws into Furring	 James Hardie Commercial
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A. CUTTING GUIDANCE

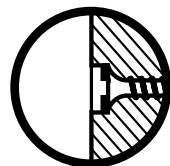
Cut panels outdoors. Position the cutting station so that the wind will blow dust away from user and others in the work area. The following methods are accepted:

- i. Best: Shears (manual, electric or pneumatic)
- ii. Better: Dust reducing panel saw or circular saw equipped with a HardieBlade® saw blade and Hepa vacuum extraction
- iii. Good: Dust reducing circular saw equipped with a HardieBlade® saw blade (only use for low to moderate cutting)

All field-cut edges or cut-outs shall be coated with the provided sealer.

B. GENERAL FASTENER REQUIREMENTS

James Hardie® HardieReveal2.0 products can be fastened using countersunk or exposed fastener. Countersink screws using the provided drill bit, to a depth of 1-1.5mm below surface. Countersunk fasteners must be filled and sanded.



C. CLEANING AND MAINTENANCE

It is recommended that normal maintenance occur to the exterior envelope and connections of joints, penetrations, flashings and sealants. Tasks of maintenance shall include, but not limited to:

- Washing down exterior surface every 6-12 months
- Clean out gutters, blocked pipes, and overflows as required
- Prune back vegetation that is close to or touching the building
- Patching - Dents, chips and cracks can be filled using a good quality cement patching compound (acrylic mortar patch) which can be found at your local Home Center or Hardware Store
- Mold/Mildew - Remove using a commercial mold/mildew remover. Consult your paint manufacturer's recommendations before applying any mold or mildew remover
- Caulk Replacement - When sealant needs replacing, carefully remove existing caulk and replace with a high quality, paintable latex caulk. For best results use a latex caulk that complies with ASTM C 834, ASTM C920 or better. Caulking should be applied in accordance with the caulking manufacturer's written installation instructions
- Paint Maintenance - Remove any damaged, chipped or cracked paint. Prior to repainting make sure that the surface area is properly cleaned and prepared. Repaint immediately using premium grade 100% acrylic paint. Note: For best results please refer to your paint manufacturer's written specifications for application rates and required topcoats or refer to James Hardie's Technical Bulletin, No. S-100
- Product Replacement - Replacement of one or more pieces of James Hardie® product should be done in accordance with the James Hardie written installation requirements and Best Practice Guide
- Sprinkler maintenance shall assure that water spray or overspray is directed away from the exterior cladding

* For information on washing see the The HardieZone™ System: HZ5® Care and Maintenance Guide

A2 | Fastening Table 33

Design table provide allowable capacity in MPH for traverse load conditions for HardieReveal2.0 Panel Vertical Siding attached to studs. When using the Building Code the wind speeds must be converted to 3 second gust wind speed (mph) using IBC table 1609.3.1

Frame Type	Stud Spacing (inches)	Building Height (feet)	B	C	D	Fastener Spacing (inches)	Fastener Type
2X4 wood (SPF) + Furring (3/4" thick x 1-1/2" wide plywood (6 ply)	16	0-15	133	121	110	Configuration 1 [2 screws measuring 12 in. from panel edge]	No. 10-12 x 1.5 in. long x 0.472 in. head diameter button head screw
		20	133	117	107		
		25	133	115	105		
		30	133	112	103		
		35	130	111	102		
		40	128	109	101		
		45	125	108	100		
		50	124	106	99		
		55	122	106	98		
		60	121	105	97		
		70	105	92	86		
		80	103	90	-		
		90	101	89	-		
		100	100	88	-		
2X4 wood (SPF) + Furring (3/4" thick x 1-1/2" wide plywood (6 ply)	16	0-15	169	153	139	Configuration 2 [3 screws measuring 8 in. from panel edge, and one screw equidistant in center]	No. 10-12 x 1.5 in. long x 0.472 in. head diameter button head screw
		20	169	149	136		
		25	169	146	134		
		30	169	143	131		
		35	165	141	130		
		40	162	139	128		
		45	160	137	127		
		50	157	135	125		
		55	155	134	124		
		60	153	133	124		
		70	134	117	109		
		80	131	115	107		
		90	129	113	107		
		100	127	112	106		

A2 | Fastening Table 34

Frame Type	Stud Spacing (inches)	Building Height (feet)	B	C	D	Fastener Spacing (inches)	Fastener Type
Minimum 20 gauge Steel (studs, z-girts, or hat channel)	16	0-15	153	139	126	Configuration 3 [3 screws measuring 8 in. from panel edge, and one screw equidistant in center]	No. 10-12 x 1.5 in. long x 0.472 in. head diameter button head screw
		20	153	135	123		
		25	153	132	121		
		30	153	129	119		
		35	150	127	117		
		40	147	125	116		
		45	144	124	115		
		50	142	123	114		
		55	140	121	113		
		60	139	120	112		
		70	121	106	99		
		80	119	104	97		
		90	117	103	97		
		100	115	102	96		
Minimum 20 gauge Steel (studs, z-girts, or hat channel)	16	0-15	170	154	140	Configuration 4 [4 screws measuring 6 in. from panel edge, and two screws spaced equidistant in center]	No. 10-12 x 1.5 in. long x 0.472 in. head diameter button head screw
		20	170	150	137		
		25	170	146	134		
		30	170	143	132		
		35	166	141	130		
		40	163	139	128		
		45	160	137	127		
		50	158	136	126		
		55	156	135	125		
		60	154	133	124		
		70	134	117	109		
		80	131	115	108		
		90	129	114	107		
		100	127	113	106		

A3 | Accessories Information 35

Many manufacturers provide suitable and alternative products that can be used in conjunction with HardieReveal2.0 Panel vertical siding. You have many selections and should research the manufacturer further. James Hardie Building Products does not endorse these manufacturers but recognizes the customer's needs to find product alternatives.

FASTENER SELECTION

Manufacturers of fasteners include:

- Simpson Strong-tie (countersunk)
- SFS Intech (exposed)
- GRK (exposed)

PAINT

- Sherwin Williams
- Behr
- PPG

Furring

- Minimum 3/4" nominal thick plywood or 20ga. steel hat channels/z-girts

A4 | Rainscreen

Rainscreen

HardieReveal2.0 Panel vertical siding requires the use of a rainscreen assembly designed with a minimum 3/4" air cavity.

The design principle for rainscreen construction involves strategy for diverting rain water and allowing for drainage and evaporation*. Rainscreen construction relies on the airspace to quickly drain water from the wall. Cladding is spaced away from the framing by furring strips installed vertically, creating a suitable capillary break allowing water to drain through the airspace.

Vented rainscreen approach promotes drainage and only vents at the base of the wall; this is James Hardie's minimum requirement. In the ventilated rainscreen approach vents at the bottom and top of the wall provide for increased air movement within the drainage cavity space to increase drying potential.

To permit air circulation in the ventilated space, air intake and output must be adequate. Venting to the exterior environment encourages drainage and increases the drying rate of excess moisture. Vented flashing should be every two floors maximum.

Bug (vermin) screens and cavity vent strips at rainscreen openings deter insect infestations, but may reduce the ventilation capacity. Selection of a bug screen or cavity vent strip material should adequately facilitate drainage and ventilation. Place bug screens at window heads, soffits, and top of penetrations or anywhere there is an opening in the rainscreen to the exterior of the wall allows exposure to an opening or where a drip cap exists.

* "Improving Drainage and Drying Features in Certain Conditions: Rain Screen Designs for Absorptive Claddings", National Association of Home Builders (NAHB), 2008. "The Rain Screen Principle and Pressure Equalized Wall Design", American Architectural Manufacturers Association (AAMA), 2004. "The Rain Screen Wall System", Canadian Mortgage and Housing Corporation (CMHC/Schl), 2001.

It remains at all times the responsibility of the licensed architect, designer, and/or builder to ensure that the construction details are suitable for the intended application of their project. This Guide does not constitute an endorsement of any particular 3rd party manufacturer or their accessories. Additionally, this Guide does not constitute an agreement to warrant any particular type of installation depicted therein. Warranty coverage shall remain at all times dependent upon the particular circumstances of the installation at issue, including but not limited to, whether the product is installed in accordance with James Hardie's printed installation requirements and whether it complies with all building codes adopted by federal, state or local governments or government agencies applicable to the installation.

Important: This Guide is subject to updates, check for latest version. Failure to install and finish this product in accordance with applicable building codes and James Hardie's written application instructions may lead to personal injury, affect system performance, violate local building codes, and void the product only warranty. Before installation, confirm that you are using the correct HardieZone® product. To determine which HardieZone™ applies to your location, visit www.hardiezone.com or call 1-866-942-7343 (866 9-HARDIE). For warranty services call 866-375-8603.

WARNING: AVOID BREATHING SILICA DUST: James Hardie® products contain respirable crystalline silica, which is known to the State of California to cause cancer and is considered by IARC and NIOSH to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) use fiber cement shears for cutting or, where not feasible, use a Hardieblade® saw blade and dust-reducing circular saw or panel saw, attached to a Hepa vacuum; (3) warn others in the immediate area; (4) wear a properly fitted, niosh-approved dust mask or respirator (e.g. N-95) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use Hepa vacuums or wet cleanup methods never dry sweep. For further information, refer to our installation instructions an material safety data sheet available at www.Jameshardiecommercial.com or by calling 1-800-9HARDIE (1-800-942-7343). Failure to adhere to our warnings, msds, and installation instructions may lead to serious personal injury or death.

