CITY OF CANNON BEACH

BEFORE THE DESIGN REVIEW BOARD
OF THE CITY OF CANNON BEACH

IN THE MATTER OF A DESIGN REVIEW APPLICATION FOR EXTERIOR ALTERATIONS TO AN EXISTING BUILDING AT 160 E. SIUSLAW ST., PROPERTY DESCRIPTION: MAP 51032CB, TAX LOT 70001, 70002, 70003, 70102, 70103, 70104, 70105, 70106, AND 70201, ZONE: RM

FINDINGS OF FACT,
CONCLUSIONS, AND
ORDER DRB 24-04

APPLICANT: WRB Construction
12705 SW Herman Rd.
Tualatin, OR 97062

WRB Construction application on behalf of Tolovana Sands Condominiums for exterior alterations to an existing structures at 160 Siuslaw St. The application was reviewed against the criteria of Municipal Code Chapter 17.44.080 – 17.44.100, Design Review Criteria.

The public hearing on the above-entitled matter was held before the Design Review Board on 2/21/2024 and continued to 2/21/2024, the Design Review Board closed the public hearing at the 2/21/2024 meeting, and a decision was made at that meeting. The Board heard additional testimony from the applicant during its 3/21/2024 meeting regarding the applicant's plans to satisfy conditions of approval. The Board rendered a decision on the applicant's revision during this hearing.

THE DESIGN REVIEW BOARD ORDERS that the application for exterior alterations is APPROVED and adopts the findings of fact and conclusions that accompany this decision. The effective date of this Order is 14 days following the signing of the Order.

This decision may be appealed to the City Council by an affected party by filing an appeal with the City Manager within 14 days of this date.

CANNON BEACH DESIGN REVIEW BOARD

DocuSigned by:
David Doering
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DATED: 3/28/2024

David Doering, Chair

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www.ci.cannon-beach.or.us • cityhall@ci.cannon-beach.or.us

CANNON BEACH COMMUNITY DEVELOPMENT
163 E. GOWER ST.
PO BOX 368
CANNON BEACH, OR 97110

Cannon Beach Design Review Board

Findings of Fact and Conclusions of Law

DRB 24-04, WRB CONSTRUCTION LLC, ON BEHALF OF TOLOVANA SANDS CONDOMINUMS, APPLICATION FOR EXTERIOR ALTERARTIONS TO EXISTING BUILDINGS. THE PROPERTY, 160 E. SIUSLAW, TAXLOTS 51032CB70001, 70002, 70003, 70102, 70103, 70104, 70105, 70106, AND 70201 CONSISTS OF MULTIPLE OWNERS WITHIN A HOMEOWNERS ASSOCIATION AND IS IN A RESIDENTIAL MOTEL (RM) ZONE. THE APPLICATION WILL BE REVIEWED AGAINST THE CRITERIA OF MUNICIPAL CODE CHAPTER 17.44.080 – 17.44.100, DESIGN REVIEW CRITEIRA.

Agenda Date: March 21, 2024

EXHIBITS

The following Exhibits are attached hereto as referenced.

"A" Exhibits – Application Materials

A-3 Revised project description, submitted March 7, 2024

A-4 Materials information sheets, submitted March 7, 2024

SUMMARY & BACKGROUND

This application was approved by the Design Review Board during its February 2024 public hearing subject to the following conditions:

1. The applicant shall provide exterior color information for review and approval by the Design Review Board.
2. The applicant shall include shake siding in the gable areas and provide plans for review and approval by the Design Review Board showing these modifications.

FINDINGS

The Design Review Board finds that the applicant's proposed materials and colors satisfy the Design Review Board's conditions of approval established in its February 2024 decision.

DECISION

Architectural

Motion: Having considered the evidence in the record and upon a motion by Board member Claussen, seconded by Board member Valigura, the Cannon Beach Design Review Board voted to conditionally approve the architectural plan of the WRB Construction application for exterior alterations for an existing building at 160 E. Siuslaw St., DRB 24-04, as discussed at this public hearing.

Exhibit A-3

PREPARED FOR:

Tolovana Sands

160 E Siuslaw St
Cannon Beach, OR 97110

Building Envelope Restoration

Revised: March 07, 2024

Areas Covered: All buildings

- ✓ Siding and Dry Rot Repair
- ✓ Waterproofing
- ✓ Roofing
- ✓ Painting

GOWRB.COM
503-427-1982

Executive Summary

Goal.

Update Tolovana Sands condominium exteriors to improve the overall aesthetic, applying Cannon Beach's DRB and Tolovana Sands design goals.

Start with the best.

Only the highest-grade building materials designed like **James Hardie**® Lap and Cedar Texture Shakes, **Tyvek**® weatherproofing systems, **Sherwin-Williams**® SuperPaint®, etc.

Predictable Results.

By using best-practice installation methods, our proven restoration methodology and repeatable processes set WRB Construction apart—allowing us to deliver predictable and superior results.

Existing -vs- Proposed Solution.

Existing

Restored

Exhibit A-3

Property Location

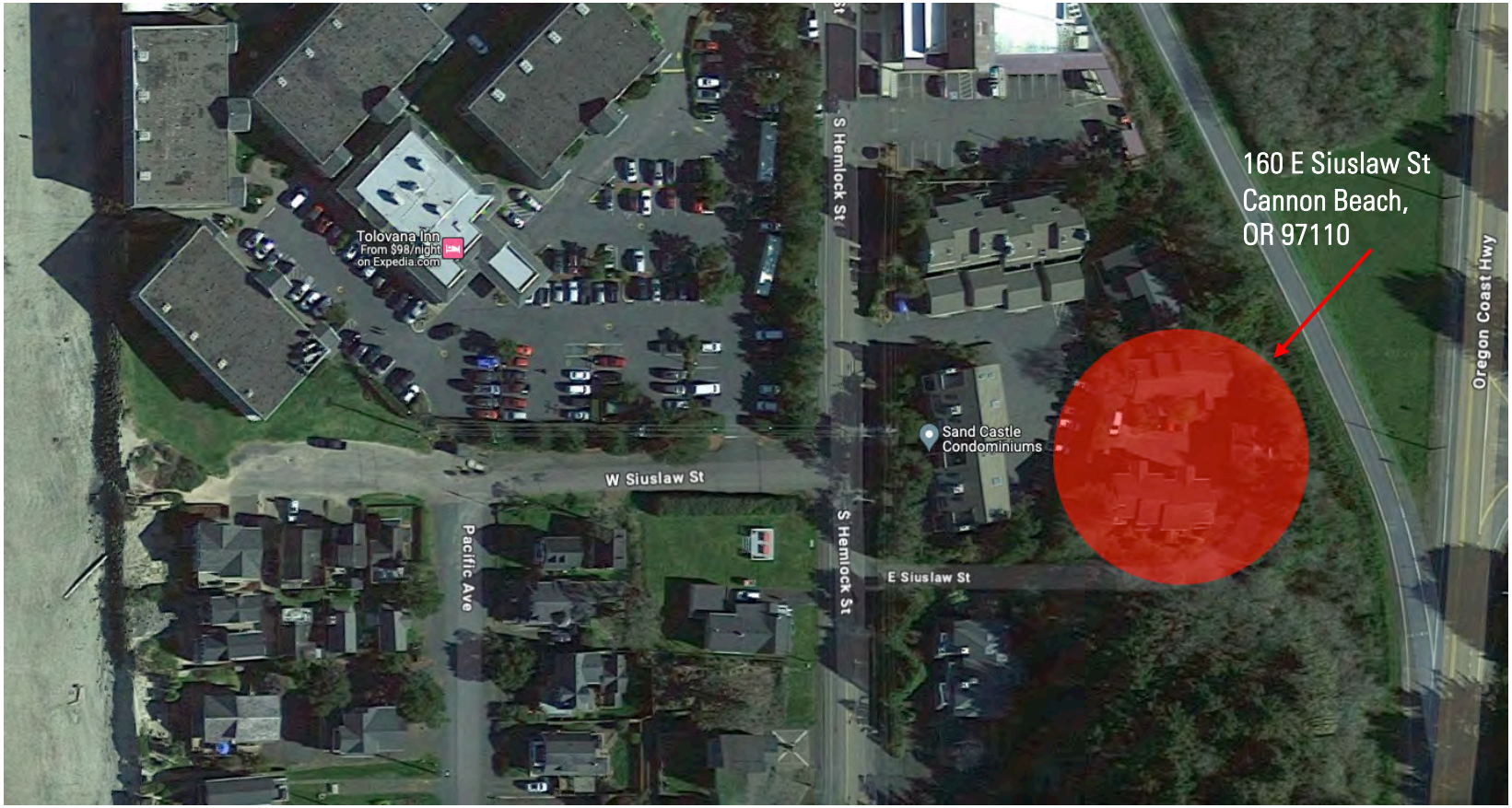


Exhibit A-3

Existing Conditions

Exhibit A-3

Existing Conditions

Existing Conditions

Exhibit A-3

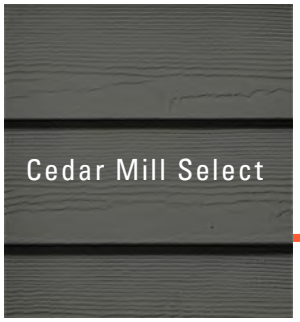
Existing Conditions

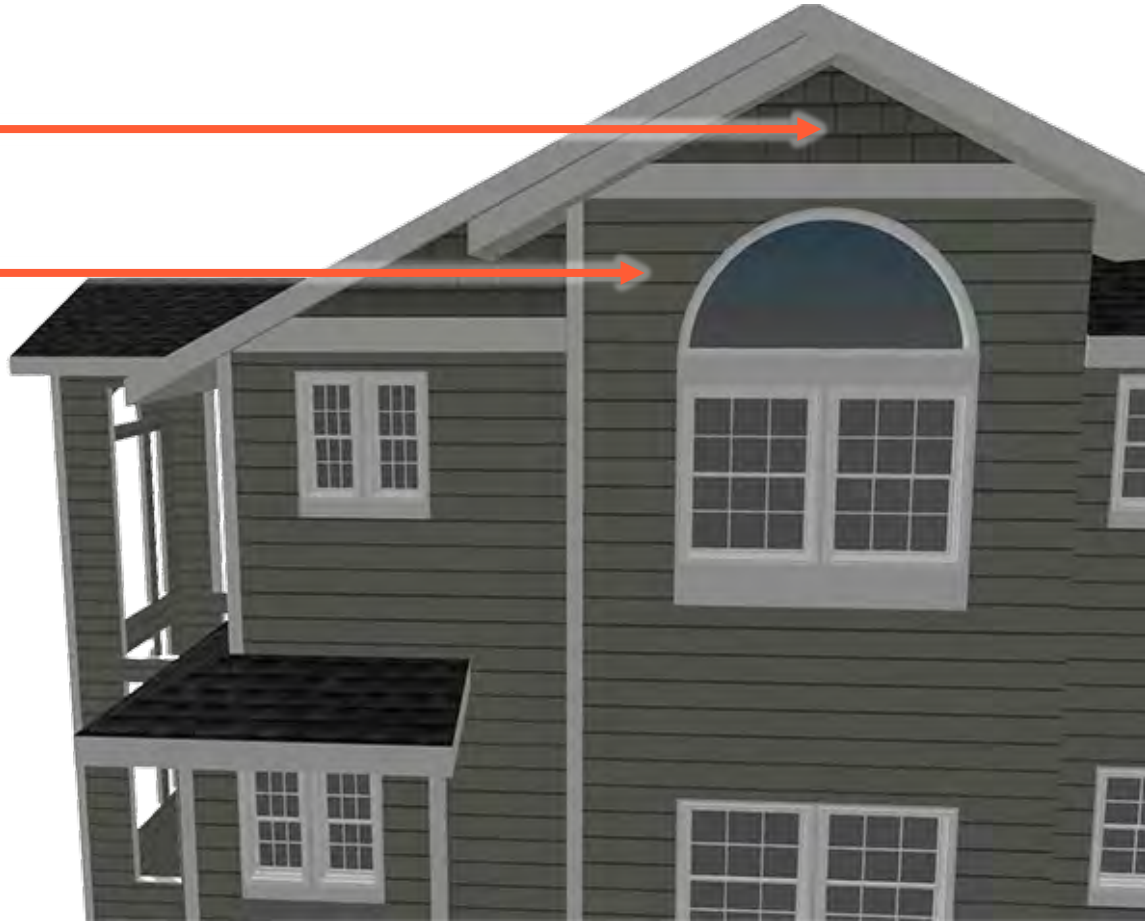
Exhibit A-3

Design Concept

JamesHardie

For the distinct look of cedar shake with less maintenance, we chose **Hardie®** Shingle siding on the gable ends and **Hardie® Plank CedarMill®** lap siding for the rest. This combination is traditional, timeless, sleek, and strong. All siding will be finished with **Sherwin-Williams® SuperPaint®**.



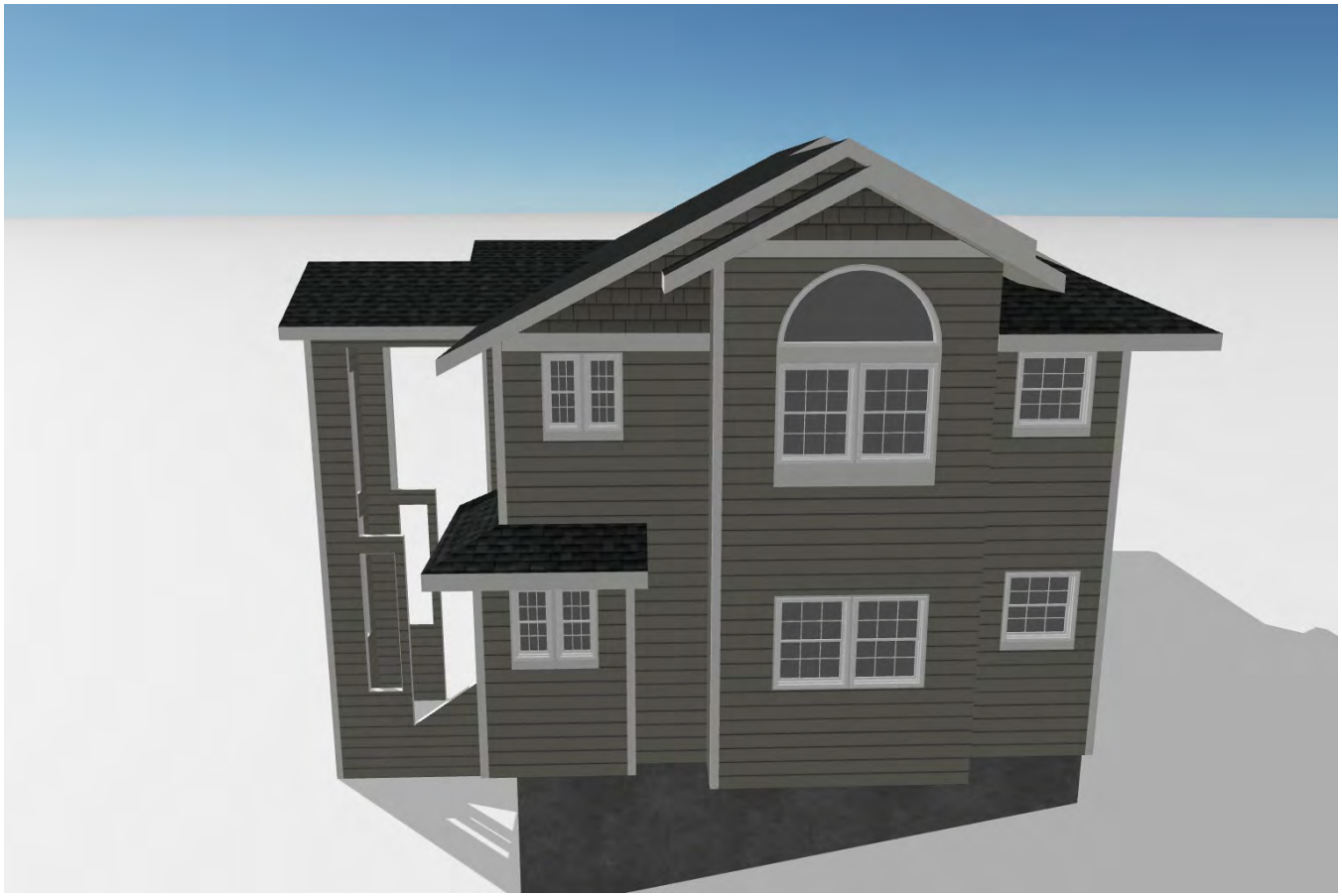


Gauntlet Gray
#7019

Extra White
#7006

Renderings

Renderings



Renderings

Nearby Properties

Here is a map showing the properties near the project location.

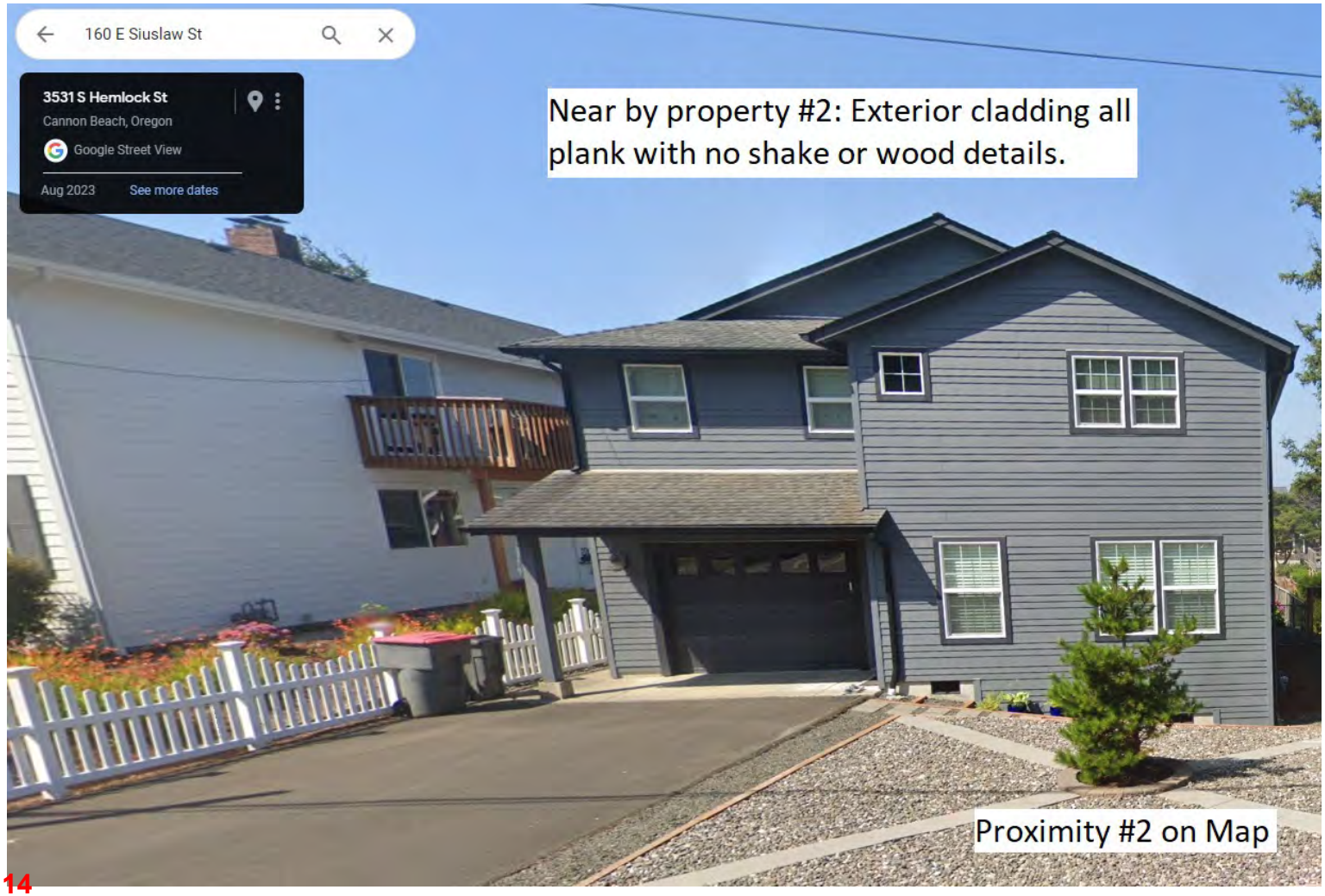
Photos of the nearby properties showing their cladding details are also included.

Also included is a photo of the street view facing the project property.

Exhibit A-3

Nearby Properties

Nearby Properties



Nearby Properties

Exhibit A-3

Street View

This is the view from Hemlock St.

Material Data and Product Information

Tolovana Sands Project

160 E Siuslaw St.

Cannon Beach, OR 97110

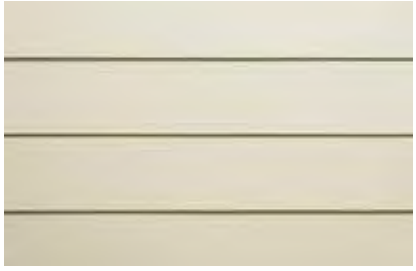
Project performed by WRB Construction

HardiePlank® Lap Siding Product Description

HardiePlank lap siding is factory-primed fiber-cement lap siding available in a variety of styles and textures. Please see your local James Hardie® product dealer for product availability. HardiePlank® lap siding comes in 12 ft. lengths. Nominal widths from 5¼ in. to 12 in. create a range of exposures from 4 in. to 10¾ in.

HardiePlank lap siding is also available with ColorPlus® Technology as one of James Hardie's prefinished products. ColorPlus Technology is a factory applied, oven-baked finish available on a variety of James Hardie siding and trim products. See your local dealer for details and availability of products, colors and accessories.

Select Cedarmill©



Smooth

Beaded Cedarmill©

Beaded Smooth

Custom Colonial Roughsawn®

Custom Colonial Smooth®

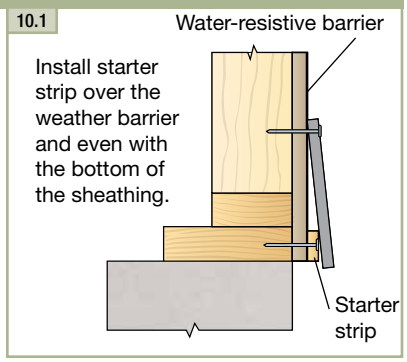
Installation of HardiePlank® Lap Siding

INSTALL A STARTER STRIP

HardiePlank® lap siding requires a starter strip beneath the first course to set it on the proper angle and to create a proper drip edge at the bottom of the siding. Starter strips are easily made by ripping 1¼ in. pieces of HardiePlank siding from full or partial planks.

The bottom of the starter strip should be installed even with the bottom of the mudsill or the bottom edge of the sheathing. The strip must be installed over the water-resistive barrier, but occasional gaps should be left in the starter strip to allow any accumulated moisture behind the siding to drain away safely.

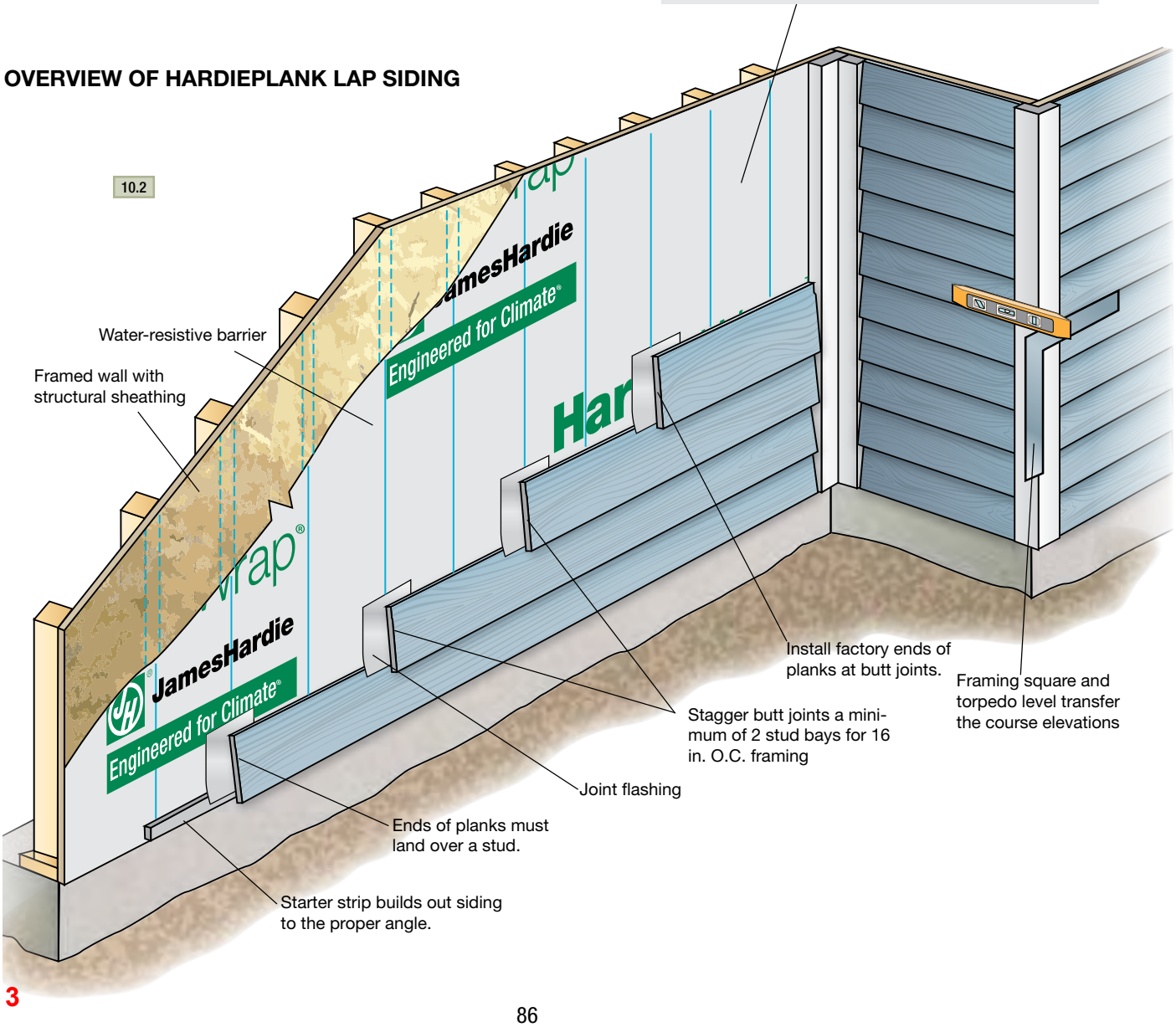
10.1



TIP: For accurate fastening, snap vertical chalk lines on the water-resistive barrier at the center of every stud location.

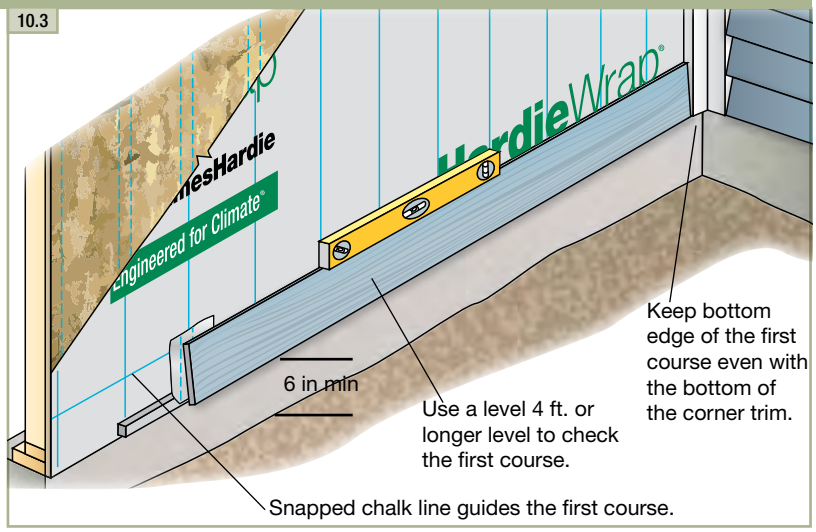
OVERVIEW OF HARDIEPLANK LAP SIDING

10.2



INSTALLING THE PLANKS

10.3



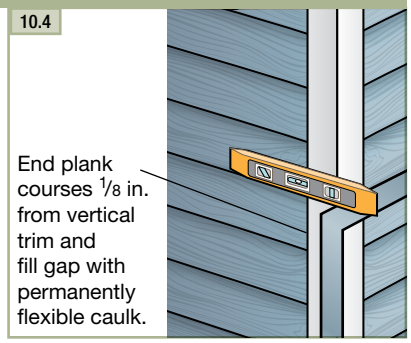
The first course of HardiePlank® siding is critical to the proper installation of the plank on the rest of the building. The first course should start at the lowest point of the house and within required clearances. Special attention should be made to ensure that it's straight and level. Attention should also be paid to staggering any butt joints in the planks so that the installation is attractive while making efficient use of material.

1. Use a level (4 ft. or longer) or chalked level line to be sure that the first course is level. As installation proceeds up the wall, periodically check the level and straightness of the courses. When correcting for flatness over products such as exterior insulation, use drywall shims. It is good practice to snap a chalk line every 3 to 5 courses to keep the planks straight and level.
2. Position the bottom edge of the first course of siding a minimum ¼ in below the edge of the starter strip (maintain required clearances) and secure.
3. Run the siding to the HardieTrim® board leaving a 1/8 in. gap between the siding and trim.

The bottom of the siding should be kept even with the bottom of the trim, or if desired, the trim may extend below the bottom of the siding. But the siding should never hang below the trim. ***When installing the first course make sure ground clearances are in accordance with James Hardie requirements and those of local codes.**

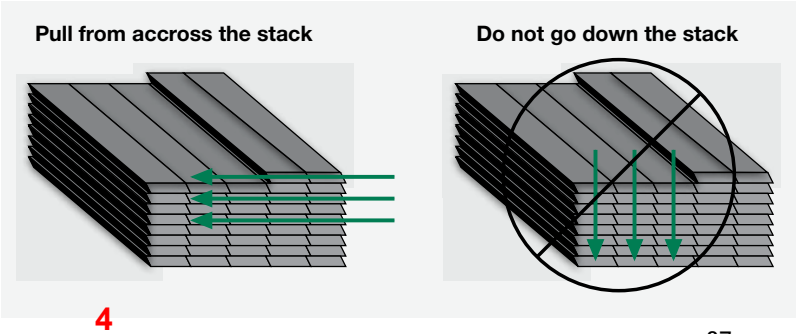
PLANK ALIGNMENT AT CORNERS

10.4



For the best looking installation, make sure that the heights of the plank courses match on both sides of a corner. Use a framing square, speed square or a level to match up the plank heights. Check every few courses to make sure proper heights are being maintained.

TIP: When taking planks from the pallet installation, avoid repeating the texture pattern by working across the pallet. Two to four planks can be removed from a stack at one time. But then material should be taken from adjacent stacks, again working across the pallet. Texture repeat is typically a concern on large walls with few breaks such as windows or doors.



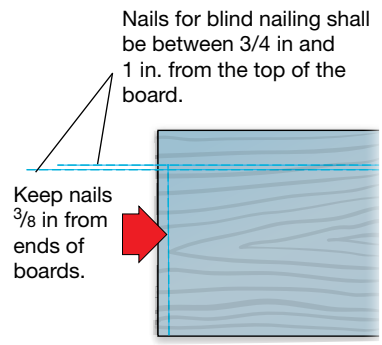
Installation of HardiePlank® Lap Siding (cont.)

BLIND NAILING (nailing through top of plank)

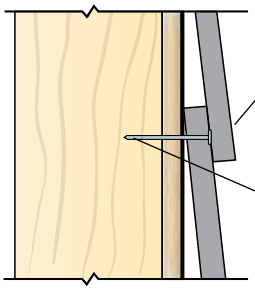
Blind nailing is recommended for installing any type of HardiePlank® lap siding including ColorPlus® siding. With blind nailing, each course covers the fasteners on the course below, which provides a better looking installation.

For blind nailing HardiePlank lap siding, James Hardie recommends driving fasteners 1 in. from the top edge of the plank. Additionally fasteners should be placed no closer than 3/8 in. from the ends of the plank.

10.5 **Blind nailing measurments**



10.6 **Blind nailing**

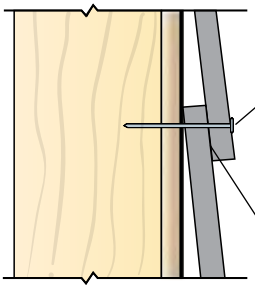


Avoid placing fasteners near the top edge of the plank. This practice, called “high nailing”, may lead to loose planks, unwanted gaps or rattling. **Pin-backed corners may be done for aesthetic purposes only. Finish nails are recommended for pin-backs. Headed siding nails are allowed. Place pin-backs no closer than 1 in. from plank ends and 3/4 in. from plank edge into min. 3/8 in. wood structural panel. Pin-backs are not a substitute for blind or face nailing**

FACE NAILING (nailing through the overlap at the bottom of the plank)

Although blind nailing is recommended by James Hardie, face nailing may be required for certain. installations including: installations in high wind areas, fastening into OSB or equivalent sheathing without penetrating a stud, or when dictated by specific building codes . Refer to Appendix D for related code matters.

10.7 **Face nailing**

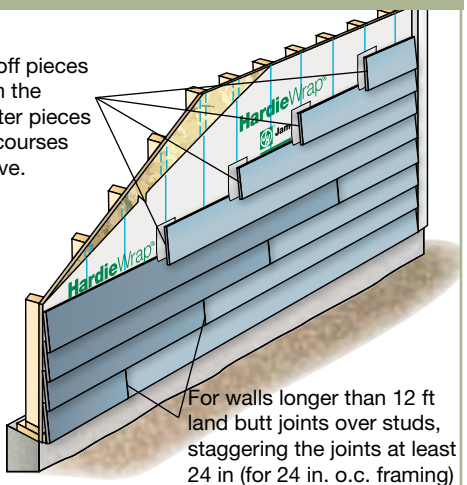


STAGGERING THE BUTT JOINTS

For walls longer than 12 ft, it is necessary to butt joint additional lengths of HardiePlank siding. These butt joints should be staggered to avoid noticeable patterns, which is determined by the placement of the first course. Butt joints between consecutive courses should be spaced apart by at least two stud bays for 16 in., o.c. framing or one bay for 24 in. o.c. framing.

While random placement of the planks is usually the most aesthetically pleasing, a progressive stagger pattern can make the job easier and faster without the pattern becoming too noticeable. With this strategy, the cut off piece for one course becomes the starter piece for a course above, making efficient use of materials and ensuring that all butt joints land on studs. The pattern can be modified for different stud placement.

10.8



JOINT FLASHING

One or more of the following joint treatment options are required by code (as referenced 2009 IRC R703.10.2)

A. Joint Flashing (James Hardie recommended)

B. Caulking* (Caulking is not recommended for ColorPlus for aesthetic reasons as the Caulking and ColorPlus will weather differently. For the same reason, do not caulk nail heads on ColorPlus products.}

C. “H” jointer cover

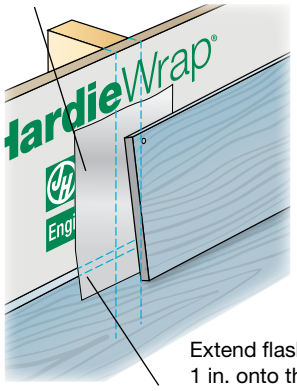
Flashing behind butt joints provides an extra level of protection against the entry of water at the joint. James Hardie recommends 6 in. wide flashing that overlaps the course below by 1 in. Some local building codes may require different size flashing.

Joint-flashing material must be durable, waterproof materials that do not react with cement products. Examples of suitable material include finished coil stock and code compliant water-resistive barriers. Other products may also be suitable.

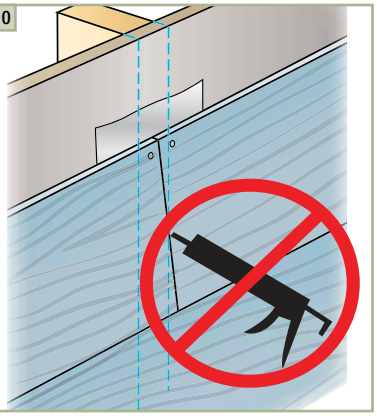
TIP: Joint flashing can be quickly and easily made by cutting a 6 in. wide section off a roll of housewrap. Tape the roll tightly at the cut mark and cut the section off using a miter saw with a carbide blade. Individual sheets then can be cut to length with a utility knife.

TIP: Use light-colored joint flashing when using light-colored ColorPlus lap siding or other siding with a light-colored finish. Dark-color joint flashings should be used on siding with dark finishes.

10.9



10.10



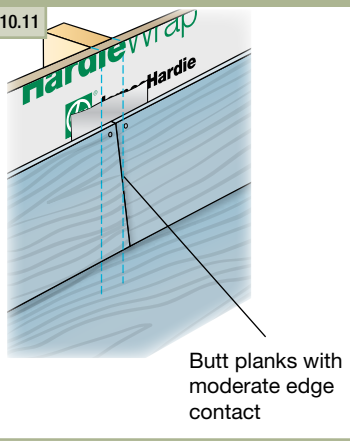
Caulking at HardiePlank lap siding butt joints is not recommended for ColorPlus for aesthetic reasons as the caulking and ColorPlus will weather differently. For the same reason, do not caulk exposed nail heads. Refer to the ColorPlus touch-up section for details

JOINT PLACEMENT AND TREATMENT

Butt joints in HardiePlank lap siding should always land on a stud. Butt joints between studs are not recommended and should be avoided. Whenever possible, factory-finished ends should be used at butt joints.

Place cut ends where the siding meets a corner, door, window trim, or other break in the wall where the joint is to be caulked. If cut ends are used in a butt joint between planks, James Hardie requires sealing cut ends for all products. For ColorPlus products, use the color-matched edge coater to seal the cut end.

10.11



COLORPLUS® TIP: When installing HardiePlank lap siding with ColorPlus Technology, position the plank in the immediate area where the plank is to be fastened. Do not place the plank on the course below and slide into position. Doing so may scuff or scratch the ColorPlus finish on the installed piece.

Installation of HardiePlank® Lap Siding (cont.)

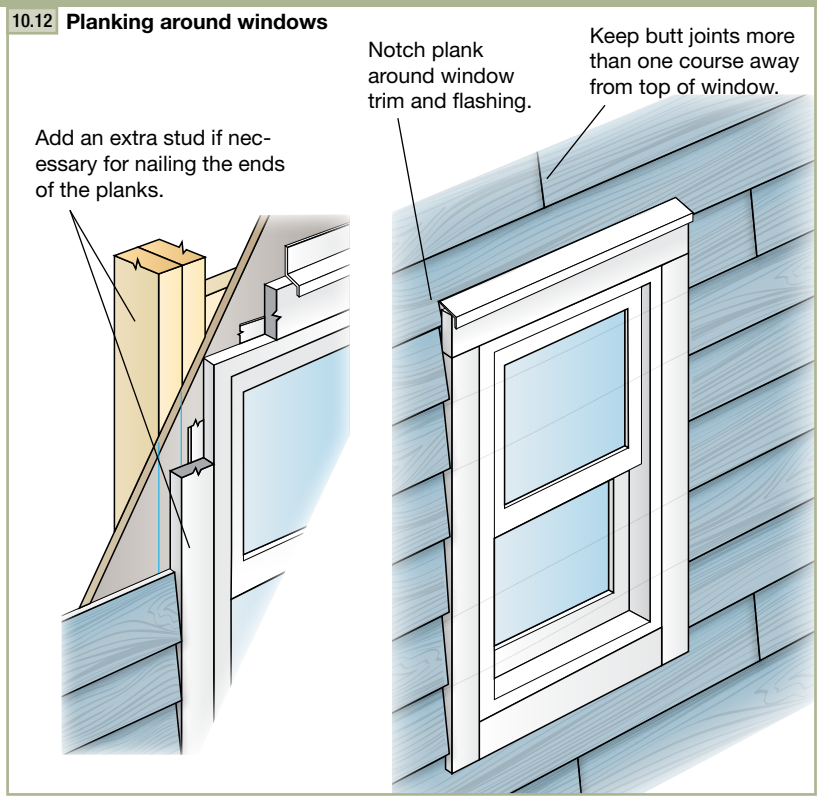
CONTINUING THE INSTALLATION

Once the initial course of HardiePlank® siding is fastened to the wall, continue installing successive courses with full 12 ft. pieces (follow the stagger pattern for longer walls), or until a window, door or other opening interrupts the course (fig 10.12). Notch planks as needed to fit around windows and doors. Again, be sure to seal all cut edges. Avoid placing butt joints directly above or below windows or above doors. Separate the joint from the opening by at least one course of siding.

Where butt joints land on a stud, make sure there is enough stud space for plank on both sides of the joint to land properly. Optimally both sides of a butt joint should land in the middle of a stud with 3/4 in landing space for each side. The minimum stud space for a plank to land is 3/8 in.

Pay special attention to window, doors, and corners that have been trimmed before the siding goes on. Vertical trim boards may cover the king studs beside windows or doors, or they may cover up corner studs leaving no room for nailing the siding. In these places add extra studs as needed.

10.12 **Planking around windows**



COLORPLUS TIP: HardiePlank lap siding with ColorPlus Technology is shipped with a protective laminate slip sheet, which should be left in place during cutting and fastening to reduce marring and scratching. The sheet should be removed immediately after each plank is installed.

If corners are trimmed with **HardieTrim® 5/4, 4/4 boards**, it may be necessary to measure and cut the first pieces of siding to make sure the butt joints land on studs.

INSTALLING HARDIEPLANK® SIDING ON GABLE WALLS

Siding gable walls can be challenging, and some of the keys to siding gable walls efficiently are determining the angle or pitch of the roof, properly staging materials, and ensuring that the plank lengths are measured accurately.

To estimate the amount of siding needed to complete a gable end, use the estimating tools located in Appendix C.

Stage enough material on the pump jacks or scaffolding to complete the gable end, but take care not to overload the staging. When possible, a cut table should be located on the pump jacks or scaffolding, which frees up crew members to work on other walls.

To cut planks for the gable:

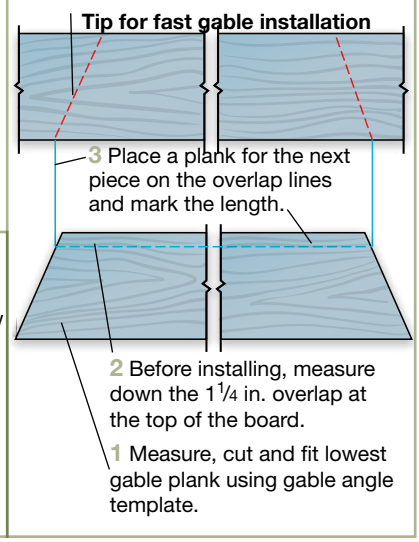
1. Tack up a small scrap piece of siding where the first gable course is going.
2. Hold a second small piece of siding against the eave or rake board.
3. Trace the angle onto the scrap.
4. Cut that line and label the scrap as the template for the gable angle. The template can then be used to transfer the angle onto the larger pieces for cutting and installation.
5. Periodically check the angle as you progress up the wall.

The quickest way to measure and cut consecutive courses of siding for a gable is to work off the previous piece.

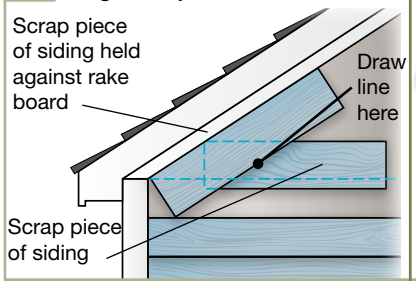
1. Cut and fit the lowest course of siding.
2. Before installing, lay it flat and measure down 1¼ in. from the top edge of the plank for the course overlap. Make a mark on both ends.
3. Set a piece of uncut siding on top of the first piece, aligning the bottom edge with the overlap marks. Transfer the length directly to the uncut piece.
4. Draw the gable angle with the template, cut the angle and then repeat the process for the next course.

TIP: Stainless steel fasteners are recommended when installing James Hardie® products.

10.13



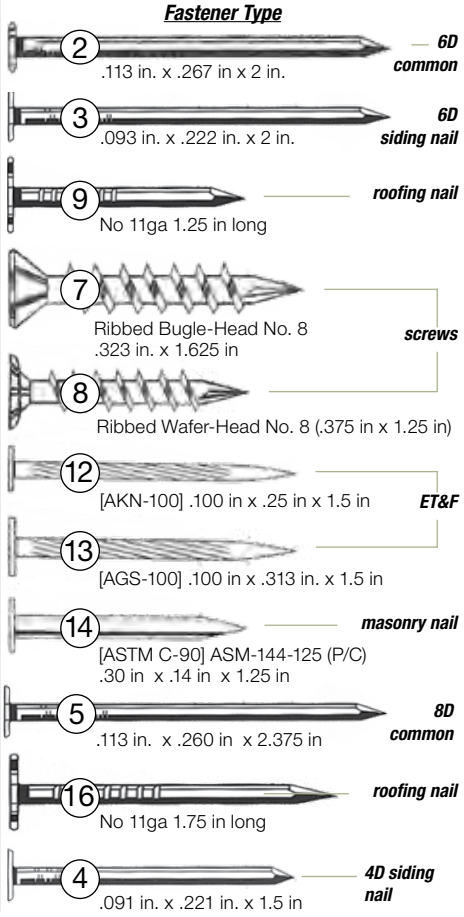
10.14 **Angle Template**



HARDIEPLANK® SIDING FASTENER SPECIFICATIONS

The Fastener Specifications table shows fastener options for a variety of different nailing substrates. Please refer to the applicable ESR report online (see back page) to determine which fastener meets your wind load design criteria.

Fastener Substrate			Approved Fastener
wood studs	blind nail	16 in o.c.	3 9
		24 in o.c.	16
	face nail	16 in o.c.	2 5
		24 in o.c.	2 5
steel studs*	blind nail	16 in o.c.	8 13
		24 in o.c.	
	face nail	16 in o.c.	7 12
		24 in o.c.	
Direct to Masonry			14
7/16 in OSB or equivalent (face nailed)			4



* *When blind fastening 9.5 in or wider product onto steel studs, use screws.*

● *indicates recommended fasteners*

Exhibit A-4

HardiePlank® Lap Siding

EFFECTIVE DECEMBER 2019

IMPORTANT: FAILURE TO FOLLOW JAMES HARDIE WRITTEN INSTALLATION INSTRUCTIONS AND COMPLY WITH APPLICABLE BUILDING CODES MAY VIOLATE LOCAL LAWS, AFFECT BUILDING ENVELOPE PERFORMANCE AND MAY AFFECT WARRANTY COVERAGE. FAILURE TO COMPLY WITH ALL HEALTH AND SAFETY REGULATIONS WHEN CUTTING AND INSTALLING THIS PRODUCT MAY RESULT IN PERSONAL INJURY. BEFORE INSTALLATION, CONFIRM YOU ARE USING THE CORRECT HARDIEZONE® PRODUCT INSTRUCTIONS BY VISITING HARDIEZONE.COM OR CALL 1-866-942-7343 (866-9-HARDIE)

STORAGE & HANDLING:

Store flat and keep dry and covered prior to installation. Installing siding wet or saturated may result in shrinkage at butt joints. Carry planks on edge. 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:
   - a. Best: Circular saw equipped with a HardieBlade® saw blade and attached vacuum dust collection system. Shears (manual, pneumatic or electric) may also be used, not recommended for products thicker than 7/16 in.
   - b. Better: Circular saw equipped with a dust collection feature (e.g. Roan® saw) and a HardieBlade saw blade.
   - c. Good: Circular saw equipped with a HardieBlade saw blade.

INDOORS

DO NOT grind or cut with a power saw indoors. Cut using shears (manual, pneumatic or electric) or the score and snap method, not recommended for products thicker than 7/16 in.

- DO NOT dry sweep dust; use wet dust suppression or vacuum to collect dust.
- For maximum dust reduction, James Hardie recommends using the "Best" cutting practices. Always follow the equipment manufacturer's instructions for proper operation.
- For best performance when cutting with a circular saw, James Hardie recommends using HardieBlade® saw blades.
- Go to jameshardiepros.com for additional cutting and dust control recommendations.

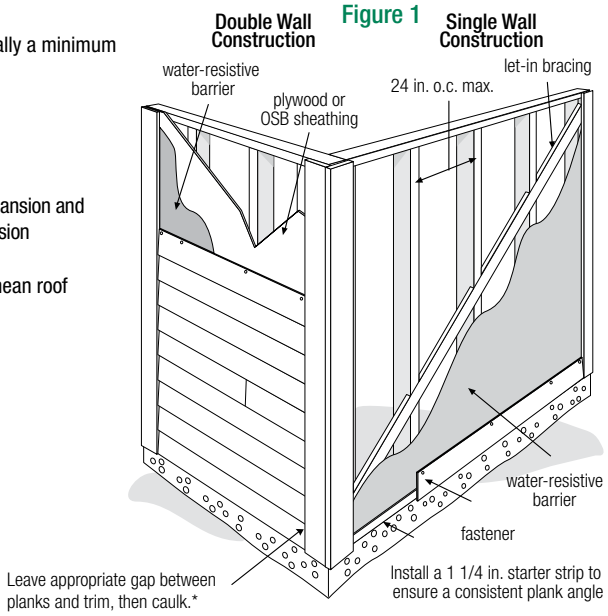
IMPORTANT: The Occupational Safety and Health Administration (OSHA) regulates workplace exposure to silica dust. For construction sites, OSHA has deemed that cutting fiber cement with a circular saw having a blade diameter less than 8 inches and connected to a commercially available dust collection system 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.

GENERAL REQUIREMENTS:

- HardiePlank® lap siding can be installed over braced wood or steel studs, 20 gauge (33 mils) minimum to 16 gauge (54 mils) maximum, spaced a maximum of 24 in o.c. or directly to minimum 7/16 in thick OSB sheathing. See General Fastening Requirements. Irregularities in framing and sheathing can mirror through the finished application. Correct irregularities before installing siding.
- Information on installing James Hardie products over non-nailable substrates (ex: gypsum, foam,etc.) can be located in JH Tech Bulletin 19 at www.jamehardie.com
- A water-resistive barrier is required in accordance with local building code requirements. The water-resistive barrier 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 does manufacture HardieWrap® Weather Barrier, a non-woven non-perforated housewrap[1], which complies with building code requirements.
- When installing James Hardie products all clearance details in figs. 3-14 must be followed.
- 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 HardiePlank lap siding in Fascia or Trim applications.
- Do not install James Hardie products, such that they may remain in contact with standing water.
- HardiePlank lap siding may be installed on flat vertical wall applications only.
- For larger projects, including commercial and multi-family 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 "Expansion Characteristics of James Hardie® Siding Products" at www.jameshardie.com.
- James Hardie Building Products provides installation/wind load information for buildings with a maximum mean roof height of 85 feet. For information on installations above 60 feet, please contact JH technical support.

Figure 1



INSTALLATION: JOINT TREATMENT

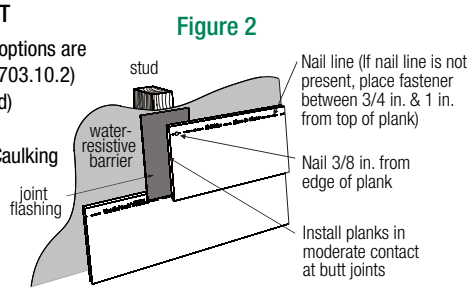
One or more of the following joint treatment options are required by code (as referenced 2009 IRC R703.10.2)

A. Joint Flashing (James Hardie recommended)

B. Caulking* (Caulking is not recommended for ColorPlus for aesthetic reasons as the Caulking and ColorPlus will weather differently. For the same reason, do not caulk nail heads on ColorPlus products.)

C. "H" jointer cover

Figure 2



Note: Field painting over caulking may produce a sheen difference when compared to the field painted PrimePlus. *Refer to Caulking section in these instructions.

[1]For additional information on HardieWrap® Weather Barrier, consult James Hardie at 1-866-4Hardie or www.hardiewrap.com

JamesHardie™

CLEARANCE AND FLASHING REQUIREMENTS

Figure 3
Roof to Wall

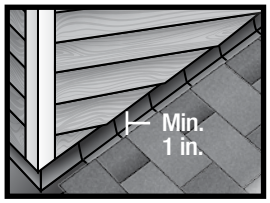


Figure 4
Horizontal Flashing

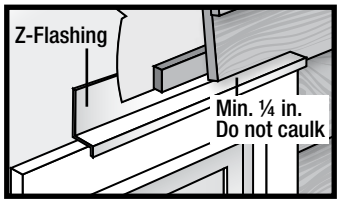


Figure 5
Kickout Flashing

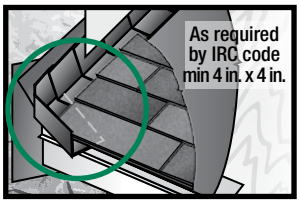


Figure 6
Slabs, Path, Steps to Siding

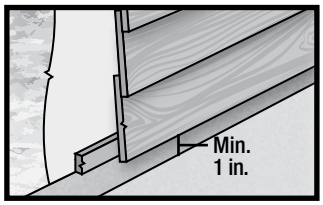


Figure 7
Deck to Wall

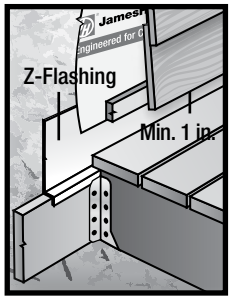


Figure 8
Ground to Siding

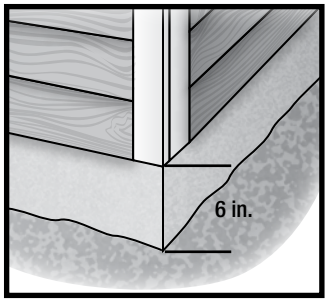


Figure 9
Gutter to Siding

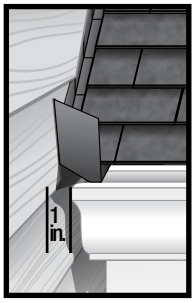


Figure 10
Sheltered Areas

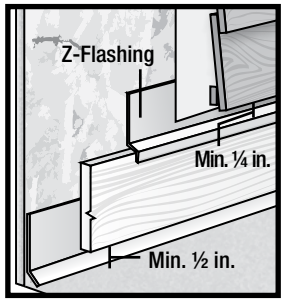


Figure 11
Mortar/Masonry

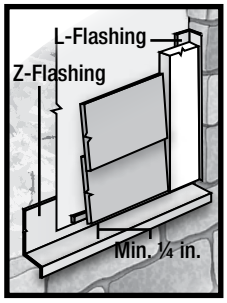


Figure 12
Drip Edge

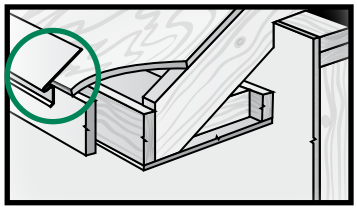


Figure 13
Block Penetration
(Recommended in HZ10)

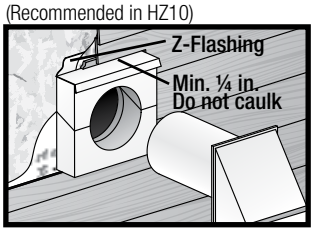
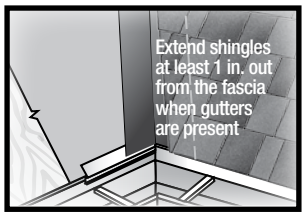


Figure 14
Valley/Shingle Extension



FASTENER REQUIREMENTS*

Refer to the applicable ESR report online to determine which fastener meets your wind load design criteria.

Blind Nailing is the preferred method of installation for HardiePlank® lap siding products. Face nailing should only be used where required by code for high wind areas and must not be used in conjunction with Blind nailing (Please see JH Tech bulletin 17 for exemption when doing a repair).

BLIND NAILING

Nails - Wood Framing
- Siding nail (0.09 in. shank x 0.221 in. HD x 2 in. long)
- 11ga. roofing nail (0.121 in. shank x 0.371 in. HD x 1.25 in. long)

Screws - Steel Framing
- Ribbed Wafer-head or equivalent (No. 8 x 1 1/4 in. long x 0.375 in. HD) Screws must penetrate 3 threads into metal framing.

Nails - Steel Framing
- ET & F Panelfast® nails or equivalent (0.10 in. shank x 0.313 in. HD x 1-1/2 in. long) Nails must penetrate minimum 1/4 in. into metal framing.

OSB minimum 7/16 in.
- Siding nail (0.09 in. shank x 0.215 in. HD x 1-1/2 in. long
- Ribbed Wafer-head or equivalent (No. 8 x 1 5/8 in. long x 0.375 in. HD).

FACE NAILING

Nails - Wood Framing
- 6d (0.113 in. shank x 0.267 in. HD x 2 in. long)
- Siding nail (0.09" shank x 0.221" HD x 2" long)

Screws - Steel Framing
- Ribbed Bugle-head or equivalent (No. 8-18 x 1-5/8 in. long x 0.323 in. HD) Screws must penetrate 3 threads into metal framing.

Nails - Steel Framing
- ET & F pin or equivalent (0.10 in. shank x 0.25 in. HD x 1-1/2 in. long) Nails must penetrate minimum 1/4 in. into metal framing.

OSB minimum 7/16 in.
- Siding nail (0.09 in. shank x 0.221 in. HD x 1-1/2 in. long)

*Also see General Fastening Requirements; and when considering alternative fastening options refer to James Hardie's Technical Bulletin USTB 5 - Fastening Tips for HardiePlank Lap Siding.

FASTENER REQUIREMENTS continued

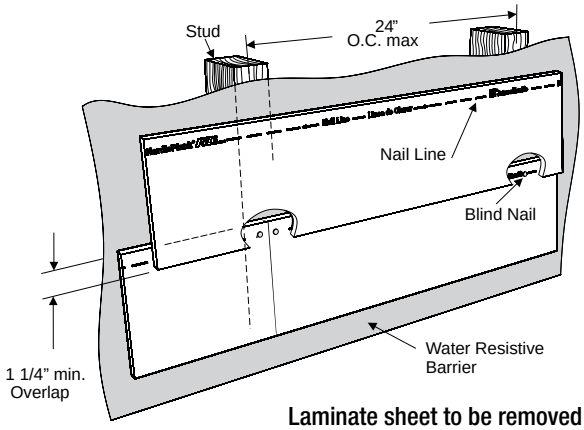
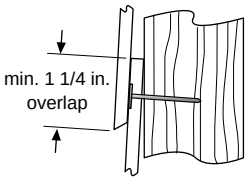
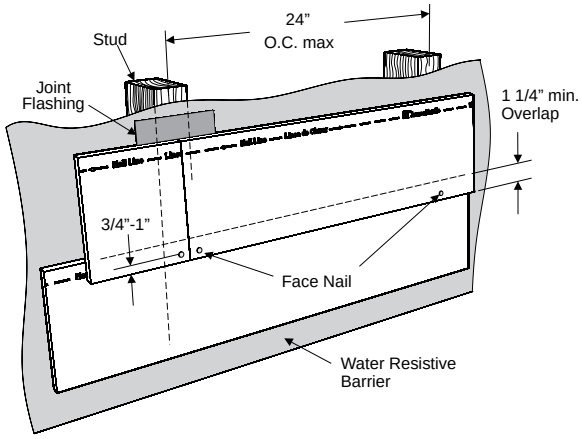


Figure 15

Figure 16

Minimum overlap for Both Face and Blind Nailing





Laminate sheet to be removed immediately after installation of each course for ColorPlus® products.

Pin-backed corners may be done for aesthetic purposes only. Finish nails are recommended for pin-backs. Headed siding nails are allowed. Place pin-backs no closer than 1 in. from plank ends and 3/4 in. from plank edge into min. 3/8 in. wood structural panel. Pin-backs are not a substitute for blind or face nailing.

GENERAL FASTENING REQUIREMENTS

Fasteners must be corrosion resistant, galvanized, or stainless steel. Electro-galvanized are acceptable but may exhibit premature corrosion. 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.

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 aluminum products. Fasteners used to attach HardieTrim Tabs to preservative-treated wood shall be of hot dipped zinc-coated galvanized steel or stainless steel and in accordance to 2009 IRC R317.3 or 2009 IBC 2304.9.5

- 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).
- NOTE: Whenever a structural member is present, HardiePlank should be fastened with even spacing to the structural member. The tables allowing direct to OSB or plywood should only be used when traditional framing is not available.

CUT EDGE TREATMENT

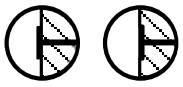
Caulk, paint or prime all field cut edges. James Hardie touch-up kits are required to touch-up ColorPlus products.

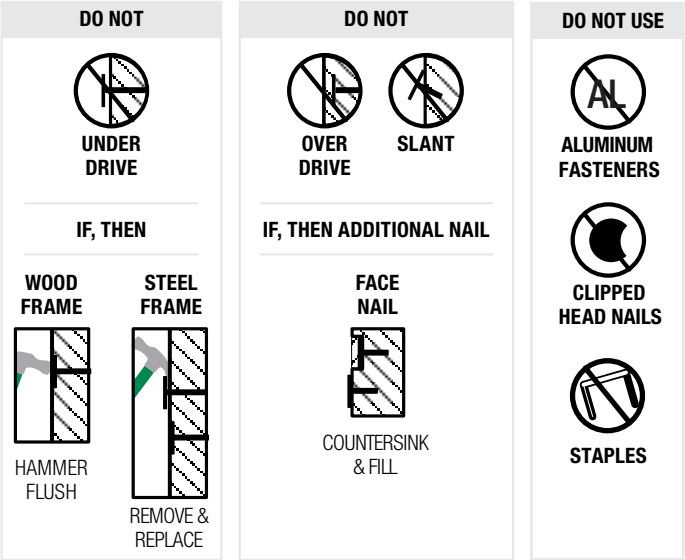
CAULKING

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 caulking manufacturers do not allow "tooling".

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).





PAINTING

DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products. Factory-primed James Hardie products must be painted within 180 days of installation. 100% acrylic topcoats are recommended. Do not paint when wet. For application rates refer to paint manufacturers specifications. Back-rolling is recommended if the siding is sprayed.

COLORPLUS® TECHNOLOGY CAULKING, TOUCH-UP & LAMINATE

- Care should be taken when handling and cutting James Hardie® ColorPlus® products. 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 new HardiePlank® lap 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 ColorPlus® product dealer.
- Treat all other non-factory cut edges using the ColorPlus Technology edge coaters, available from your ColorPlus product dealer.

Note: James Hardie does not warrant the usage of third party touch-up or paints used as touch-up on James Hardie ColorPlus products.

Problems with appearance or performance arising from use of third party touch-up paints or paints used as touch-up that are not James Hardie touch-up will not be covered under the James Hardie ColorPlus Limited Finish Warranty.

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

When repainting ColorPlus products, 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, oil/alkyd base paint, or powder coating 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 ColorPlus products, refer to the ColorPlus touch-up section

COVERAGE CHART/ESTIMATING GUIDE

Number of 12 ft. planks, does not include waste

COVERAGE AREA LESS OPENINGS	HARDIEPLANK® LAP SIDING WIDTH								
SQ (1 SQ = 100 sq.ft.)	5 1/4	6 1/4	7 1/4	7 1/2	8	8 1/4	9 1/4	9 1/2	12
(exposure)	4	5	6	6 1/4	6 3/4	7	8	8 1/4	10 3/4
1	25	20	17	16	15	14	13	13	9
2	50	40	33	32	30	29	25	25	19
3	75	60	50	48	44	43	38	38	28
4	100	80	67	64	59	57	50	50	37
5	125	100	83	80	74	71	63	63	47
6	150	120	100	96	89	86	75	75	56
7	175	140	117	112	104	100	88	88	65
8	200	160	133	128	119	114	100	100	74
9	225	180	150	144	133	129	113	113	84
10	250	200	167	160	148	143	125	125	93
11	275	220	183	176	163	157	138	138	102
12	300	240	200	192	178	171	150	150	112
13	325	260	217	208	193	186	163	163	121
14	350	280	233	224	207	200	175	175	130
15	375	300	250	240	222	214	188	188	140
16	400	320	267	256	237	229	200	200	149
17	425	340	283	272	252	243	213	213	158
18	450	360	300	288	267	257	225	225	167
19	475	380	317	304	281	271	238	238	177
20	500	400	333	320	296	286	250	250	186

This coverage chart is meant as a guide. Actual usage is subject to variables such as building design. James Hardie does not assume responsibility for over or under ordering of product.

HS11119 P4/4 12/19

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: I In accordance with ICC-ES Evaluation Report ESR-2290, HardiePlank® lap siding is recognized as a suitable alternate to that specified in the 2006, 2009, 2012 & 2015 International Residential Code for One and Two-Family Dwellings, and the 2006, 2009, 2012 & 2015 International Building Code. HardiePlank lap siding is also recognized for application in the following: City of Los Angeles Research Report No. 24862, State of Florida Product Approval FL#13192, Miami-Dade County Florida NOA No. 17-0406.06, U.S. Dept. of HUD Materials Release 1263f, Texas Department of Insurance Product Evaluation EC-23, City of New York MEA 223-93-M, and California DSA PA-019. These documents should also be consulted for additional information concerning the suitability of this product for specific applications.

General Product Information
Working Safely
Tools for Cutting and Fastening
General Installation Requirements
General Fastener Requirements
Finishing and Maintenance
HardieWrap® Weather Barrier
HardieTrim® Boards/Battens
HardieSoffit® Panels
HardiePlank® Lap Siding
HardieShingle® Siding
HardiePanel® Vertical Siding
Appendix/ Glossary
ESR-1844 & 2290 Report

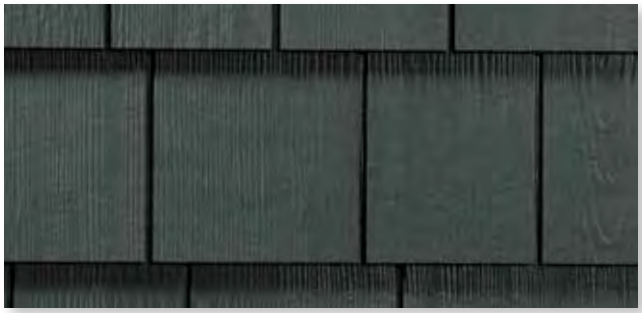
HardieShingle® Siding Product Description

HardieShingle® siding is fiber-cement shingle siding for sidewall applications. HardieShingle siding is available as straight-edge panels or staggered-edge panels 48 in. long by 16 in high. HardieShingle panels also come as decorative half-round shingles. For smaller coverage areas, individual shingles are also available in 4.2 in, 5.5 in, 6.75 in, 7.25 in & 10 in widths. Please see your James Hardie dealer for local availability of these products.

HardieShingle siding is available as a prefinished James Hardie product with ColorPlus® Technology. The ColorPlus coating is a factory applied, oven-baked finish available on a variety of James Hardie siding and trim products. See your local dealer for details and availability of products, colors and accessories.

Half-Round

Staggered Edge Panel



Straight Edge Panel

Individual Shingles

Exhibit A-4

Installation of HardieShingle® Siding

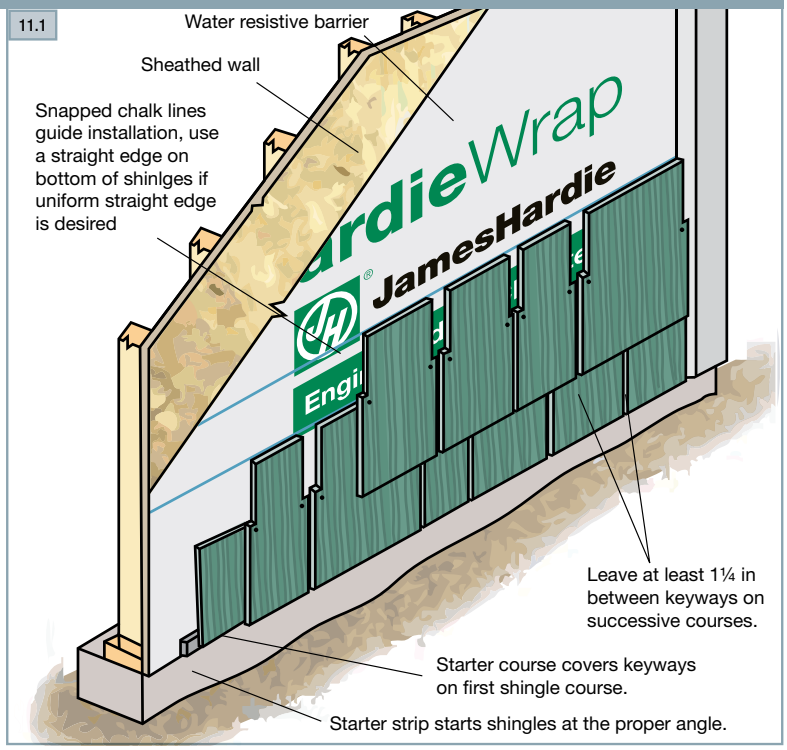
INDIVIDUAL SHINGLES

Like conventional wood-shingle siding, HardieShingle® siding requires the use of a starter strip and a starter course before installing the first full course of shingle panels or individual shingles. The starter strip sets the initial shingles at the proper angle and the starter course provides solid backing and keyway coverage for the first shingle course.

1. The starter strip should be installed over the water-resistive barrier. Starter strips can be made by ripping 1¼ in lengths from full or partial planks of HardiePlank® siding.
2. Use HardiePlank 8¼ in lap siding for the starter course.
3. Snap a level chalk line 8¼ in up from the bottom edge of the starter strip.
4. Position the top of the starter course along the chalk line, use a straight edge on bottom of shingles if uniform straight edge is desired
5. The first course of shingle siding is then installed even with bottom edge of the starter course.

When installing individual HardieShingles®, be sure to space shingles no more than ¼ in apart. Spaces between shingles should not be within 1½ in of the spaces in the courses above and below.

11.1



TIP: For the best appearance, apply shingle widths in a random manner to avoid creating a repeat pattern. Pre-planning of each course is recommended to aid appearance and to avoid stacked seams.

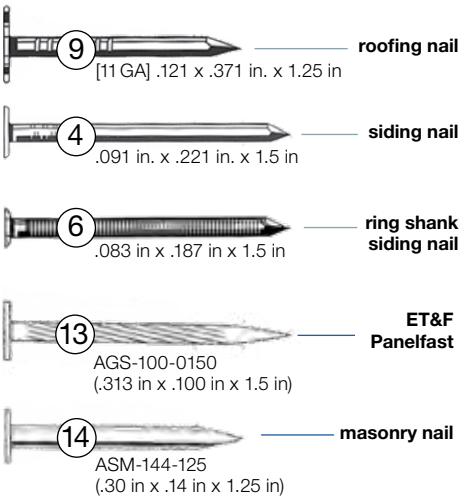
TIP: Stainless steel fasteners are recommended when installing James Hardie products.

HARDIESHINGLE SIDING FASTENER SPECIFICATIONS

The Fastener Specifications table shows fastener options for a variety of different nailing substrates. Please refer to the applicable ESR report online (see back page) to determine which fastener meets your wind load design criteria.

Fastening Substrate		Approved Fastener
Individual Shingles	Minimum 15/32 in. thick plywood	9
	Minimum 7/16 in OSB Sheathing	4
HardieShingle Panels	16 in or 24 in O.C. wood studs	6
	Directly to minimum 7/16 in thick OSB	
Individual and Shingle Panels	16 in or 24 in O.C. steel studs	13
Direct to Masonry		14

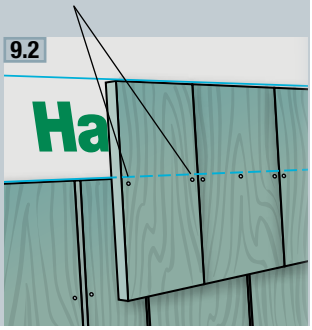
Fastening Types



Corrosion-resistant siding nails 1¼ in. long should be used to apply individual HardieShingles® to minimum 7/16 in. OSB rated sheathing. Position nails ½ in. to 1 in. from the side edges of the shingles and 8½ in. to 9 in up from the bottom edge of the shingle.

2 nails per shingle on 4.2 in., 5.5 in., 6.75 in., 7.25 in., and 10 in. shingles

9.2



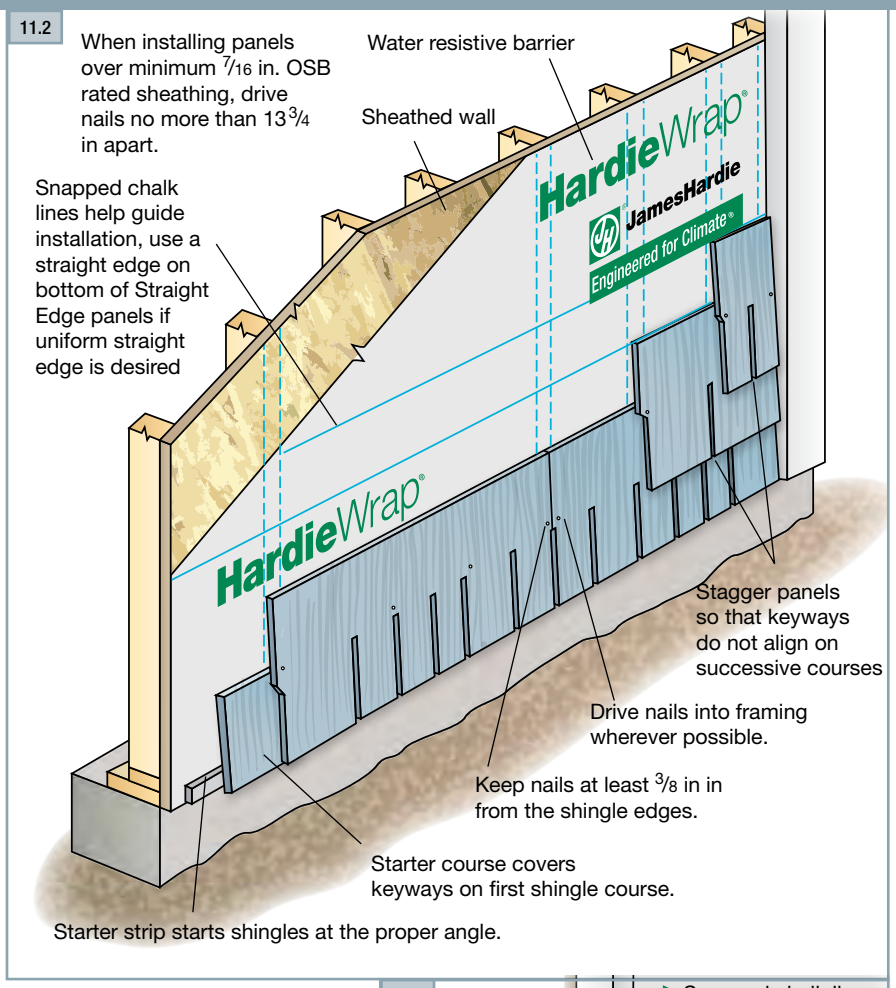
Installation of HardieShingle® Siding (cont.)

HARDIESHINGLE® PANELS

For HardieShingle® panels start at one end and work across the wall.

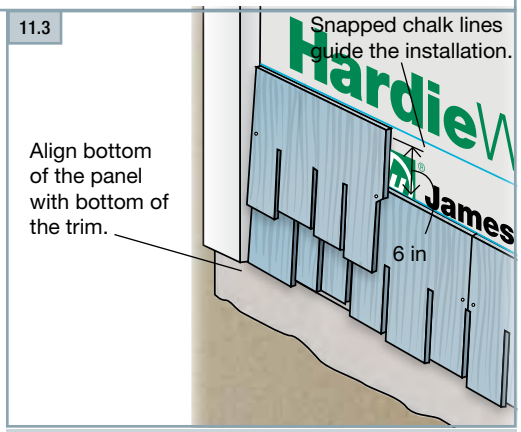
1. Measure and trim the first panel to make sure the end of the panel falls over framing.
2. Using the chalk line as a guide along the panel top edge. For straight edge panels align bottom panel edges to maintain a uniform straight line carefully position the panels and secure with suitable fasteners and spacing for your particular application as noted in the ESR 1844 & 2290 Report.
3. Align the bottom edges of the trim and the siding for the best appearance. Where the panel begins at a corner board or at door or window casings, cut the upper portion of the panel back even with the edge of the keyway.
4. Where the siding meets the HardieTrim® board, leave a 1/8 in. gap between the siding and trim. Install HardieShingle panels with joints in moderate contact.
5. Measure and cut the first panel for the second course of HardieShingle panel so that it lands on the stud before the panel on the first course. Use the cut end to abut the trim.
6. Start the third course with the end of the panel landing on the stud before the second course. Save the cut pieces to use on the other end of the wall.
7. Continue alternating these three lengths up the wall to establish proper positioning of the shingle keyways.

11.2



When installing HardieShingle Staggered Edge panel, measure up 6 in. from the top of the installed panel and make a mark. Make another mark at an equal height on the opposite end of the wall and snap a chalk line between the marks. Align the top of the next course of panel with the chalk line to maintain proper exposures.

11.3



TIP: A straight edge panel can be used on the bottom course if desired

Keep the bottom of the siding even with the bottom of the trim. If desired, the trim may extend below the bottom of the siding, but the siding should not hang below the trim. Make sure that clearances above the ground, roof lines and hard surfaces are in accordance with the General Requirements on pages 13-26.

WARNING

James Hardie recommends installing HardieShingle panel over rated wood sheathing.

INSTALLING HARDIESHINGLE® PANEL DIRECT TO 7/16 IN SHEATHING

Refer to ESR-2290 for allowable wind loads.

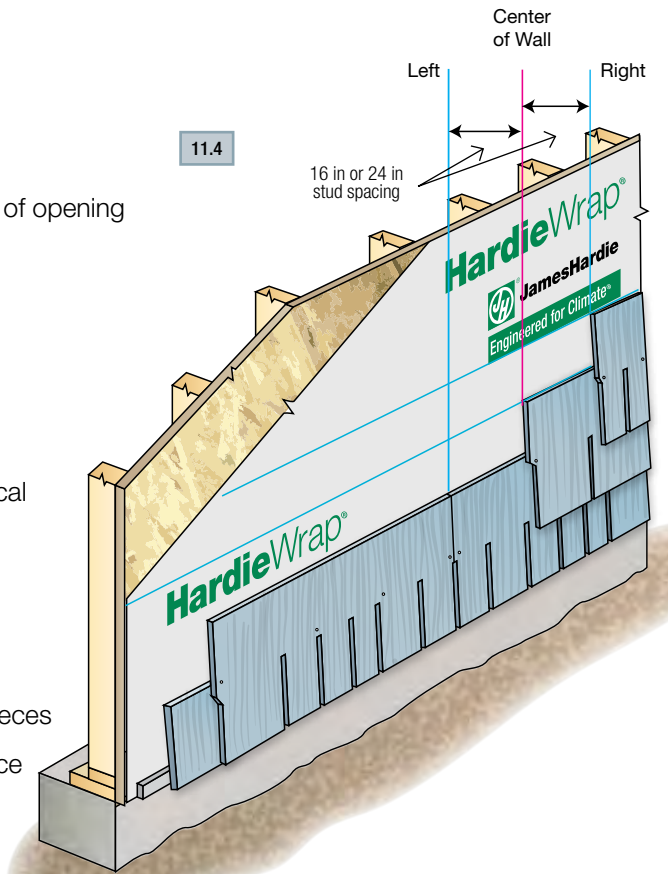
Panel and Individuals may be mixed together to reduce waste and save time.

Straight Wall

1. Always work from center of wall to outside corner trim
2. Make all shingle length cuts at trim, not mid wall
3. Start first panel to left of center
4. If openings exist on wall, locate offset layout on each side of opening
5. Start second row of shingle on centerline of offset layout
6. Start third row of shingle on right line of offset layout
7. Repeat starting panel on remaining rows using Left, Middle, Right layout lines

Gable

1. Layout offset on gable similar to straight wall, except vertical layout lines should be made across the gable face at the offset dimension
2. Utilize three center lines for starting row
3. Start first piece on the left vertical line, left of center
4. Use the additional vertical lines to pre measure finishing pieces
5. Start Second row on the vertical centerline of the gable face
6. Start third row on vertical line to the right of center
7. Repeat starters Left, Middle, Right for remaining courses



HALF-ROUND DECORATIVE SHINGLE PANELS

Half-round shingles are often used for a decorative note above regular shingles, especially in gables.

1. Start the first course from the middle of the run so that half round sections at either end are cut equally.
2. Then start the second course from the trim at one end and cut it so that it lands on the framing one stud away from the course below.
3. Cut the panel to abut the trim at the other end of the course. Make sure keyways are located over the midpoints of the half rounds in the lower course for correct alignment.
4. At the top of the wall, install a frieze board and install shingles up to the bottom edge of the frieze.
5. Top rows of shingles may have to be cut to an appropriate height to maintain consistent exposure top to bottom.

All HardieShingle® siding products can be applied to the gable end of a building following their specific installation instructions. But special care should be taken when installing half-round panels due to their symmetrical nature.

Installation of HardieShingle® Siding (cont.)

HALF-ROUND DECORATIVE SHINGLE PANELS (CONTINUED)

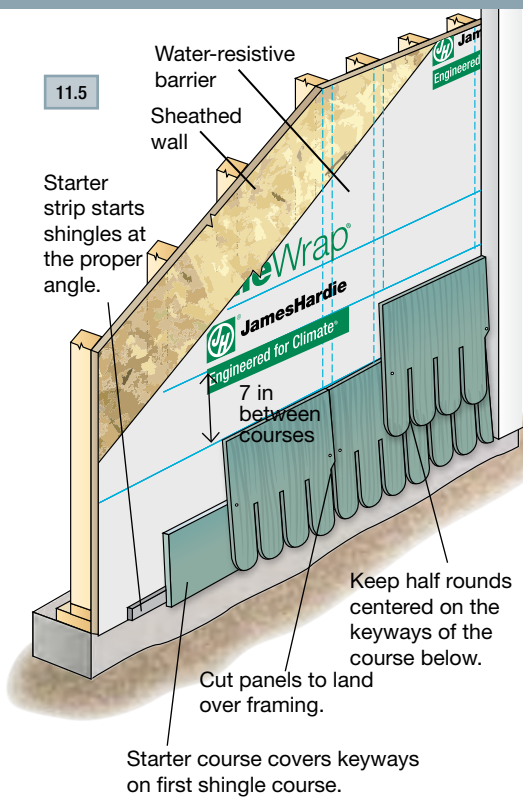
For best appearance, half-round shingle panel installations on gable ends should end with a single round shingle at the gable peak. To make this happen, calculation of the actual number of courses is necessary. Follow the simple steps below to achieve this effect.

1. Measure the horizontal width of the gable being sided and locate the center of the gable. Using a level or chalk line, draw a line from the gable peak to the center mark.
2. Measure the entire height of the gable area to be sided above the band board.
3. Divide the total height of the gable by 7. (Half round shingles have an exposure of 7 in and this figure is the number of courses to be installed.
4. If the answer is an even number (example: 70 in divided by 7 = 10 courses), center the first panel course on a keyway on the vertical center line (fig. 9.7). If the answer is an odd number, (example: 77 in divided by 7 = 11 courses) center the first course on the center of a half-round shingle (fig. 9.8).

5.) Using this planning method, the final piece at the peak should be a centered shingle.

To install the first course of half-round panel in a gable:

1. position the first piece of panel on the gable centerline marked earlier. The panel may be moved left or right to make the edge lands on a stud as long as the shingle face or keyway is centered (depending on the number of courses needed as discussed above).
2. Drive nails approximately ¼ in. above the top of every other keyway. Avoid driving nails between the keyways because the heads may be visible through the keyways of subsequent courses.
3. Complete the installation on the left and right sides using the rake-angle template to cut the proper rake angle. Leave a 1/8 in. gap between the siding and trim boards.
4. Use the rake angle template to trim back the start panel for the 2nd course. Install the 2nd and following courses the same way. At the peak of the gable, face nail the final piece with a finish nailer.



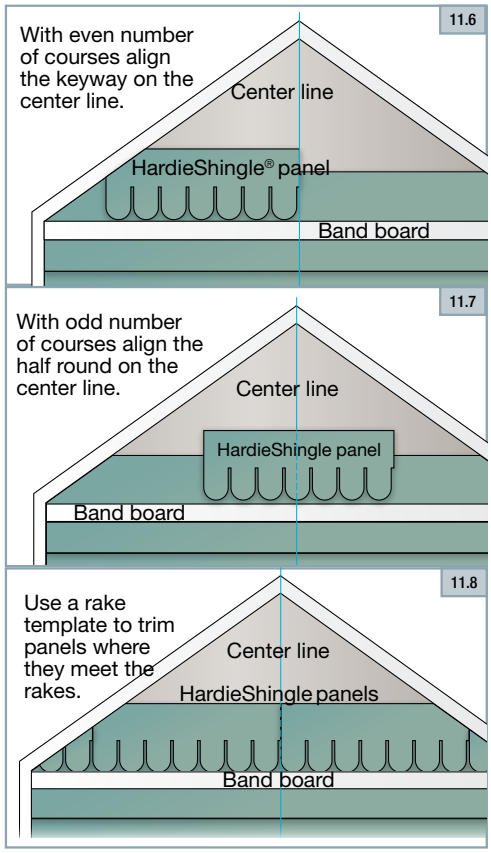


Exhibit A-4

HardieShingle® Siding

SINGLE FAMILY INSTALLATION REQUIREMENTS

EFFECTIVE DECEMBER 2019

IMPORTANT: FAILURE TO FOLLOW JAMES HARDIE WRITTEN INSTALLATION INSTRUCTIONS AND COMPLY WITH APPLICABLE BUILDING CODES MAY VIOLATE LOCAL LAWS, AFFECT BUILDING ENVELOPE PERFORMANCE AND MAY AFFECT WARRANTY COVERAGE. FAILURE TO COMPLY WITH ALL HEALTH AND SAFETY REGULATIONS WHEN CUTTING AND INSTALLING THIS PRODUCT MAY RESULT IN PERSONAL INJURY. BEFORE INSTALLATION, CONFIRM YOU ARE USING THE CORRECT HARDIEZONE® PRODUCT INSTRUCTIONS BY VISITING HARDIEZONE.COM OR CALL 1-866-942-7343 (866-9-HARDIE)

STORAGE & HANDLING:

Store flat and keep dry and covered prior to installation. Installing siding wet or saturated may result in shrinkage at butt joints. Carry planks on edge. 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:
   - a. Best: Circular saw equipped with a HardieBlade® saw blade and attached vacuum dust collection system. Shears (manual, pneumatic or electric) may also be used, not recommended for products thicker than 7/16 in.
   - b. Better: Circular saw equipped with a dust collection feature (e.g. Roan® saw) and a HardieBlade saw blade.
   - c. Good: Circular saw equipped with a HardieBlade saw blade.

INDOORS

DO NOT grind or cut with a power saw indoors. Cut using shears (manual, pneumatic or electric) or the score and snap method, not recommended for products thicker than 7/16 in.

- DO NOT dry sweep dust; use wet dust suppression or vacuum to collect dust.
- For maximum dust reduction, James Hardie recommends using the "Best" cutting practices. Always follow the equipment manufacturer's instructions for proper operation.
- For best performance when cutting with a circular saw, James Hardie recommends using HardieBlade® saw blades.
- Go to 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.

GENERAL REQUIREMENTS:

- HardieShingle panels can be installed over braced wood or steel studs, 20 gauge (33 mils) minimum to 16 gauge (54 mils) maximum, spaced a maximum of 24 in o.c. or directly to minimum 7/16 in thick OSB sheathing. See General Fastening Requirements. Irregularities in framing and sheathing can mirror through the finished application. Correct irregularities before installing siding.
- Information on installing James Hardie products over non-nailable substrates such as gypsum, foam, etc. can be located in JH Tech Bulletin 19 at www. jamehardie.com
- A water-resistive barrier is required in accordance with local building code requirements. The water-resistive barrier 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 does manufacture HardieWrap® Weather Barrier, a non-woven non-perforated housewrap[1], which complies with building code requirements.
- When installing James Hardie® products all clearance details in figs. 1 thru 14 must be followed.
- Adjacent finished grade must slope away from the building in accordance with local building codes - typically a minimum of 6 in in the first 10ft.
- Do not install James Hardie products, such that they may remain in contact with standing water.
- HardieShingle panels may be installed on vertical wall applications only.
- DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products.
- James Hardie Building Products provides installation/wind load information for buildings with a maximum mean roof height of 85 feet. For information on installations above 60 feet, please contact JH technical support.

[1]For additional information on HardieWrap® Weather Barrier, consult James Hardie at 1-866-4Hardie or www.hardiewrap.com

JamesHardie™

CLEARANCE AND FLASHING REQUIREMENTS

Figure 1
Roof to Wall

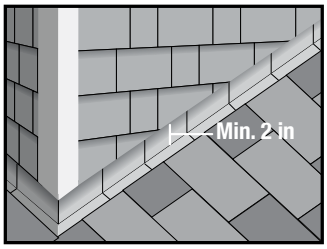


Figure 2
Horizontal Flashing

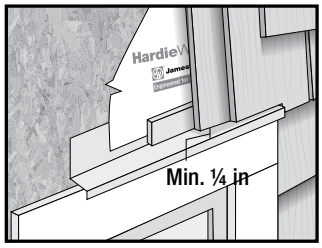


Figure 3
Kickout Flashing

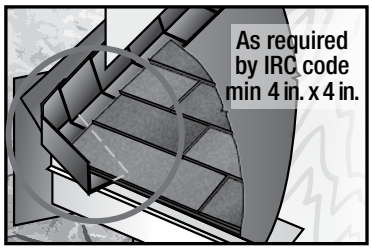


Figure 4
Slabs, Paths, Steps to Siding

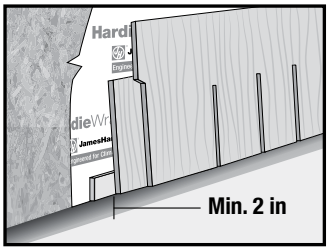


Figure 7
Deck to Wall

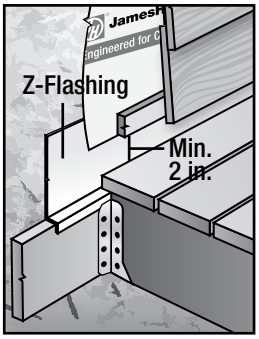


Figure 8
Ground to Siding

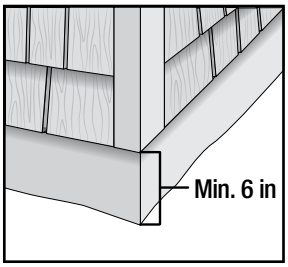


Figure 9
Gutter to Siding

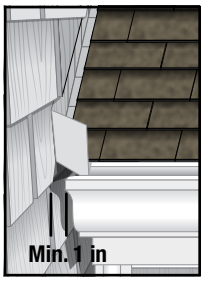


Figure 10
Sheltered Areas

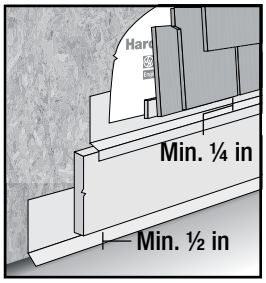


Figure 11
Mortar/Masonry

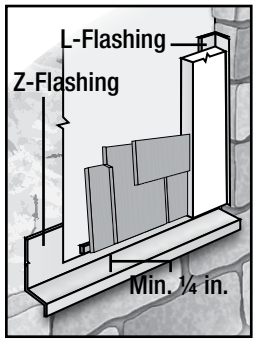


Figure 12
Drip Edge

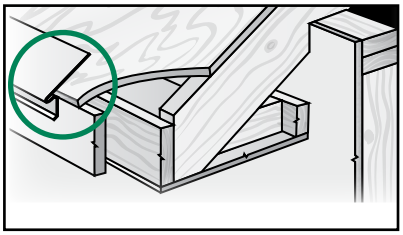


Figure 13
Block Penetration

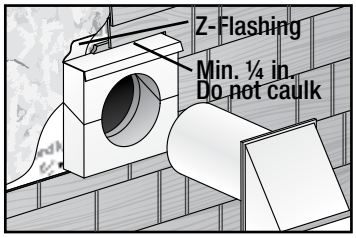
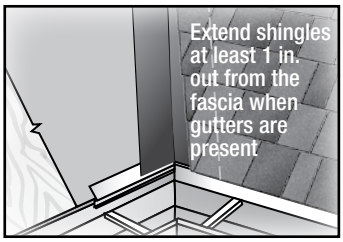


Figure 14
Valley/Shingle Extension



TRIM CONSIDERATION:

Minimum 1 in trim thickness is needed as Panels stack at a depth of roughly 15/16 in for the 7 in reveal. If additional trim depth is desired, you can place a spacer under the trim (Fig. 15C & 15D).

Figure 15A

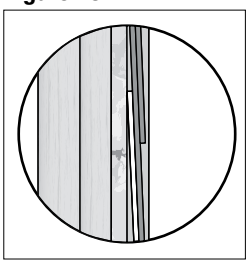


Figure 15B

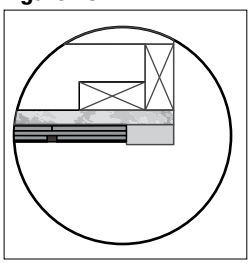


Figure 15C

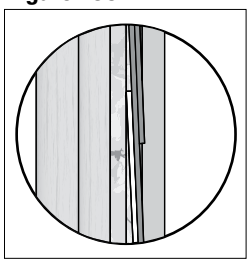
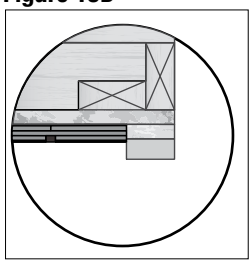


Figure 15D



GABLE INSTALLATION:

Installation over sheathing is recommended (Required for Individuals) for gables.*

1) Find the center stud of your of your Gable and snap a caulk line down
2) Measure out 16 in* to both the left and the right of the center line and snap a caulk line
3) Measure up 2 in if you are off a roof line or ¼ in if you are starting above a band board
4) Set the bottom of your 1 ¼ in starter strip at that line
5) Place your 8 ¼ in Starter Course -bottom level with the bottom of the starter strip
6) Set your first row of Shingle - starting the first piece at the vertical line left of center
   (If you are using staggered edged shingles Trim down the first row to the shortest shingle length)
7) Drive nails approximately ¼ in above Key ways 5 per full panel Center Nail can be either one of the keyways.
   (Stay by keyway to avoid shiners) (EX1) Blue Dots show nail placement
8) Measure up 7 in with straight and 6 in with Staggered edge and snap a caulk line to get your proper exposure
9) The second row will start at the center line
10) The Third row will start at the line right of center
11) As you work your way up the gable make sure you Keep your Cut Pieces you will use the pieces on the edges of the gable (EX2)
12) Edges Gable butting into trim leave a 1/8 in Gap (for house movement and Caulking)
13) Make sure to sure siding nails on the small pieces on the edges (Do not use a trim nail to install!)

Figure 16

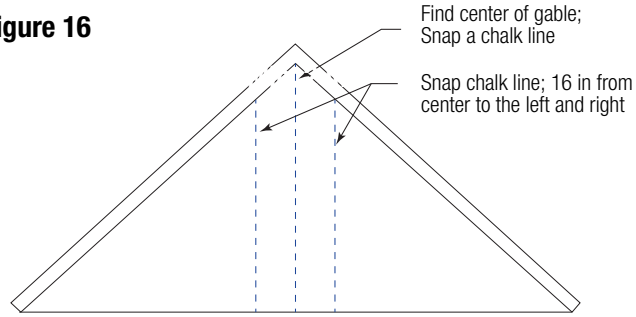


Figure 17

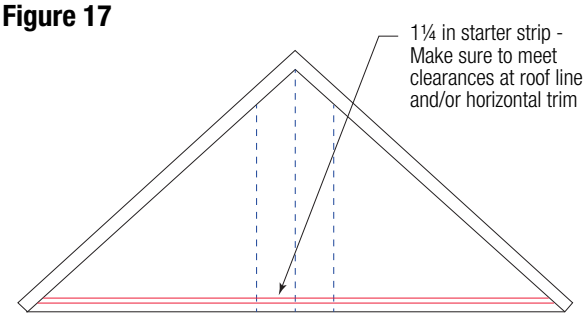


Figure 18

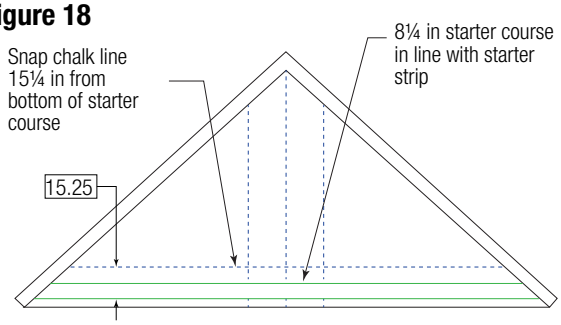


Figure 19

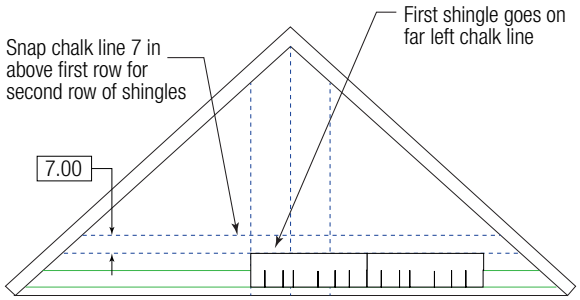


Figure 20

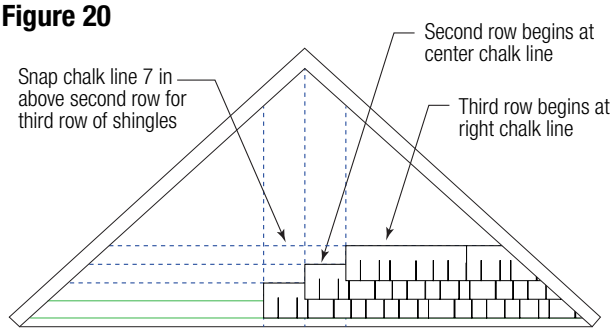
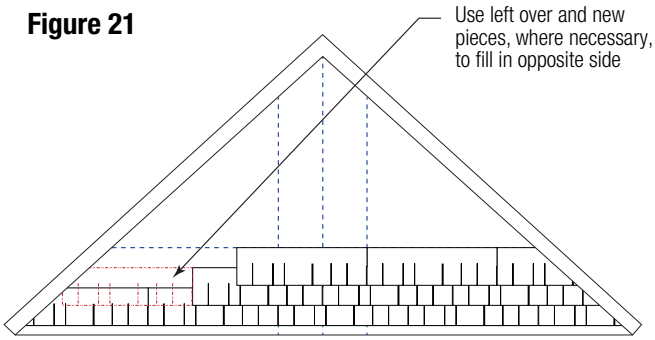


Figure 21



*Panels can also be installed direct to stud up to 24 in OC.

Note: Snapped chalk lines help guide installation, when installing straight edge panels or Individual shingles use a straight edge on bottom edges if uniform straight edge is desired.

HARDIESHINGLE STAGGERED EDGE PANELS INSTALLATION

Fastener Requirements

0.083 in x 0.187 in HD x 1 1/2 in long ringshank nails are used for fastening HardieShingle® Staggered Edge Panels to both framing and to 7/16 in thick APA rated sheathing.

HardieShingle® Staggered Edge Panel Installation

Install HardieShingle® panels with joints butted in moderate contact. Due to overlapping of the joints, caulk is not required except where panels abut trim boards. (fig. 22 & 24). Ensure keyways do not line up on subsequent courses.

1) Install a 1-1/4 in starter strip, then install a 8-1/4 in wide HardiePlank® lap siding starter course.

2) Place first panel so that panel end centers over stud. Trim panel as needed. Butt the cut end into trim as shown (figs 22 & 24). When installing over a band board or any horizontal surface, leave 1/4 in gap between bottom of siding and flashing.

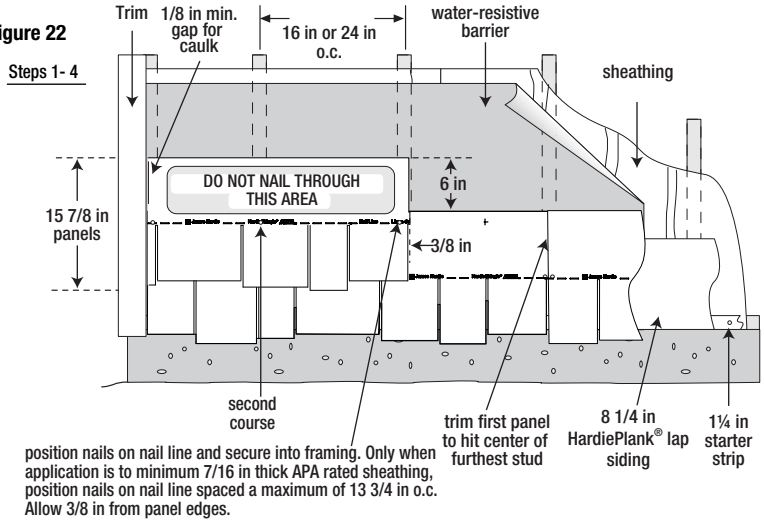
3) Secure panel, leaving 1/8 in gap for caulk at trim and continue the course along the wall.

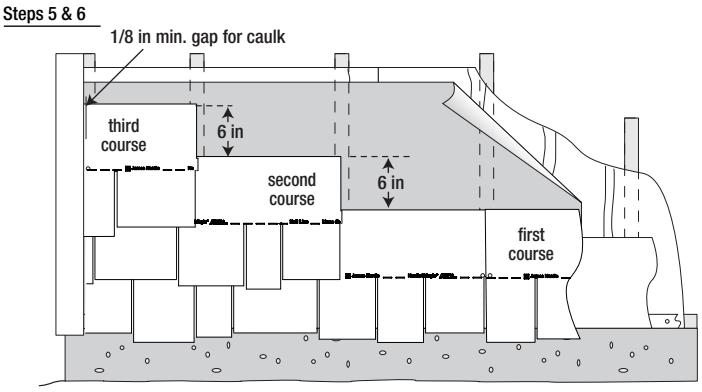
4) Start the second course, by removing the equivalent of one full stud cavity (16 in or 24 in OC), again abutting the cut end into the trim (figs 22 & 24). This is to prevent pattern repetition. Repeat step 3.

5) Start the third course, by removing the equivalent of two full stud cavities (figs 22 & 24) and repeat step 3.

6) Continue up the wall repeating steps 2 through 6 until desired height is reached.

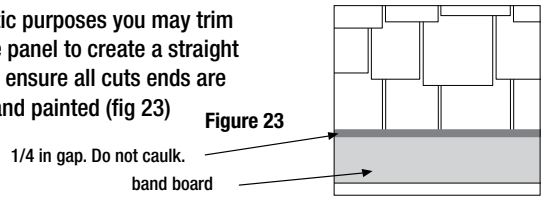
Figure 22





Note: For aesthetic purposes you may trim the bottom of the panel to create a straight edge. If doing so, ensure all cuts ends are properly sealed and painted (fig 23)

Figure 23



HARDIESHINGLE STAGGERED EDGE PANEL COVERAGE

Panels for sidewall applications are available in 48 in lengths. Pieces needed for one square (100sq.ft.) of product coverage = approximately 50, based on a maximum 6 in exposure from the top edge of HardieShingle panels in subsequent courses (refer to Figure 22).

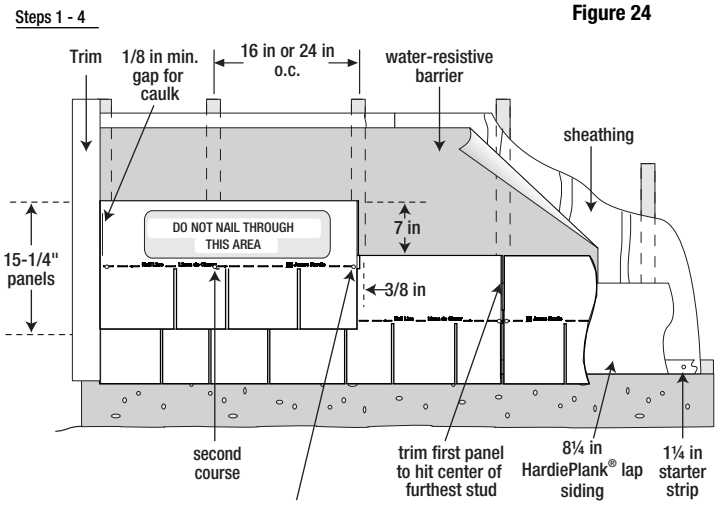
---

7 IN EXPOSURE HARDIESHINGLE STRAIGHT EDGE PANELS INSTALLATION (For 5 in exposure product please go to page 7)

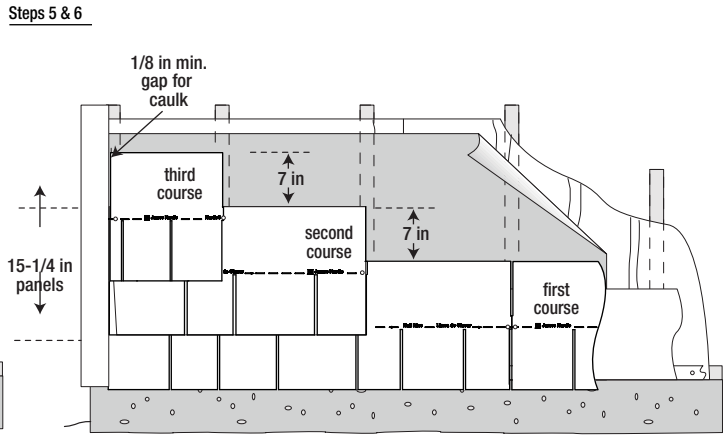
Maximum Exposure of 7 in

REFER TO STAGGERED EDGE INSTRUCTIONS ABOVE

Figure 24



position nails on nail line and secure into framing. Only when application is to minimum 7/16 in thick APA rated sheathing, position nails on nail line spaced a maximum of 13 3/4 in o.c. Allow 3/8 in from panel edges.



HARDIESHINGLE STRAIGHT EDGE PANEL COVERAGE

Panels for sidewall applications are available in 48 in lengths. Pieces needed for one square (100sq.ft.) of product coverage = approximately 43, based on maximum 7 in exposure.

HARDIESHINGLE INDIVIDUAL SHINGLE INSTALLATION

HardieShingle Individual Shingles must be installed with the widest part of the shingle placed downwards and directly to minimum 7/16 in thick sheathing.

Fastener Requirements

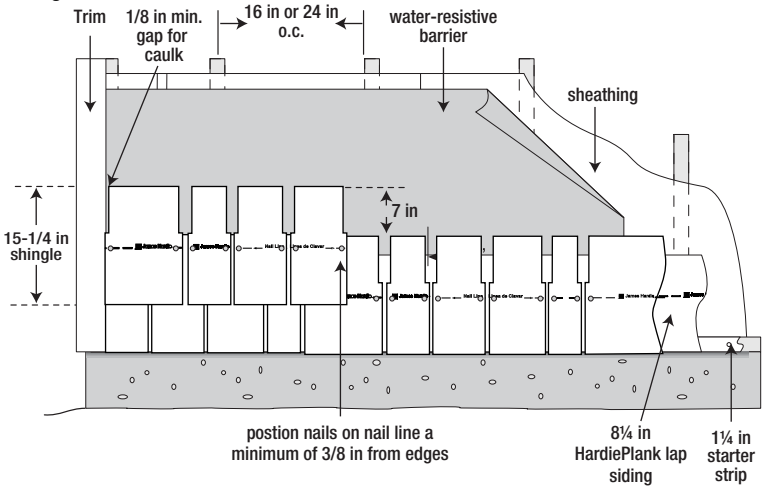
0.091 in x 0.221 in HD x 1 1/2 in or 0.121 in x 0.371 in HD x 1 1/4 in long corrosion resistant siding nails are used for fixing HardieShingle siding to 7/16 in thick APA rated sheathing.

HardieShingle Individual Shingle Installation

Due to overlapping of the joints, caulk is not required except where panels butt trim boards. Space shingles a maximum 1/4 in apart and leave a minimum lap of 1 1/2 in between successive courses (fig. 26).

1) Install 1 1/4 in starter strip and a 8 1/4 in wide HardiePlank siding starter course.
2) Install first shingle from the end abutting trim. Install widest part of shingle placed downwards. (fig. 25).
3) Secure shingle, leaving a 1/8 in gap for caulk at trim and continue the course along the wall.
4) Start the second course, leaving a minimum lap of 1 1/2 in between successive courses, again from the end abutting the trim. Repeat step 3.
5) Continue up the wall repeating steps 2 through 5 until desired height is reached.

Figure 25

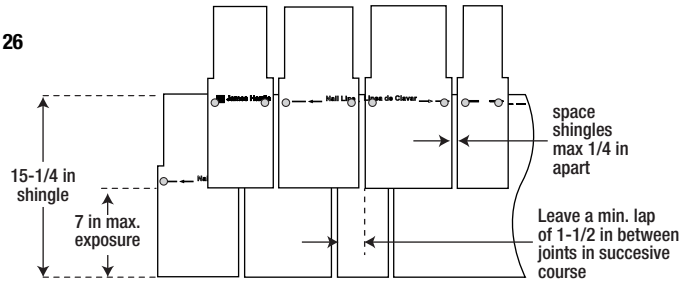


HARDIESHINGLE INDIVIDUAL SHINGLE COVERAGE

Individual Shingles for sidewall applications are available in assorted widths as listed below. Bundles needed for one square (100 sq. ft.) of product coverage:

Shingle Width	Number of Bundles	Pieces per Bundle
4-3/16 in	3	15
5-1/2 in	6	15
6-3/4 in	3	15
7-1/4 in	6	15
10 in	3	15

Figure 26



Install with the widest part of the shingle placed downwards

HARDIESHINGLE HALF-ROUND PANELS INSTALLATION

Fastener Requirements

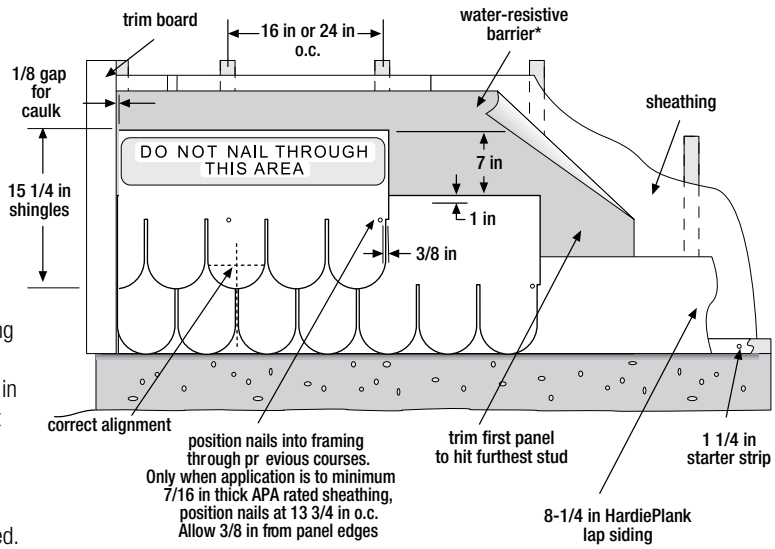
0.083 in x 0.187 in HD x 1 1/2 in long ringshank nails are used for fastening HardieShingle Half-Round Panels to both framing and to 7/16 in thick APA rated sheathing.

HardieShingle Half-Round Panel Installation

Install HardieShingle panels with joints butted in moderate contact. Due to overlapping of the joints, caulk is not required except where panels abutt trim boards. (fig. 27). Ensure keyways do not line up on subsequent courses.

1) Install a 1-1/4 in starter strip, then install a 8-1/4 in wide HardiePlank lap siding starter course.
2) Place first panel so that panel end centers over stud. Trim panel as needed. Butt the cut end into trim as shown (figs 27). When installing over a band board or any horizontal surface, leave 1/4 in gap between bottom of siding and flashing.
3) Secure panel, leaving 1/8 in gap for caulk at trim and continue the course along the wall.
4) Start the second course, by removing the equivalent of one full stud cavity (16 in or 24 in OC), again abutting the cut end into the trim (fig 27). This is to prevent pattern repetition. Repeat step 3.
5) Start the third course, by removing the equivalent of two full stud cavities (figs 28 & 30) and repeat step 3.
6) Continue up the wall repeating steps 2 through 6 until desired height is reached.

Figure 27



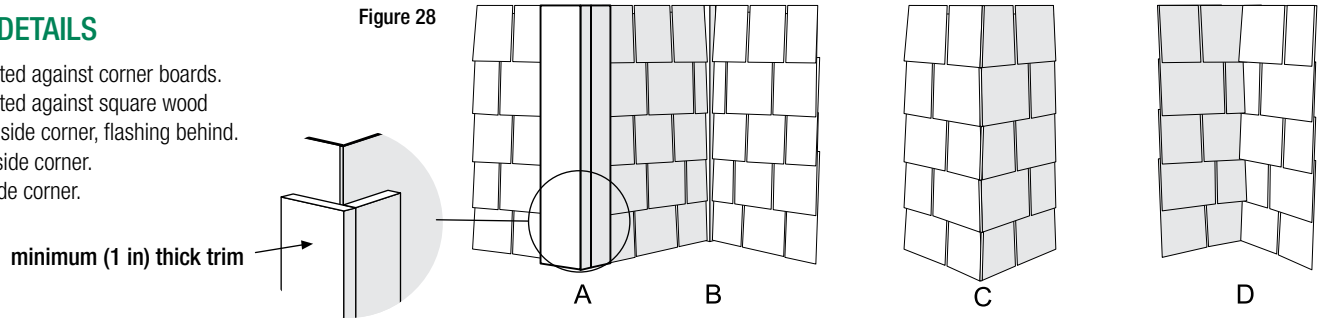
HARDIESHINGLE HALF-ROUND PANEL COVERAGE

Panels for sidewall applications are available in 48 in lengths. Pieces needed for one square (100 sq. ft.) of product coverage=43 pieces with 7 in exposure.

CORNER DETAILS

A. Panels butted against corner boards.
B. Panels butted against square wood strip on inside corner, flashing behind.
C. Laced outside corner.
D. Laced inside corner.

Figure 28



WINDOWS AND DOORS

Building wall components such as windows, doors and other exterior wall penetrations shall be installed in accordance with the component manufacturer's written installation instructions and local building codes. Where windows or doors are installed, continue the application of siding as if the wall is complete. Triming for the opening and using the resulting piece may throw off the spacing above the break.

GENERAL FASTENING REQUIREMENTS

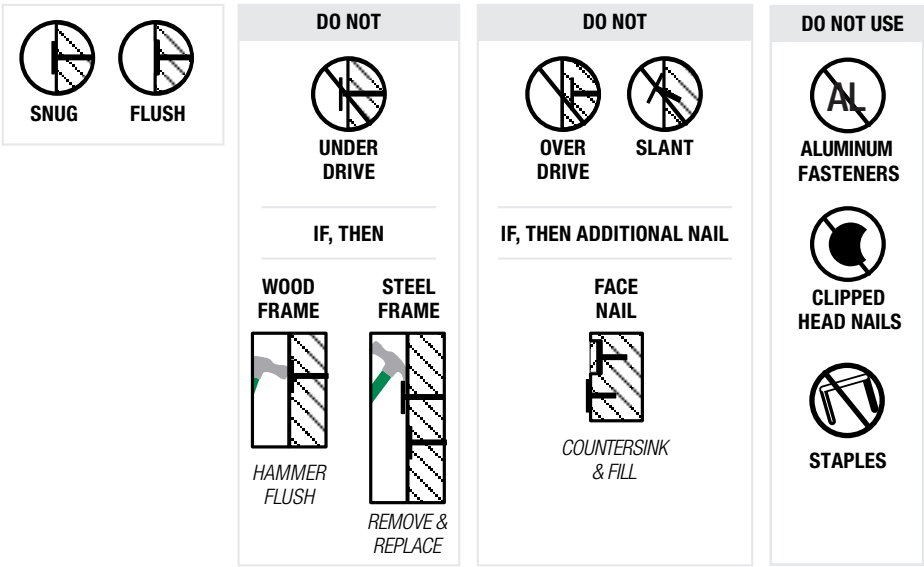
Refer to the applicable ESR report online to determine which fastener meets your wind load design criteria. Fasteners must be corrosion resistant, galvanized, or stainless steel. Electro-galvanized are acceptable but may exhibit premature corrosion. James Hardie recommends the use of quality, hot-dipped 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.

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 aluminum products. Fasteners used to attach HardieTrim Tabs to preservative-treated wood shall be of hot dipped zinc-coated galvanized steel or stainless steel and in accordance to 2009 IRC R317.3 or 2009 IBC 2304.9.5

- 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).
- NOTE: Whenever a structural member is present, HardiePlank should be fastened with even spacing to the structural member. The tables allowing direct to OSB or plywood should only be used when traditional framing is not available.

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).



CUT EDGE TREATMENT

Caulk, paint or prime all field cut edges. James Hardie touch-up kits are required to touch-up ColorPlus products.

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 caulking manufacturers do not allow "tooling".

PAINTING

DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products. Factory-primed James Hardie products must be painted within 180 days of installation. 100% acrylic topcoats are recommended. Do not paint when wet. For application rates refer to paint manufacturers specifications. Back-rolling is recommended if the siding is sprayed.

COLORPLUS® TECHNOLOGY CAULKING, TOUCH-UP & LAMINATE

- Care should be taken when handling and cutting James Hardie® ColorPlus® products. 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 new HardiePlank® lap 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 ColorPlus® product dealer.
- Treat all other non-factory cut edges using the ColorPlus Technology edge coaters, available from your ColorPlus product dealer.

Note: James Hardie does not warrant the usage of third party touch-up or paints used as touch-up on James Hardie ColorPlus products.

Problems with appearance or performance arising from use of third party touch-up paints or paints used as touch-up that are not James Hardie touch-up will not be covered under the James Hardie ColorPlus Limited Finish Warranty.

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

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

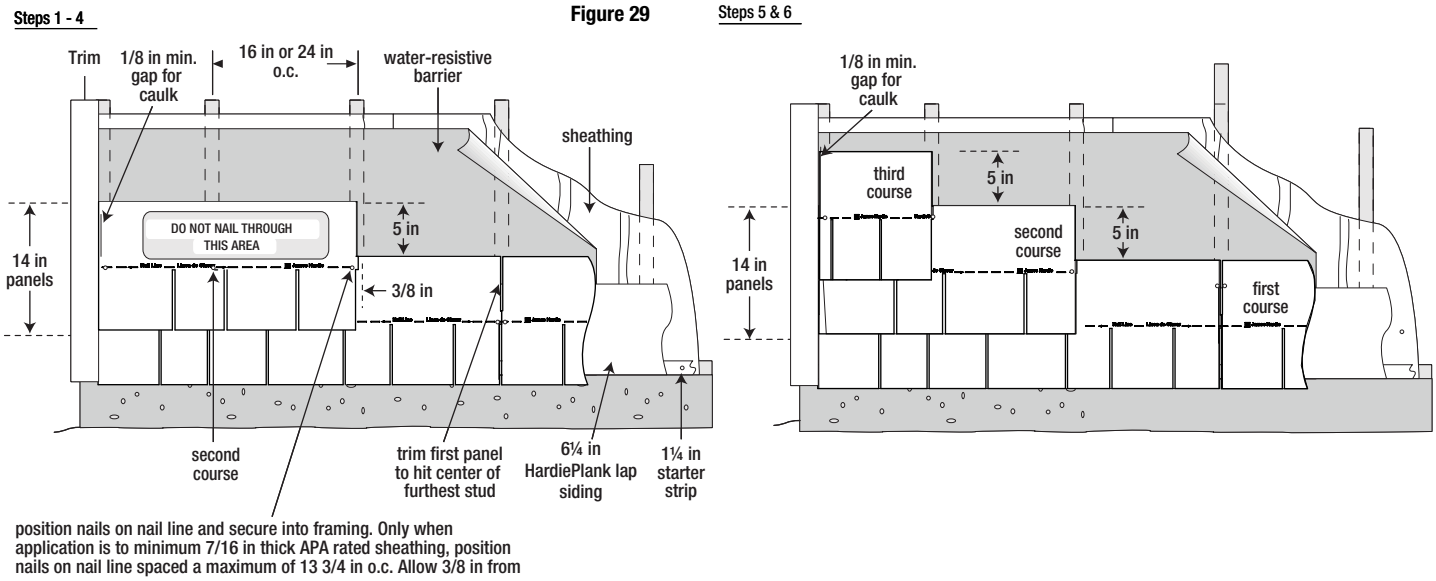
- Ensure the surface is clean, dry, and free of any dust, dirt, or mildew
- Repriming is normally not necessary
- 100% acrylic topcoats are recommended
- DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products.
- Apply finish coat in accordance with paint manufacturers written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

5 IN EXPOSURE HARDIESHINGLE® STRAIGHT EDGE PANELS INSTALLATION (For 7 in exposure product please go to page 4)

Maximum Exposure of 5 in

REFER TO STAGGERED EDGE INSTRUCTIONS ON PAGE 3

Figure 29



HARDIESHINGLE® STRAIGHT EDGE PANEL COVERAGE

Panels for sidewall applications are available in 48 in lengths. Pieces needed for one square (100sq.ft.) of product coverage = approximately 60, based on maximum 5 in exposure.

HARDIESHINGLE® INDIVIDUAL SHINGLE INSTALLATION

HardieShingle Individual Shingles must be installed with the widest part of the shingle placed downwards and directly to minimum 7/16 in thick sheathing.

Fastener Requirements

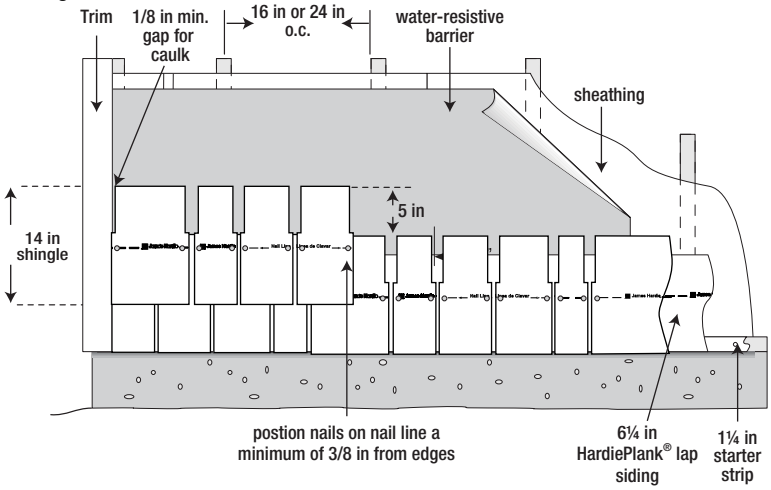
0.091 in x 0.221 in HD x 1 1/2 in or 0.121 in x 0.371 in HD x 1 1/4 in long corrosion resistant siding nails are used for fixing HardieShingle siding to 7/16 in thick APA rated sheathing.

HardieShingle Individual Shingle Installation

Due to overlapping of the joints, caulk is not required except where panels butt trim boards. Space shingles a maximum 1/4 in apart and leave a min. lap of 1 1/2 in between successive courses (fig. 31).

1) Install 1 1/4 in starter strip and a 6 1/4 in wide HardiePlank siding starter course.
2) Install first shingle from the end abutting trim. Install widest part of shingle placed downwards. (fig. 30).
3) Secure shingle, leaving a 1/8 in gap for caulk at trim and continue the course along the wall.
4) Start the second course, leaving a minimum lap of 1 1/2 in between successive courses, again from the end abutting the trim. Repeat step 3.
5) Continue up the wall repeating steps 2 through 5 until desired height is reached.

Figure 30

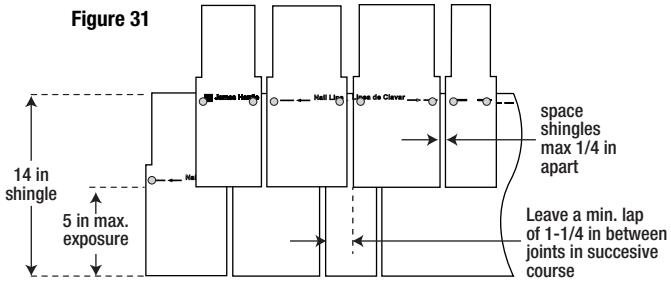


5 IN EXPOSURE HARDIESHINGLE® INDIVIDUAL SHINGLE COVERAGE

Individual Shingles for sidewall applications are available in assorted widths as listed below. Bundles needed for one square (100 sq. ft.) of product coverage:

Shingle Width	Number of Bundles	Pieces per Bundle
3-1/2 in	3	20
4-1/2 in	6	20
5-1/2 in	6	20
7 in	6	20
8-3/4 in	3	20

Figure 31



Install with the widest part of the shingle placed downwards

HS1067 P8/8 12/19

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: In accordance with ICC-ES Evaluation Report ESR-2290, HardieShingle® lap siding is recognized as a suitable alternate to that specified in the 2006, 2009, 2012 & 2015 International Residential Code for One and Two-Family Dwellings, and the 2006, 2009, 2012 & 2015 International Building Code. HardieShingle lap siding is also recognized for application in the following: City of Los Angeles Research Report No. 24862, State of Florida Product Approval FL#13192, U.S. Dept. of HUD Materials Release 1263f, Texas Department of Insurance Product Evaluation EC-23. These documents should also be consulted for additional information concerning the suitability of this product for specific applications.

Exhibit A-4

GAF Timberline® HDZ™
High Definition® Shingles

GAF LAYERLOCK™ TECHNOLOGY

America's #1-selling shingle just got better!

The same shingle you know and love, now with LayerLock™ Technology which powers the industry's widest nailing area.

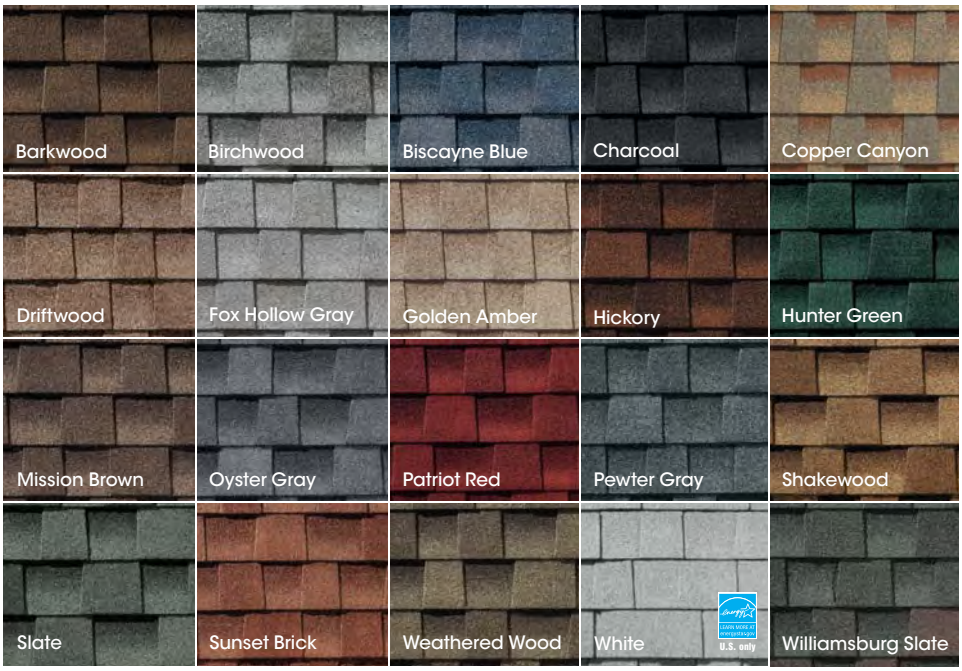
Exhibit A-4

Timberline® HDZ™ Shingles

Benefits:

- **LayerLock™ Technology** — Proprietary technology mechanically fuses the common bond between overlapping shingle layers.
- **Up to 99.9% nailing accuracy** — The StrikeZone™ nailing area is so easy to hit that a roofer placed 999 out of 1,000 nails correctly in our test.[1]
- **WindProven™ Limited Wind Warranty** — When installed with the required combination of GAF Accessories, Timberline® HDZ™ Shingles are eligible for an industry first: a wind warranty with no maximum wind speed limitation.[2]
- Our legendary **Dura Grip™** sealant pairs with the smooth microgranule surface of the StrikeZone™ nailing area for fast tack. Then, an asphalt-to-asphalt monolithic bond cures for durability, strength, and exceptional wind uplift performance.
- **StainGuard® Algae Protection** — Helps protect the beauty of your roof against unsightly blue-green algae discoloration.[3]
- **High Performance** — Designed with Advanced Protection® Shingle Technology.
- **Seamless compatibility** — The new Timberline® HDZ™ Shingles are compatible with traditional Timberline HD® Shingles for the same look and feel homeowners and contractors rely on for beauty and endurance.[4]
- **Perfect Finishing Touch** — For the best look, use TimberTex® Premium Ridge Cap Shingles or TimberCrest™ Premium SBS-Modified Ridge Cap Shingles.

Colors & Availability:



Product details:

Product/System Specifics

- Fiberglass asphalt construction
- Dimensions (approx.): 13 1/4" x 39 3/8" (337 x 1,000 mm)
- Exposure: 5 5/8" (143 mm)
- Bundles/Square: 3
- Pieces/Square: 64
- StainGuard® Algae Protection[3]
- Hip/Ridge: TimberTex®; TimberCrest™; Seal-A-Ridge®; Z®Ridge; Ridglass®
- Starter: Pro-Start®; QuickStart®; WeatherBlocker™

Applicable Standards & Protocols:

- UL Listed to ANSI/UL 790 Class A
- State of Florida approved
- Classified by UL in accordance with ICC-ES AC438
- Meets ASTM D7158, Class H
- Meets ASTM D3161, Class F
- Meets ASTM D3018, Type 1
- Meets ASTM D3462[5]
- ICC-ES Evaluation Reports ESR-1475 and ESR-3267
- Meets Texas Department of Insurance Requirements
- ENERGY STAR® Certified (White Only) (U.S. Only); Rated by the CRRC; Can be used to comply with Title 24 cool roof requirements

[1] Results based on study conducted by Home Innovation Research Labs, an independent research lab, comparing installation of Timberline HD® Shingles to Timberline® HDZ™ Shingles on a 16-square roof deck using standard 4-nail nailing pattern under controlled laboratory conditions. Actual results may vary.

[2] 15-year WindProven™ limited wind warranty on Timberline® HDZ™ Shingles requires the use of GAF starter strips, roof deck protection, ridge cap shingles, and leak barrier or attic ventilation. See *GAF Roofing System Limited Warranty* for complete coverage and restrictions. Visit gaf.com/LRS for qualifying GAF products.

[3] StainGuard® algae protection is available only on shingles sold in packages bearing the StainGuard® logo. Products with StainGuard® algae protection are covered by a 10-year limited warranty against blue-green algae discoloration. See *GAF Shingle & Accessory Limited Warranty* for complete coverage and restrictions.

[4] To be mixed on one roof, Timberline® HDZ™ Shingles and Timberline HD® Shingles must have matching 6-digit codes found on the end of the bundle. When mixed, always use Timberline HD® installation instructions.

[5] Periodically tested by independent and internal labs to ensure compliance with ASTM D3462 at time of manufacture.

[6] Lifetime refers to the length of warranty coverage provided and means as long as the original individual owner(s) of a single-family detached residence [or eligible second owner(s)] owns the property where the qualifying GAF products are installed. For other owners/structures, Lifetime coverage is not applicable. Lifetime coverage on shingles requires use of GAF Lifetime shingles only. See *GAF Shingle & Accessory Limited Warranty* for complete coverage and restrictions. Lifetime coverage on shingles and accessories requires use of any GAF Lifetime Shingle and any 3 qualifying GAF accessories. See *GAF Roofing System Limited Warranty* for complete coverage and restrictions. Visit gaf.com/LRS for qualifying GAF products.

Note: It is difficult to reproduce the color clarity and actual color blends of these products. Before selecting your color, please ask to see several full-size shingles.

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2019 Women's Choice Award® 9 out of 10 Customer Recommended Roofing Products

We protect what matters most™

Exhibit A-4

Product Information Sheet

DuPont™ Tyvek® DrainWrap™

Grooved Air and Water Barrier Engineered to Enhance Drainage

FEATURES/BENEFITS

Description

DuPont™ Tyvek® DrainWrap™ offers excellent drainage and durability for homes. Vertical grooves on the surface of **Tyvek® DrainWrap™** make it a superior moisture barrier, engineered to channel bulk water away from wall systems and drain safely to the outside.

Combined with the superior air and water resistance, vapor permeability and strength of the Tyvek® brand, **Tyvek® DrainWrap™** provides enhanced drainage behind claddings such as primed wood (all six sides), fiber cement siding, and foam board applied over flat substrates.

Air and Water Barrier Performance

- **Tyvek® DrainWrap™** helps hold out bulk water, while allowing water vapor to pass through it, promoting drying in the wall system, which can help prevent mold and water damage.
- The unique non-woven fiber structure of **Tyvek® DrainWrap™** also helps prevent air movement through the walls, contributing to a more energy efficient home.
- **Tyvek® DrainWrap™** is Air Barrier Association of America evaluated to exceed ABAA, ASHRAE 90.1 and IECC air leakage requirements when tested in accordance with ASTM E2357.
- Offers > 98% drainage efficiency when tested in accordance with ASTM E2273.
- Withstands up to four months (120 days) of UV exposure.

Ease of Installation

Tyvek® DrainWrap™ is easy to install. It is pliable, so it wraps around corners with ease. It is also light weight, easier to handle, and faster to install than the average house wrap. In addition, because it's flexible, **Tyvek® DrainWrap™** easily interfaces at joints, and over architectural elements.

Available Sizes

Tyvek® DrainWrap™ is available in 9- and 10-foot width rolls for use behind a variety of claddings. This width minimizes seams and offers the potential for reduction in labor costs, compared to narrower rolls.

High Performance Durability

Compared to other textured moisture barriers, **Tyvek® DrainWrap™** provides superior performance in tests where bulk water was applied between a flat acrylic panel and the moisture barrier. When compared to Grade D building paper and #15 felt, **Tyvek® DrainWrap™** provides superior sustained performance.

Sustainable Solutions

DuPont™ Tyvek® DrainWrap™ may contribute toward LEED® points in the areas of Energy and Atmosphere (EA): Optimizing the Building Envelope and Indoor Environmental Air Quality (EQ): Construction IAQ Management Plan and Low Emitting Materials. In addition, the use of a continuous air barrier is a prerequisite for LEED® applications requiring compliance with ASHRAE 90.1-2010.

By helping to effectively seal the building envelope, **Tyvek® DrainWrap™** helps to reduce the amount of energy required for heating and cooling.

Complete System

Tyvek® DrainWrap™ can be integrated with DuPont self-adhered flashing products and Tyvek® Fluid Applied products to offer seamless protection for wall systems that require mechanically fastened and fluid applied air and water barriers.

PROPERTIES

Review all instructions and (Material) Safety Data Sheet ((M)SDS) before use. Please contact your local DuPont™ Tyvek® Specialist before writing specifications around this product. Product properties are as follows:

Test Method	Property	Typical Value	Units
ASTM E2178 Gurley Hill (TAPPI T-460) ASTM E1677	Air Penetration Resistance	.004 >300 Type 1	cfm/ft^2@1.57 psf sec/100cc –
ICC-ES AC 24 Section 6.11 ASTM E2273 ICC-ES AC 235 Section 4.5	Drainage	Pass >98 Pass	– % –
ASTM E96-00	Water Vapor Transmission	Method A 250 36	g/m^2-24 hrs perms
ASTM E96-00	Water Vapor Transmission	Method B 350 50	g/m^2-24 hrs perms
ATTCC 127	Water Penetration Resistance	210	cm
TAPPI T-410	Basis Weight	2.1	oz/yd^2
ASTM D882	Breaking Strength	30/30	lbs/in
ASTM D1117	Tear Resistance (Trapezoid)	7/9	lbs
ASTM E84 Flame Spread Index Smoke Developed Index	Surface Burning Characteristics	5 25	Class A Class A
	Ultra Violet Light Exposure (UV)	120 (4)	days (months)

Test results shown represent roll averages. Individual results may vary either above or below averages due to normal manufacturing variations, while continuing to meet product specifications.

WARNING: DuPont™ Tyvek® is combustible and should be protected from an open flame and other high heat sources. If the temperature of DuPont™ Tyvek® reaches 750°F (400°C), it will burn and the fire may spread and fall away from the point of ignition.

For more information visit us at tyvek.com or call 1-800-448-9835

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