Designation: D4756 – 13

AnAmerican National Standard

Standard Practice for Installation of Rigid Poly(Vinyl Chloride) (PVC) Siding and Soffit[1]

This standard is issued under the fixed designation D4756; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice covers the minimum requirements for and the methods of installation of rigid vinyl siding, soffits, and accessories on the exterior wall and soffit areas of buildings. In all applications, refer also to the specific manufacturer's instructions for installation.

1.2 This practice covers aspects of installation relating to effectiveness and durability in service.

1.3 The various application systems are located in the following sections of this practice:

Substrate, Surface Preparation	Section 8
Application of Horizontal Siding	Section 9
Application of Vertical Siding	Section 10
Application of Soffits and Fascia	Section 11
Special Details	Section 12

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—There is no known ISO equivalent to this standard.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D883 Terminology Relating to Plastics

D1600 Terminology for Abbreviated Terms Relating to Plastics

D3679 Specification for Rigid Poly(Vinyl Chloride) (PVC) Siding

D4477 Specification for Rigid (Unplasticized) Poly(Vinyl Chloride) (PVC) Soffit

E631 Terminology of Building Constructions

E2112 Practice for Installation of Exterior Windows, Doors and Skylights

3. Terminology

3.1 *General*—Definitions are in accordance with Terminologies D883 and E631 and abbreviations with Terminology D1600 unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *backerboard*—a flat material used on the face of the house, applied between the studs and the siding (or over existing wall surface) to provide an even surface for the installation of the vinyl siding.

3.2.2 *buttlock*—the bottom of a siding or soffit panel, or accessory piece, opposite the nail hem, which locks onto the preceding panel.

3.2.3 *crimp*—small protrusions, typically approximately ½ in. (12.7 mm) long, ⅛ in. (3.2 mm) wide, and projecting ⅛ in. (3.2 mm) formed by a crimper (snaplock punch). (See Fig. 2.)

3.2.4 *crimper*—a special hand tool designed to form crimps (snaplock ears) intended to hold partial panels in place. (See Fig. 2.)

3.2.5 *face nail*—the action of fastening directly on to the "face," or exposed surface, of a panel (instead of using the nail slot).

3.2.6 *fascia*—the trim covering the ends of roof rafters. (See Fig. 1.)

3.2.6.1 *fascia board*—a board attached to the ends of the rafters between the roofing material and the soffit overhang.

3.2.6.2 *fascia cap or cover*—the covering around a fascia board.

3.2.7 *flashing*—special membrane pieces or manufactured trim pieces used to supplement siding panels in weather protection around joints, penetrations, and openings, such as windows, doors, mechanical penetrations, and roof-wall intersections, designed and intended to move incidental water to the building exterior.

[1] This practice is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.24 on Plastic Building Products.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

***A Summary of Changes section appears at the end of this standard**

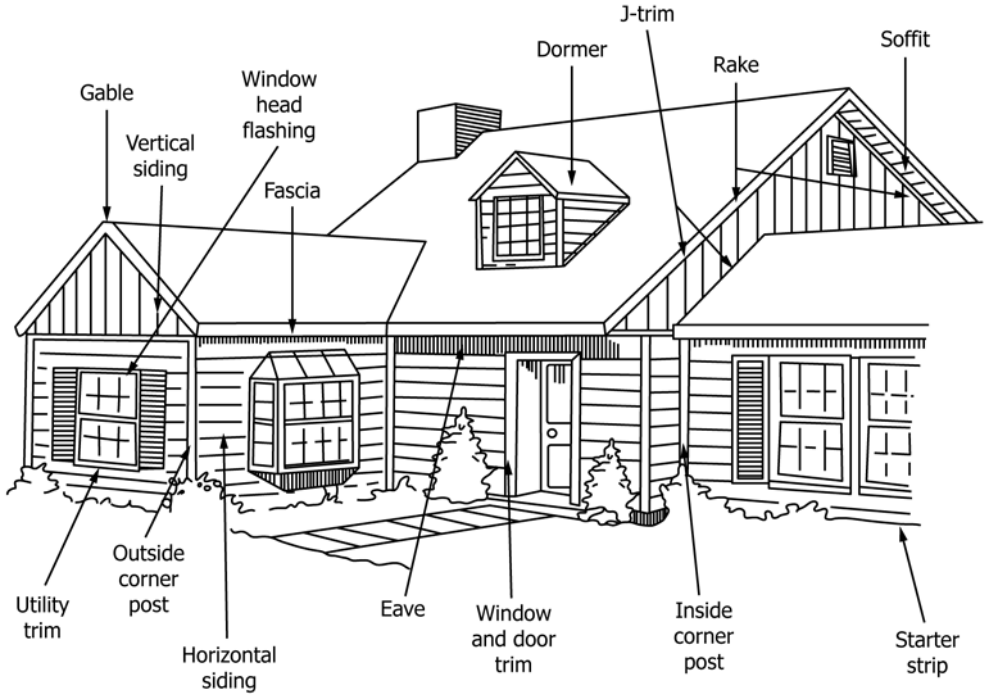


FIG. 1 Terminology for Buildings, Siding and Accessories

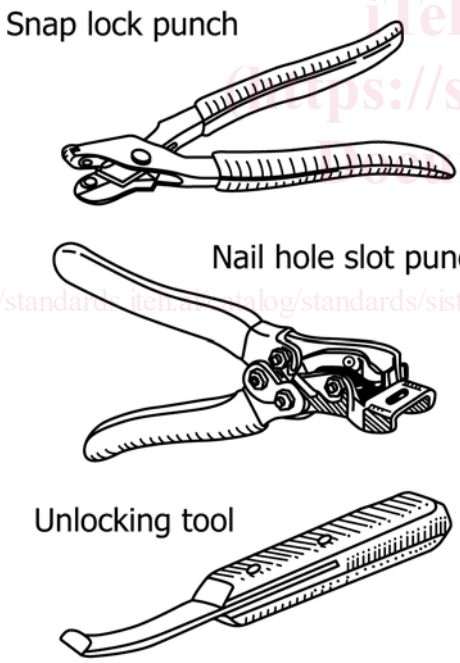


FIG. 2 Siding Installation Tools

3.2.8 *furring/furring strip*—a wooden or steel framing material, usually a nominal 1 by 2 in. (25.4 by 50.8 mm) used to even the surface in preparation for installation of siding. To "fur" a surface means to apply these strips.

3.2.9 *nailslot punch*—a special hand tool used to create slots for attachment of field-modified siding or accessories. (See Fig. 3.)

3.2.10 *rake (roof)*—the inclined, usually projecting edge of a sloping roof.

3.2.11 *rake (wall)*—the board or molding placed along the sloping sides of a gable to cover the ends of the siding.

3.2.12 *snaplock ears*—see *crimp* and Fig. 2.

3.2.13 *snaplock punch*—see *crimper* and Fig. 2.

3.2.14 *soffit*—the underside surface (typically horizontal) of roof overhangs.

3.2.15 *starter strip*—an accessory applied directly to the surface of the building and used to secure the first course of siding to the home. Starter strips can either be a part manufactured for the specific purpose or created by cutting the nailing hem and adjacent lock from a siding panel.

3.2.16 *undersill trim (utility trim)*—an accessory strip used to receive and hold the crimped edge of horizontal or vertical siding that has had its normal lock removed.

3.2.17 *zip tool (unlocking tool)*—a special hand tool used to separate interlocked siding panels. (See Fig. 2.)

4. Delivery of Materials

4.1 All manufactured materials shall be delivered in the original packages, containers, or bundles bearing the size or type product, or both, brand name, and manufacturer (or supplier) identification, manufacturer's lot number, and the ASTM specification to which it conforms.

5. Protection of Materials

5.1 Do not store in any location or in any manner where the temperature of the siding, soffit or accessories is likely to exceed 130°F (54°C).

5.2 Store the cartons on a flat surface and support the entire length of the cartons.

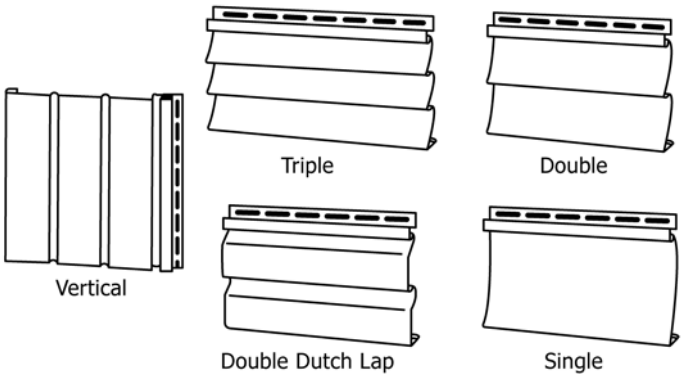


FIG. 3 Typical Siding Profiles

5.3 Store the cartons away from areas where falling objects or other construction activity could impact the cartons. Keep the cartons dry.

5.4 Do not store the cartons in stacks more than 6 boxes high.

6. Environmental Conditions

6.1 Vinyl siding and accessories will expand when heated and contract when cooled. If siding is installed in hot weather and the siding is very warm it will be partially "expanded." Provide allowance for more future "contraction" than expansion.

6.2 Leave ¼ in. (6.4 mm) clearance between the ends of panels and trim and any receiver such as J-channels and corner posts to allow for thermal expansion. If installing during weather colder than 40°F (4.4°C), increase the minimum clearance to ⅜ in. (9.5 mm) to allow for additional expansion during warmer weather.

7. Materials

7.1 *Horizontal Wall Siding*—See Specification D3679.

7.2 *Vertical Wall Siding*—See Specification D3679

7.3 *Soffit Panels*—See Specification D4477.

7.4 *Accessories:*

7.4.1 *Starter Strip*—Of two types: for horizontal siding and for vertical siding of poly(vinyl chloride) or corrosion-resistant metal.

7.4.2 *Corner Posts*—Of two types: for inside corners and for outside corners of poly(vinyl chloride).

7.4.3 *Trim Channels*—Produced of poly(vinyl chloride) in a variety of designs and sizes for use around openings and edges of wall and soffit surfaces. (See Fig. 5.)

7.5 *Fasteners:*

7.5.1 *Nails*—Corrosion-resistant with head diameter 5⁄16 in. (7.9 mm) minimum, shank diameter ⅛ in. (3.2 mm), length sufficient to penetrate not less than ¾ in. (19 mm) into framing or furring.

7.5.2 *Staples*—Corrosion-resistant, 16 gage minimum, with ⅜ to ½-in. (9.5 to 12.7-mm) crown, length sufficient to penetrate not less than ¾ in. (19 mm) into framing or furring.

7.5.3 *Screws*—Corrosion resistant, self-tapping type, No. 8 truss head or pan head length sufficient to penetrate wall thickness of steel stud or ¾ in. into framing or furring.

NOTE 2—To minimize the possibility of any color variation use material from a single manufacturer's lot number for application to one building.

8. Substrate, Surface Preparation

8.1 *Water-resistive Barrier*—Vinyl siding must be installed over a water-resistive barrier system that includes *(1)* a continuous water-resistive material, and *(2)* properly integrated flashing around all penetrations and where vinyl siding interfaces with other building products. Refer to the vinyl siding manufacturer's installation instructions and the minimum requirements of the local building code for specific product applications and requirements.

8.2 All caulking to prevent moisture penetration must be done before siding application. Do not use caulk where it could restrict the normal expansion of the vinyl siding.

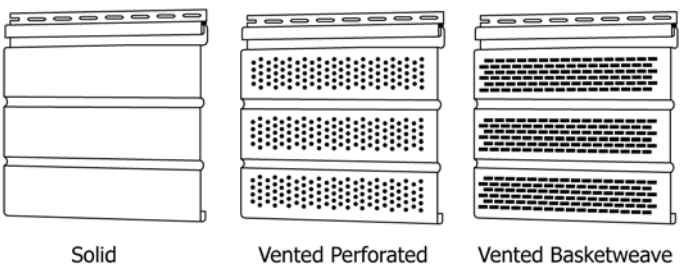


FIG. 4 Typical Soffit Profiles

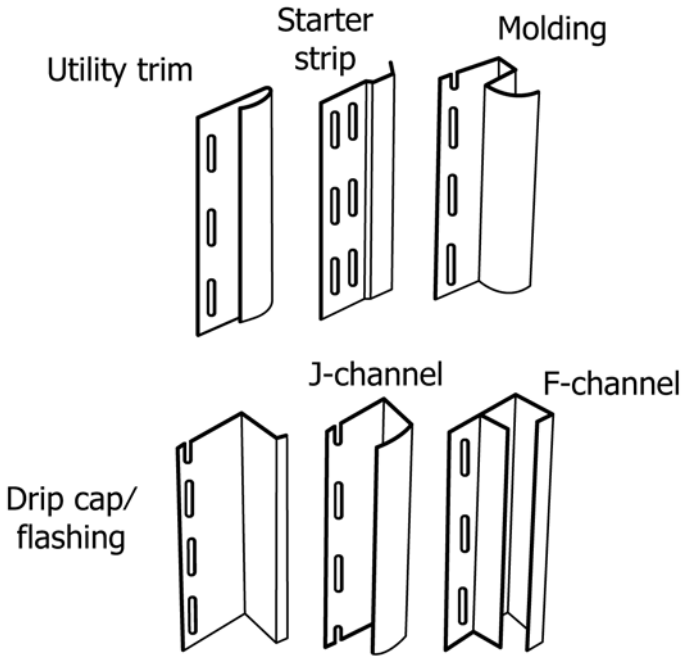


FIG. 5 Typical Siding Accessories

8.3 Apply vinyl siding over sheathing or other rigid surface that provides a smooth, flat surface. Do not apply vinyl siding directly to studs without sheathing. If permitted by the vinyl siding manufacturer, a contoured foam underlayment fitted for the specific style of vinyl siding is permitted to be utilized. Apply over wood furring strips when the underlying surface is uneven.

8.4 Drive fasteners into framing or furring. Driving of fasteners directly into sheathing or existing siding is permitted in accordance with the siding manufacturer's instructions, where substantiated by windload testing conducted in accordance with Specification D3679.

8.5 On existing structures, secure any loose boards, replace any rotted ones, recaulk around windows, doors, and other areas as necessary to protect from moisture penetration prior to the installation of siding or accessories. Use furring as needed to create an even surface.

8.6 *Flashing*—Refer to Practice E2112 for installation of flashing around windows, doors, penetrations and points of interface between the vinyl siding and other building components. If available, also refer to the instructions provided by the manufacturer of the window, door, or other object that will penetrate the siding.

8.7 *Furring*—Masonry and uneven surfaces, as examples, require wood furring strips nominal 1 by 2 in. (25.4 by 50.8 mm) applied vertically and typically spaced 16 in. (406 mm) on center for horizontal siding and applied horizontally and typically spaced 12 in. (305 mm) on center for vertical siding.

9. Application of Horizontal Siding

9.1 *General Requirements*—Vinyl siding and accessories expand and contract as much as ½ in. (12.7 mm) over a 12 ft (3.65 m) length with changes in temperature. For this reason adhere to the following provisions:

9.1.1 When applied, vinyl siding products must be attached "loosely," leaving approximately a 1/32-in. (0.8-mm) space between the vinyl and the fastener head or crown to permit thermal movement. (See Fig. 6.)

9.1.2 Center fasteners in slots of siding and accessories to permit possible expansion and contraction. (See Fig. 7.) If a nail slot does not allow centering/securing into framing, furring, or other permitted nailable surface, use a nail hole slot punch to extend the slot and allow centering of the fastener.

9.1.3 Do not face nail siding panels. (See Fig. 8.)

9.1.4 Allow clearance at panel ends for thermal expansion between corner posts, J-channels, and other receivers in accordance with 6.2.

9.2 *Installation of Accessories*—Accessories, including starter strips, corner posts and door/window trim, are installed prior to application of the siding, adhering to the provisions of 9.1 and those which follow.

9.2.1 *Corner Posts*—Outside and inside corner posts will start ¼ in. (6.4 mm) below the top, and end ¾ in. (19.1 mm) below the bottom edge of the first course of siding which will be installed later. Attach each leg of the corner posts with fasteners, spaced not over 12 in (305 mm) apart centered in nailing slots except the top fastener that is located at the upper end of a nailing slot.

9.2.1.1 If more than one length of corner post is required, lap the upper piece over the lower piece by cutting away 1 in. (25.4 mm) of the nailing flange on the top piece. Lap ¾ in. (19 mm) allowing ¼ in. (6.4 mm) for expansion. (See Fig. 9.)

9.2.1.2 As an alternative for inside corners, install two J-channels with the web of one abutting the adjacent wall and the web of the other J-channel abutting the shorter outer flange of the first J-channel. Attach as specified in 9.1.1.

9.2.2 *Starter Strip*—Determine the lowest point along the area to receive siding and install starter strips located so that the bottom edge of the initial course of siding will be on a level line and typically approximately ¼ in. (6.4 mm) below that point. Allow space for corner posts, J-channels, etc., and keep ends of starter strips ¼ to ½ in. (6.4 to 12.7 mm) apart. Space fasteners not more than 10 in. (254 mm) apart, centered in nail slots.

9.2.3 *Door/Window Trim:*

9.2.3.1 Install flashing around windows and doors in accordance with 8.1 and 8.6 before installing trim.

9.2.3.2 J-channel is installed on each side and the top of door and window frames, and under window sills. Always install the bottom J-channel first, followed by the side channels, and then the top channel.

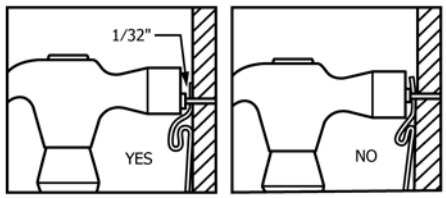


FIG. 6 Attachment of Vinyl Siding

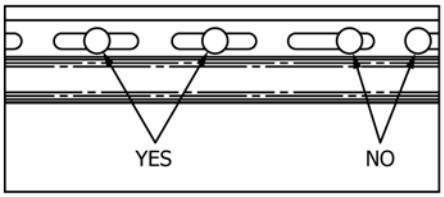


FIG. 7 Fastening Location in Siding Slots

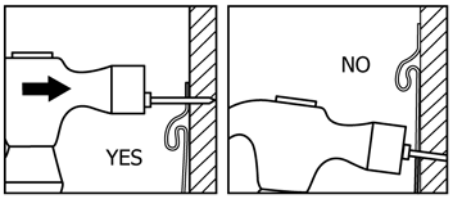


FIG. 8 Face Nailing of Vinyl Siding Prohibited

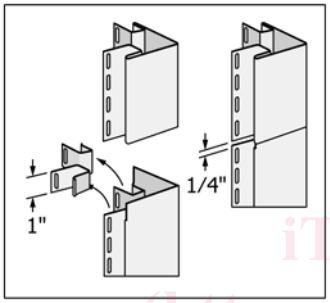


FIG. 9 Joining Corner Posts

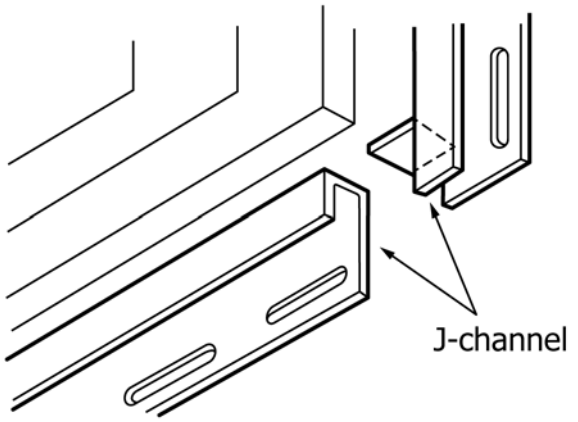


FIG. 10 Installation of Bottom and Side J-Channels under Window (for clarity, 45 degree miter of side J-channel is not shown)

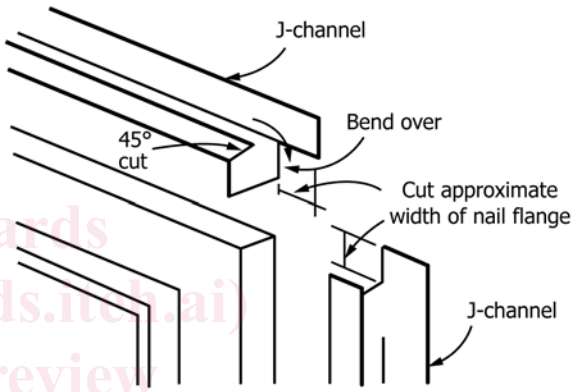


FIG. 11 Installation of Top and Side J-Channels Above Window or Door (note mitered face of top J-channel)

9.2.3.3 Extend the bottom and top J-channel the length of the window frame plus the width of the visible face of the side J-channels (typically ¾ in. (19 mm)) on each side. Extend the side J-channels the height of the window or door frame plus the width of the visible face of the top and bottom J-channels.

9.2.3.4 In the bottom J-channel, cut a notch in the web at each end the width of the visible face of the side J-channel. In both side J-channels, cut a notch at the top end and a tab at the bottom end. Miter the bottom ends of the visible face of the side J-channels at a 45 degree angle. In the top J-channel cut along the bends at both ends of the J-channel to create a tab the same length as the exposed face of the side J-channel. Miter the end of the visible face of both ends of the top J-channel at a 45 degree angle.

9.2.3.5 Install the bottom J-channel. Install each of the side J-channels, with the mitered visible face over the face of the bottom J-channel. Bend the tabs in the side J-channels into the bottom J-channel. (See Fig. 10.)

9.2.3.6 Install optional head flashing across the top of the window or door frame. Install the top J-channel with the mitered face over the face of the side J-channels. Bend the tabs in the top J-channel into the side J-channels. (See Fig. 11.)

9.3 *Siding Panel Installation:*

9.3.1 *General Considerations*—To make overlapped siding joints less noticeable on the sides of a building, start at the rear corner and install toward the front. On the front and rear of buildings start at the corners and install toward the entrance door. Avoid use of short panel lengths under 24 in. (610 mm). (See Fig. 13.) When lapping, place factory-cut ends of panels on top of field-cut ends for best appearance.

9.3.2 Engage the bottom of the first panel and the starter strip. If backerboard insulation is used, drop it in behind the panel now. Make sure the panel is locked, but not pulled tight, and fasten leaving ¼ to ⅜ in. (6.4 to 9.5 mm) gap at the corner posts, in accordance with 6.2. (See Fig. 12.) Space fasteners not over 16 in. (406 mm) on center. Greater spacing is permitted in accordance with the siding manufacturer's instructions, where substantiated by windload testing conducted in accordance with Specification D3679.

9.3.3 Lap the next panel over the first by approximately one-half of the factory cut notch, provided the overlap is at least ¾ in. (25.4 mm) but not greater than 1¼ in. (38.1 mm). (See Fig. 13.) Insert backerboard (if used) and fasten.

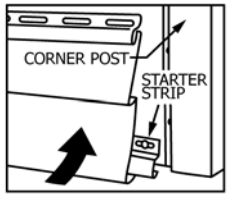


FIG. 12 Fastening of Initial Siding Panel

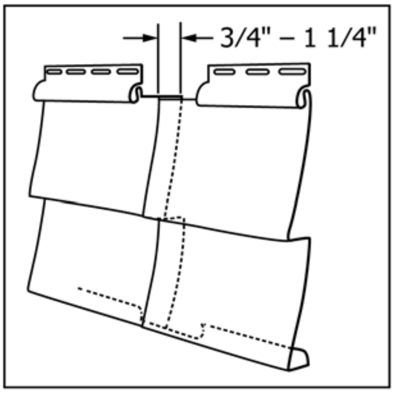


FIG. 13 Lapping Siding Panel

9.3.4 To field-notch a panel where the factory notch has been cut off, cut away 1½ in. (38 mm) of the nailing flange and lock. Cut a ⅛ by 1½-in. (3.2 by 38-mm) notch from the bottom step of the panel, cutting away the hook on the back as well.

9.3.5 At the bottom of the window, snugly install between the side J-channels and against the underside of the sill, a piece of undersill trim cut to the exact width of the window. Use the proper thickness of furring behind it to keep the pitch of the panel consistent.

9.3.6 If the top of the siding panel will extend above the bottom of the window, cut a section out of the panel to fit under the opening. Be sure the uncut portion of this panel extends on both sides of the window. Measure the panel to fit. Hold the siding panel under the window and mark the width of the opening on it. Allow ¼ in. (6.4 mm) clearance at the edges for insertion into each side of the J-channel. Measure the space between the bottom edge of the S-lock on the previous panel and the top of the undersill trim, minus ¼ in. (6.4 mm) for insertion into the undersill trim receiver. Remove cut section. Punch snap locks every 6 in. (152 mm) along the horizontal cut edge. Slide the panel up into position so the bottom locks into the previous panel and the top snaps into the undersill trim and fasten. (See Figs. 14 and 15.)

9.3.7 Over a window or door, measure for the cuts. Mark the bottom portion of the panel and cut out the unwanted section. Install the panel. (See Fig. 16.) If necessary, place a piece of furring into the J-channel behind the cut edge of the siding to reduce wind movement and maintain the proper plane of this siding. Leave enough gap at the top of the cutout to permit locking onto the previous course.

9.3.8 At a gable, install J-channel along the rake boards, or at the top of the wall if there are no rake boards. (See Fig. 17.) Lap the channels if necessary by cutting 1 in. (25.4 mm) off the end leaving only the face and then lap ¾ in. (19 mm). Miter the ends that meet at the peak to make a neat joint.

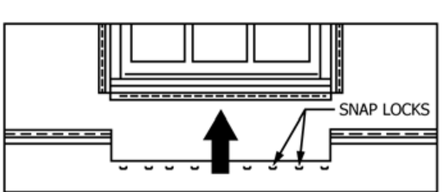


FIG. 14 Preparation of Siding Panel Under Window

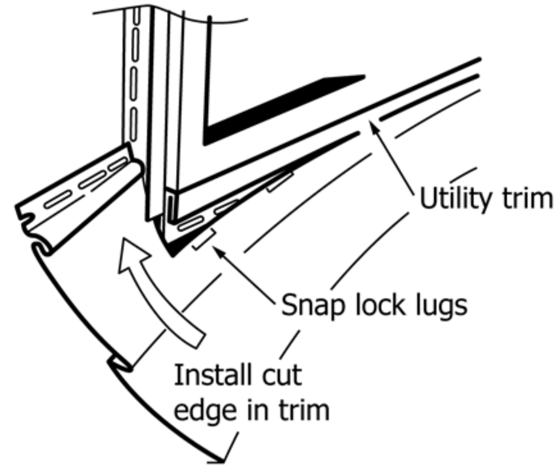


FIG. 15 Installation of Siding Under Window

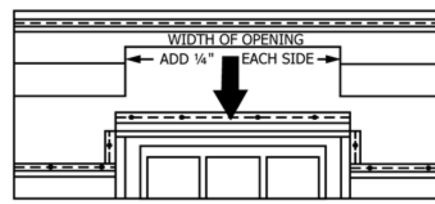


FIG. 16 Installation Over Window or Door

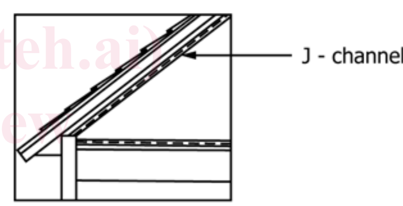
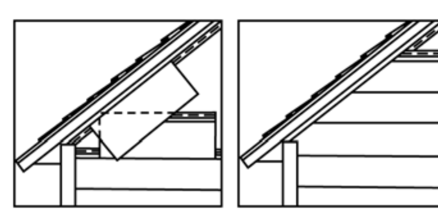


FIG. 17 Installation of J-channel on Gable



(a) *Pattern* **(b)** *Use*

FIG. 18 Using a Pattern to Match Panel End Cuts to Gable Angle

9.3.8.1 To ensure that the angle of the ends of the siding panels match the angle of the gable, make a pattern from two pieces of scrap siding. Hold one piece on the lock of the last installed panel, place the other piece against the gable and mark the horizontal piece. (See Fig. 18*(a)*.) Cut along the mark and use this piece as a pattern for the remaining siding panels on that side. Make another pattern for the other end of the panels. (See Fig. 18*(b)*.)