A series of thick, blue, geometric lines of varying lengths and orientations, including horizontal, vertical, and diagonal segments, arranged in a stepped, zig-zag pattern across the page.

Recommended
Basic Applications
and
Painting Instructions
for
Hardboard Siding

General Information

Scope: Hardboard sidings are well known for their excellent performance and low maintenance when applied to wood framed units. To obtain the utmost in performance, it is important they be correctly applied and finished with quality material.

The following recommended application instructions represent the best judgment of the industry as to the basic requirements for storage, application and finishing of hardboard siding. Where building code requirements or standards or manufacturer's installation instructions differ from these recommendations, the applicable code requirements or standards or manufacturer's instructions must be followed. The manufacturer should be consulted for specific recommendations.

All drawings are shown for illustration purposes only.

General: Hardboard sidings are covered by American National Standard ANSI/AHA A135.6 and are available in a variety of sizes, surface textures and finishes. The sidings can be classified into three (3) basic types:

1. Lap Siding - Boards applied horizontally with each board overlapping the board below it or with horizontal shiplap joints.
2. Square Edge Panels - Intended for vertical application in full sheets.
3. Shiplap Edge Panel Siding - Intended for vertical application with the long edges incorporating shiplap joints.

Regardless of the size or texture, the type of panel dictates the application method.

Storage: Warehouse siding flat on stringers in an unheated, covered building away from direct exposure to the elements to keep the material clean and maintain a uniform moisture content. Job site storage should likewise be on stringers, avoiding contact with the ground and covered to prevent direct exposure to the elements.

Basic Structure: The vertical framing members must not exceed 16" or 24" on center, depending on the siding product selected. The wall structure must supply the required shear strength. Panel siding when used in lieu of sheathing and properly fastened (as indicated in Table 1) can provide the shear strength.

As with all quality wood products, hardboard siding should never be applied to a structure having excessive moisture conditions such as drying concrete or plaster, or over wet sheathing materials. If such conditions exist, the building should be well ventilated to allow it to dry prior to application of the siding. Siding shall not be applied to green or crooked structural framing members.

Moisture Control: Attics and crawl spaces should be vented to the outside air in accordance with the requirements given in the One and Two Family Dwelling Code.* A ground cover of polyethylene film at one (1) perm or less must be used in all crawl spaced areas.

The wall design shall be such that it provides protection equivalent to a vapor retarding system having a rating of one (1) perm or less installed on the warm (living) side of the insulation.

The following are some materials which when properly installed, can provide an effective vapor retarding system:

- a. Kraft paper/polyethylene/kraft paper sandwich sheet material having a rating of one (1) perm or less.
- b. Vinyl or polyethylene faced gypsum board or foil backed gypsum board having a rating of one (1) perm or less.
- c. Vapor retarder paint on the interior finish material applied in a manner to provide a rating of one (1) perm or less.
- d. Asphalt-coated kraft/foil faced insulation batts having a rating of one (1) perm or less with joints overlapped at framing members.
- e. Kraft or foil faced insulation batts with a perm rating of one (1) or less installed with the tabs securely fastened without gaps to the wide face of the wall studs (inset fastening); provided that, one square inch of ventilation to the exterior of the wall cavity in the upper portion of each stud bay is included with this alternative.

Other methods to prevent moisture condensation in the wall cavity may be used when approved in writing by the hardboard manufacturer.

Never install hardboard siding in direct contact with the ground or where water may collect and contact the siding. Allow at least a 6" space between the siding and the ground or any area where water may collect.

** Published by the Council of American Building Officials*

Application

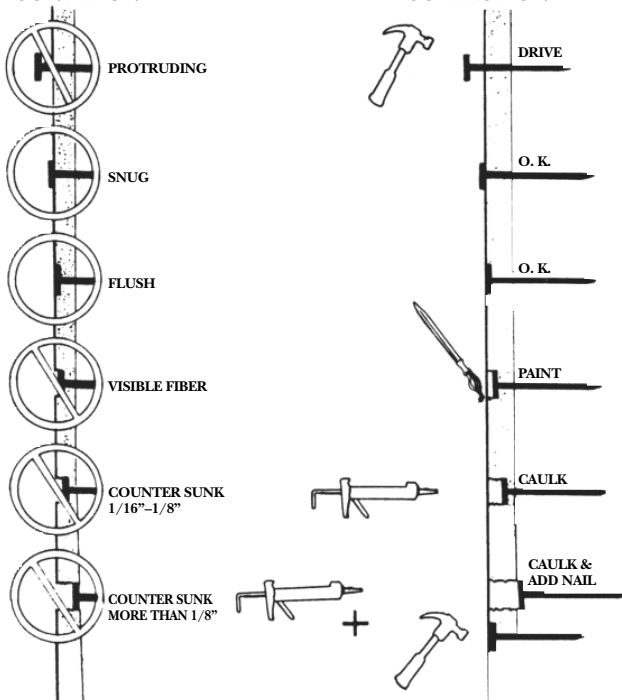
Siding Application	Framing Maximum Spacing	Nail Size (1)	Nail Spacing Shear Strength Not Provided (2)	Shear Strength Required (3)	Joint Gap	Gap Around Openings
Lap Siding Direct to Studs	16"o.c.	8d	16"o.c.	Not Applicable	1/16"	3/16"
Over Sheathing (5)	16"o.c.	10d	16"o.c.	Not Applicable	1/16"	3/16"
Square Edge Panel Siding Direct to Studs	24"o.c.	6d	6"o.c. Edges 12"o.c. Intermed.	4"o.c. Edges 8"o.c. Intermed.	1/8"	3/16"
Over Sheathing (5)	24"o.c.	8d	6"o.c. Edges 12"o.c. Intermed.	Not Applicable	1/8"	3/16"
Shiplap Edge Panel Siding	16"o.c. (4)	6d	6"o.c. Edges	4"o.c. Edges	Moderate	3/16"
Direct To Studs			12"o.c. Intermed.	8"o.c. Intermed.	Contact	
Over Sheathing (5)	16"o.c. (4)	8d	6"o.c. Edges 12"o.c. Intermed.	Not Applicable	Moderate Contact	3/16"

Table I Application

1. Nail length must accommodate sheathing and penetrate framing 1 1/2" inches.
2. Shear resistance provided by sheathing or corner braces.
3. Shear resistance provided by siding.
4. Some manufacturers permit application to studs spaced 24"o.c. and should be consulted for their recommendations.
5. See sheathing section.

Minimum Acceptable Nail Dimensions (inches)	Panel Siding	Lap Siding
Shank Diameter	0.092	0.099
Head Diameter	0.225	0.240

FIGURE 1
nail head placement
CONDITION



CORRECTION

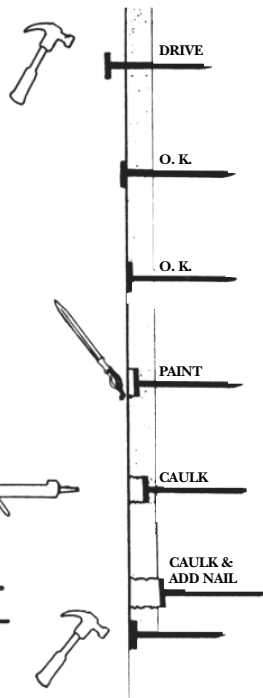
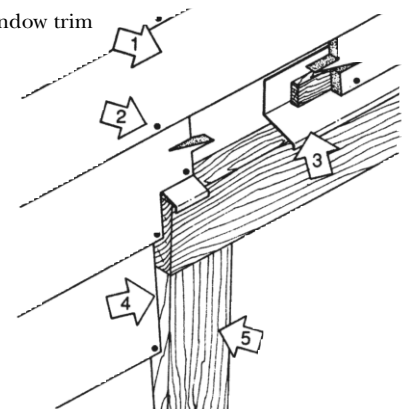


Table II Nail Size

FIGURE 2
opening caulk detail

1. siding
2. nail 16"o.c. into 2"x4" studs
3. drip cap or flash
4. 3/16" gap and caulk
5. door or window trim



General Information (Continued)

Cutting: Use a fine tooth, hand, or power saw. The cutting action should be into the face of the siding, i.e., face up with hand saws, face down with portable circular saws, etc.

Nailing: The application table (Table I) gives the recommended nail for each individual product. Nails should penetrate a minimum of 1 1/2" into the framing member. Always use corrosion-resistant nails. Do not use staples, T-nails or bugle head nails. Nails shall conform to the criteria of Federal Specification FF-N-105B as amended. See Table II.

The fastening sequence must be in only one direction, edge to edge on panel siding and from end to end on lap siding. This procedure prevents stresses from occurring within the siding due to improper fastening. Do not countersink nails (See Figure 1).

Caulking: Caulk around all openings such as window and door frames with non-hardening, mildew resistant exterior grade caulking material, unless joints have been otherwise weatherproofed (See Figure 2).

Sheathing: Install sheathing according to sheathing manufacturer's recommendations. Care of application of low density non-structural sheathing, i.e. foam, must be followed to avoid problems relative to nailing and moisture.

Conventional Style Lap Siding

Lap siding may be applied over sheathing or direct to studs spaced 16" o.c. maximum unless specified otherwise by the siding manufacturer.

A starter strip approximately 1 1/2" wide and the same thickness as the siding shall be installed flush with the bottom edge of the sill plate. Siding shall extend at least 3/4", but no more than 2" below the starter strip. Nail the bottom edge of the first course of siding 16" o.c. maximum through the starter strip and into the sill plate (See Figure 3).

The second and all succeeding courses of siding must lap the previous course a minimum of 1". Nail 3/8" minimum from the bottom edge and into each stud, nailing through both courses. Install shim strips for continuous horizontal support behind the siding wherever it is notched out above or below openings (See Figures 3 & 4).

For direct to stud application, use an approved weather-resistive barrier.

Leave a 3/16" minimum space between the siding and windows, door frames and corner boards. Caulk these spaces with nonhardening sealant (See Figure 2).

FIGURE 3
3/16" shiplap detail

1. siding

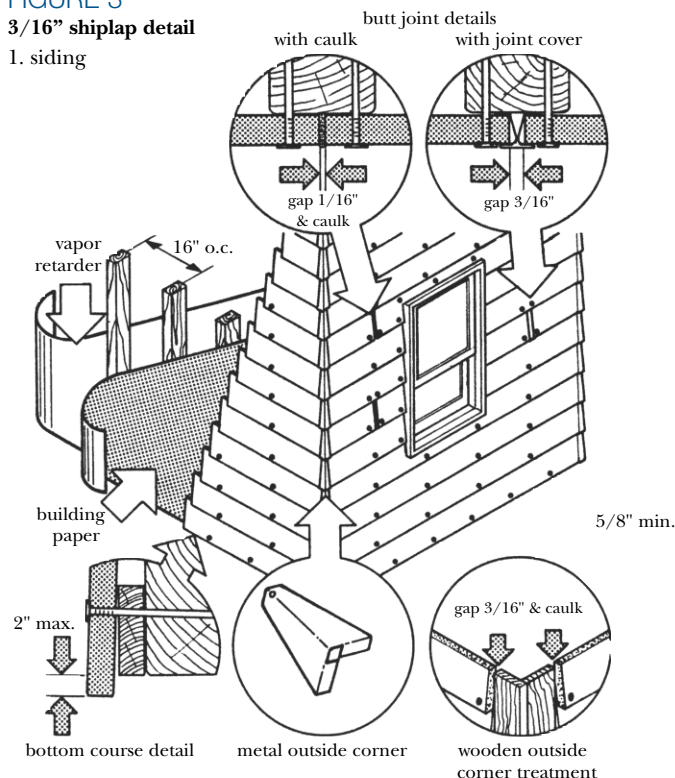


FIGURE 4
lap siding nailing detail

1. 2"x4" stud
2. nail through both courses
3. butt joint

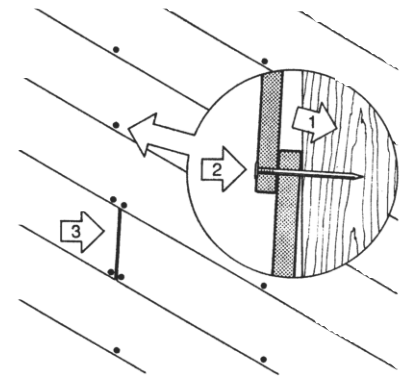
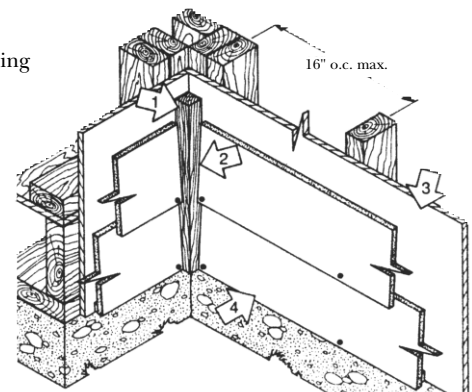


FIGURE 5
inside course

1. 1 1/2" min. wood cornerboard
2. caulk
3. sheathing
4. primed lap siding



All vertical butt joints must fall over the studs and be nailed on both top and bottom of each side of the joint. Stagger the vertical butt joints and separate by at least two (2) or more courses. Do not force fit the siding. Butt joints may be treated with either joint covers or caulk (See Figure 3).

Specialty Siding

For installation of specialty style lap, panel or other siding, consult the individual manufacturer's application instructions.

Lap Siding Accessories: Use formed corners or corner boards of thickness suitable to receive siding at outside and inside corner locations (See Figures 3 & 5).

Square Edge Panel Siding

Square edge ungrooved panels may be applied to sheathed or unsheathed walls with studs spaced up to 24" on center. All panel edges must fall over a framing member. Place nails at least 3/8" from the edge of the panel and into the framing members. When siding is applied to provide shear resistance, nail according to the instructions in Table I (See Figure 6).

Shiplap Edge Panel Siding

Shiplap edge panel siding may be applied to sheathed or unsheathed walls with 24" on center. Shiplaps are available in various widths. See manufacturers' instructions for details. For narrow shiplap joints (i.e. 3/8"), double nailing is recommended (See Figure 7, 8 & 9).

The 3/4" shiplap joint must be nailed 3/8" minimum from the edge (See Figure 9). For nailing recommendations, see Table 1.

For square edge and shiplap panels, leave a 3/16" space between the siding and the window or door frame and corner boards. Caulk vertical joints and flash horizontal joints similar to the recommendations for lap siding (See Figure 2).

Panel Siding Accessories: Provide solid lumber blocking behind all horizontal joints and use Z flashing or overlap panels at least 1" at these joints to provide for water drainage (See Figure 10). Use corner boards of a thickness suitable to receive siding and provide weather resistance at outside and inside corner locations (See Figure 5).

FIGURE 6

square edge detail

1. sheathing if required
2. batten over butt joint
3. caulk
4. allow 1/8" gap

For nail space see Table I

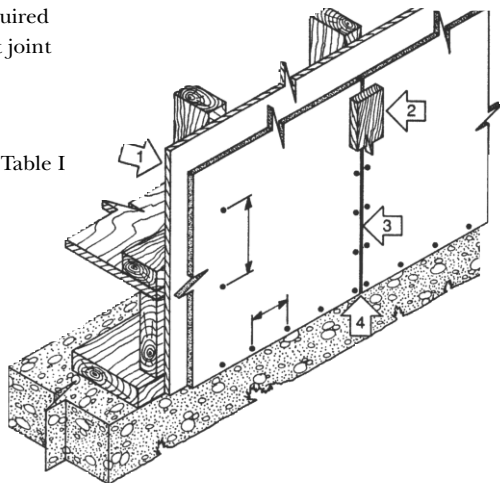


FIGURE 7

shiplap edge detail

1. shiplap joint

For nail space see Table I

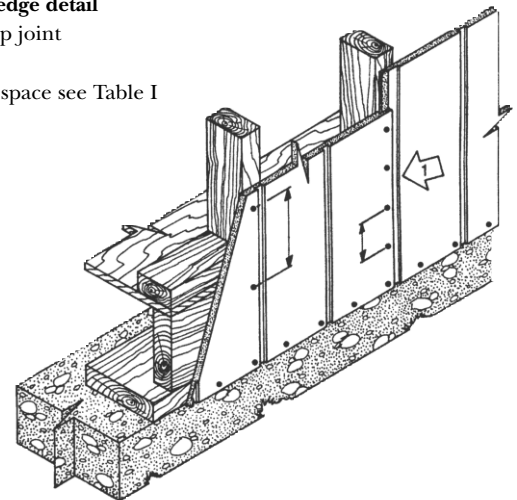


FIGURE 8

3/16" shiplap detail

1. siding

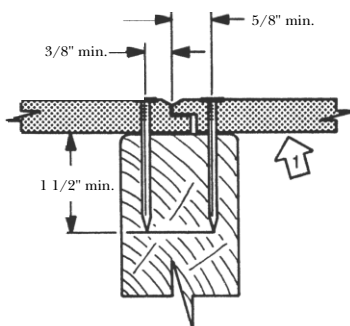


FIGURE 9

3/4" shiplap detail

1. siding

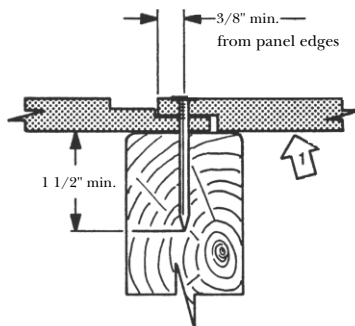
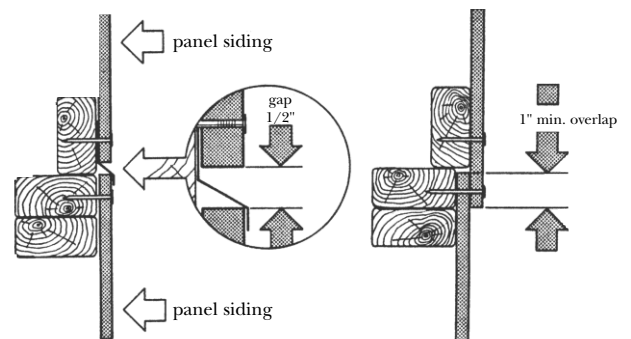


FIGURE 10

horizontal overlaps



Painting

Hardboard siding is available with a surface either unprimed (uncoated), factory primed or prefinished. The following recommendations for initially finishing these sidings are provided by the American Hardboard Association.

The surface of hardboard siding is ideal for field applied coatings, since hardboard does not have any knots, raised grain, or other defects that typically shorten the coating's life. Hardboard sidings are made from wood. As such, they must be properly coated initially and maintained if satisfactory performance is to be achieved from both the siding and the field applied coating.

The purpose of exterior finishes is both to protect and to beautify the substrate. These recommendations are intended as a guide to achieve both functions for a reasonable service life on hardboard siding. Finishing practices which do not meet the following criteria may result in less than satisfactory results.

UNPRIMED AND PRIME

Finish Selections

Quality: Purchase a high quality¹ exterior paint that is *recommended for use on hardboard siding*. Low cost paints are rarely genuine bargains because they are usually harder to apply, do not cover well and do not last as long as higher quality materials. Follow the advice of your paint dealer for the products specified for coating hardboard siding.²

Finish Type: Select finishing systems intended for exterior use on hardboard siding as follows:

- A. **Primer:** Use a solvent based oil/alkyd or water borne primer which will seal the face and edges and is compatible with the top coat to be used.
- B. **Top Coat Paint:** Use one of the following exterior top coat paints: latex or oil paint.³
- C. Stain products are not recommended.
- D. Clear finishes are not recommended except for specially designed clear systems to maintain multitone prefinished siding. Consult the siding manufacturer.
- E. All paints used should be those recommended by the paint manufacturer for use on hardboard siding.

Surface Preparation

The surface of the siding must be clean, free of dust, dirt, mildew and other contamination.

Unprimed siding should be finished as soon as practical. Exposure should never exceed 30 days.

Primed siding should be finished within 60 days after installation. If exposed for a longer period, reprime and finish as unprimed siding.

D H A R D B O A R D S I D I N G

Application

Method of Application: Follow the directions on the finish label paying particular attention to special primer requirements, siding surface temperatures, rate of spread, and recommended application procedures. In general, the finish can be applied by either pad, spray, roll or brush as long as the resultant film is the recommended thickness, is uniform in coverage and properly cured. If spray painting, be especially careful.

Avoid application of finishes when rain, dew, or low temperature is expected.

Number of Coats/Coating Thickness: A total film thickness of 4 dry mils (.004") minimum to all exposed surfaces and edges is recommended.

This is best achieved by a uniform application of unthinned finishes at the spread rate recommended on the label. Therefore, apply the following number of coats.

Unprimed Siding: Primer followed by two(2) unthinned finish coats.

Primed Siding: Spot prime any areas of damage to the factory primer using an oil/alkyd primer. After the primer has dried, apply two(2) coats; follow the coating manufacturer's recommendations relative to either the use of a primer and finish coat or two (2) finish coats.

1. *Warranty is the range of 10 to 15 years is a good indication of high quality.*
2. *Manufacturers of high quality paints often indicate one coat coverage. Two coats are best for maximum durability.*
3. *The oil paint should be semi or full gloss paint.*

Maintenance and Refinishing

Yearly inspection of the exterior of the home will pay dividends when refinishing eventually becomes necessary. If the finish appears in good condition, cleaning and touch up is often adequate. When the finish becomes badly eroded and thin, clean and prime the areas where the substrate is exposed, followed by complete priming and finish coating. If there is no substrate exposed, finish coating only may be adequate.

The selection of the finish and method of application is equally as important in refinishing as in the initial finishing. Selection of improper finishes can actually be detrimental to the siding. Surface preparation is extremely important. Ensure that the surface is free of dirt, mildew, excessive chalk or other contaminants. For further information on refinishing, Email or write to the American Hardboard Association for a copy of their maintenance tips brochure.

Prefinished Siding

Prefinished sidings do not require field finishing for the life of the warranty applicable to the particular product. Repair damage from installation or vandalism with the appropriate brand of touch-up paint available from local siding dealers.

Carefully repair damaged areas using a minimum amount of touch up paint. Periodic washing with water and soap may be desirable depending on local conditions.

About The American Hardboard Association

The American Hardboard Association is the national trade organization representing manufacturers of hardboard products used for exterior siding, interior wall paneling, household and commercial furniture, and industrial and commercial products. AHA serves as the central clearing house on industry and technical information for architects, builders, contractors, distributors, dealers, government agencies and the general public. The Association is concerned with statistical reports, standard/specification programs, research activities, building codes, environmental affairs, educational publications, manufacturing and safety activities, and governmental relations. The Association also administers a quality conformance program for hardboard siding.



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