EXTERIORS
BOARD SIDING

Problem-free siding installations start with selecting the right siding grades and controlling the moisture content of the wood.

SIDING GRADES

FIGURE: WOOD SIDING GRADES

Product	Grade	Description	Moisture Content
Standard Clear Grades - Western Red Cedar			
Bevel Siding	Clear VG (vertical grain)	Free of knots and imperfections; for use where the highest quality appearance is desired.	MC-15 (15% or less-most pieces 12% or less)
	A Grade	Includes some mixed grain and minor growth characteristics.	
	B Grade	Includes mixed grain, limited characteristics and occasional cutouts in longer pieces.	
	Rustic	Similar to A grade, but graded from sawn face.	
	C Grade	Admits larger and more numerous characteristics than A or B grades	
Boards (Finish, Trim)	Clear	Finest appearance with clear face, few minor characteristics.	
	A Grade	Recommended for fine appearance. May include minor imperfections or growth characteristics.	
	B Grade	Permits larger and more characteristics, but may have short lengths of fine appearance.	
Standard Knotty Grades - Western Red Cedar			
Bevel Siding, Boards, Channel, T&G, etc.	Select Knotty	For fine knotty appearance	19% or less
	Quality Knotty	Permits more pronounced characteristics and has occasional cutouts in longer pieces.	
	Select Merchantable	Has fine appearance and includes knots and minor markings	Unseasoned
	Construction	Limited characteristics allowed to assure high degree of serviceability.	
	Standard	Allows more characteristics than construction	
Standard Softwood Grades (all species except redwood)			
All board patterns	C Select	Mixed grain, a few small knots allowed. For uses when a fine finished appearance is required.	MC-15 (15% or less-most pieces 12% or less)
	D Select	Mixed grain, slightly larger knots than allowed in C Select.	
	#2 Common	Has fine appearance and include knots and minor markings	19% or less
	#3 Common	Limited characteristics allowed to assure high degree of serviceability.	
	#4 Common	Allows more characteristics than #3. Used chiefly for serviceability rather than appearance.	

Note: Problems occur with siding grades that are unsuitable for the job. To avoid problems, use select grades. These grades apply to all lumber graded under the rules of Western Wood Products Assoc. (WWPA), West Coast Lumber Inspection Bureau (WCLIB), or National Lumber Grades Authority (NLGA) of Canada. The term "characteristics" refers to knots, wane, pitch pockets, irregular grain, etc. Lumberyards may use other terms for their siding grades, but there's little chance of knowing what will be delivered or how it will perform. Ask for equivalents to the standard grades established by industry trade associations shown above.

Cheap or ungraded siding usually warps, shrinks, splits, and otherwise deteriorates far quicker than premium-grade material.

MOISTURE CONTENT

Nearly all wood siding shrinks somewhat after installation. If the wood is too wet when installed, excessive shrinkage can lead to splitting, warping, cupping, or paint checking. Problems can be minimized by specifying "S-Dry" material, which contains no more than 19% moisture, or by using premium-grade materials.

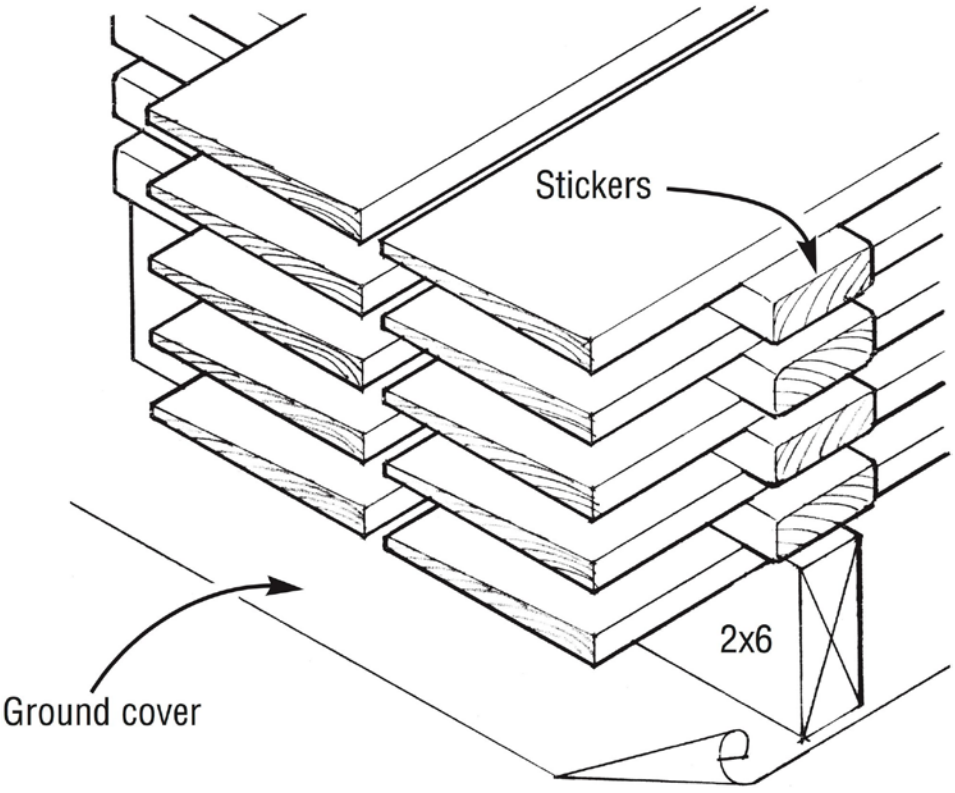
MC on Delivery

Unseasoned or green wood has a moisture content (MC) of more than 19%. Dry wood has a maximum moisture content of 15% or 19% depending upon grade. Premium grades are dried to MC 15, meaning that the wood has 15% moisture content or less (and that 85% of the pieces are dried to 12% or less). Dry siding will acclimate more quickly to its final surroundings and will have less dimensional change, before or after installation, than unseasoned or green siding.

MC at Installation

Condition all board siding. Moisture content will vary from piece to piece, but the material should average about 12% MC at the time of installation (individual pieces ranging from 9% to 14%). In dry southwestern states, siding should average 9% MC.

FIGURE: STORING SIDING ON SITE



It's best to get any wood siding at least a week early and store it at the job site to let it adjust to the site's humidity. Extend drying period to 30 days for unseasoned siding or during very humid seasons. Keep siding out of weather in the driest space available. Break apart bundles and restack the material on evenly spaced, vertically aligned stickers to allow air to circulate freely. If stacked over the ground or concrete, lay poly down first, and then use 2x6s to elevate the first layer. Stack siding in a dry area where plenty of air can flow through the stack, and protect it from weather.

BOARD SIDING PATTERNS

Pattern is more than just an aesthetic choice. Certain patterns respond better than others to climate changes (**Figure A**).

Pattern Width

Narrow patterns perform best because there is less movement from wet to dry periods and with seasonal climate changes.

Wide patterns will cover an area faster, thus reducing labor costs, but any savings may be offset by callbacks due to warping, cupping, or checking. Avoid patterns over 8 in. in width.

FIGURE A: BOARD SIDING PATTERNS

Siding Patterns	Nominal Sizes (thickness and width)	Nailing (Do not nail where siding pieces overlay)	
		6 in. and narrower	8 in. and wider
Bevel or Bungalow Bungalow (Colonial) is slightly thicker than Bevel. Either can be used with the smooth or rough-faced surface exposed. Patterns provide a traditional-style appearance. Horizontal applications only.	½ x 4 ½ x 5 ½ x 6 ⅝ x 8 ⅝ x 10 ¾ x 6 ¾ x 8 ¾ x 10	Recommend 1" overlap. One siding nail or box nail per bearing, just above the 1" overlap. plain	Recommend 1" overlap. One siding nail or box nail per bearing, just above the 1" overlap. plain
Tongue & Groove T&G siding is available in a variety of patterns. Vertical or horizontal applications. Install horizontal T&G with the tongues up so the joint will drain.	1 x 4 1 x 6 1 x 8 1 x 10 Available with ¼", ⅜", or 7/16" tongues. For wider widths, specify the longer tongue.	Use one casing nail per bearing to blind nail. plain	Use two siding nails or box nails 3" to 4" apart to face nail. plain

Siding Patterns	Nominal sizes (thickness and width)	Nailing (Do not nail where siding pieces overlay)	
		6 in. and narrower	8 in. and wider
Channel Rustic Channel Rustic has ½" overlap and a 1" to 1¼" channel when installed. The profile allows for maximum dimensional change without harming appearance. Available smooth, rough or saw-textured. Horizontal or vertical applications.	¾ x 6 ¾ x 8 ¾ x 10	Use one siding nail or box nail to face nail once per bearing, 1" up from bottom edge.	Use two siding nails or box nails 3" to 4" apart per bearing.
Board-and-Batten Boards are surfaced smooth, rough or saw-textured. Rustic ranch-style appearance. Requires horizontal nailers. Vertical applications only.	(4/4) 1 x 2 1 x 4 1 x 6 1 x 8 1 x 10 1 x 12 (5/4) 1¼ x 6 1¼ x 8 1¼ x 10 1¼ x 12	Recommend ½" overlap. One siding or box nail per bearing. ½" Board and Batten	Increase overlap proportionately. Use two siding nails or box nails, 3" to 4" apart. Board and Batten Board on Board

DRAINAGE PLANE

The easiest way to create a drainage plane is to use a self-draining rainscreen mat, such as Home Slicker® (Benjamin Obdyke; 800/346-7655; www.obdyke.com). This material is thin enough that windows, doors, and corners don't need to be packed out when used with 5/4 trim stock.

Also, siding may be installed over vertical battens spaced 16- to 24-in. apart to create the air space (**Figure B**).

In this case, door and window jambs must be extended to accommodate the added thickness, and a vent strip or screen should also be included over weep channels to keep out insects (**Figure C**).

FIGURE B: DRAINAGE PLANE FOR BOARD SIDING

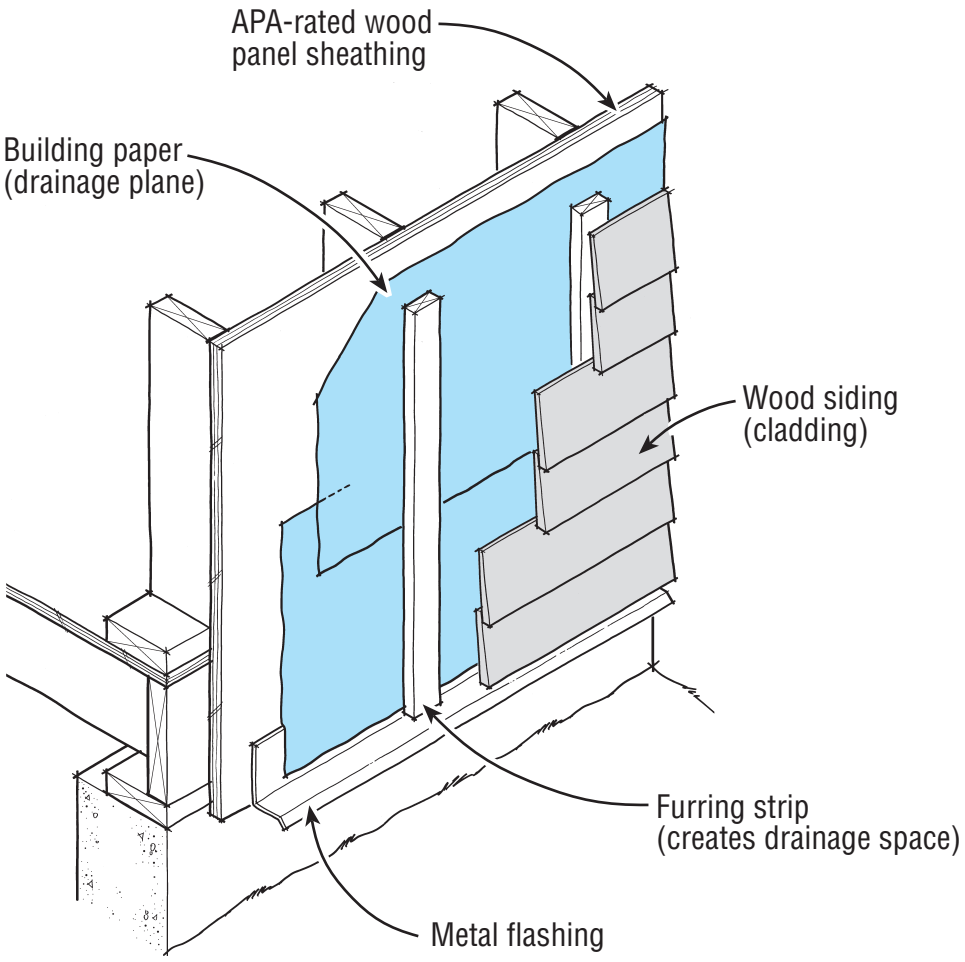
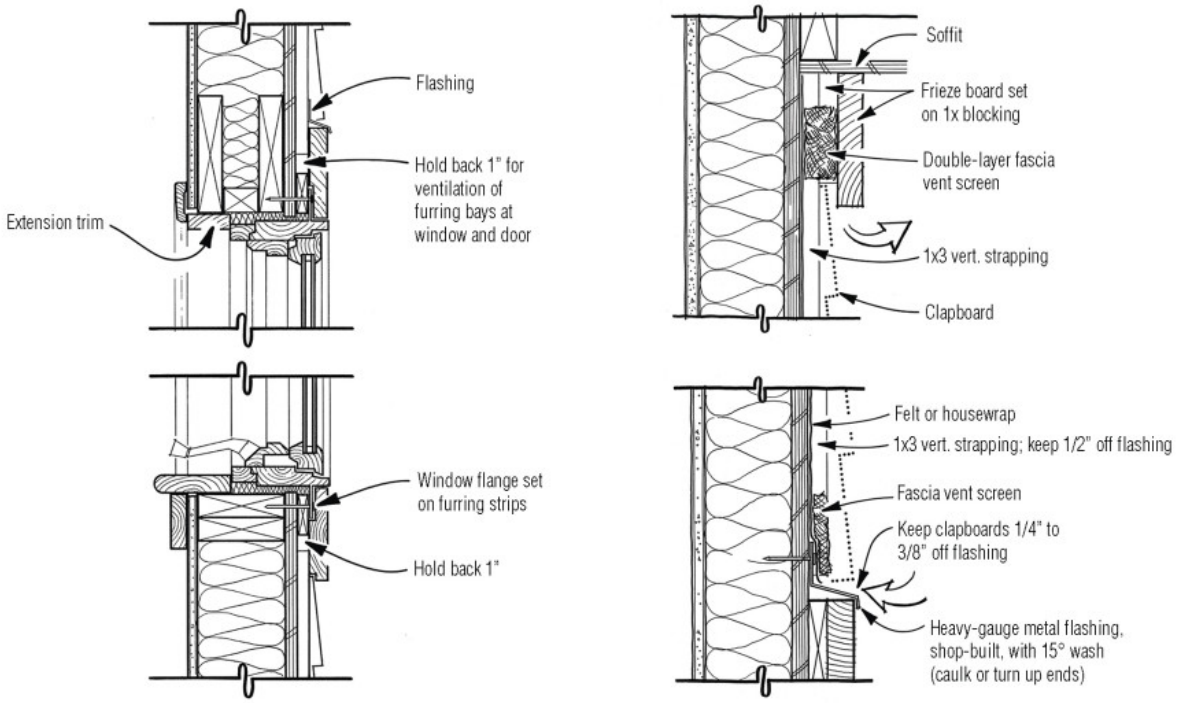


FIGURE C: DRAINAGE PLANE DETAILS



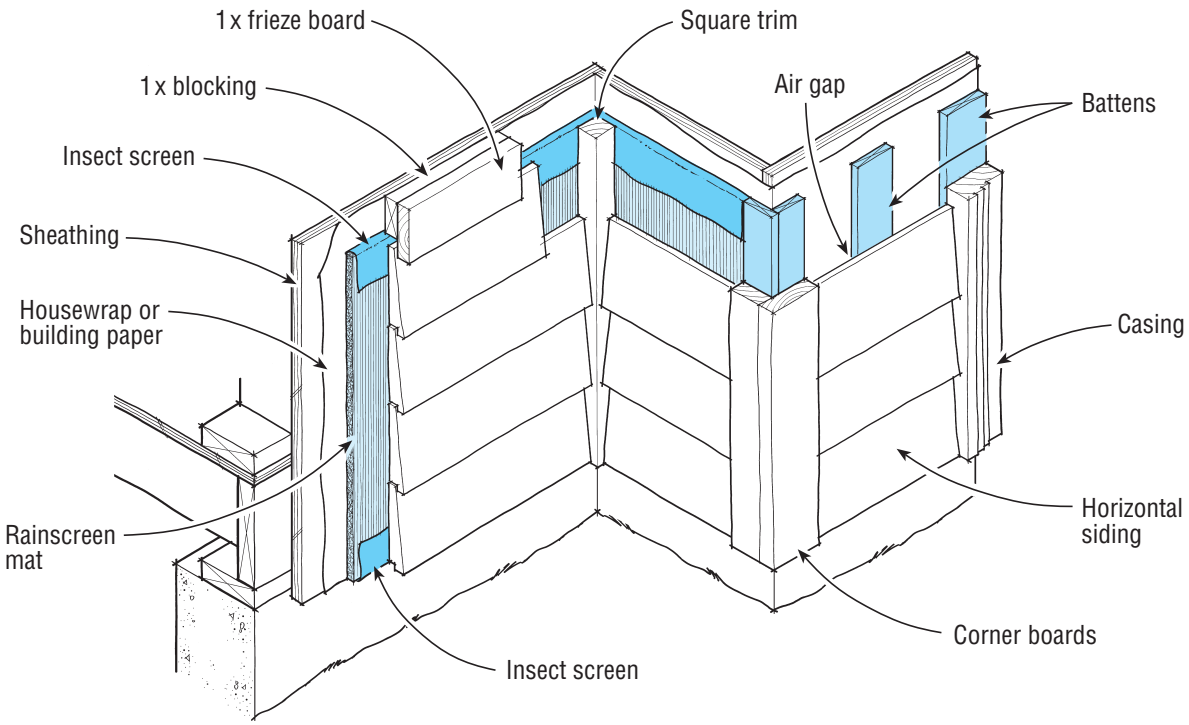
If siding is installed on battens, window and door jambs must be extended (left), and the gap created by the strapping should be screened at the top and the bottom (right) to keep out insects.

HORIZONTAL SIDING

Bevel siding is the most forgiving pattern because it's designed to shed water, and cross-grain shrinkage will not expose the wall beneath.

- To avoid siding failures, install all wood siding over an air gap created by battens or another spacing material.
- Problems can develop from too much overlap. Buy bevel siding only 3/4- to 1-in. wider than the desired reveal. A large overlap may require double nailing (which can cause splitting) or nailing through the thinnest part of the board (which can lead to excessive cupping).

FIGURE: HORIZONTAL SIDING DETAILS



Installing Horizontal Siding

See this slideshow for horizontal siding best practices and step-by-step instructions.

Using a Story Pole for Variable Reveals

Variable reveals can be laid out with a story pole, usually made from strapping. See this slideshow for best practices and instructions.

VERTICAL SIDING

Installing vertical siding over battens to create a rainscreen can be problematic. Battens must be run horizontally to hold the siding boards, but then the channels won't drain. Install vertical siding over a self-draining rainscreen backing material. See **Figure D**, for vertical installation details.

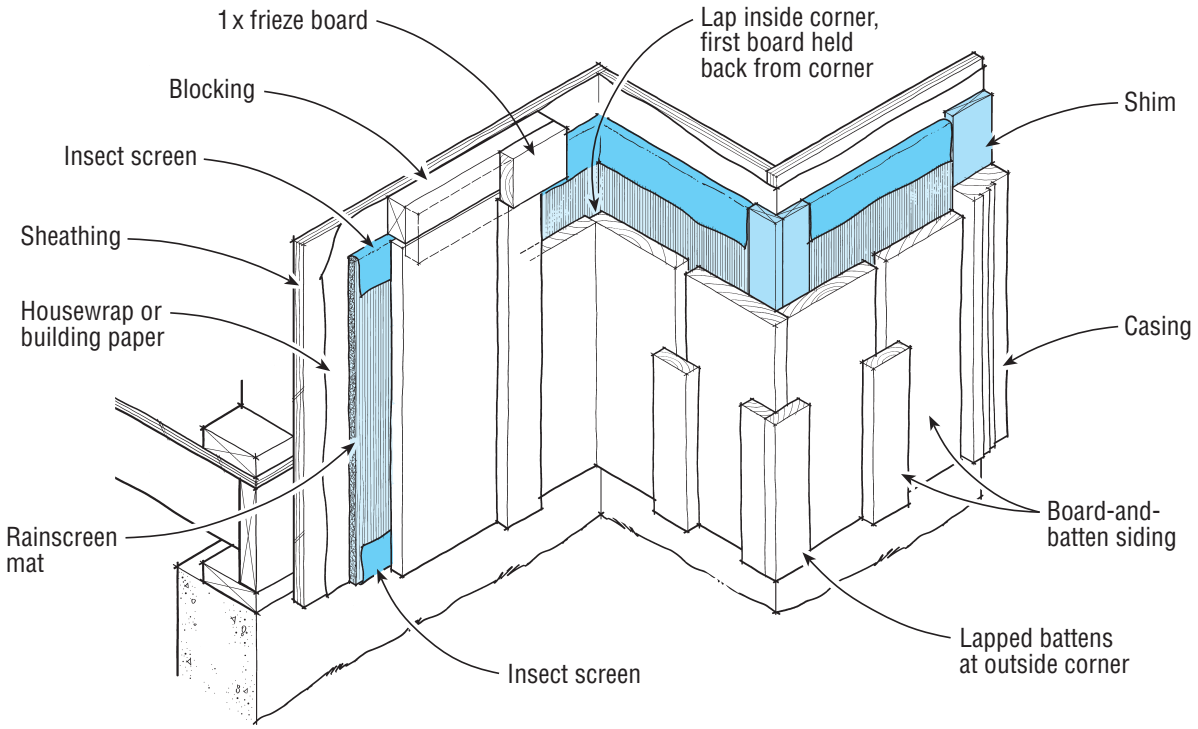
Vertical T&G siding is more weatherproof than board-and-batten or edged-butted boards. However, all vertical siding is more prone to leaks than most horizontal board siding. Take extra care with sheathing wrap and flashing behind all vertical siding.

Extend the lower ends of vertical siding below the sheathing to allow water to drain. To prevent wicking and water staining, seal the bottom end-grain of vertical siding with water repellent.

Diagonal Board Siding

Diagonal siding is not recommended. The joints in diagonal siding act like gutters, collecting and channeling water downward at an angle against the sides of windows, doorways, corner boards, and any horizontal or vertical piece that stands in its path. Without very careful flashing and drainage plane preparation, the runoff will gush into the building at these points.

FIGURE D: VERTICAL SIDING DETAILS



Do not nail through board when attaching battens or the boards may split.

Vertical Siding

Nailing Checklist

Board Siding Over Foam

NAILING CHECKLIST

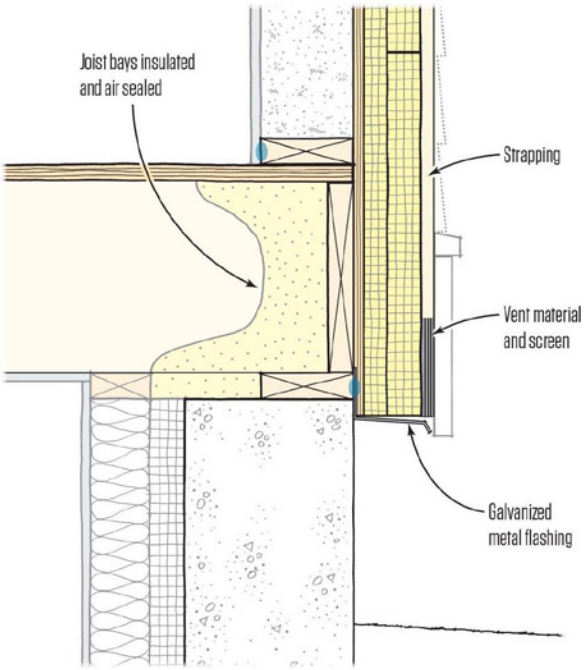
Proper nailing is essential to the performance of any wood siding.

- Always use non-corrosive fasteners.
- Drive siding nails flush with the surface of the siding. Nails that are set and filled are prone to popping with any movement or shrinkage in the wall framing, and may promote cupping and splitting. However, casing nails used to fasten exterior trim should be set and filled.
- Nails should penetrate at least 1- to 1 1/2-in. into studs or blocking.
- Ring-shank or spiral-shank siding nails are recommended for increased holding power.
- Never double-nail solid wood siding materials. If the siding is pinned along both edges, it is likely to split. See Figure A for proper nailing configurations for different siding patterns.

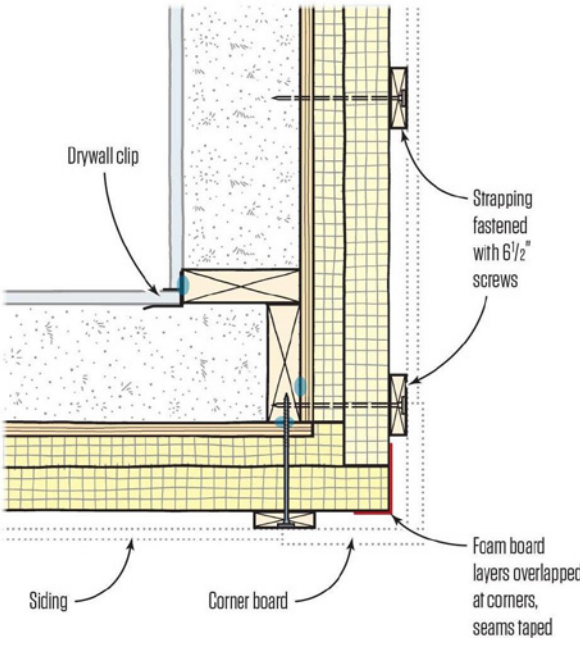
BOARD SIDING OVER FOAM

Siding applied directly over rigid insulated sheathing has a history of failures because moisture gets trapped between the siding and the foam. Continued wetting and drying can lead to paint failure and cause siding to cup and curl.

Rainscreen over Foam



Drainage Plane: Install siding over furring strips or rainscreen backer, creating a drainage plane rain screen. The resulting air space allows both heat and moisture to dissipate.



Corner (Plan View): Foil-faced foam with the seams taped can work as a weather barrier. If not using foil-faced foam, install a weather barrier over the sheathing first.

Drainage. Run vertical battens all the way to the base of the foam to allow for drainage. Do not terminate the battens on top of a skirt board; instead, fasten the skirt board over the battens to ensure drainage behind it. Block the base of the battens with a matrix ridge-vent material, and insect screen. The ridge-vent material pushes the screen against the back of the siding; without it, the screen can sag between battens and allow wasps to move in.

Other siding types, such as solid vinyl, may have lower risk of problems. If using wood siding, always back-prime wood siding to slow the cycle of wetting and drying. (On natural finish material, back-prime with a clear water repellent).