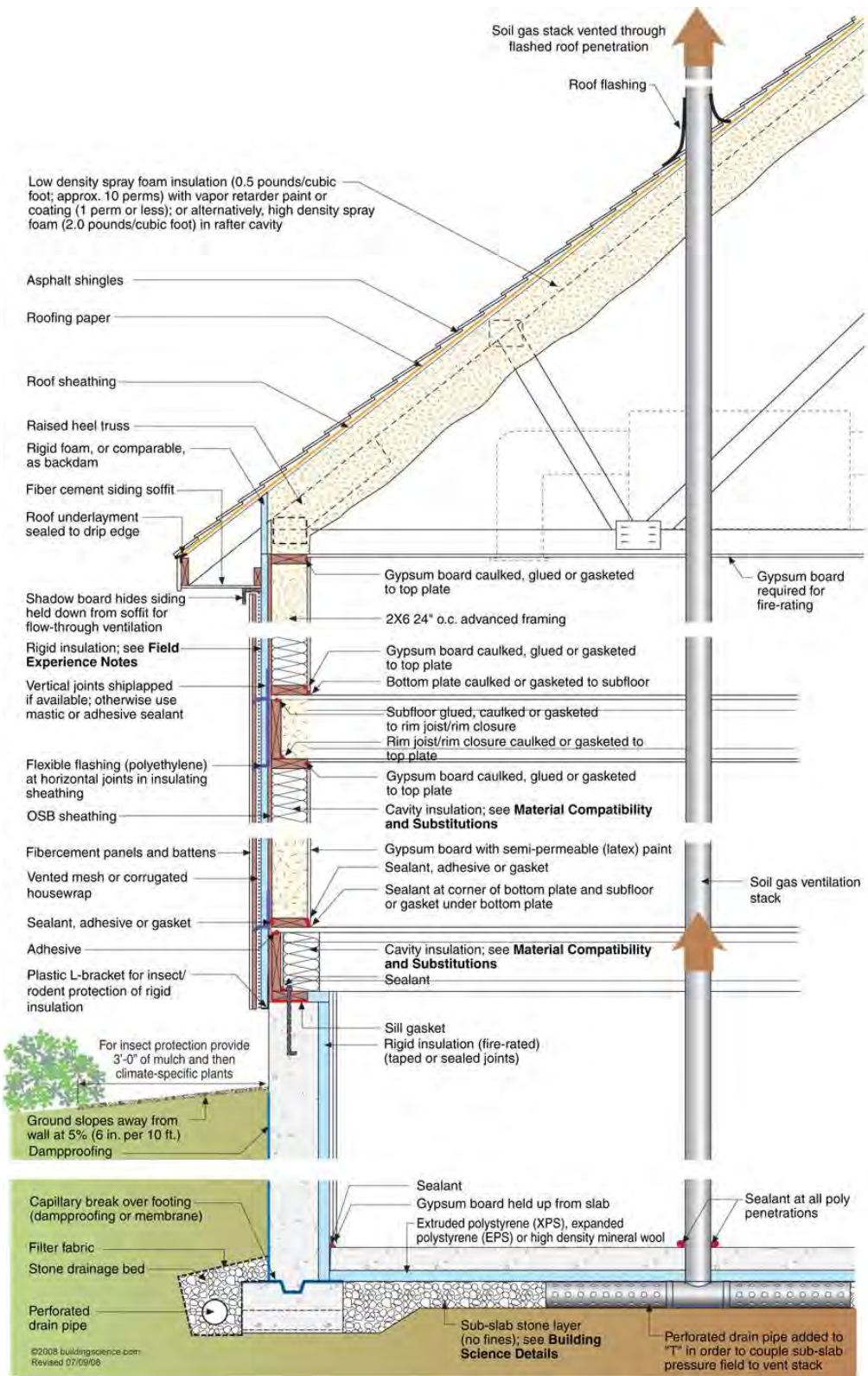


ARCH 2331

BUILDING TECHNOLOGY II





Fiber Cement Siding



Fiber Cement Siding



Fiber Cement Siding

Shapes



Perfection Shingles



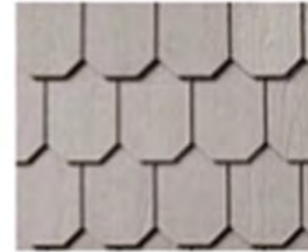
Random Square
Straight Edge



Random Square
Staggered Edge



Half-Rounds



Octagons

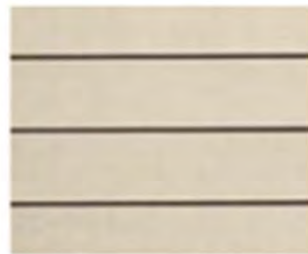


Individual Shakes

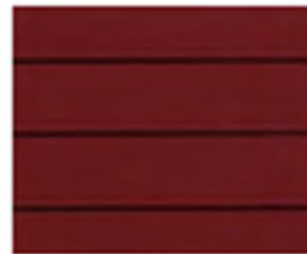
Lap Siding



Cedar Lap Siding



Smooth Lap Siding



Smooth Beaded
Lap Siding



Textured Beaded
Lap Siding



Textured Dutchlap
Siding

Vertical Siding



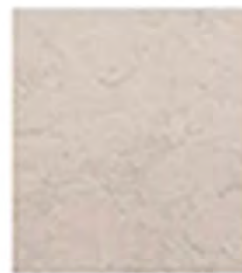
Cedar No Groove



Cedar 8" Groove



Smooth



Stucco

Fiber Cement Siding

Some typical sizes include

Panels:

8' X 4'

5' X 3'

Siding

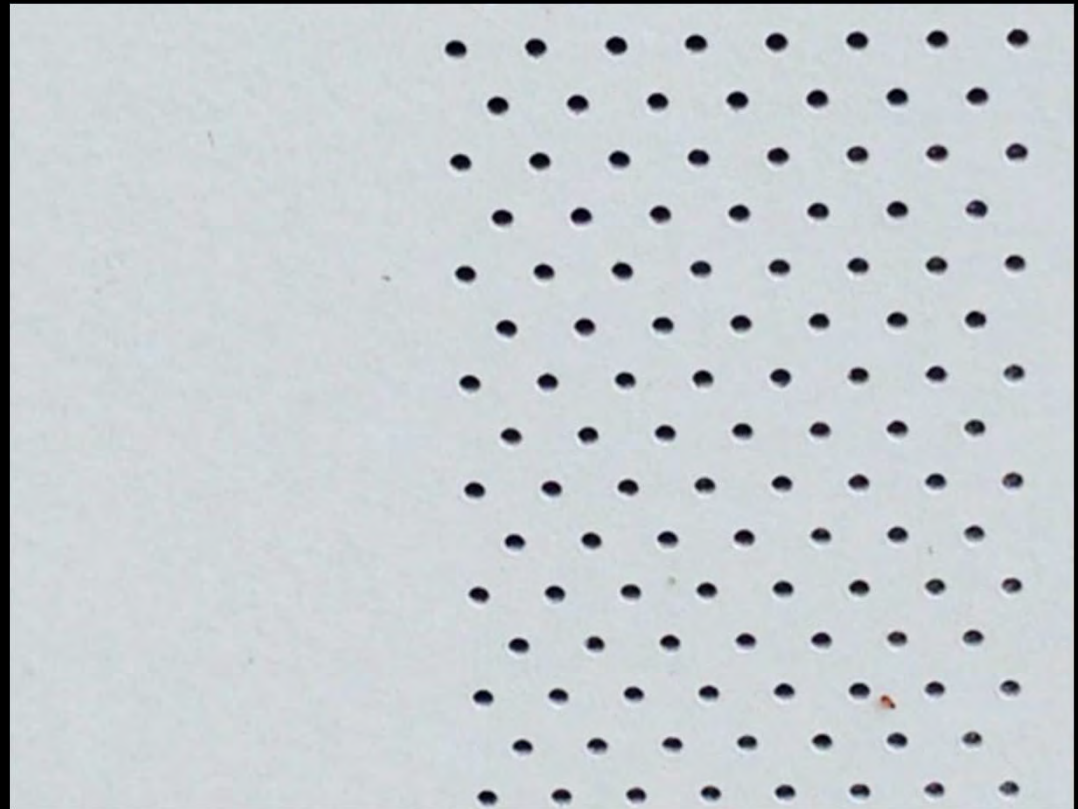
12' X 12"

12' X 9.5"

12' X 8.25"

12' X 7.5"

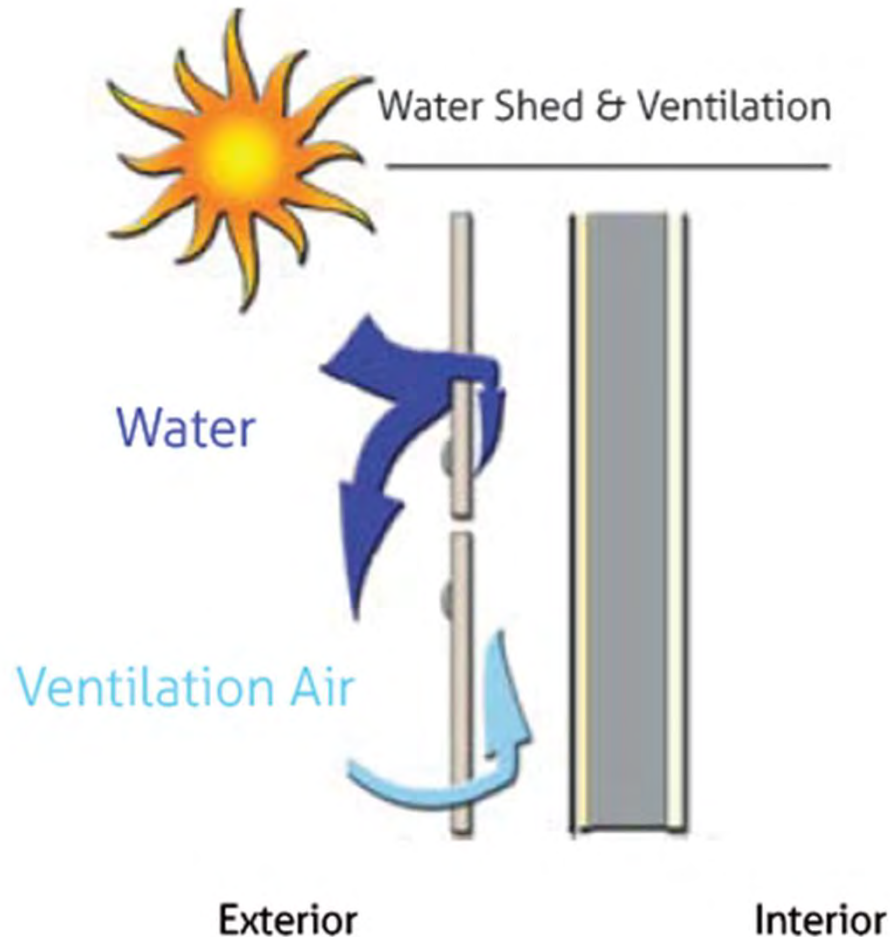
12' X 6.5"



Fiber Cement Siding - Rain Screen

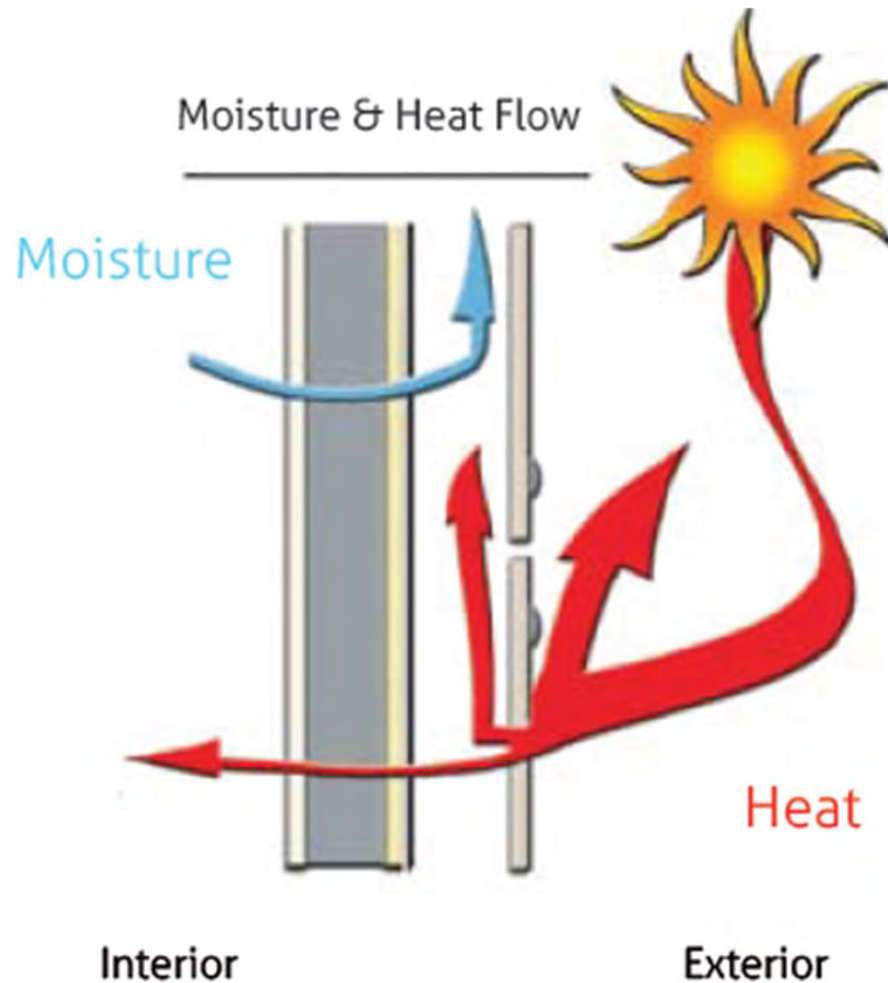


Fiber Cement Siding - Rain Screen Summer



In the summer the ventilated wall is an exceptional reflector of solar radiation. The heat is accumulated on the surface layer & is not passed onto the underlying layers. The heat then escapes the wall thanks to the free-flowing air (The Fireplace Effect).

Fiber Cement Siding - Rain Screen Summer



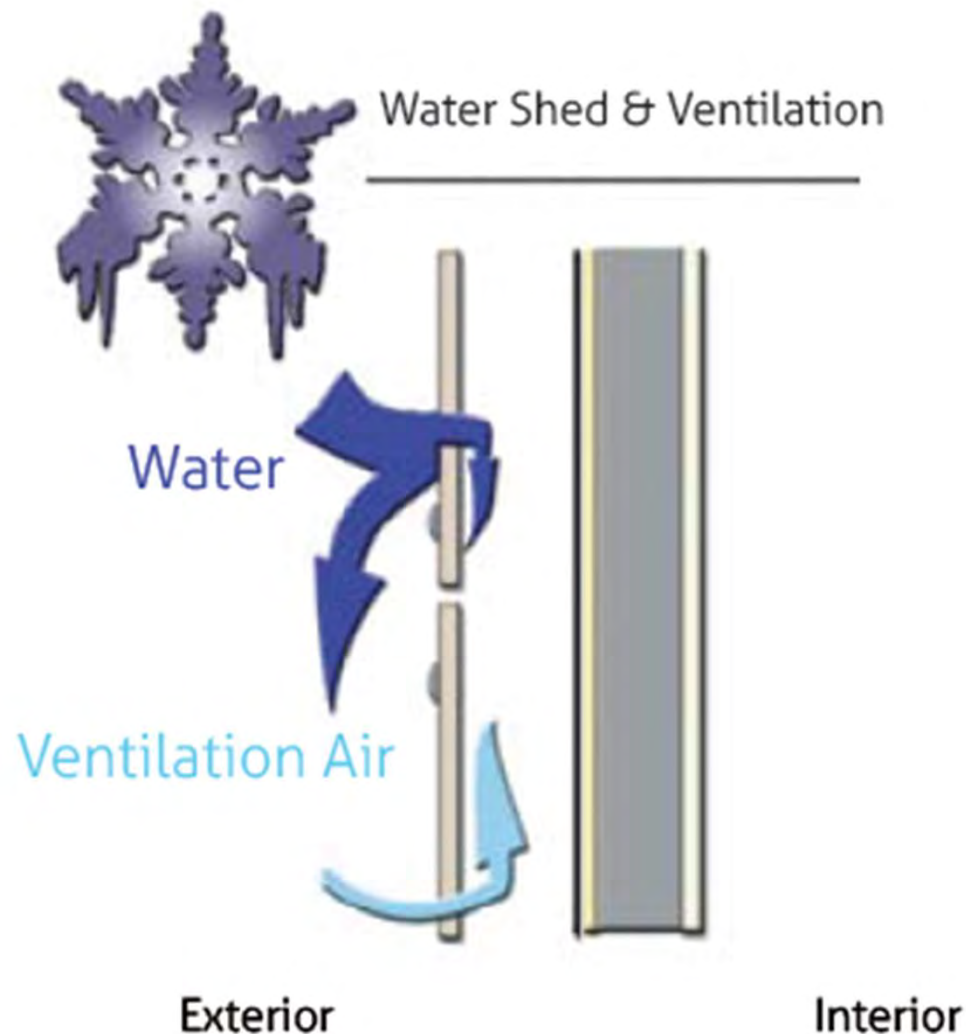
The air gap also helps to prevent the water from spreading inward to the underlying layers. Most of the water will run down the face of the material & most of what does get into the air gap will run down the back of the panel. The water will then evaporate & will be able to escape the wall thanks to the free-flowing air (The Fireplace Effect).

Fiber Cement Siding - Rain Screen



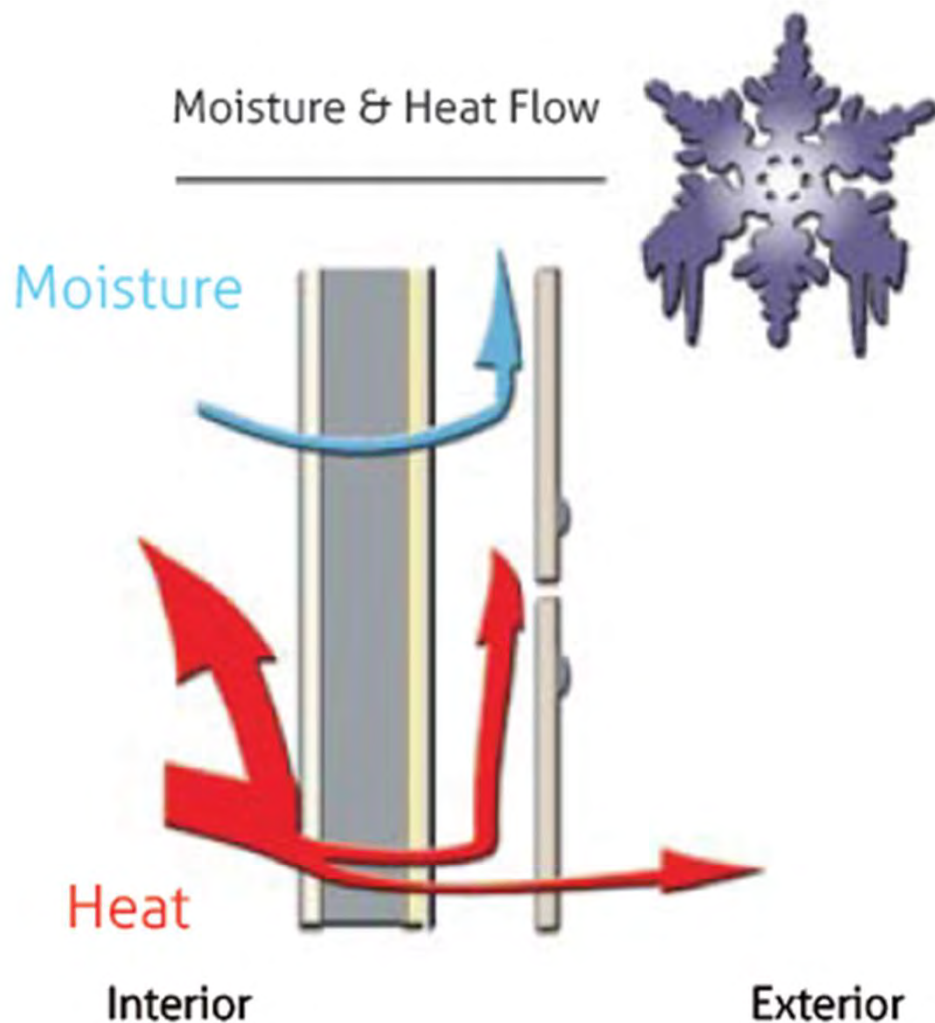
<https://www.greenbuildingadvisor.com/article/all-about-rainscreens>

Fiber Cement Siding - Rain Screen Winter



In the winter the vapor pressure inside heated structures are usually higher than outside, this could lead to the transportation of partial vapor pressure through the outside wall. The moisture is then eliminated by the free flowing air through the cavity.

Fiber Cement Siding - Rain Screen Winter



The air gap also helps to prevent the water from spreading inward to the underlying layers. Most of the water will run down the face of the material & most of what does get into the air gap will run down the back of the panel. The water will then evaporate & will be able to escape the wall thanks to the free-flowing air.

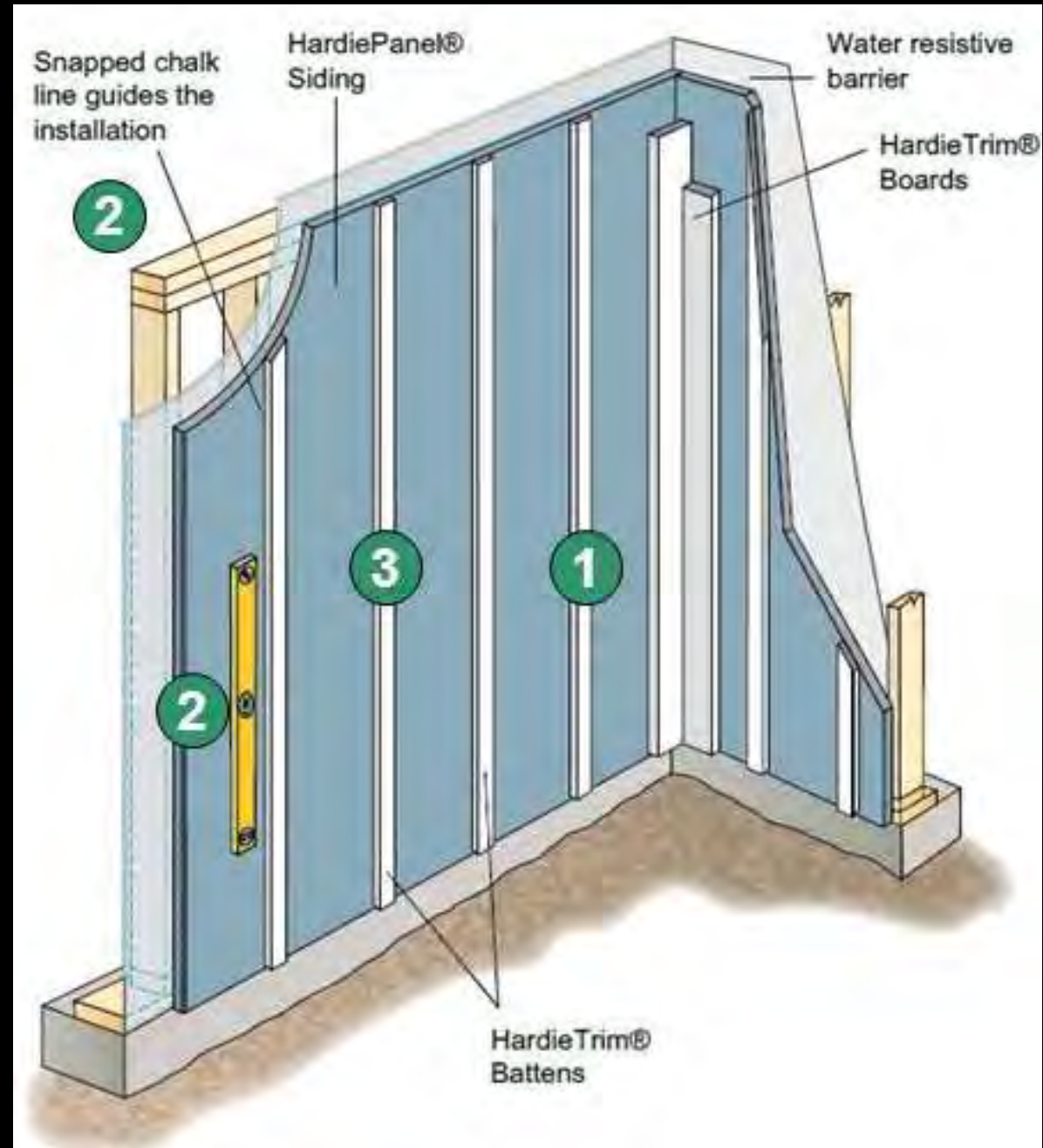
Fiber Cement Siding



Fiber Cement Siding

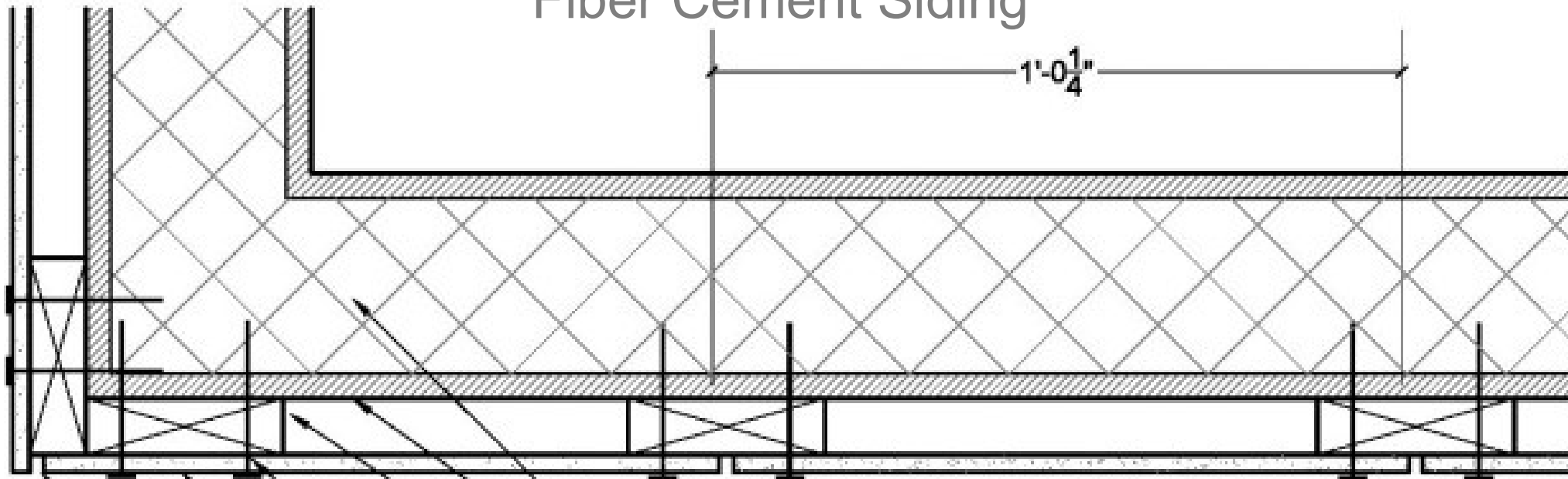


<https://www.greenbuildingadvisor.com/article/all-about-rainscreens>



<https://www.scottishhomeimprovements.com/product/allura-fiber-cement-panels/>

Fiber Cement Siding



SIP

WATER RESISTIVE BARRIER

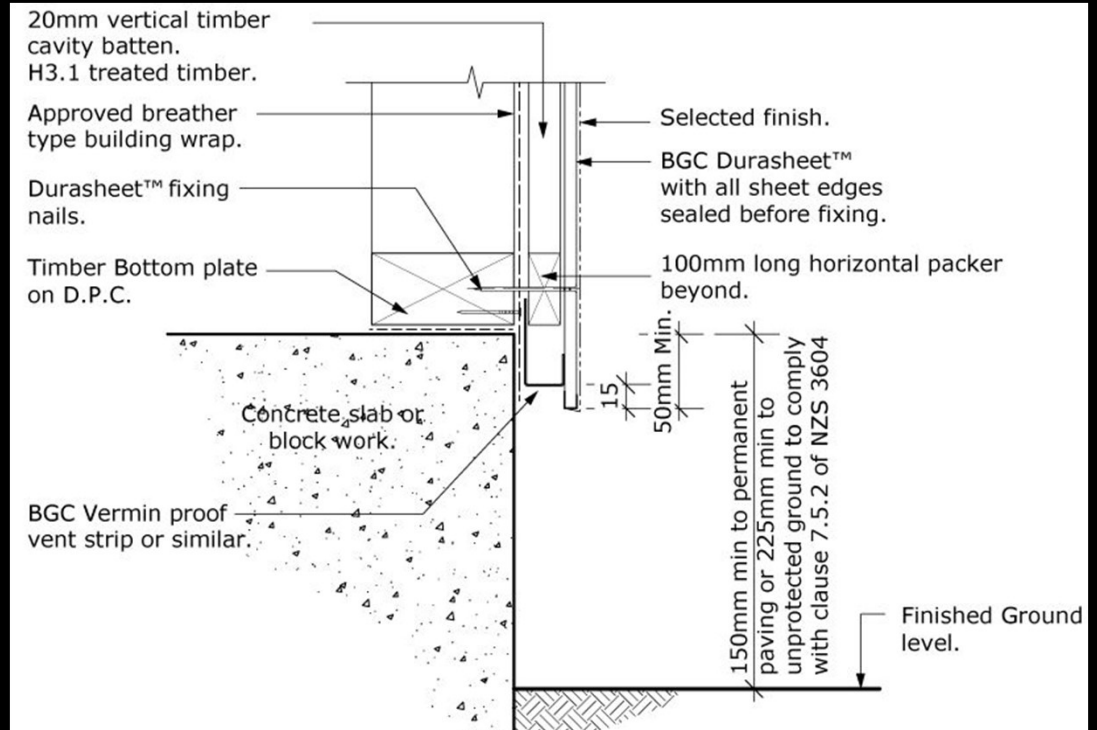
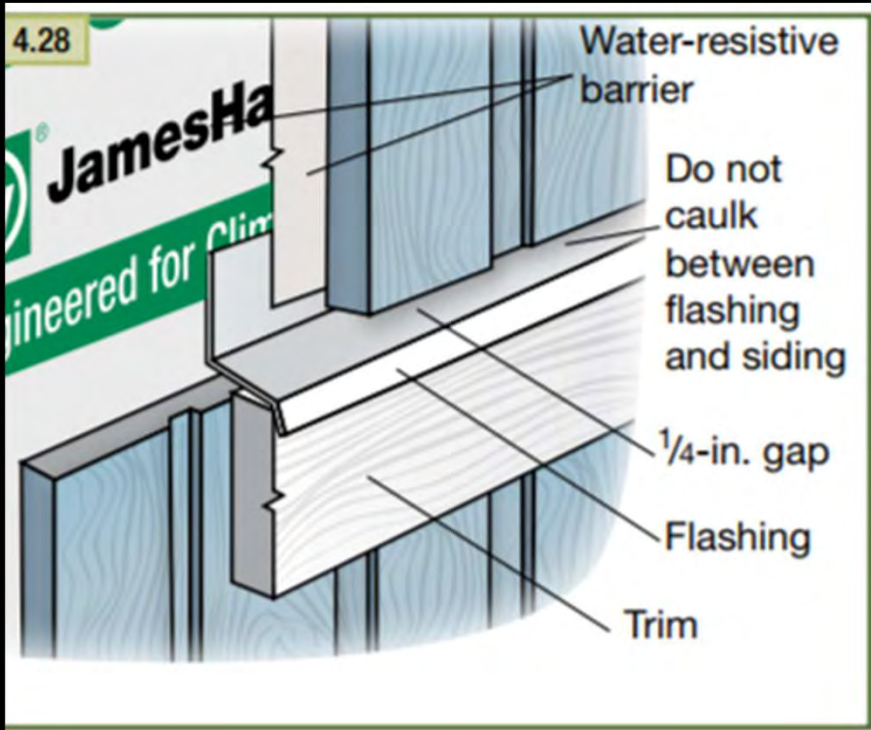
4/4" X 3 1/2" PRIMED SMOOTH FIBER CEMENT TRIM,
FASTENED WITH DOUBLE HD GALVANIZED/S.S. SCREWS
MIN. 3/4" FROM EDGE

6D 2" SIDING NAILS, DOUBLE
HD GALVANIZED/S.S., 12" O.C. VERTICALLY,
MIN. 3/4" FROM EDGE OF TRIM, MIN. 3/8" FROM
EDGE OF BOARD

12" CERTAINTEED FIBER CEMENT LAP SIDING, SMOOTH TEXTURE
FACE, ORIENTED VERTICALLY, STAGGERED
HORIZONTAL JOINTS

CAULK JOINT BETWEEN BOARD AND TRIM

Fiber Cement Siding



<http://talkgadget.site/blog/remodeling-your-kitchen-should-you-get-a-dishwasher/>

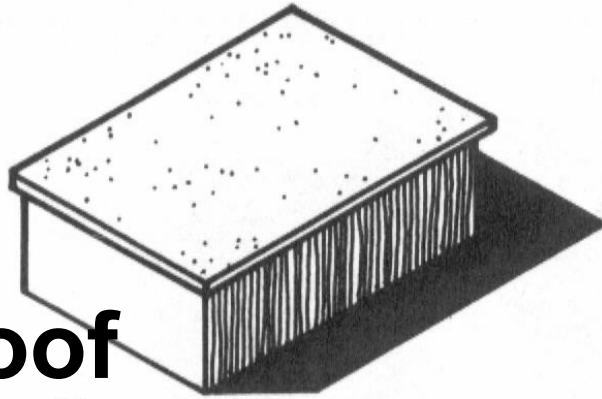
https://www.jlconline.com/training-the-trades/rainscreen-basics_o

Fiber Cement Siding

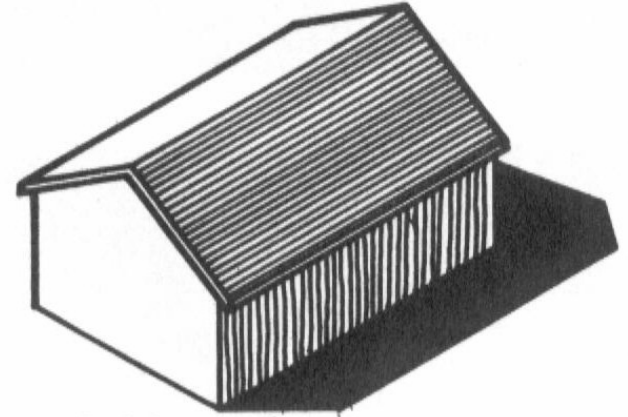
Myths:

- Fiber cement siding will last forever
- You'll never have to repaint fiber cement siding
- Manufacturers use asbestos in fiber cement siding

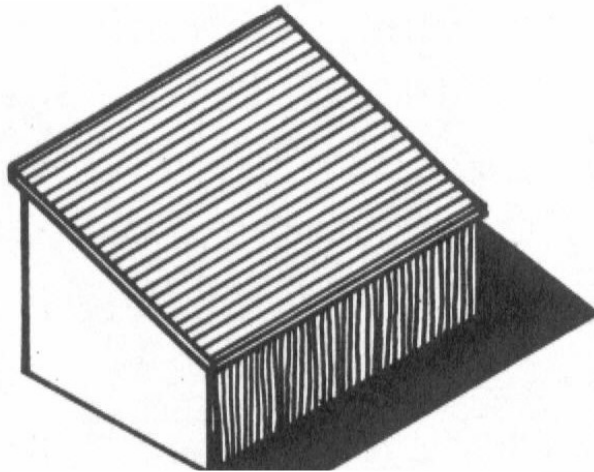
Roof Profiles



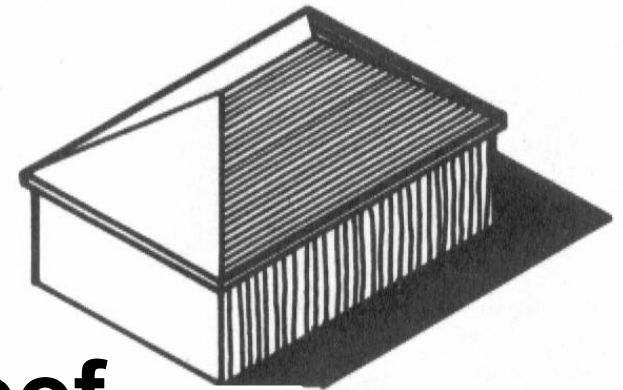
■ Flat Roof



■ Gable Roof

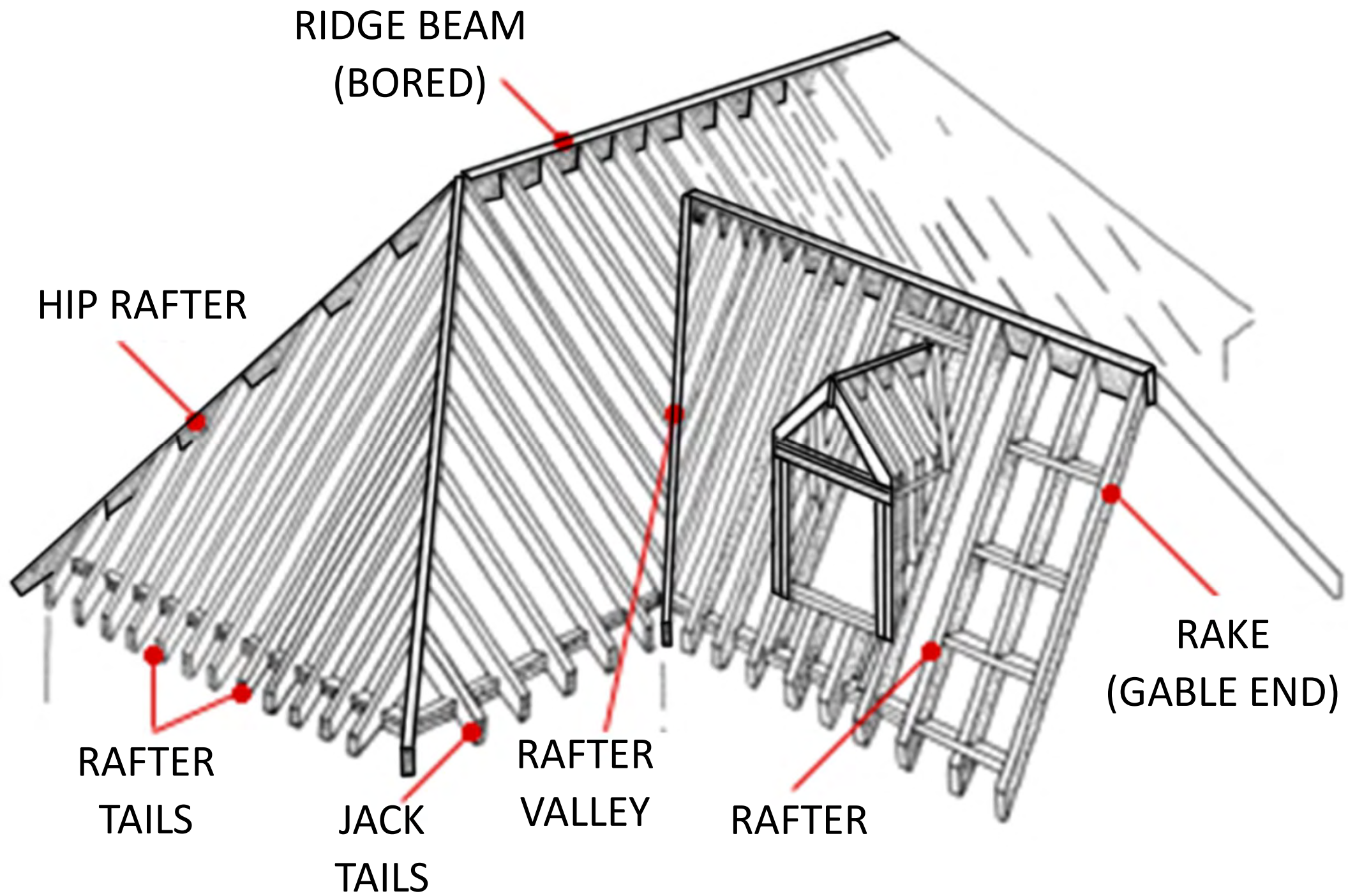


■ Shed Roof
(Single Pitch)



■ Hip Roof





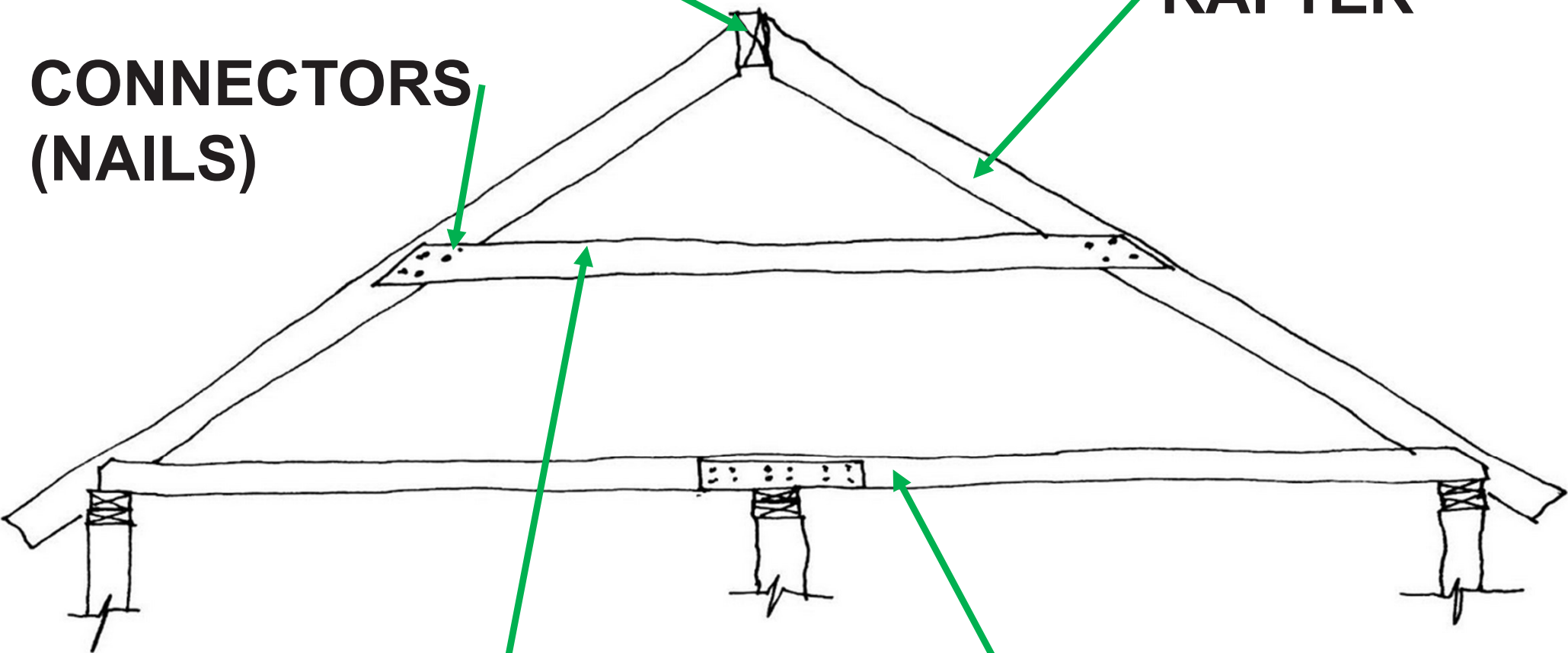
RIDGE BOARD

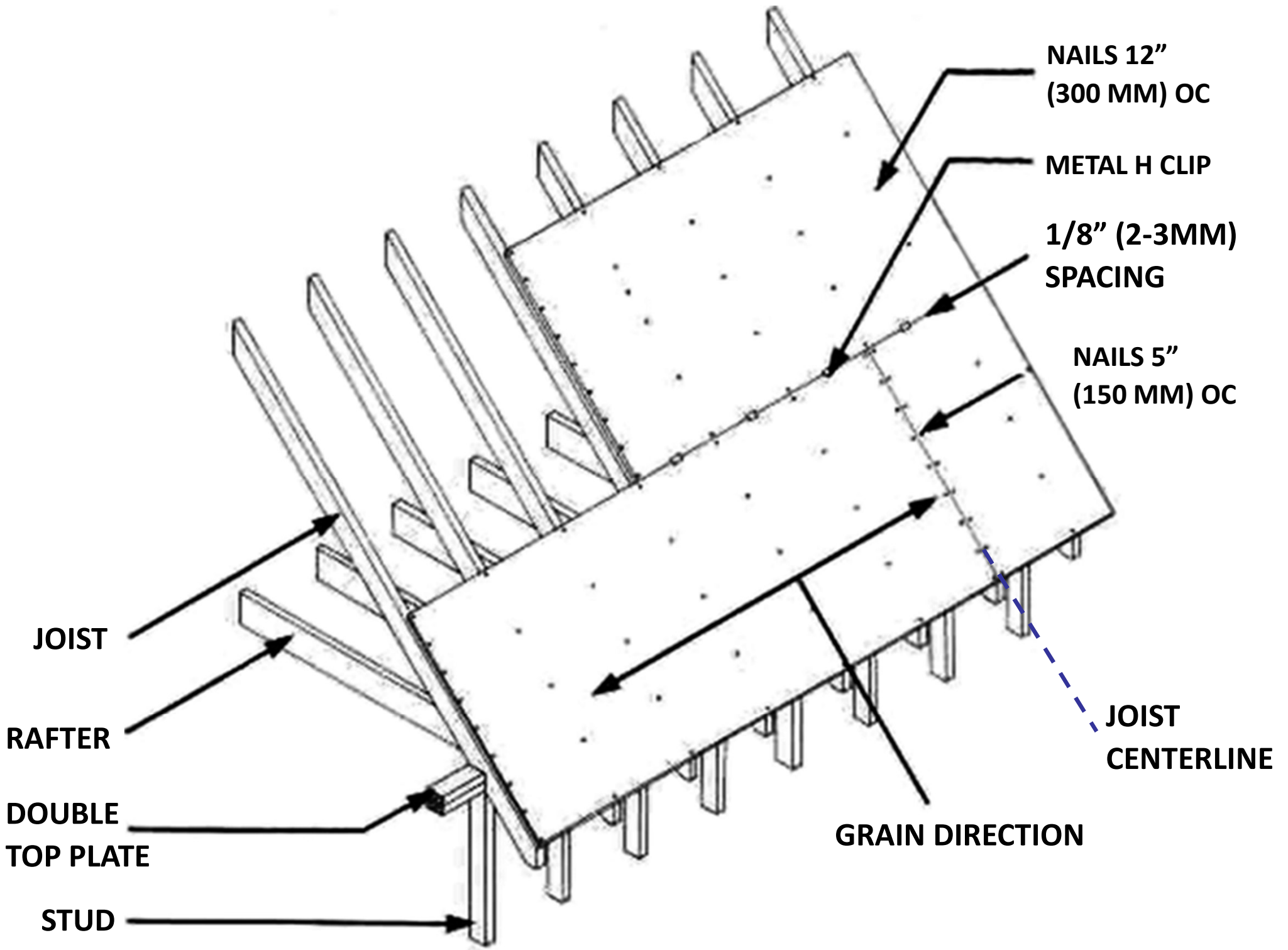
RAFTER

**CONNECTORS
(NAILS)**

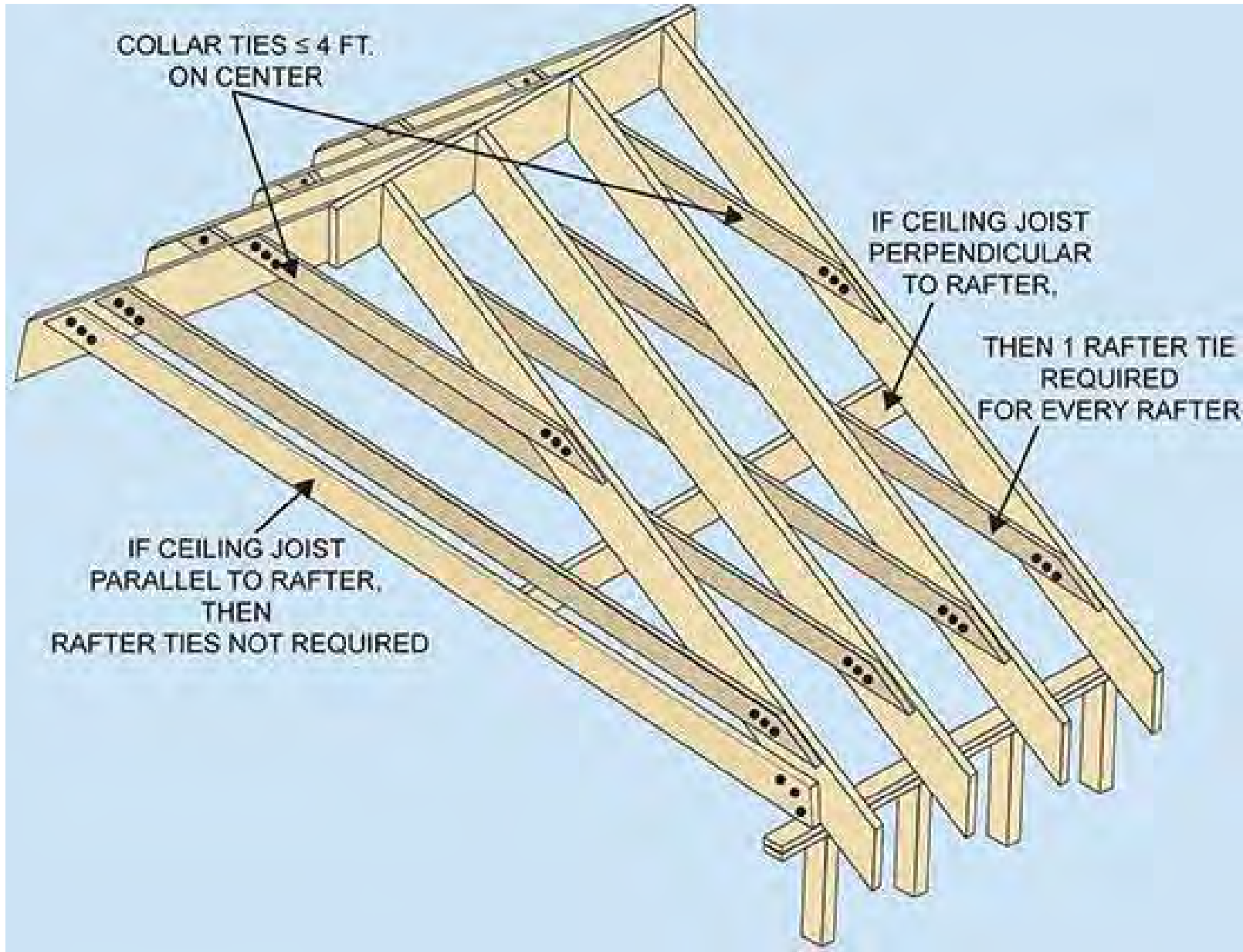
**COLLAR TIE
(COLLAR BEAM)**

**RAFTER TIE
(CEILING JOIST)**



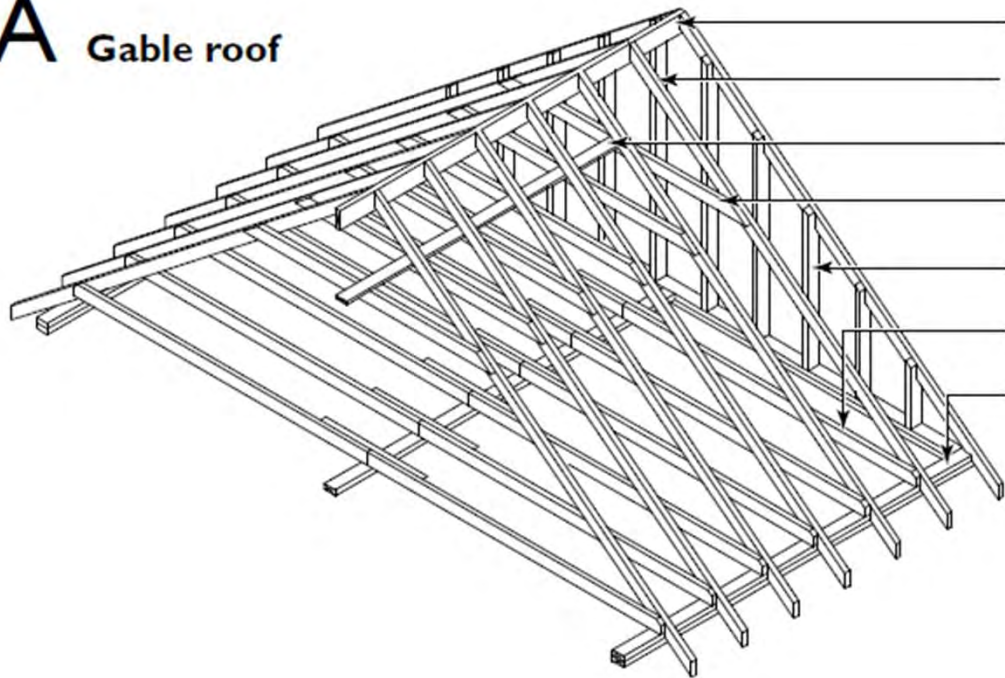


FRAMING FOR GABLE ROOF



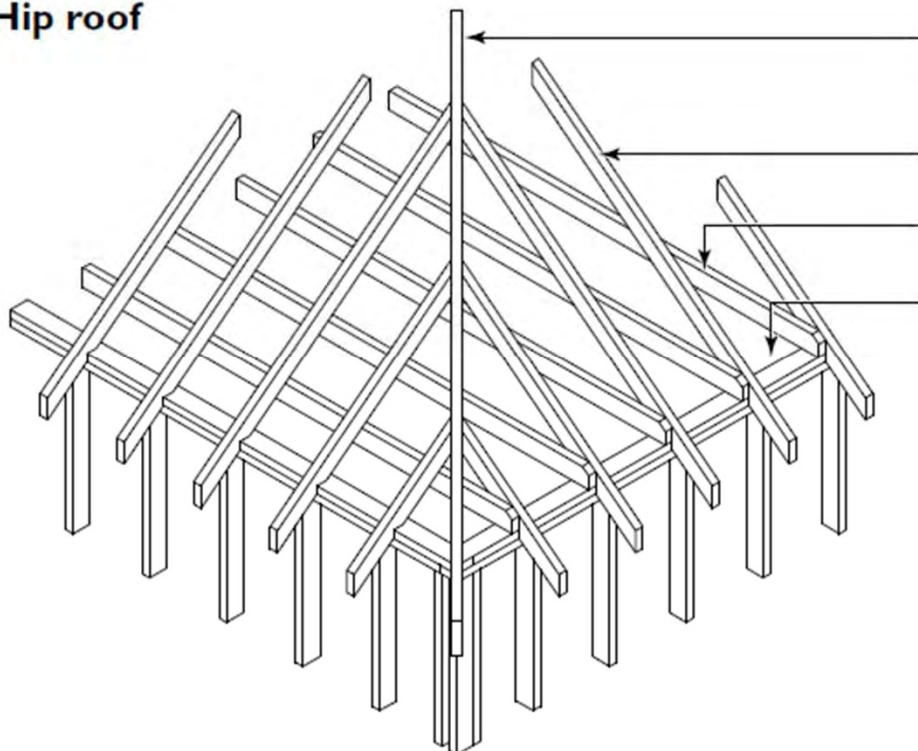
Space collar ties not more than (\leq) 4' (1200mm) on center.
Locate collar ties in the upper one-third of the attic space

A Gable roof

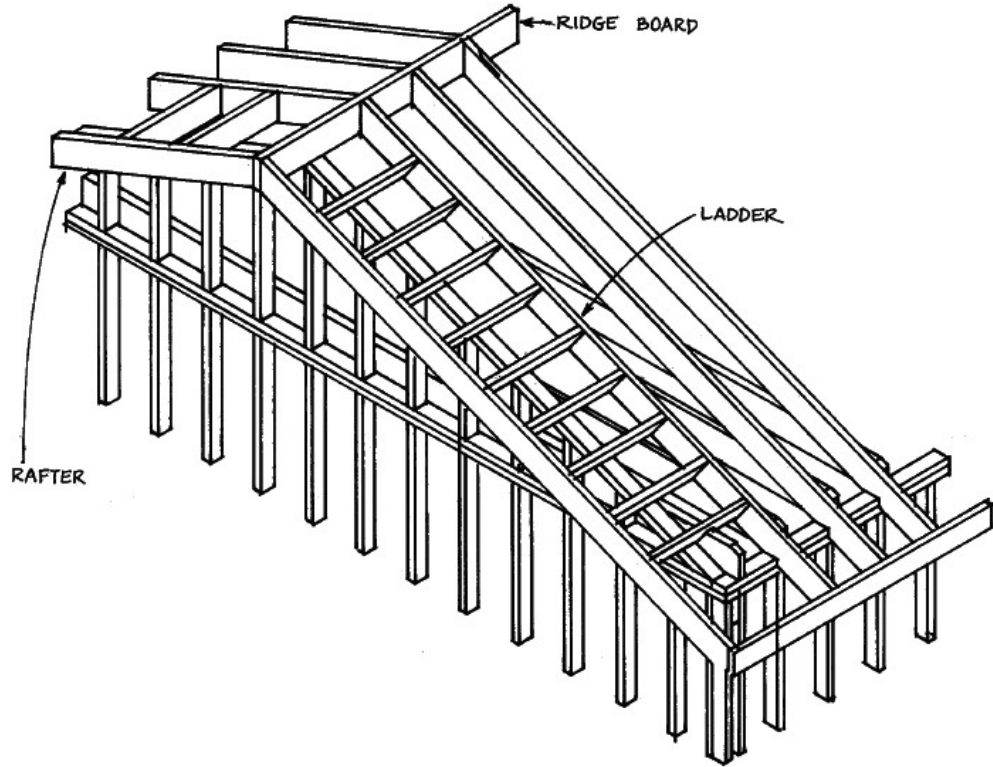
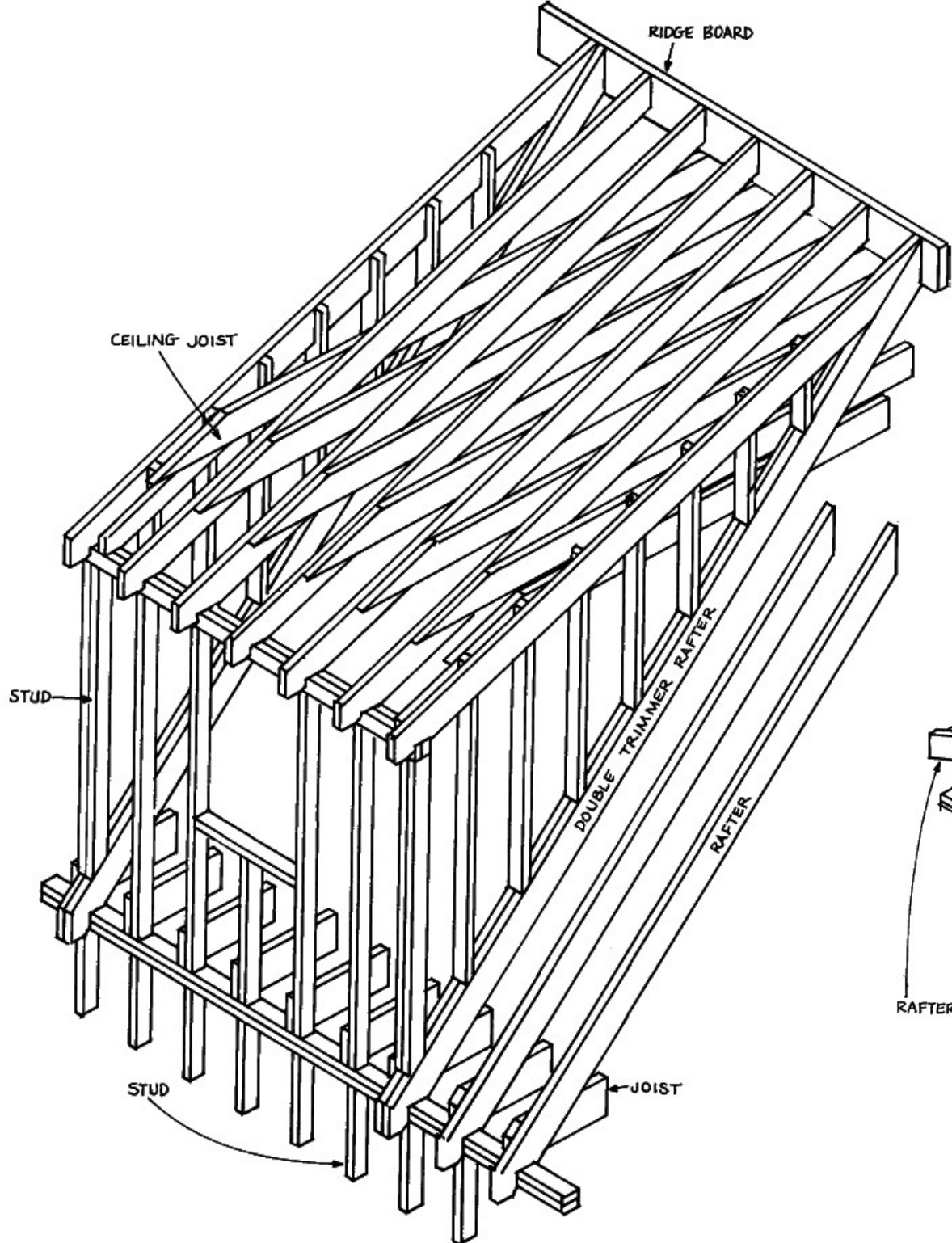


- ridge board
- rafter
- collar brace
- collar tie
- gable end stud
- ceiling joist
- top wall plate

B Hip roof



- hip rafter at least 50 mm (2 in.)
deeper than jack rafters
- jack rafter
- ceiling joist
- top plate





RIDGE BOARD

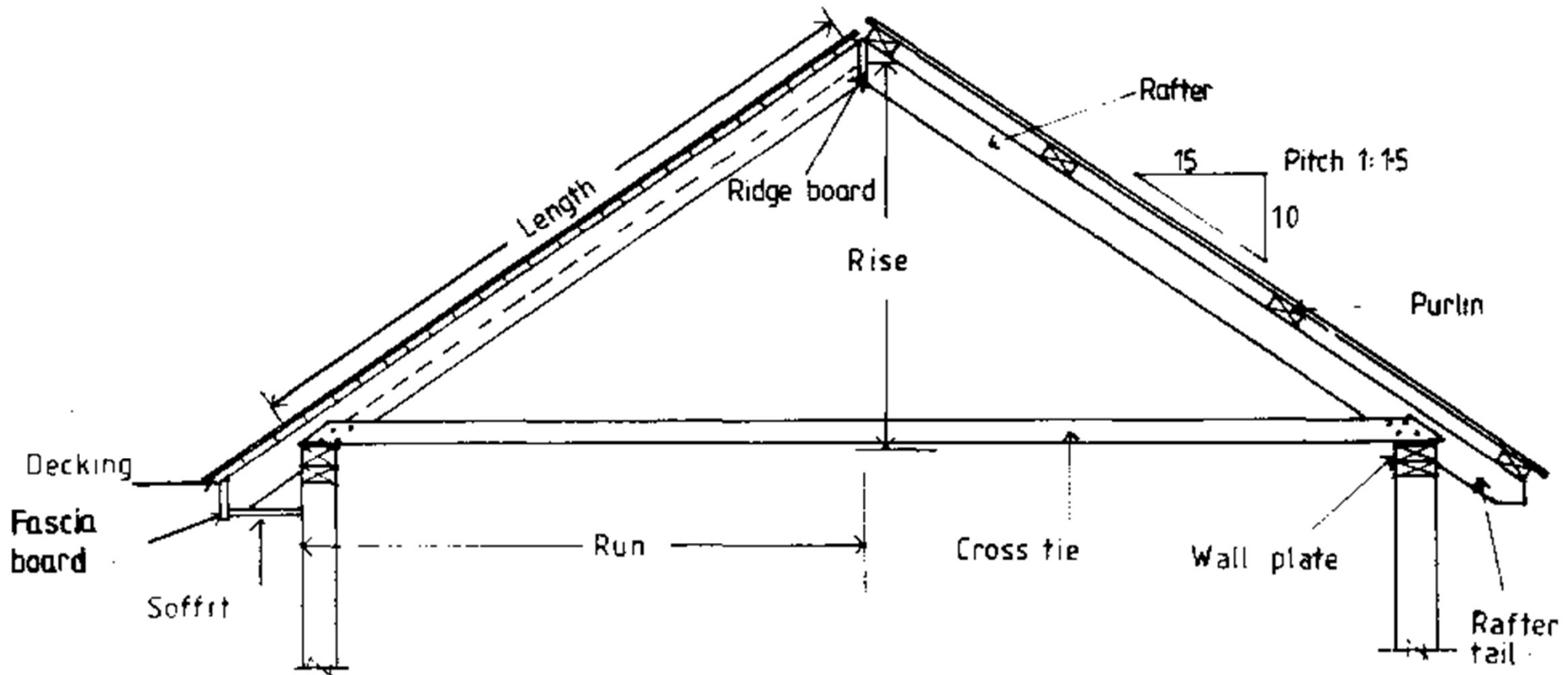
COLOR TIES

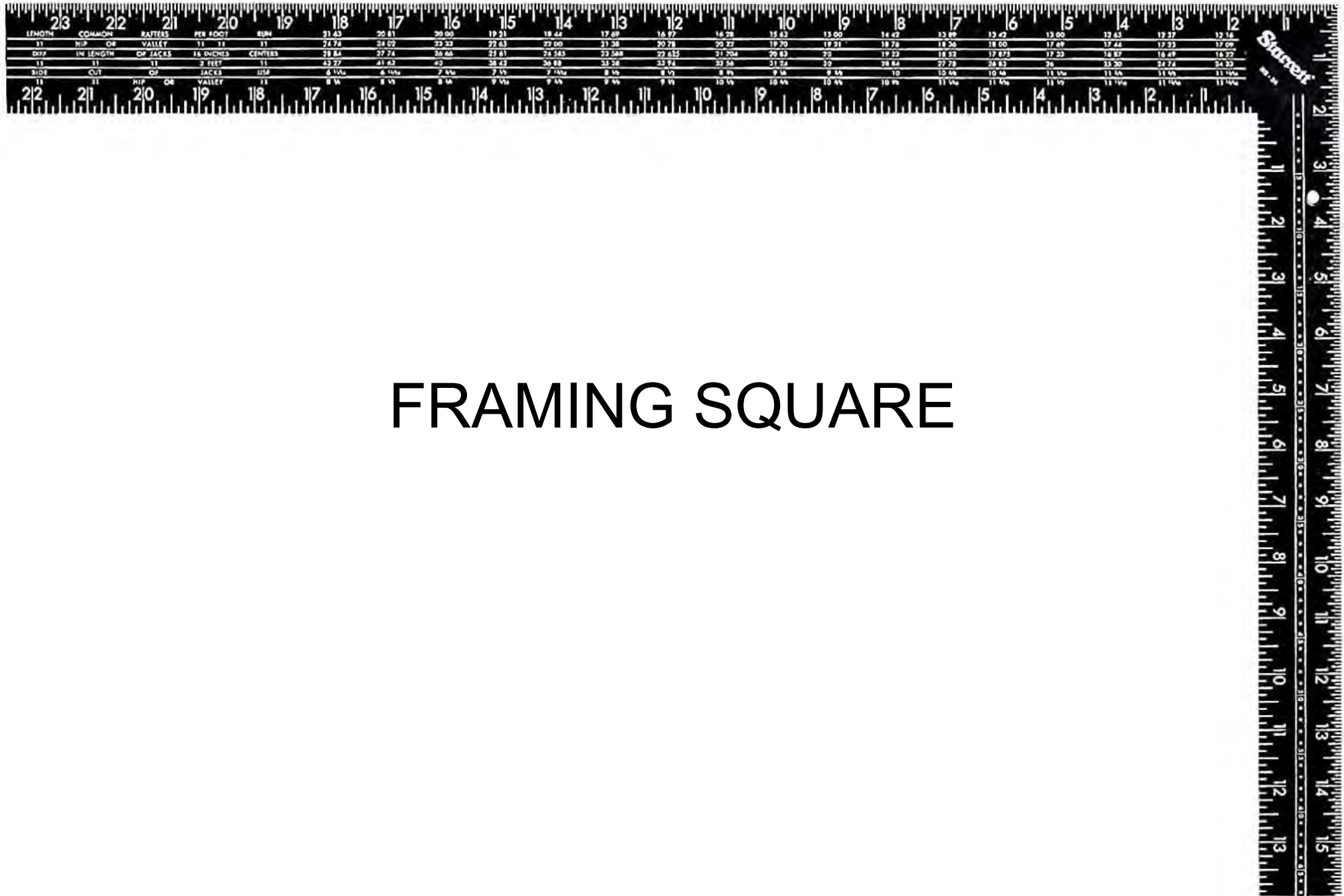
**ROOF
RAFTER**

**GABLE
END
STUD**

**RAFTER TIE
(CEILING JOIST)**

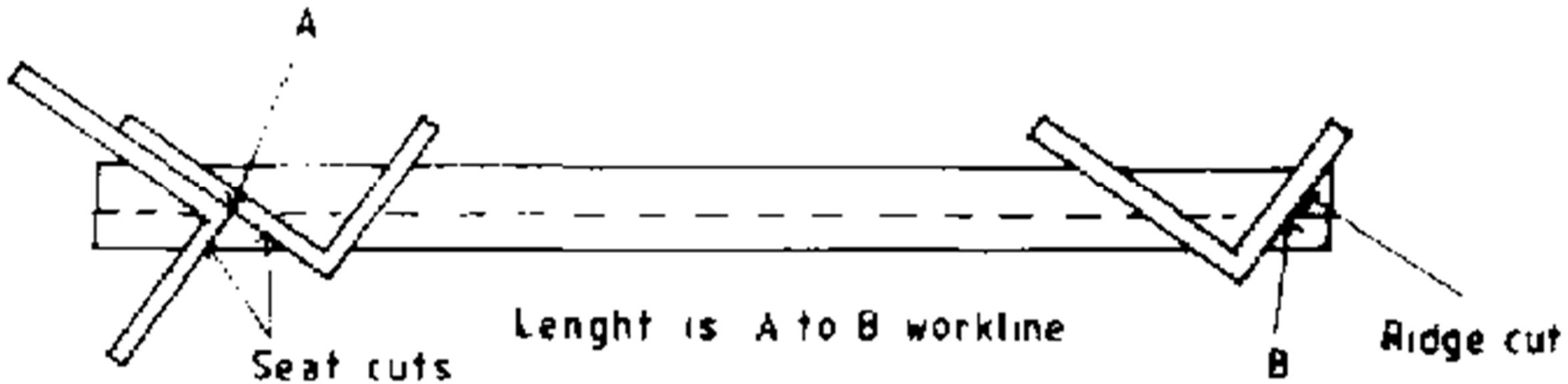
SECTION THROUGH GABLE ROOF SHOWING PITCH: RISE / RUN





FRAMING SQUARE

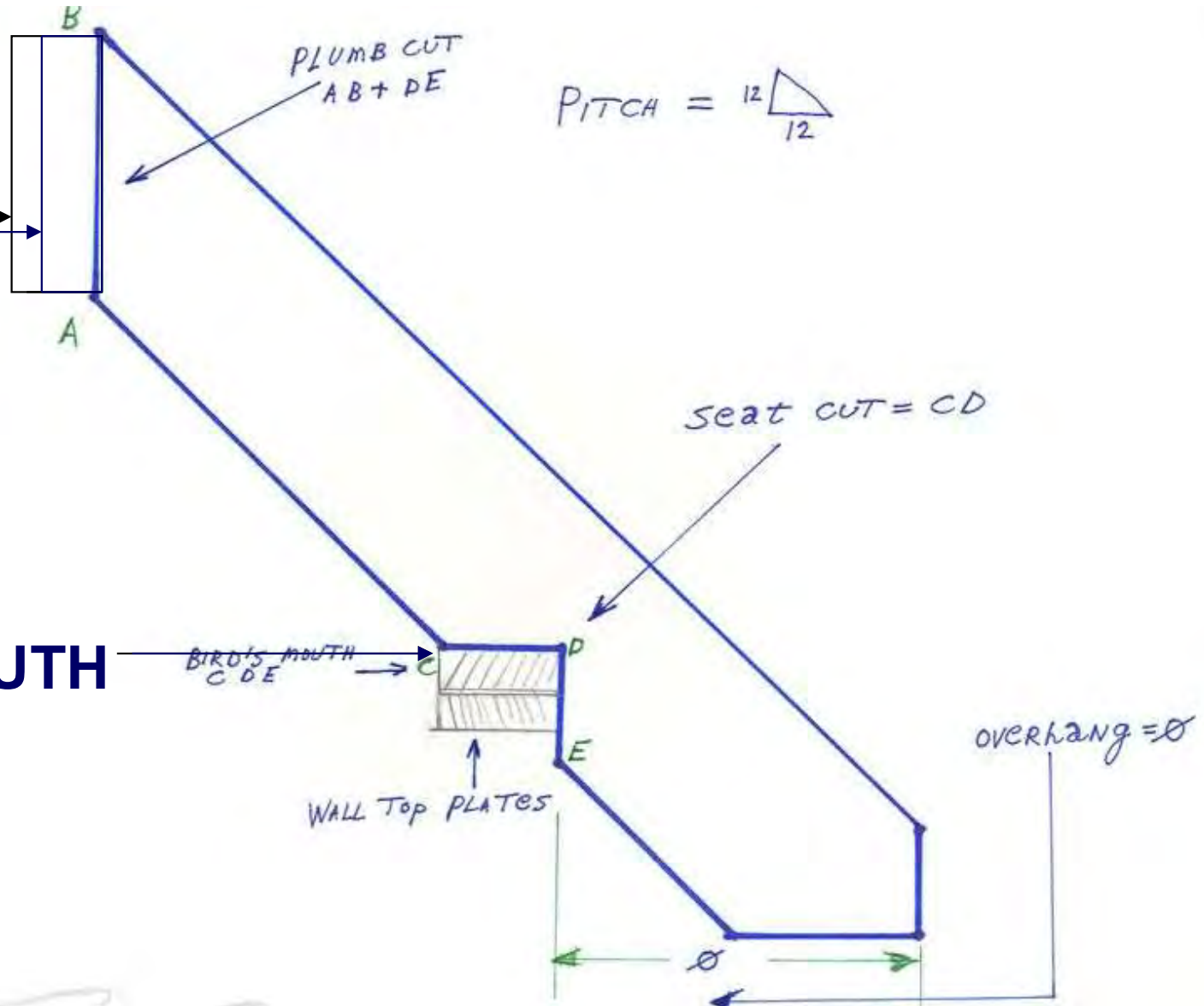
USING THE FRAMING SQUARE TO CREATE A RAFTER



A RAFTER READY FOR INSTALLATION: KEY WORDS: RIDGE BEAM & BIRDSMOUTH

**RIDGE
BEAM**

BIRDSMOUTH



The regular 12", 16", or 24" module of stud placement continues below the rough windowsill while additional studs frame the window opening and where a partition will occur.





The 16" (or 24") o.c. spacing of the rafters is the same as that of the wall studs. The lower end of each roof rafter is cut with a birdsmouth to seat it onto the doubled top plate, and the top ends are cut to rest against a ridge board. A small overhang is formed, and the rafter is cut vertically to receive a fascia board and horizontally for the soffit board.



A small overhang is produced at the gable end by blocking nailed to the last rafter. Where a larger overhang is desired, lookout rafters would be cantilevered out over the gable end wall, bearing on its double top plate and secured to the next rafter inside of the house.

Eave Details

Eave Details

The edge of the roof that runs horizontally across the façade, comprised of the rafter ends used to construct the roof. Eaves may be open or enclosed, with lots of, little, or no overhang.

a. Roof

The upper exterior surface of the home.

b. Fascia

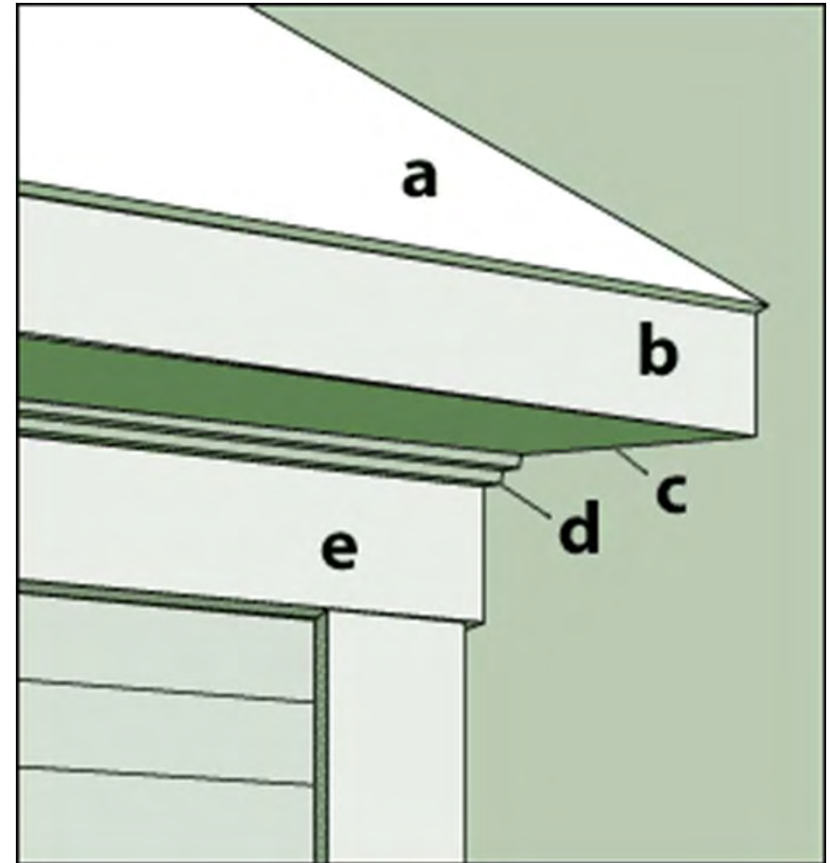
A flat horizontal band around a roof's perimeter.

c. Boxed eave

An overhang enclosed with a soffit that runs horizontally from the eave edge to the side of the building.

d. Cornice

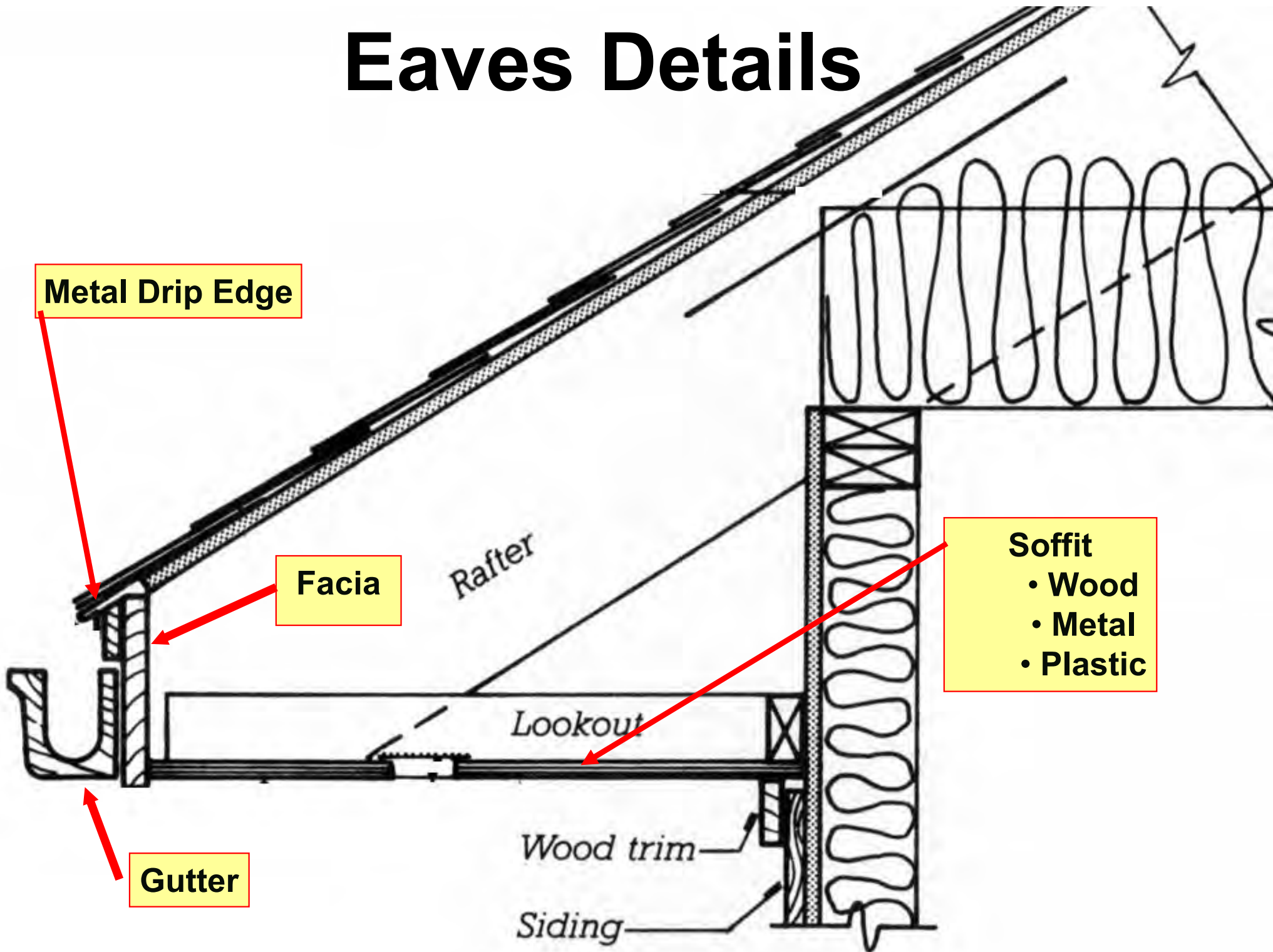
The decorative section just below the roofline. The cornice may be simple or ornate depending on building style.

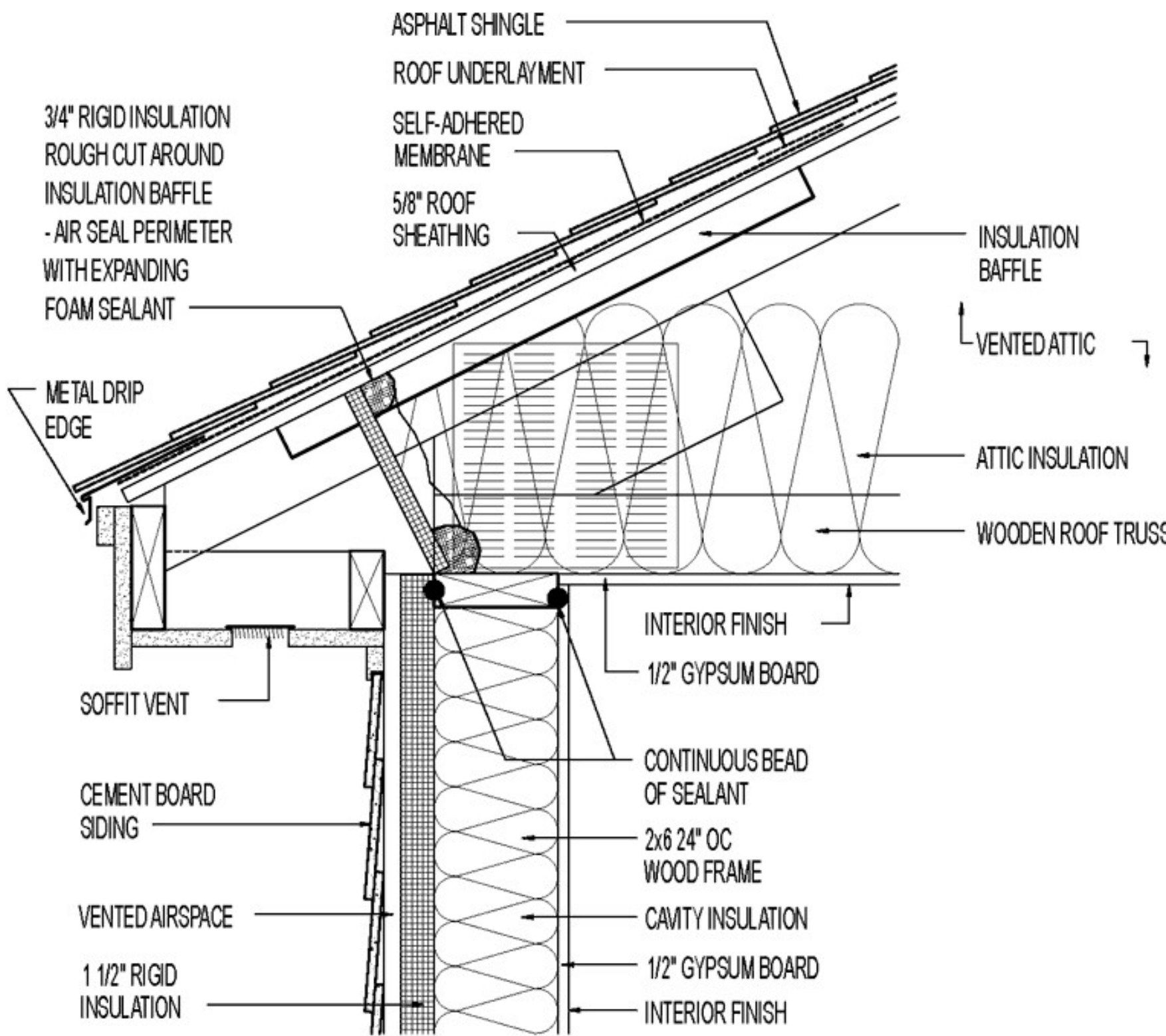


e. Rake

the pitched edge of a gable roof. Rakes may be close, or extend from the building to allow for an overhang.

Eaves Details

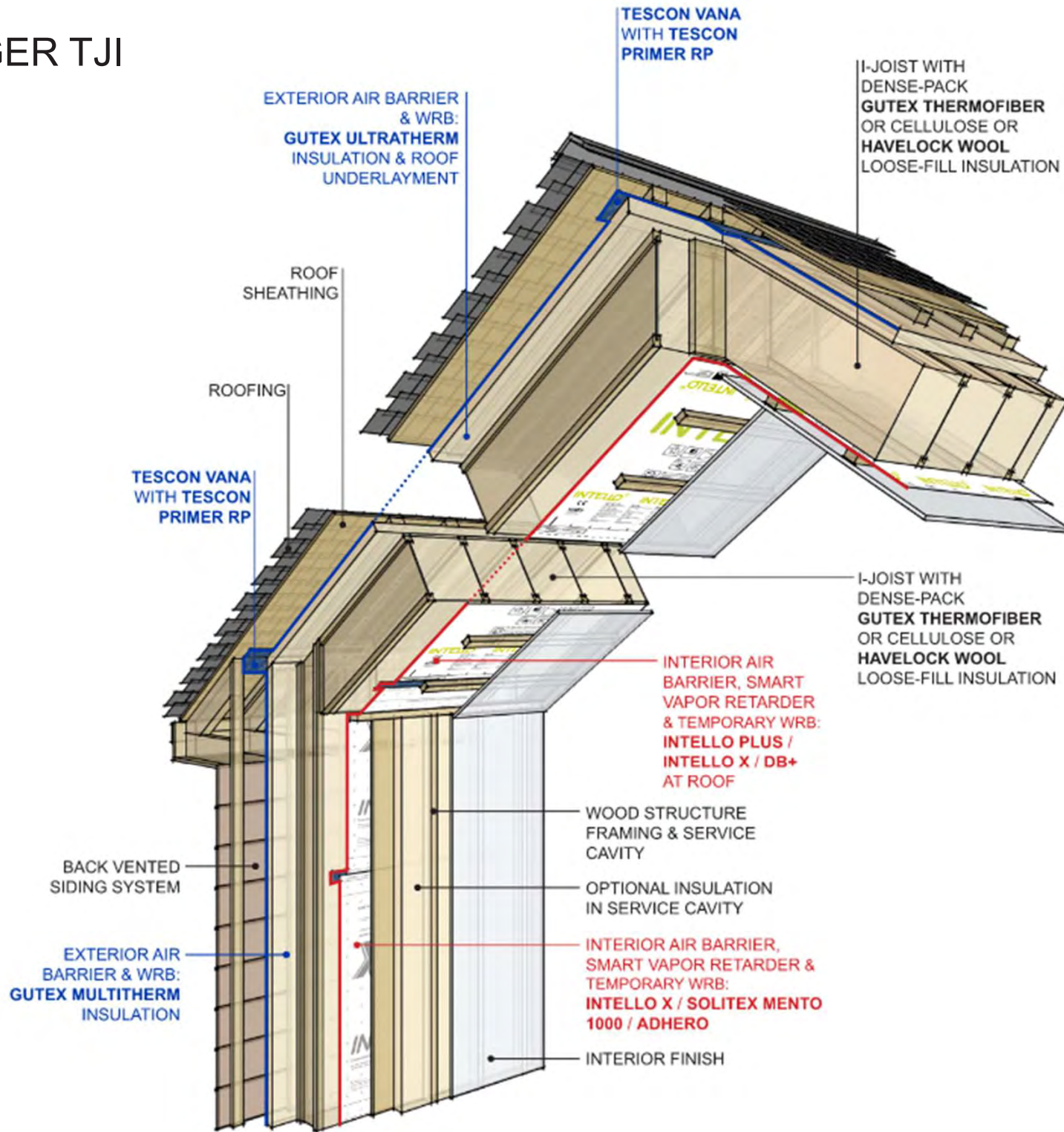




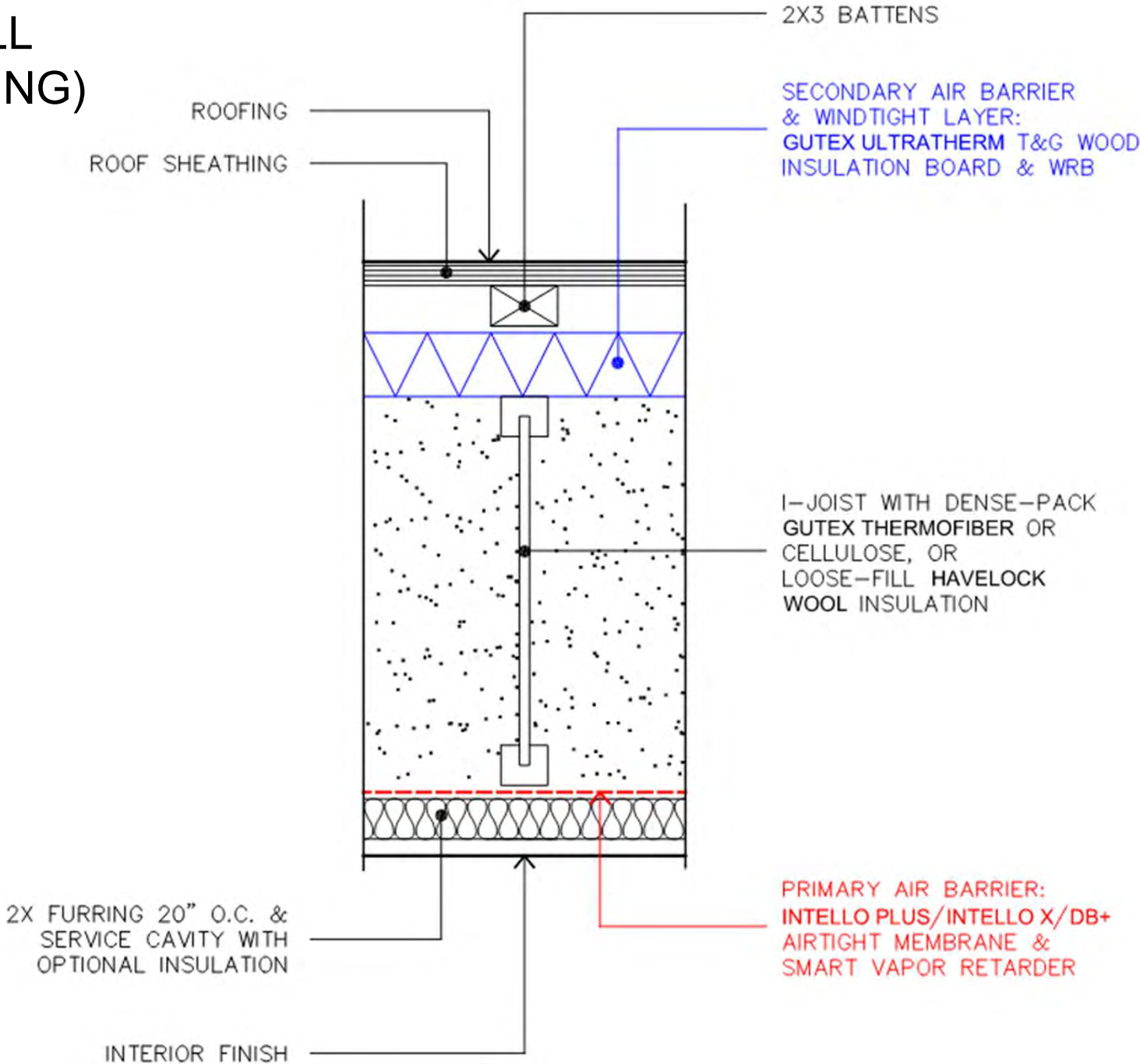
High-Performance Roofing Systems



OUTRIGGER TJI



EXTERIOR WALL (WITH SHEATHING)



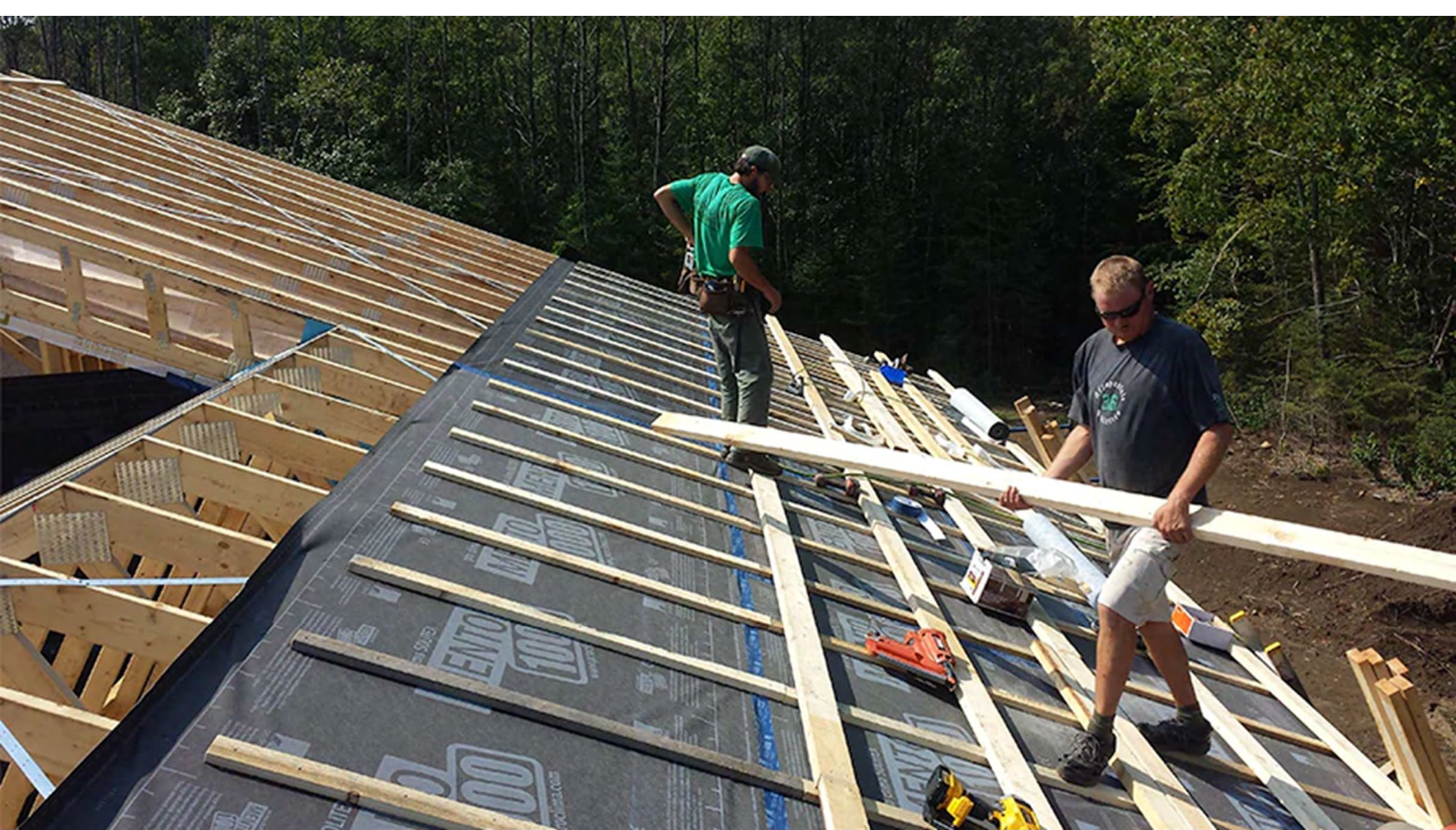
CROSS-SECTION AT ROOFING



475 High Performance Building Supply

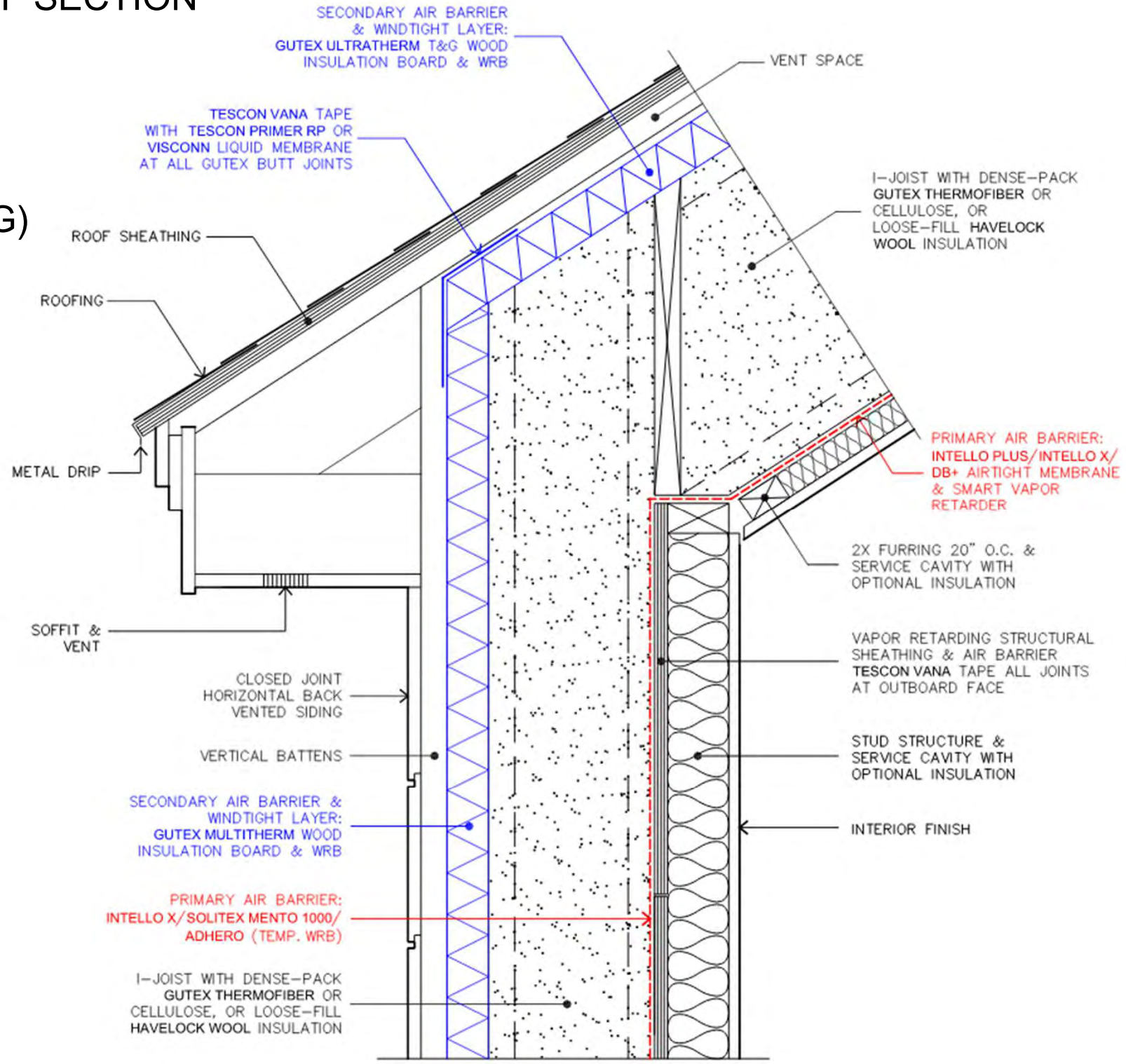
<https://foursevenfive.com/>

<https://foursevenfive.com/content/uploads/2018/03/07-Exterior-cropped.jpg>



CATHEDRAL ROOF SECTION OUTRIGGER TJI ASSEMBLIES

EXTERIOR WALL (WITH SHEATHING)

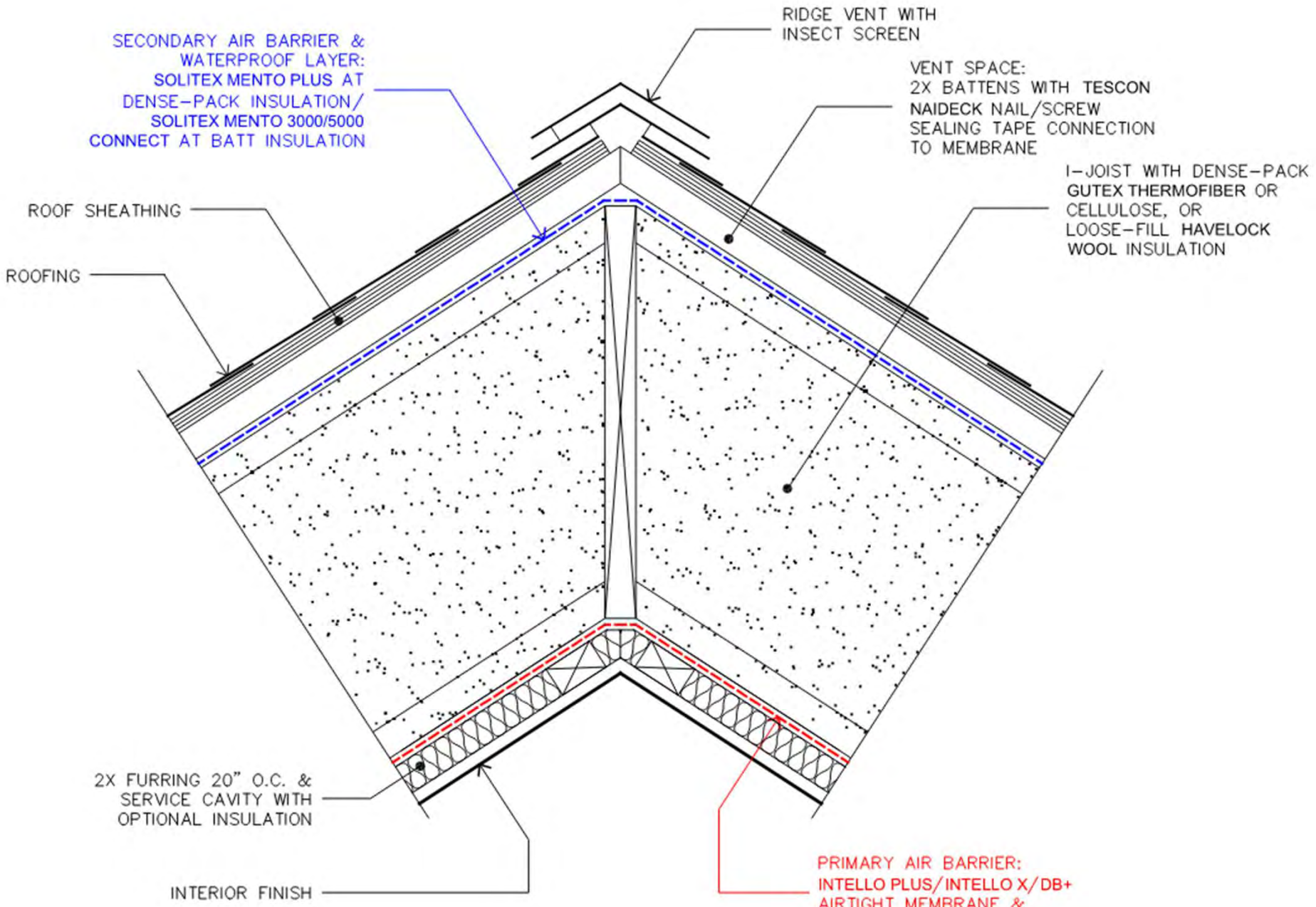




CATHEDRAL ROOF SECTION OUTRIGGER TJI ASSEMBLIES

SECTION AT RIDGE

EXTERIOR



SECONDARY AIR BARRIER & WATERPROOF LAYER: SOLITEX MENTO PLUS AT DENSE-PACK INSULATION/ SOLITEX MENTO 3000/5000 CONNECT AT BATT INSULATION

RIDGE VENT WITH INSECT SCREEN

VENT SPACE: 2X BATTENS WITH TESCON NAIDECK NAIL/SCREW SEALING TAPE CONNECTION TO MEMBRANE

I-JOIST WITH DENSE-PACK GUTEX THERMOFIBER OR CELLULOSE, OR LOOSE-FILL HAVELOCK WOOL INSULATION

ROOF SHEATHING

ROOFING

2X FURRING 20" O.C. & SERVICE CAVITY WITH OPTIONAL INSULATION

INTERIOR FINISH

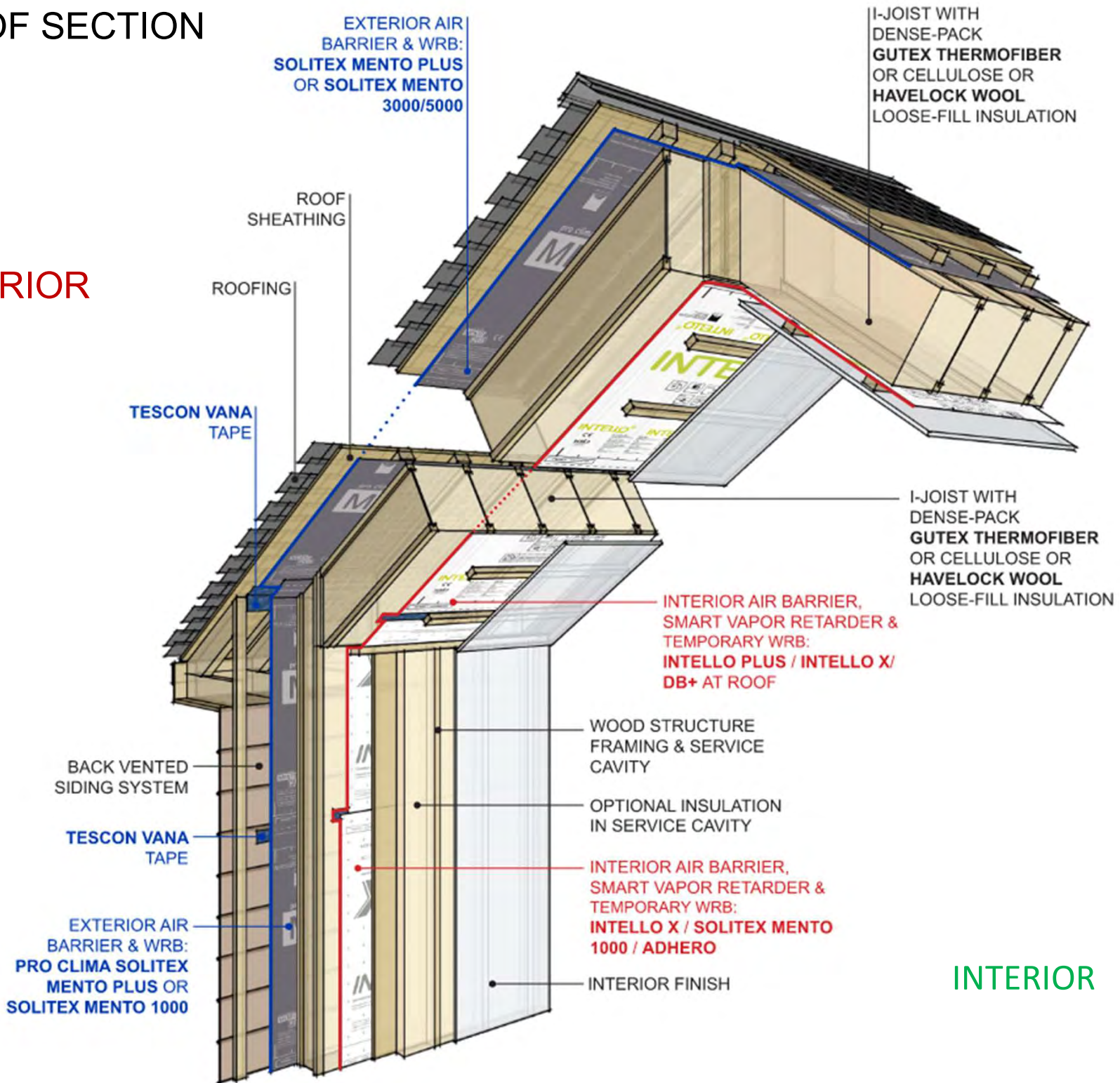
PRIMARY AIR BARRIER: INTELLO PLUS/INTELLO X/DB+ AIRTIGHT MEMBRANE & SMART VAPOR RETARDER

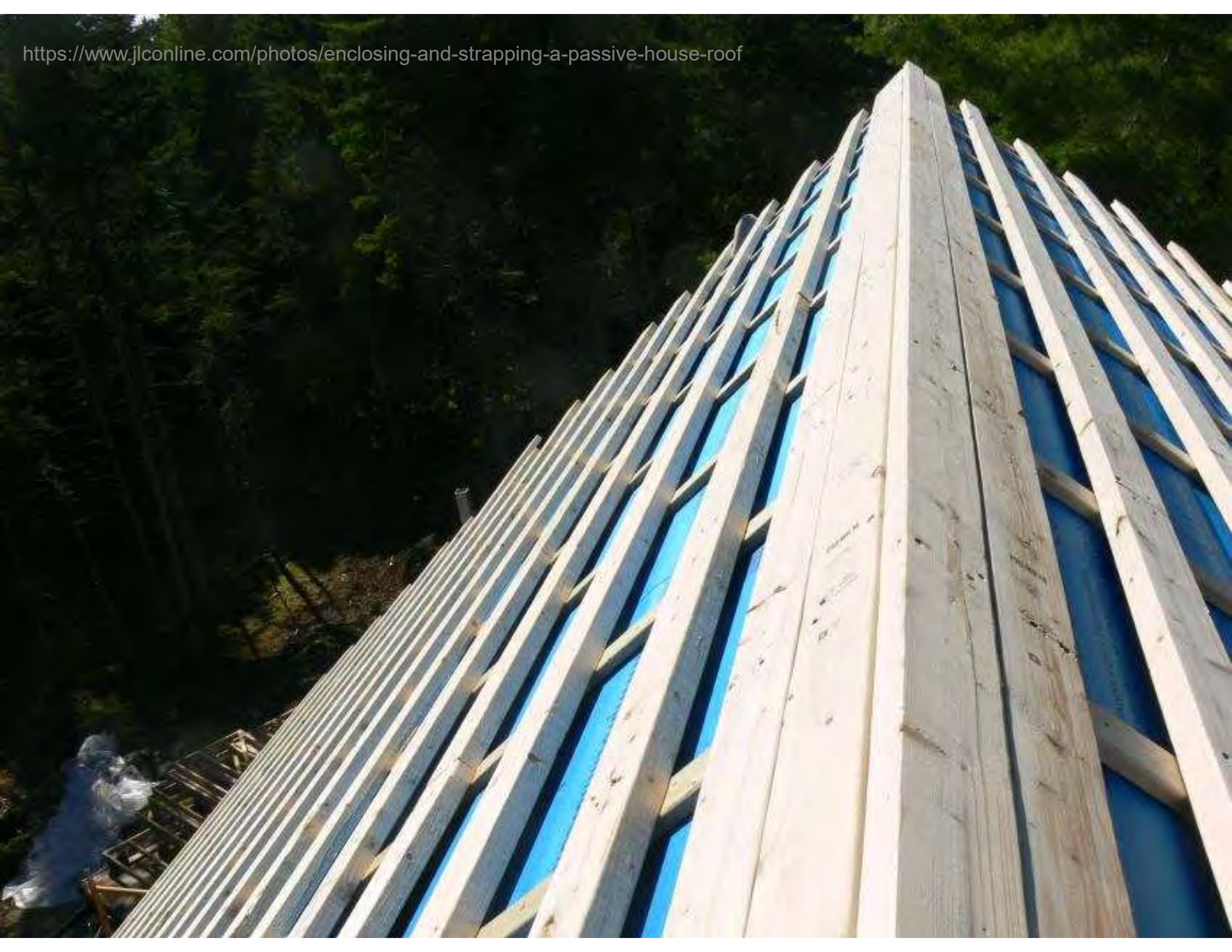
INTERIOR

CATHEDRAL ROOF SECTION OUTRIGGER TJI ASSEMBLIES

EXTERIOR

INTERIOR

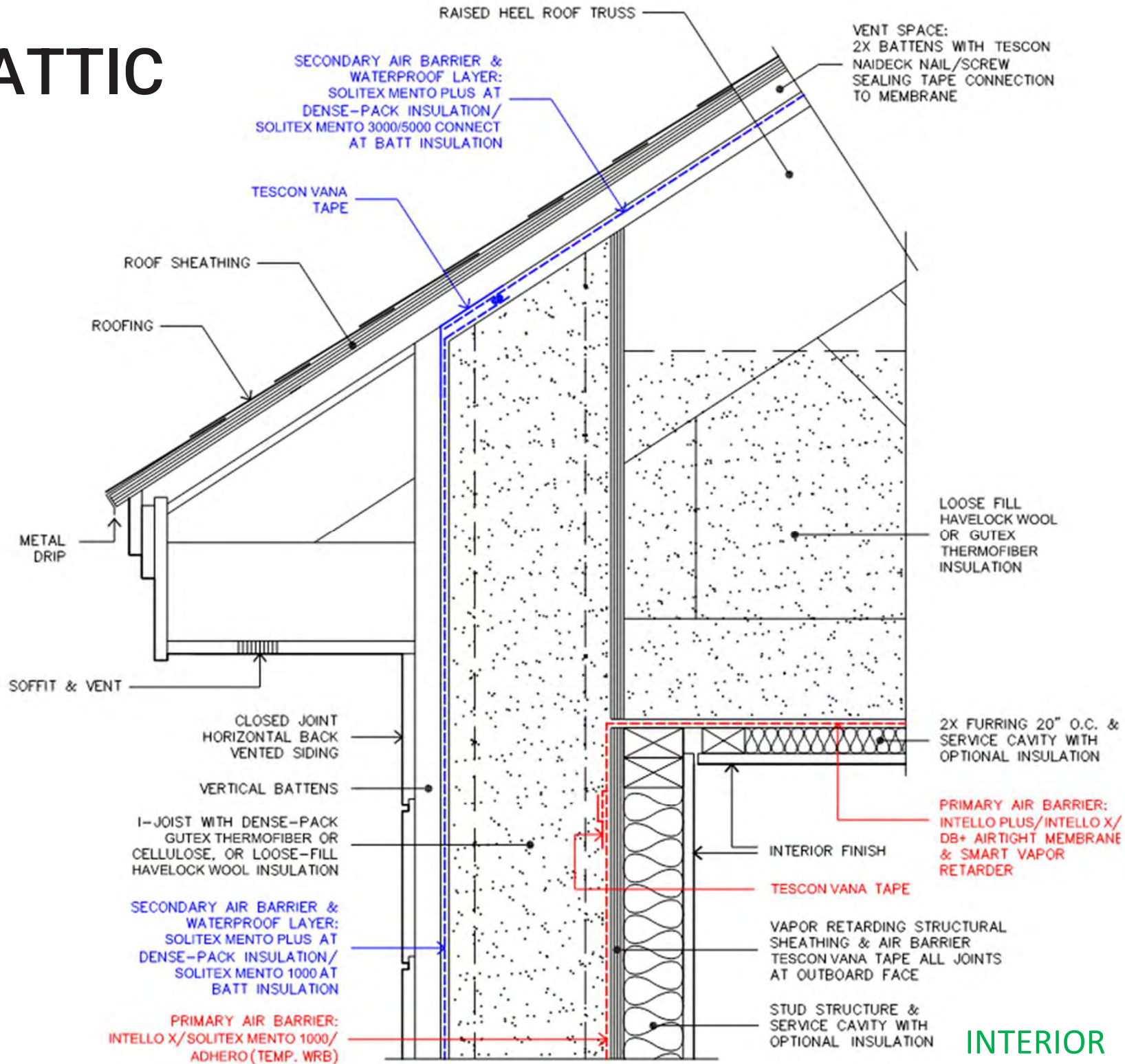




VENTED ATTIC TRUSS

SECTION

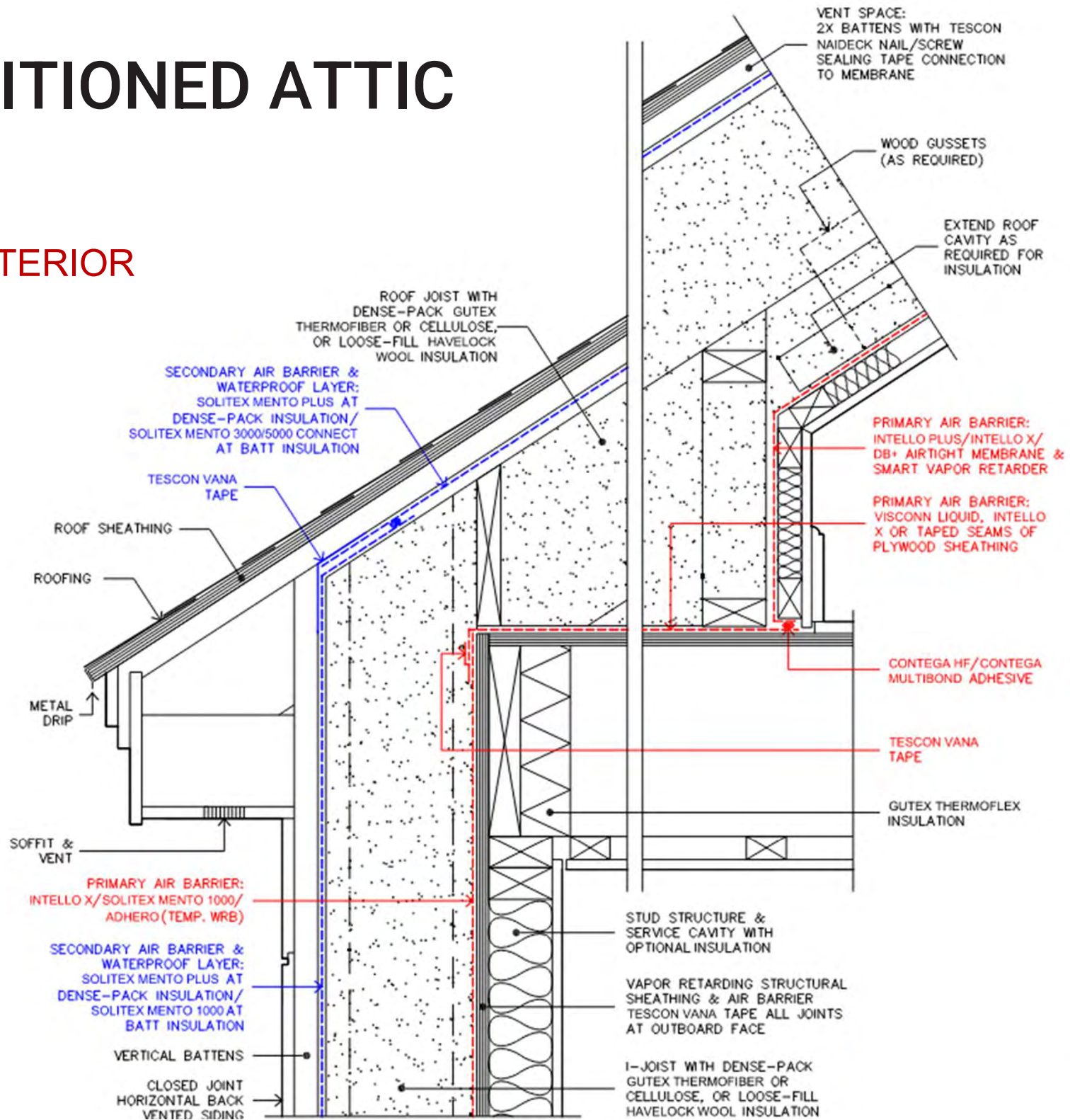
EXTERIOR



CONDITIONED ATTIC

SECTION

EXTERIOR

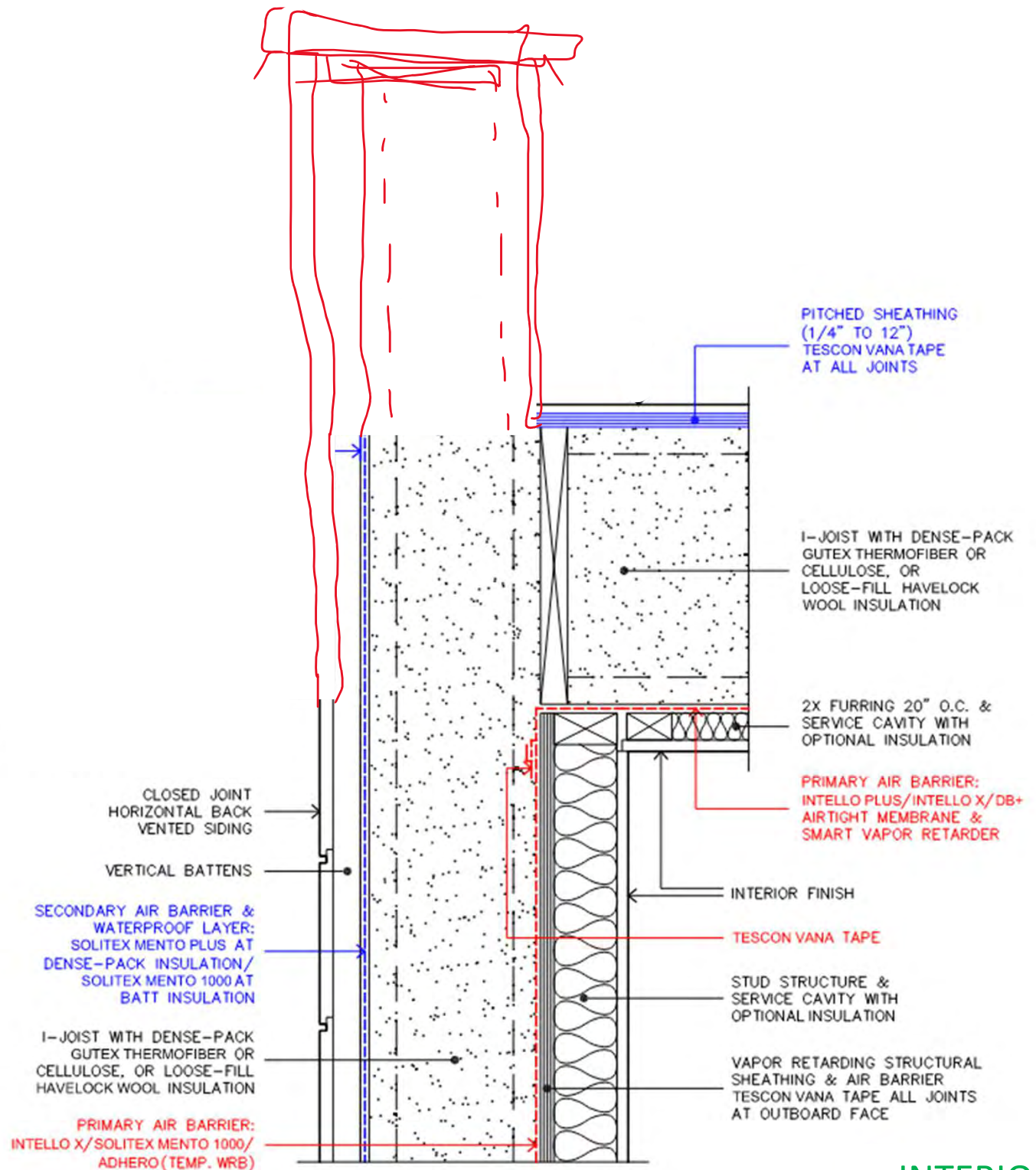


INTERIOR

UNVENTED FLAT ROOF

SECTION

EXTERIOR




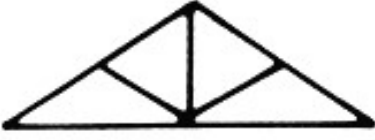

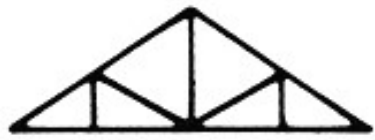


INTERIOR

PREFABRICATED ASSEMBLY: ROOF TRUSS





SOME TRUSS TYPES

King Post	
Queen Post	
Fink	
Howe	
Howe Scissors	
Modified Queen	

FRANK LLOYD WRIGHT HOUSE & STUDIO: GABLE ROOF



HOUSE IN OAK PARK, IL. BY FRANK LLOYD WRIGHT: HIP ROOF



**"Kragssyde," Manchester-by-the-Sea, MA
by Peabody and Stearns, c.1882:
HIP & GABLE ROOFS**



GAMBREL ROOF



MANSARD ROOF

FRANCOIS MANSARD (1598-1666)



MANSARD ROOF

