



2005  
NORTH CAROLINA  
AFFORDABLE  
PASSIVE SOLAR  
PLANBOOK

# THE HIDEAWAY

2 BEDROOM/ 1 BATH  
960 SQ. FT. TOTAL HEATED SPACE

DRAWN BY: Appalachian State University Energy Center  
Construction Technology Department



## LEGEND:

DRAWING TITLE

GRID LOCATION

SHEET NUMBER

SCALE

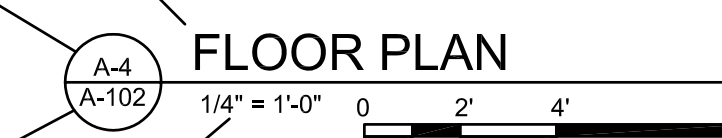
NORTH

DETAIL

SECTION DETAIL

EXTERIOR ELEVATION

BUILDING SECTION



## INDEX TO DRAWINGS:

A-101	FOUNDATION PLAN
A-102	1ST FLOOR PLAN
A-103	ROOF PLAN
A-201	ELEVATIONS
A-301	BUILDING SECTIONS
A-401	DETAILS

### DISCLAIMER:

This house plan has been developed under a contract with the North Carolina State Energy Office as part of their ongoing effort to promote energy efficient house designs.

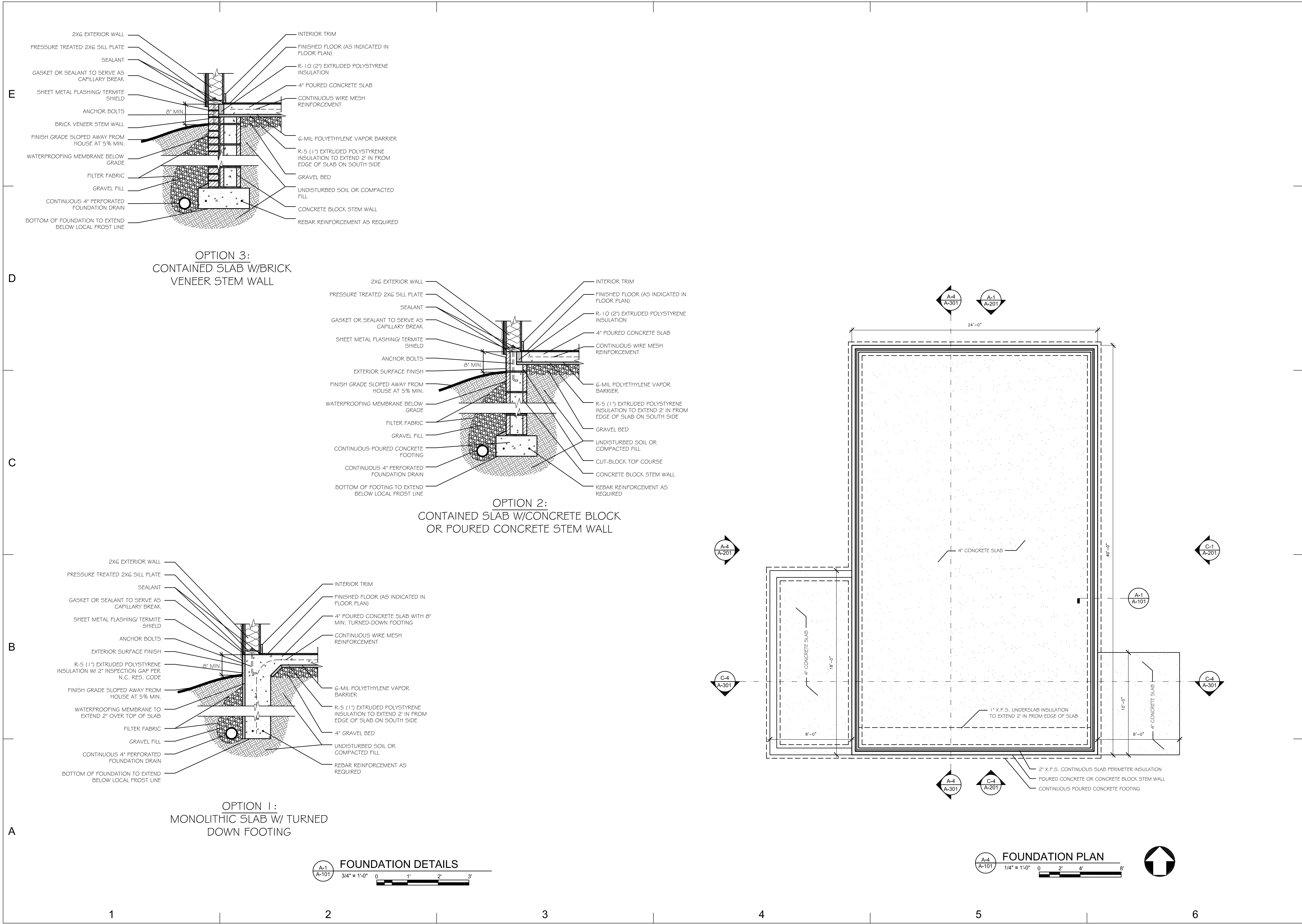
The designs, drawings, and specifications offered are generally suitable for construction in the state of North Carolina. Changes necessary to adapt the designs to other areas should be performed by professionals experienced and competent in passive solar applications. In addition, the working drawings and specifications should be submitted for review to local building officials to insure compliance with code requirements. This review should be done prior to site selection, financial commitments, or construction permit applications.

Neither the State of North Carolina, nor any agency thereof, nor any of the employees makes any warranty, express or implied, or assumes any legal liability or responsibility for any third party use or the results of such use of any information, apparatus, assembly, product, or functional efficiency in this plan or represents that the use by such third party would not infringe upon privately owned designs or rights.

The energy use information and design criteria for energy analysis on this plan has been assumed for the climate conditions found in North Carolina. Neither ASU Energy Center, nor any of their employees or consultants, shall be responsible for variations in the actual performance of this design.

The drawings in this set have been prepared as architectural guidelines for the evaluation of a passive solar house. Items such as heating and cooling equipment, plumbing, and electrical requirements are included, though modifications may be necessary due to the location and the specific site. All modifications should follow energy efficient guidelines: provide continuous exterior insulation, seal all air leaks, create a continuous air and moisture barrier, and insulate and seal all ductwork. The contractor and owner shall follow the requirements of local codes carefully. The contractor is responsible for all fabrication processes, construction techniques, and coordination of work with all trades and subcontractors. Any dimensional errors or omissions from the drawings do not relieve the general contractor of the responsibility to provide a complete project in accordance with genuinely accepted quality standards.





State Energy Office

**ENERGY**

www.energyinc.net

1-800-862-7131

K.C. Department of Administration

Ensuring a sustainable energy future

PROJECT

THE HIDEAWAY

SOURCE

2005 AFFORDABLE PASSIVE SOLAR PLANBOOK

DRAWN BY

**Energy**

Appalachian

CONSTRUCTION TECHNOLOGY DEPARTMENT

ISSUE

DATE

DESCRIPTION

MARK

SHEET TITLE

FOUNDATION PLAN and DETAILS

SHEET NO.

A-101



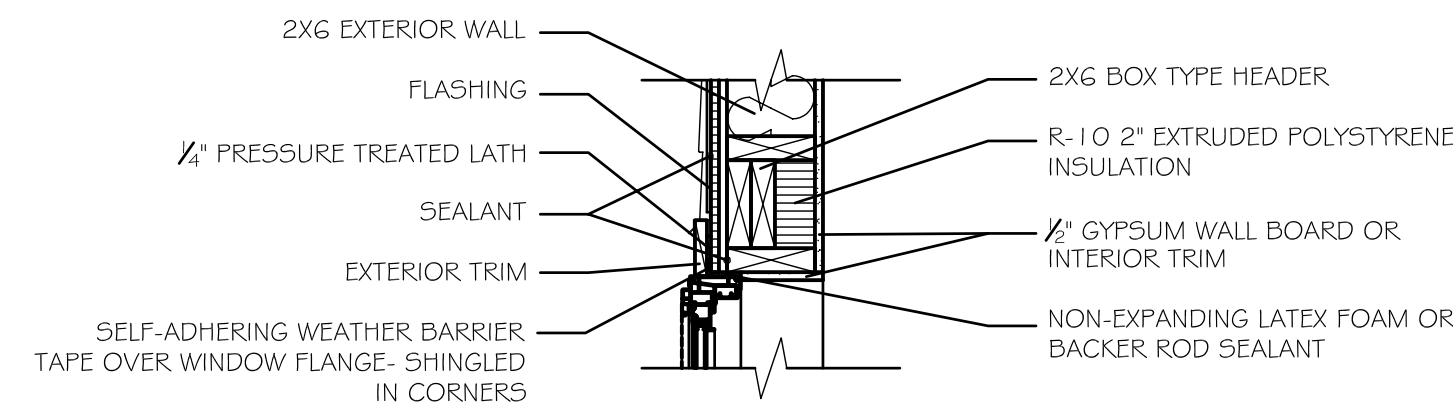
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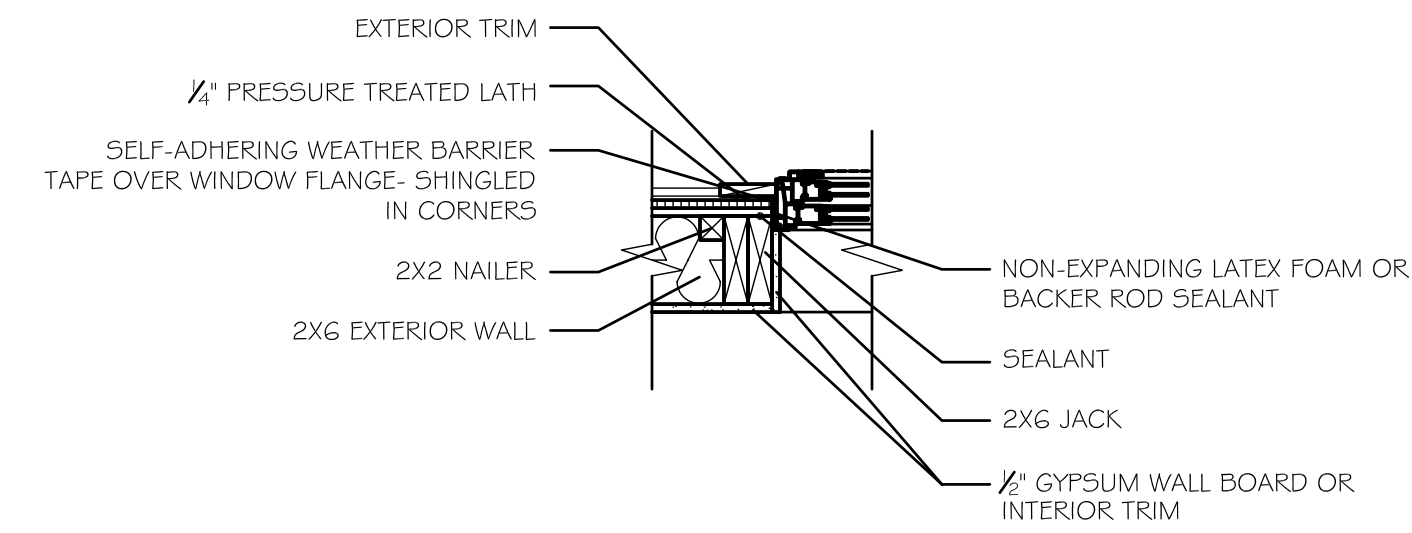
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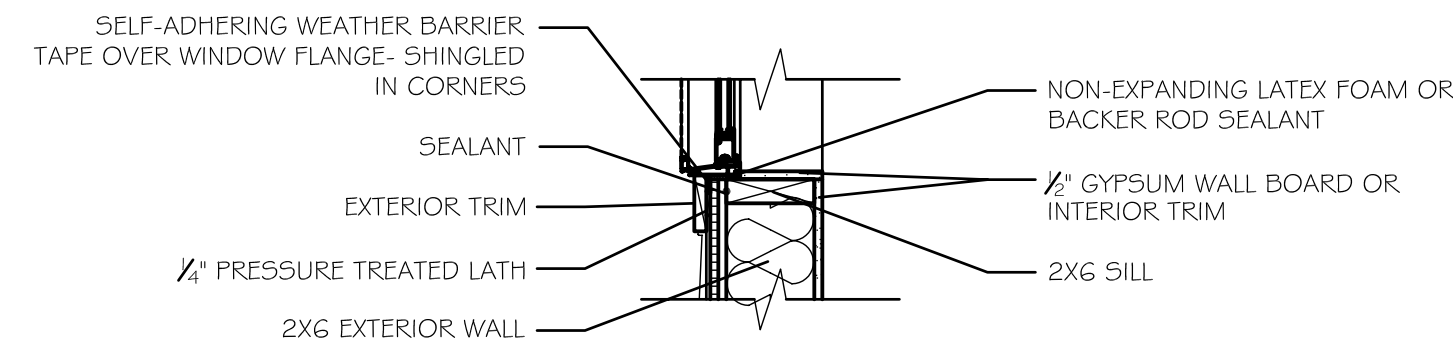
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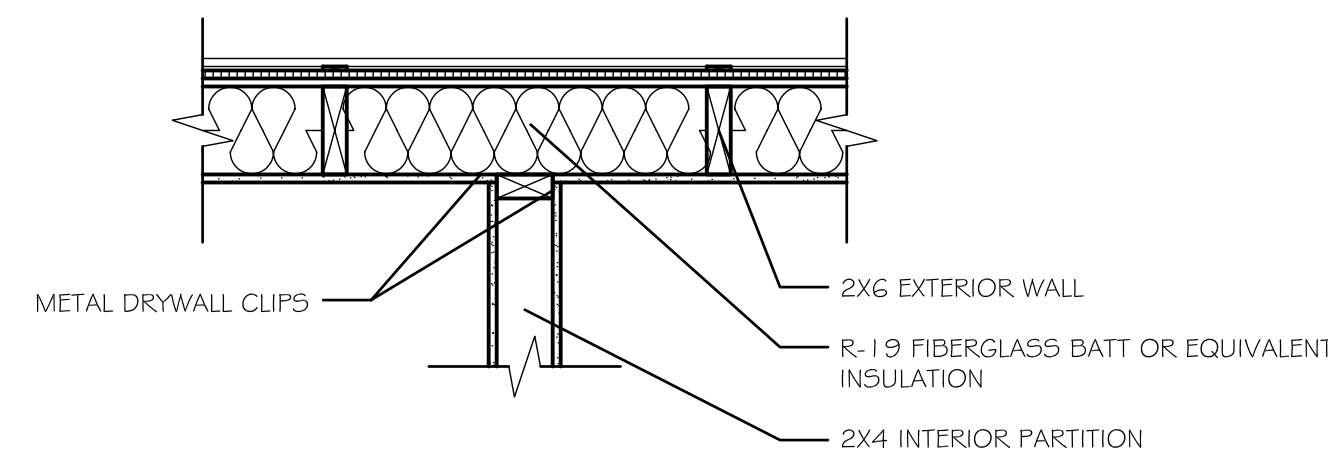
INSULATED HEADER



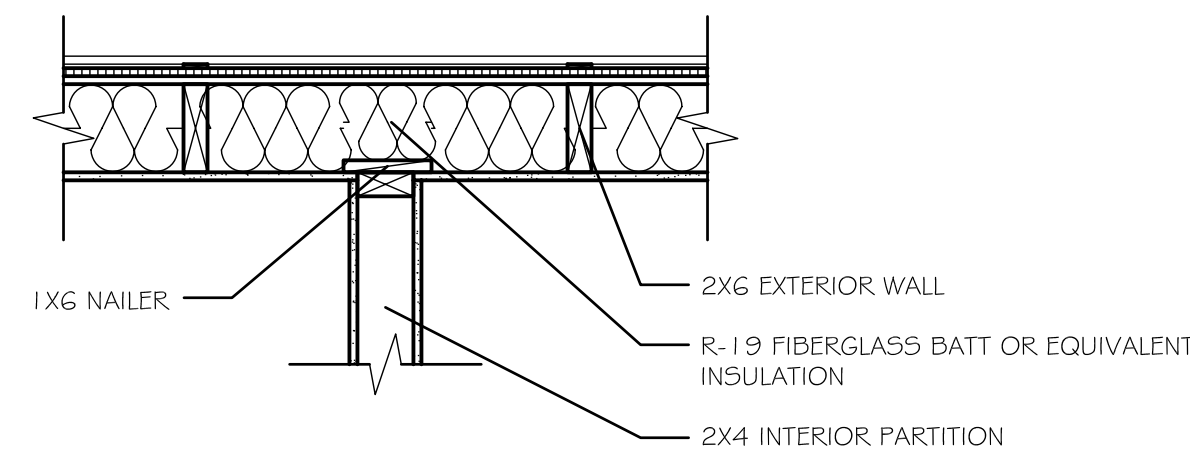
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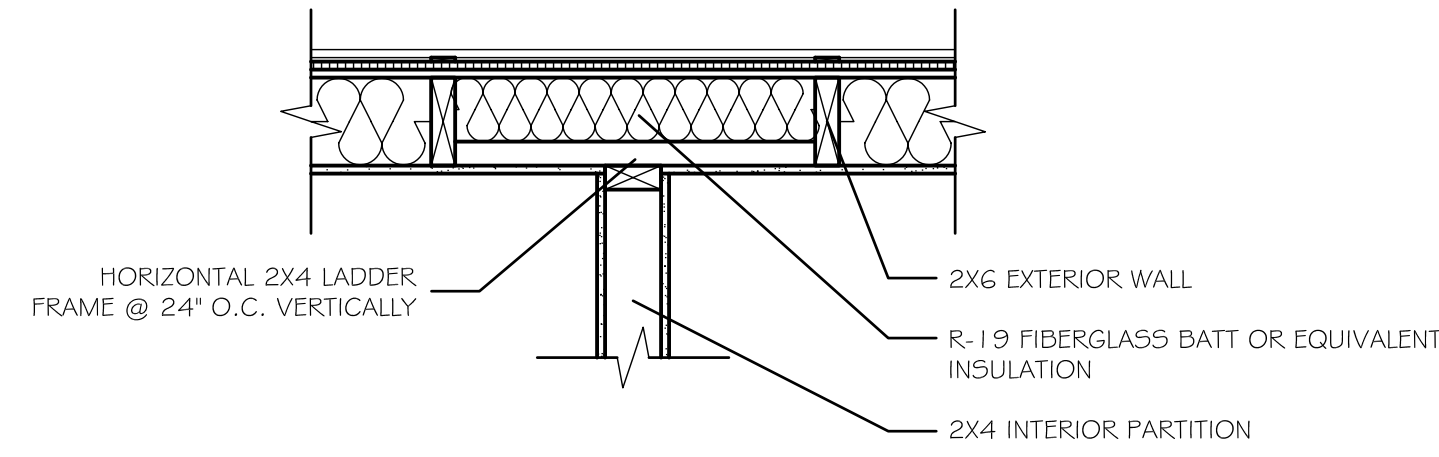
SILL



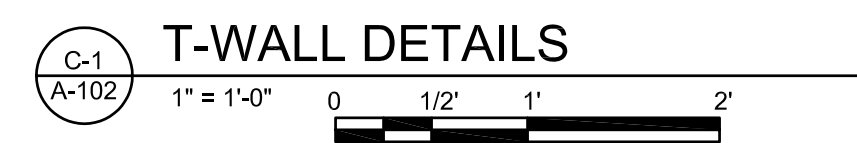
OPTION 3:  
DRYWALL CLIPS



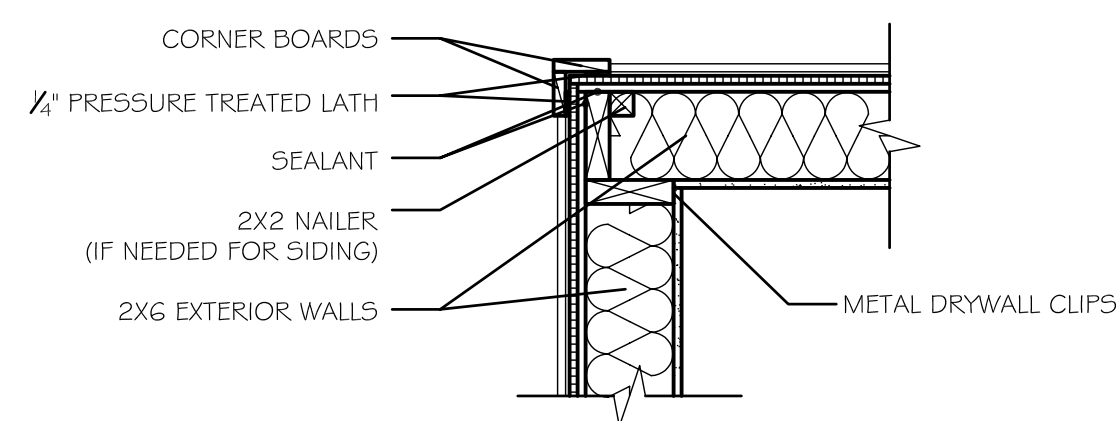
OPTION 1:  
1X6 NAILER



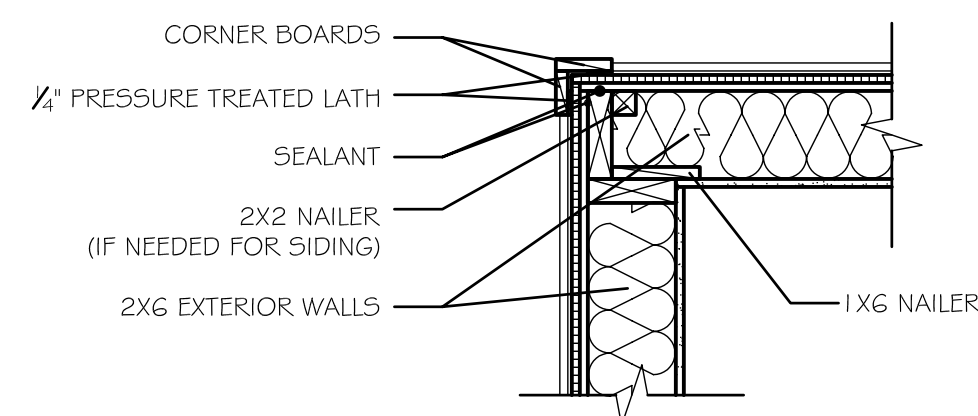
OPTION 2:  
2X4 LADDER FRAME



T-WALL DETAILS



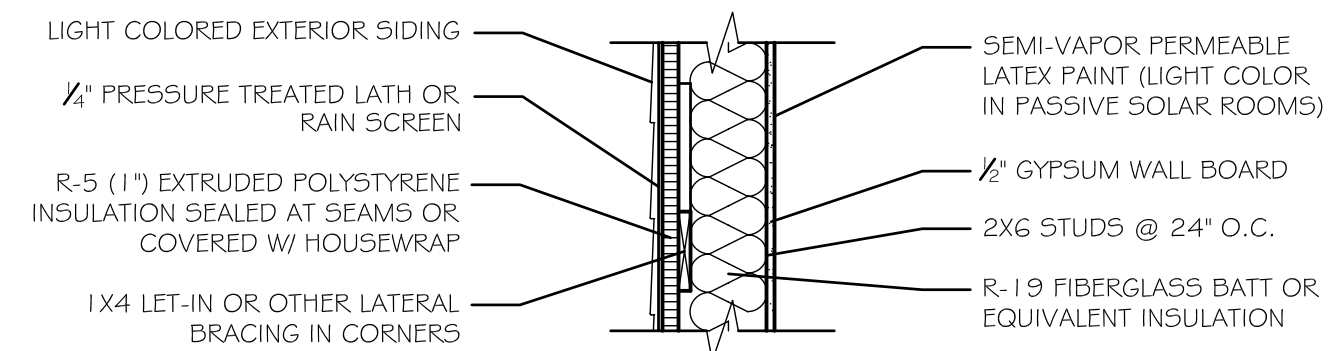
OPTION 2:  
DRYWALL CLIPS



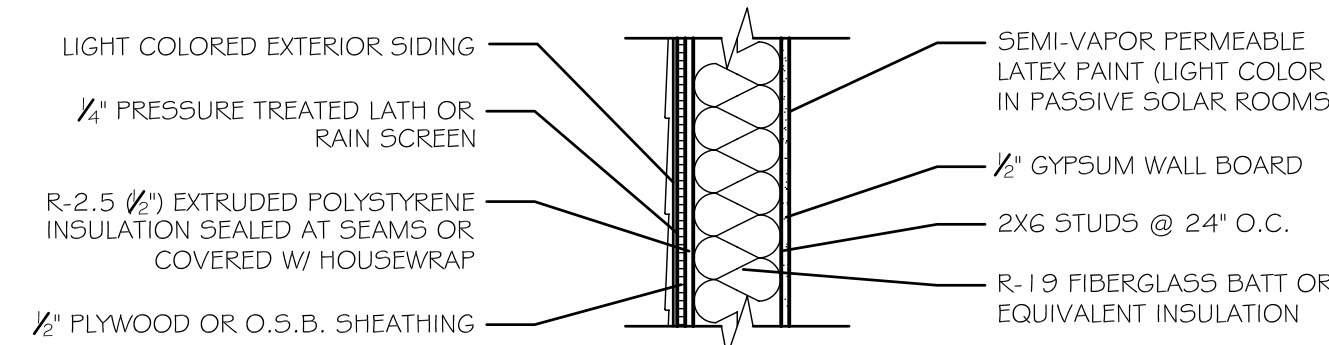
OPTION 1:  
3-STUD CORNER



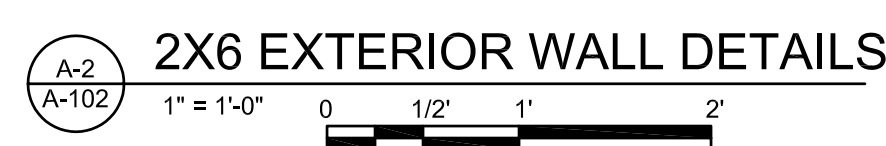
EXTERIOR CORNER DETAILS



OPTION 2:  
R-24 W/ LET-IN BRACING

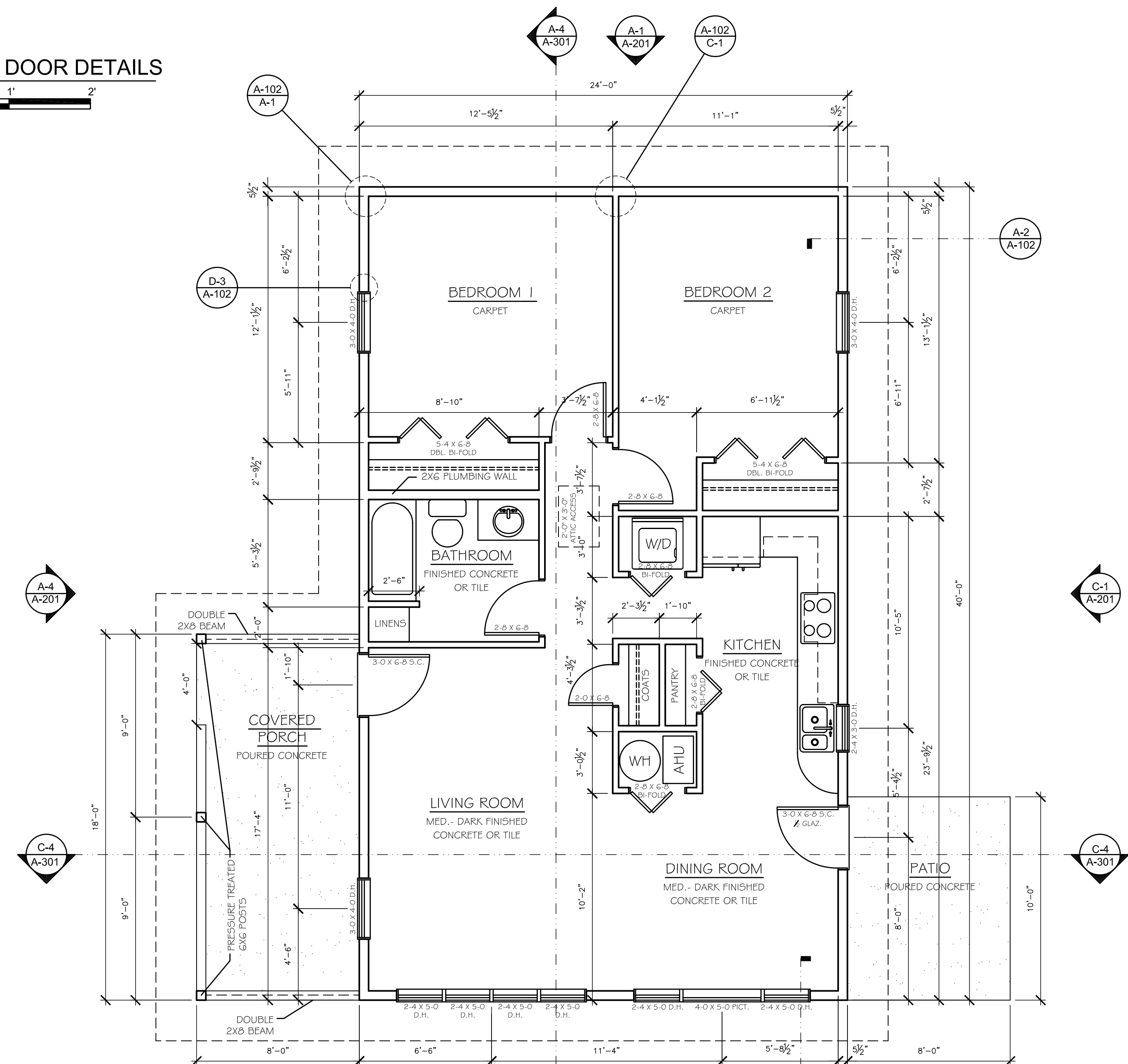


OPTION 1:  
R-21.5 W/ PLYWOOD OR  
O.S.B. SHEATHING



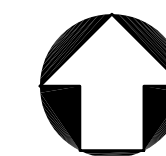
2X6 EXTERIOR WALL DETAILS

WINDOW AND DOOR DETAILS



- NOTES:
- ALL DIMENSIONS TO FACE OF STUDS.
  - ALL INTERIOR PARTITIONS FRAMED 2X4 WALLS @ 24" O.C. UNLESS OTHERWISE NOTED.
  - ALL DOOR OPENINGS CENTERED ON WALL OR 3" FROM ADJACENT WALL UNLESS OTHERWISE NOTED.
  - ALL EXTERIOR DOORS R-5 MIN. SOLID FOAM CORE.
  - ALL WINDOWS DOUBLE-PANED, LOW-E WITH MAXIMUM U-VALUE OF 0.40.
  - ALL EXTERIOR WINDOW AND DOOR HEADERS INSULATED BOX TYPE SIZED PER LOCAL RES. BUILDING CODE UNLESS OTHERWISE NOTED.

FLOOR PLAN



MARK	DESCRIPTION	DATE



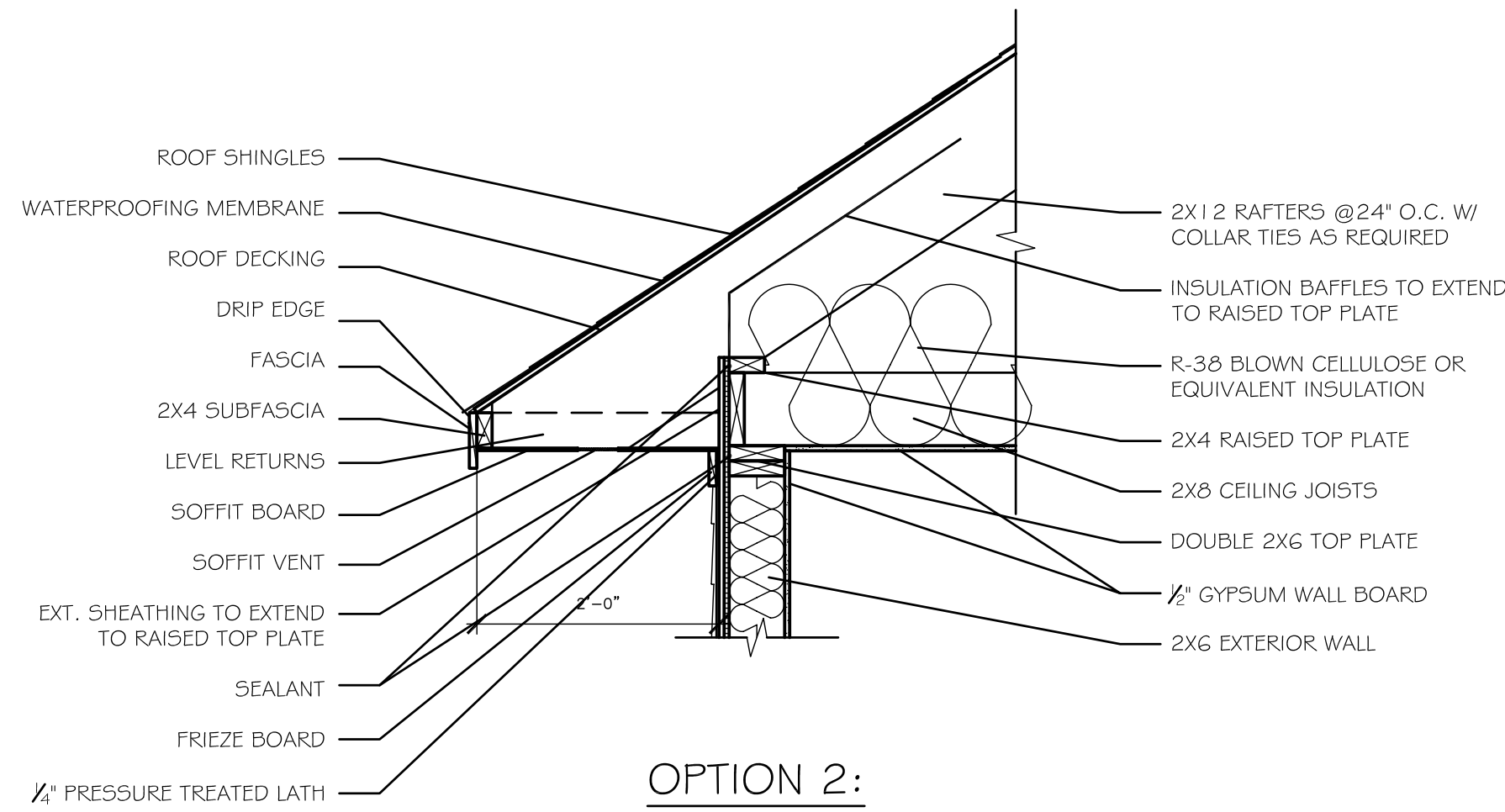
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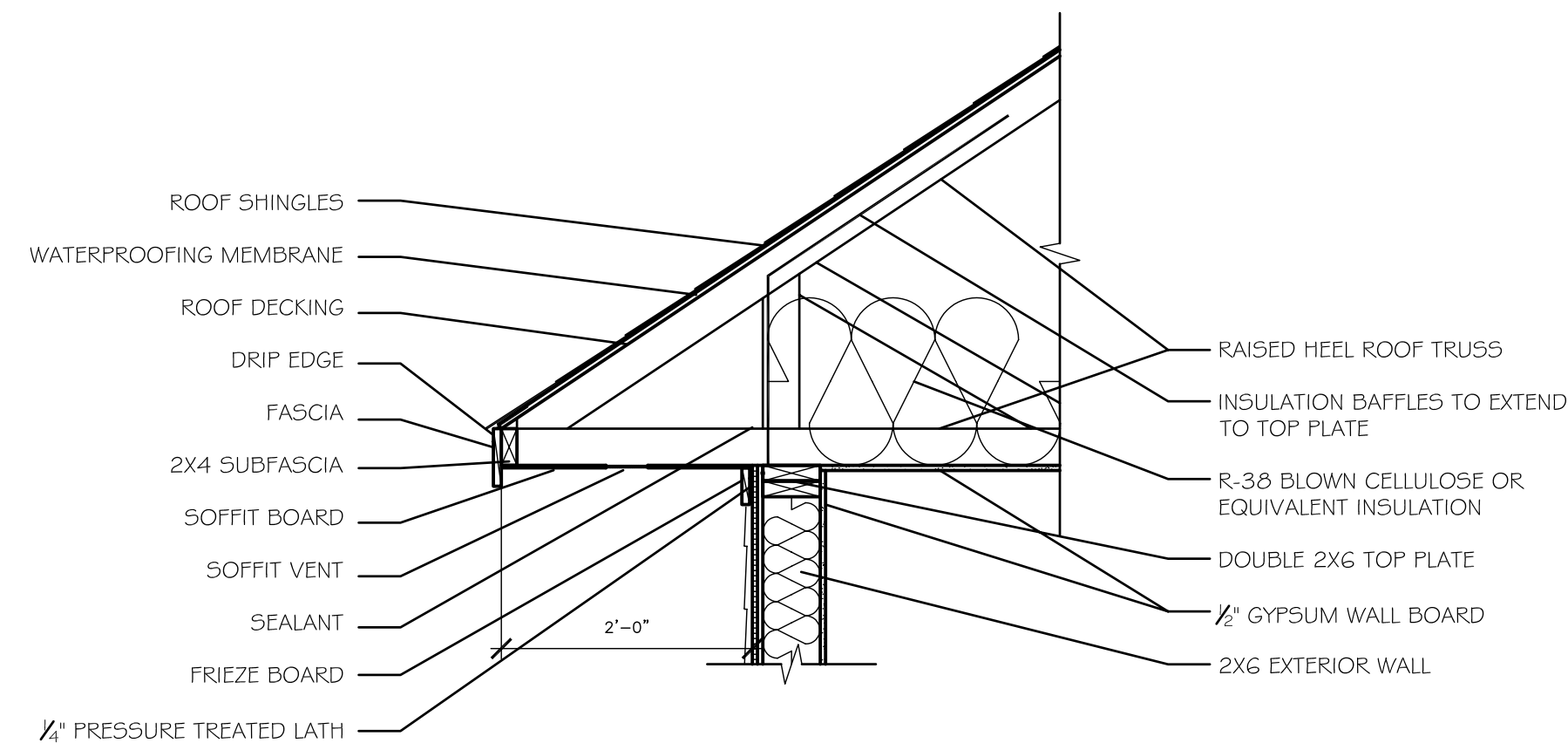
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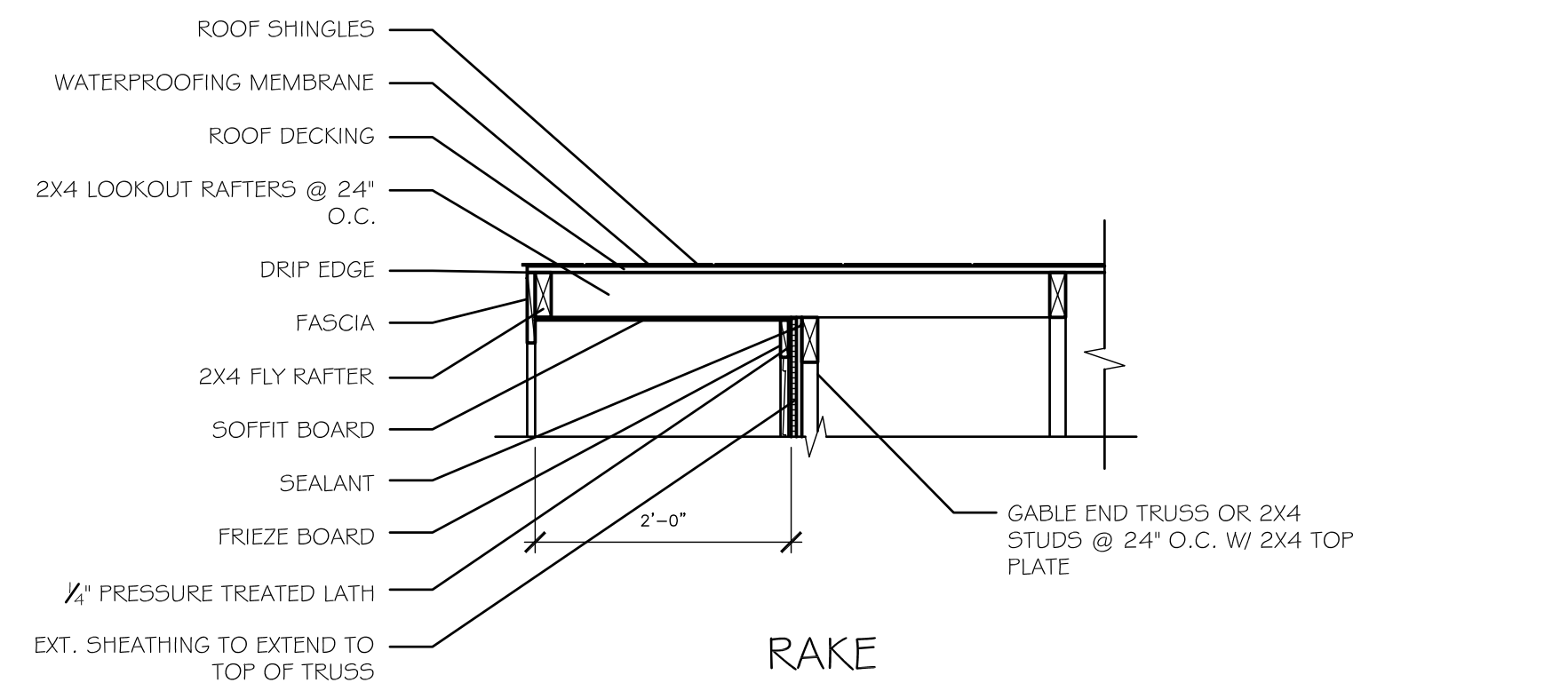
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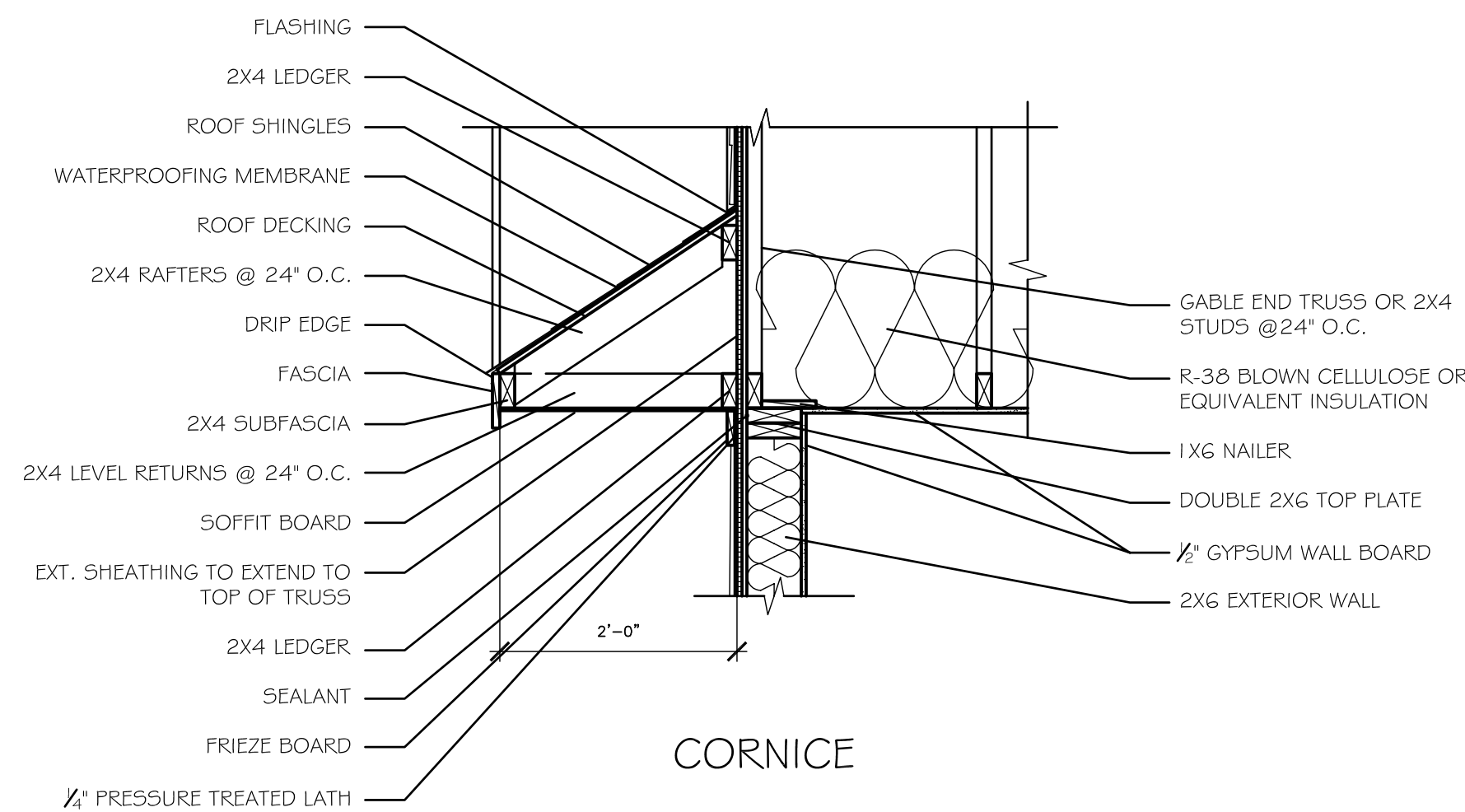
OPTION 2:  
RAISED TOP PLATE



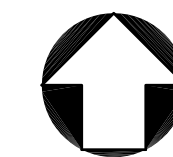
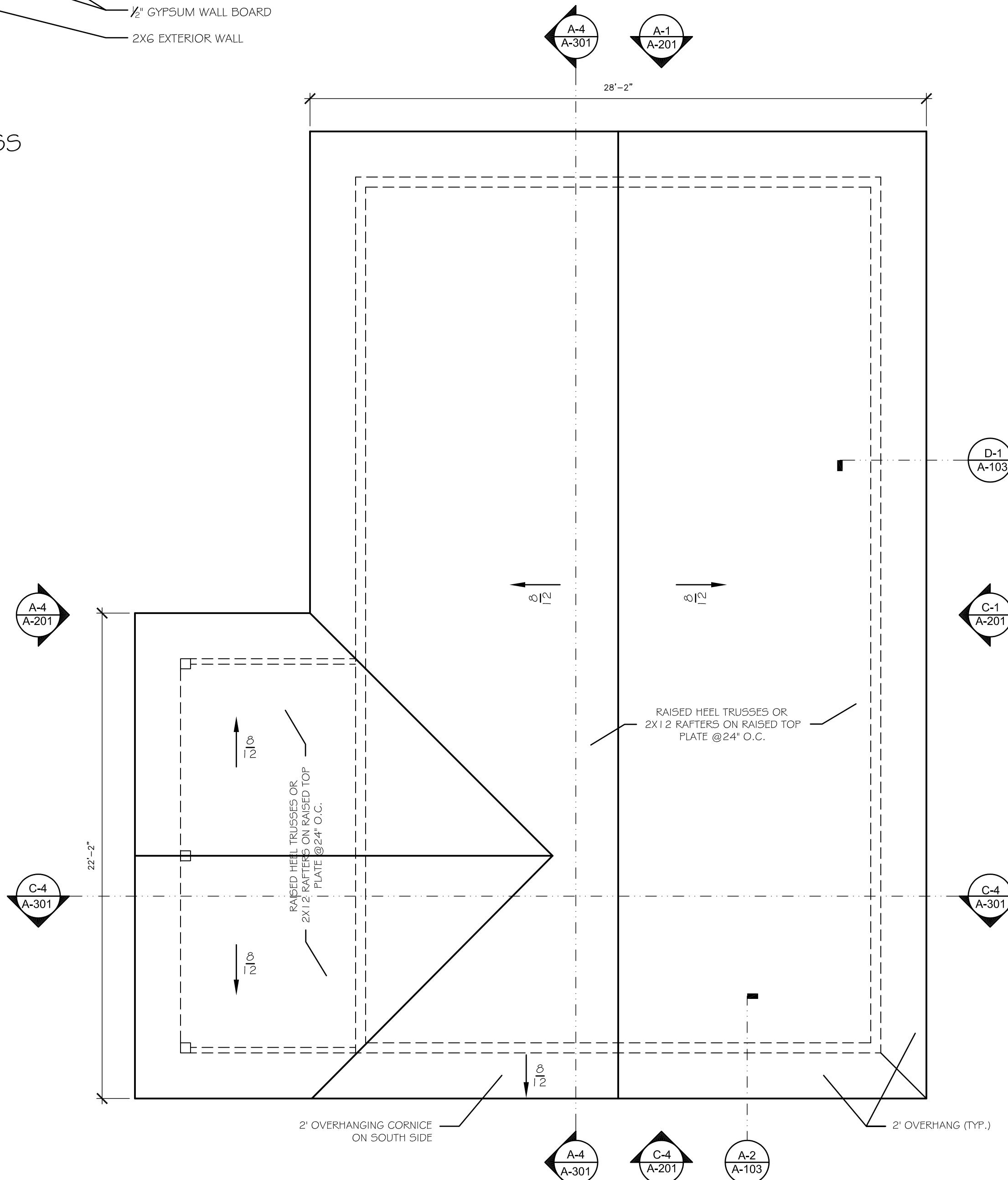
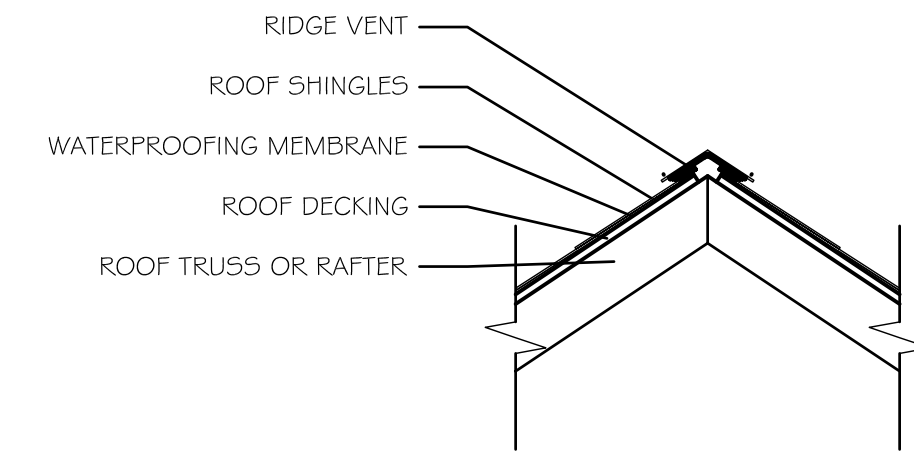
OPTION 1:  
RAISED HEEL TRUSS



RAKE



CORNICE



PROJECT

THE  
HIDEAWAY

SOURCE

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ISSUE

MARK	DESCRIPTION	DATE

SHEET  
TITLE

ROOF  
PLAN  
and DETAILS

SHEET NO.

A-103

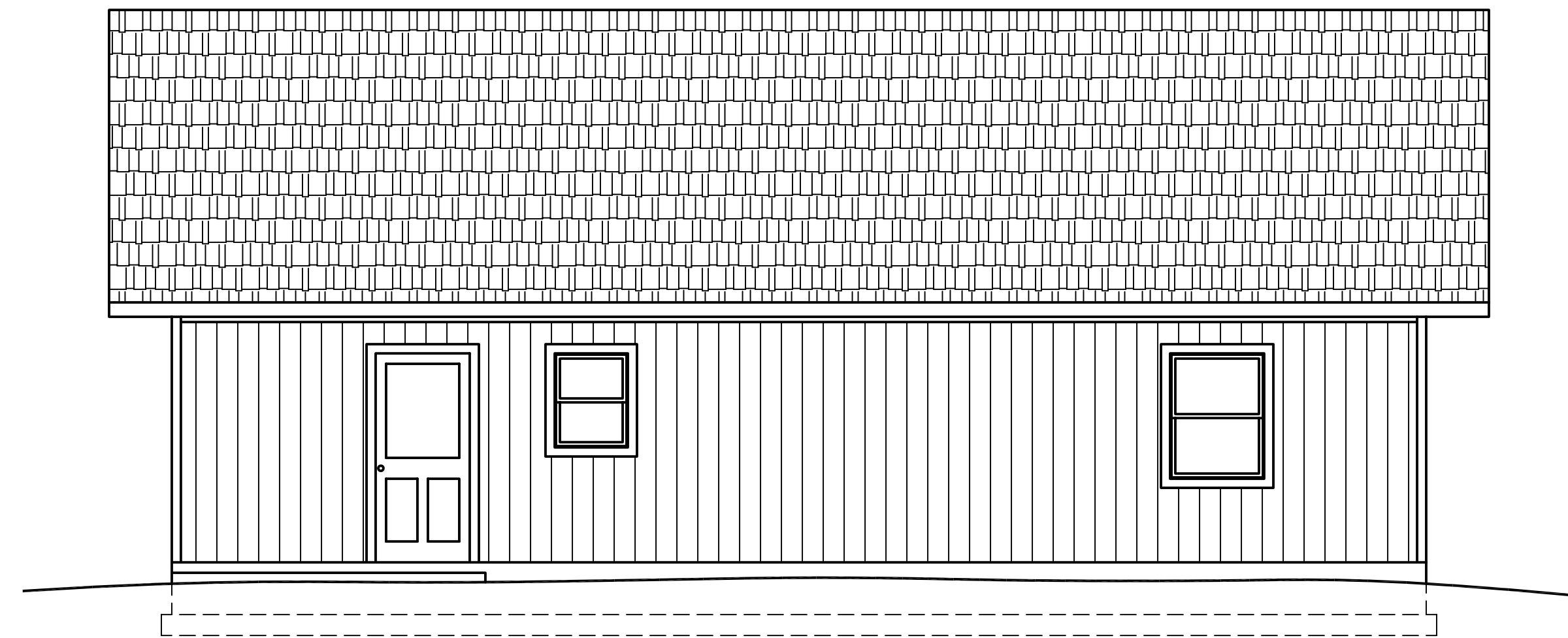
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D

C

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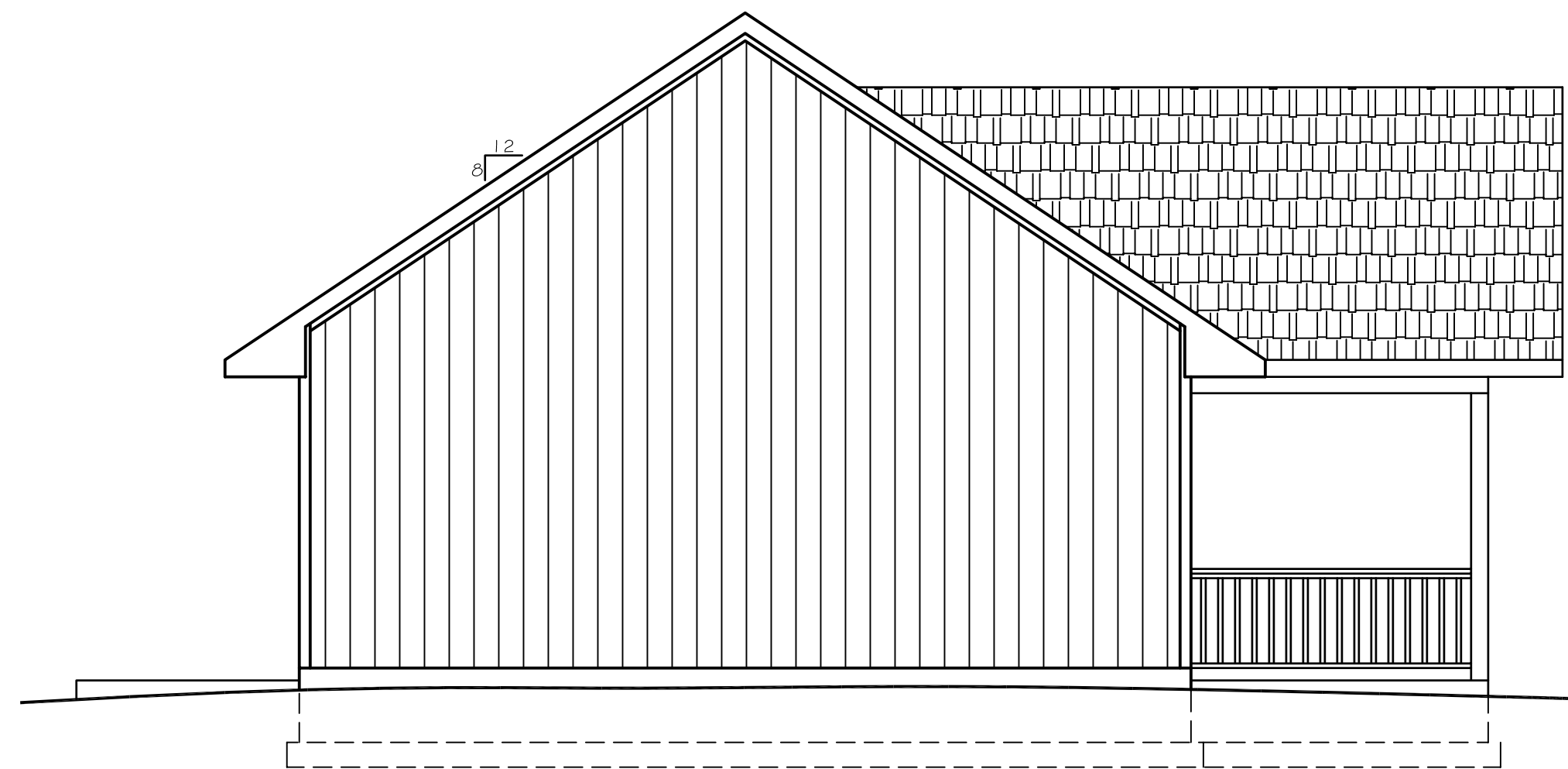
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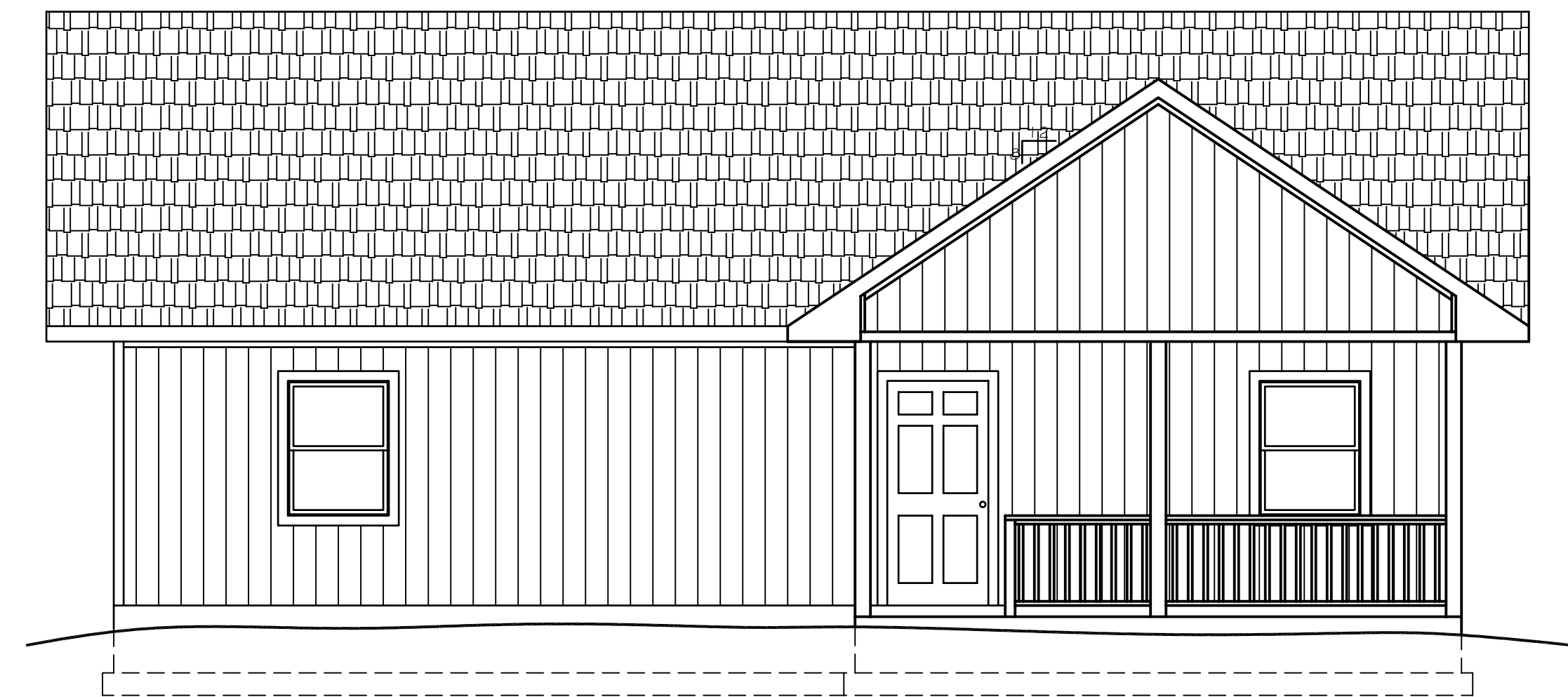
C-1  
A-201  
EAST ELEVATION  
3/32" = 1'-0" 0 2' 4' 8'



C-4  
A-201  
SOUTH ELEVATION  
3/32" = 1'-0" 0 2' 4' 8'



A-1  
A-201  
NORTH ELEVATION  
3/32" = 1'-0" 0 2' 4' 8'



A-4  
A-201  
WEST (FRONT) ELEVATION  
3/32" = 1'-0" 0 2' 4' 8'

1

2

3

4

5

6

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PASSIVE SOLAR  
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ISSUE

MARK	DATE	DESCRIPTION

SHEET  
TITLE

ELEVATIONS

SHEET NO.

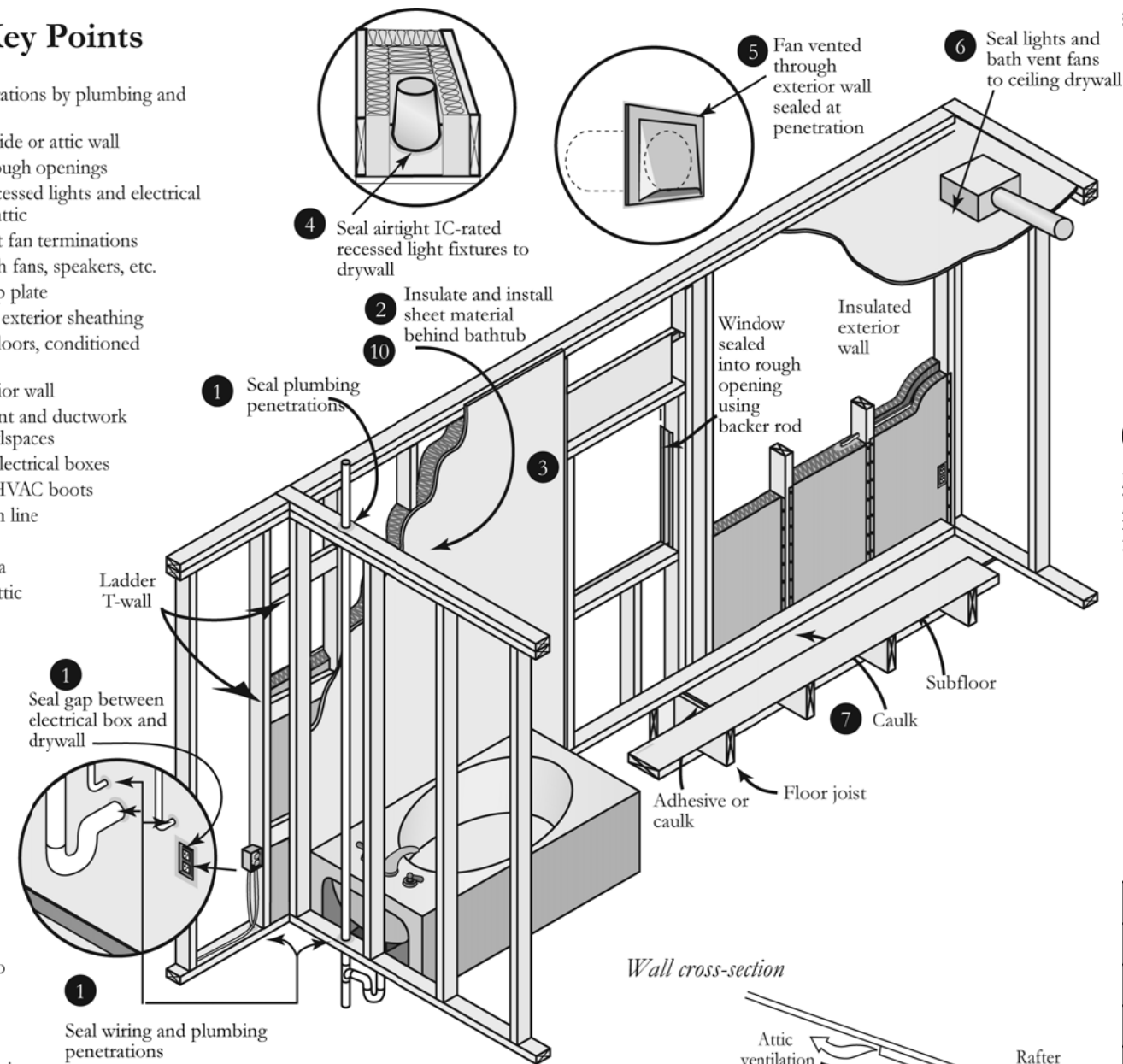
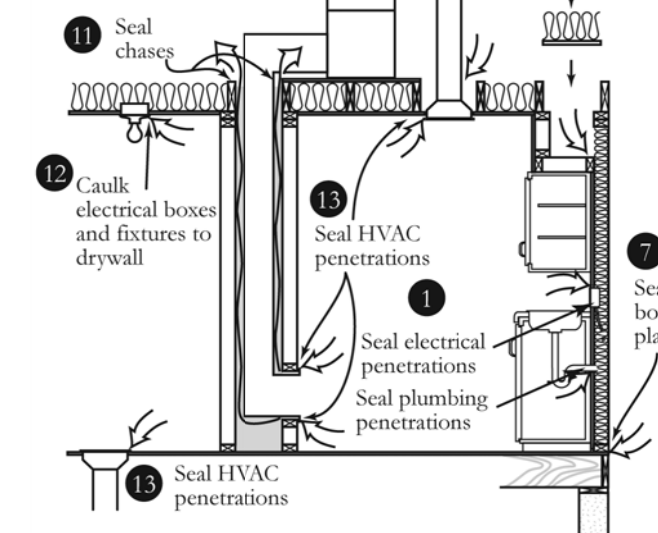
A-201



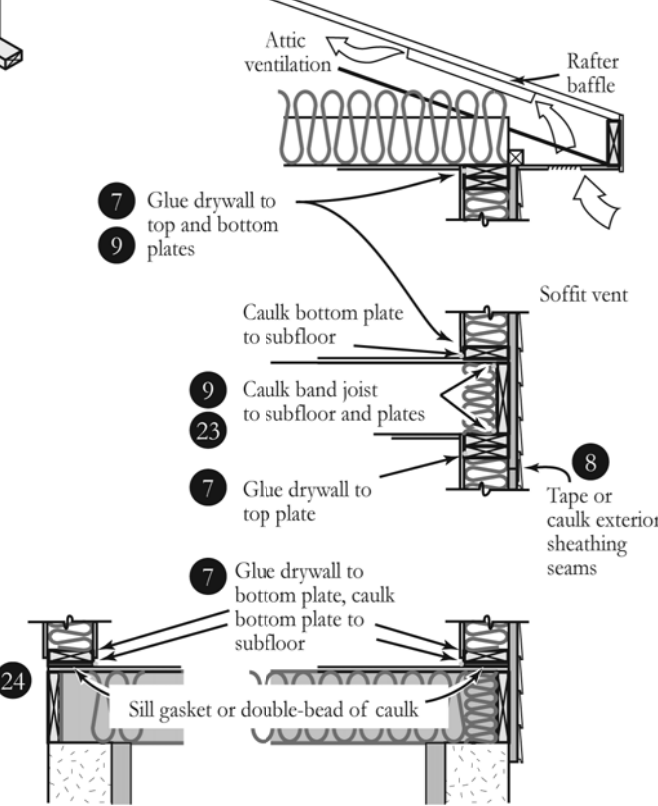
Air Sealing Key Points

1. Plate and wall penetrations by plumbing and electrical
2. Tub/shower on outside or attic wall
3. Window and door rough openings
4. Airtight, IC-rated recessed lights and electrical fixtures exposed to attic
5. Exterior wall exhaust fan terminations
6. Ceiling mounted bath fans, speakers, etc.
7. Bottom plate and top plate
8. Seams between rigid exterior sheathing
9. Band area between floors, conditioned space and attic
10. Garden tub on exterior wall
11. Mechanical equipment and ductwork chases in attics, crawlspaces
12. Ceiling/crawlspace electrical boxes
13. Ceiling/crawlspace HVAC boots
14. Shower and tub drain line
15. Fireplace inserts
16. Attic kneewall doors
17. Joist cavities under attic kneewalls
18. Transition between ceiling heights
19. Attic scuttle hole
20. Attic pull-down stairs
21. Wall penetrations of mechanical combustion closets
22. Thresholds at mechanical combustion closet doors
23. Band joist exposed to exterior
24. Band area exposed to unconditioned space (such as basement or garage)
25. Exterior wall penetrations for refrigeration lines, condensate line, etc.

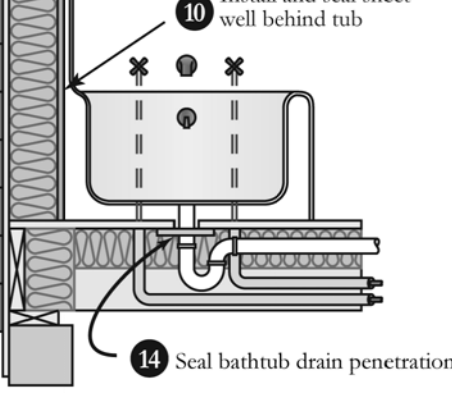
Chases and common by-passes



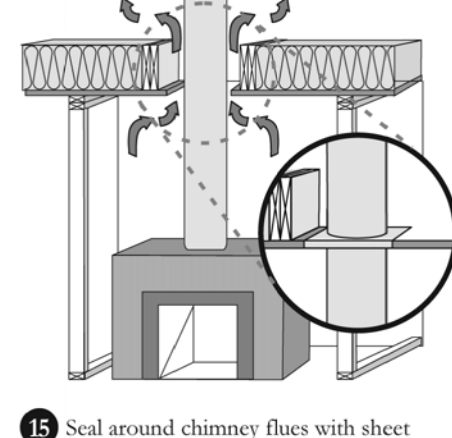
Wall cross-section



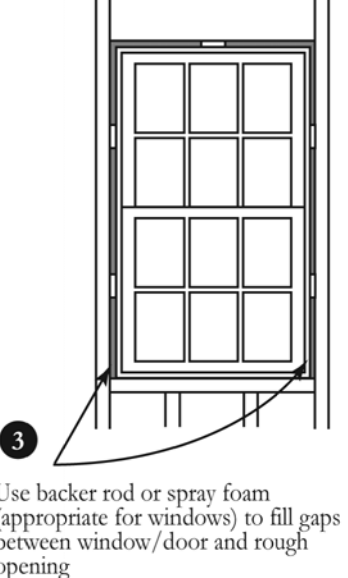
Shower/tub drain rough opening



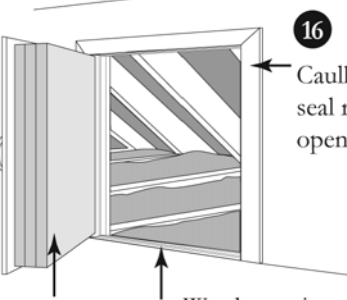
Combustion chase penetrations



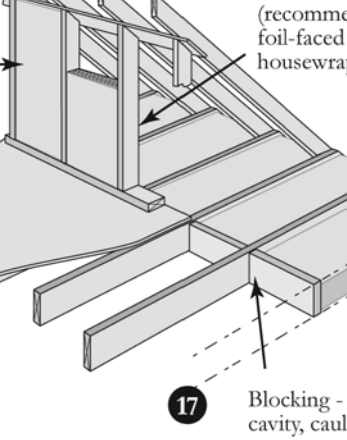
Window rough opening



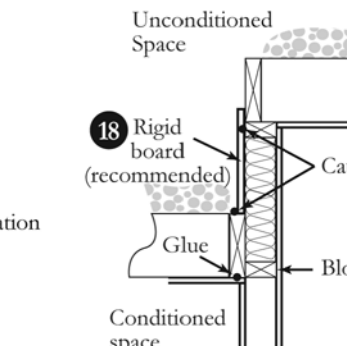
Attic knee-walls



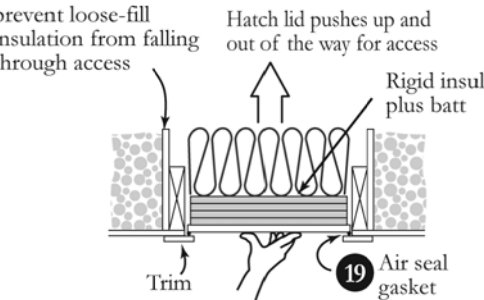
Two-level attic



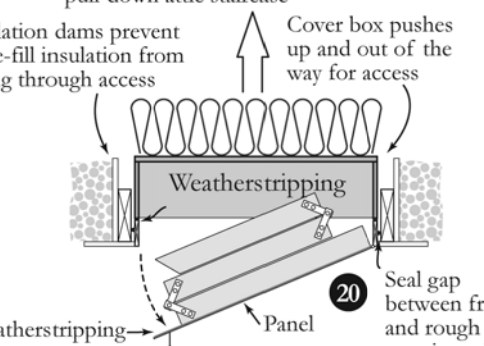
Exterior penetrations



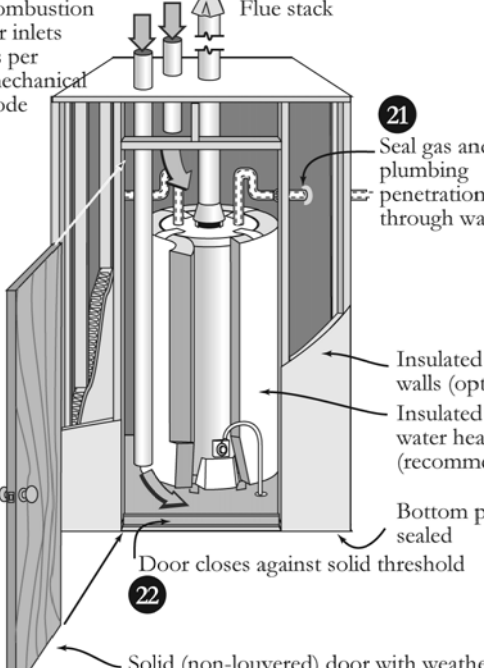
Attic scuttle



Attic pull-down stairs



Combustion closet



Disclaimer: This document is intended solely to help graphically demonstrate the air leakage provisions of section 502.1.4 of the 2000 IECC. It does not cover all installing locations or techniques. Other code provisions may be applicable as well.

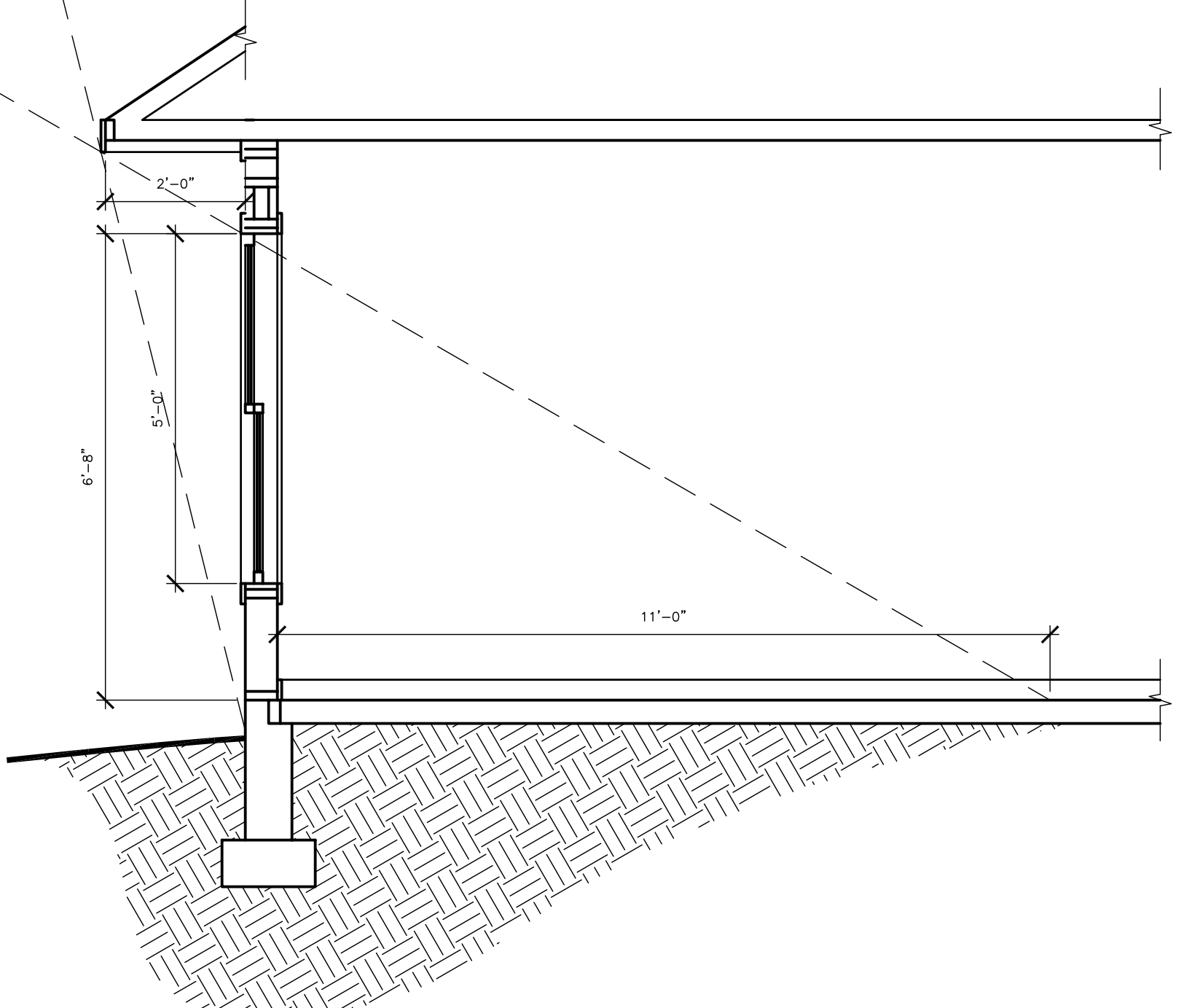
Southface Energy Institute



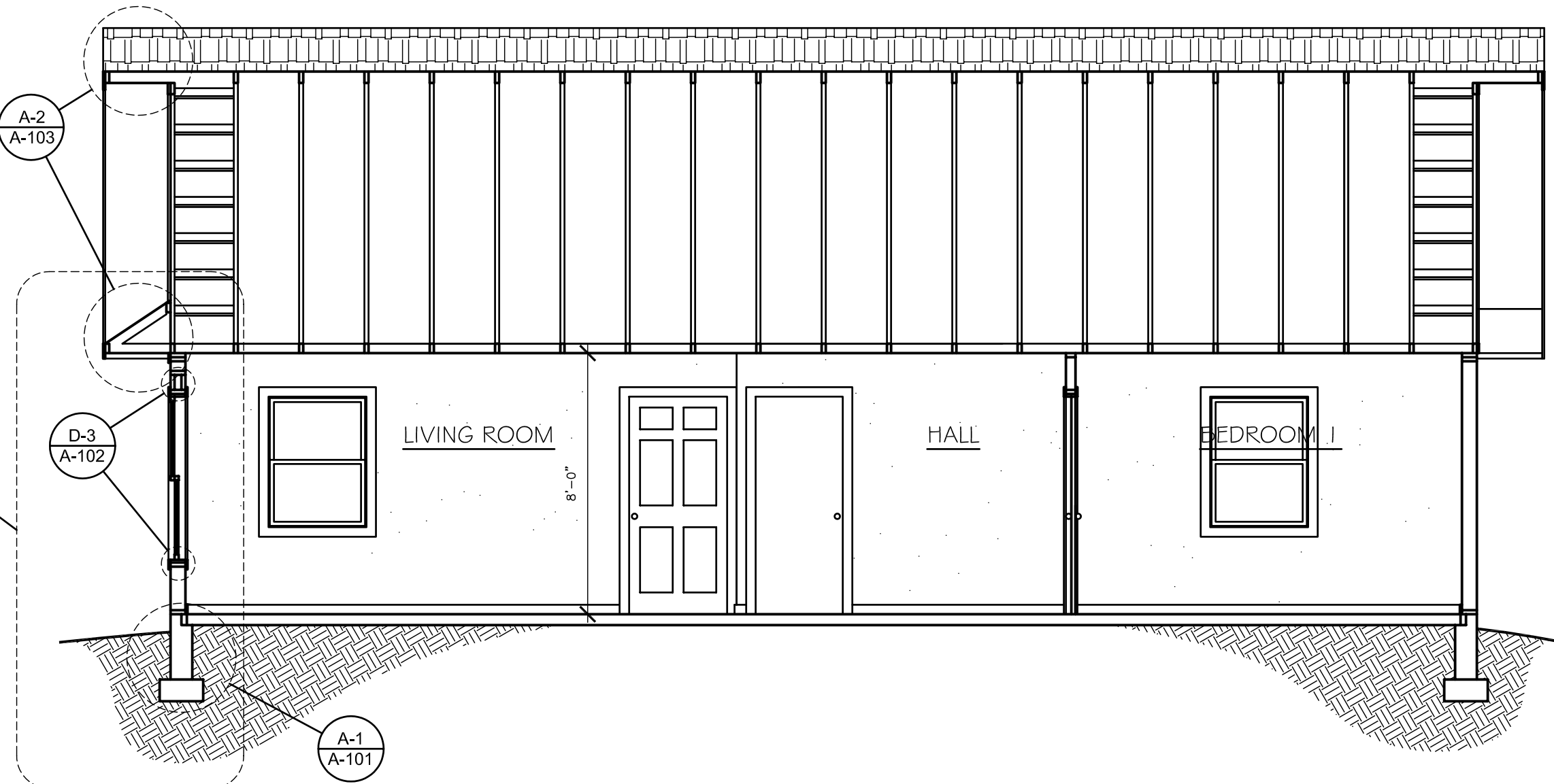
C-4 A-301 BUILDING SECTION 1/4" = 1'-0" 0 2' 4' 8'

WINTER SUN

SUMMER SUN



A-1 A-301 SOUTH WALL SECTION 1/2" = 1'-0" 0 1' 2' 4'



A-4 A-301 BUILDING SECTION 1/4" = 1'-0" 0 2' 4' 8'

PROJECT

THE  
HIDEAWAY

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2005  
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PASSIVE SOLAR  
PLANBOOK

DRAWN BY  
**Energy**  
Appalachian  
CONSTRUCTION TECHNOLOGY  
DEPARTMENT

ISSUE	
MARK	DESCRIPTION

SHEET  
TITLE

SECTIONS

SHEET NO.

A-301