



Building a Wall

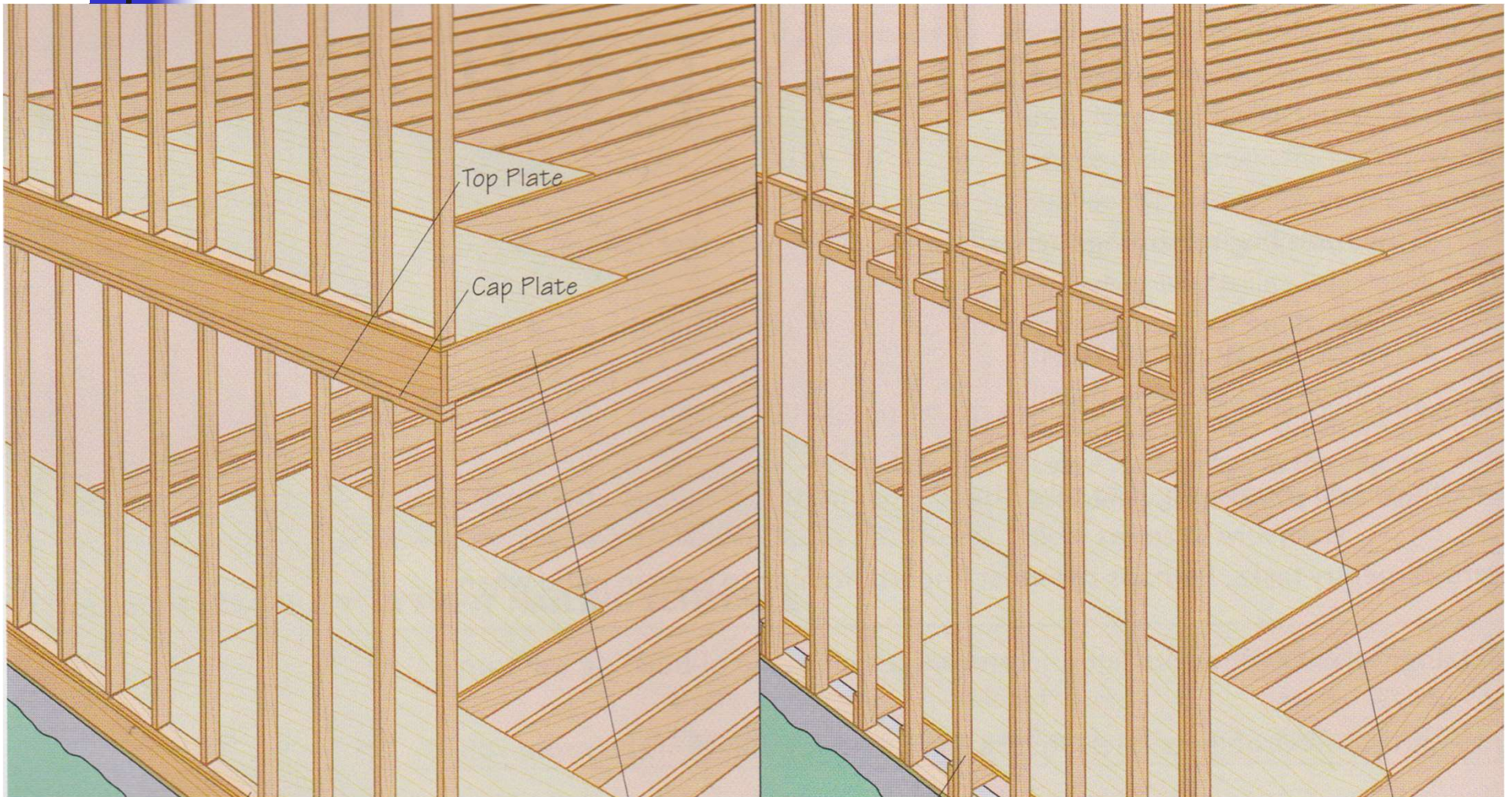
Framing



Types of Wall Framing

- Western Platform Framing
- “Balloon” Framing

Balloon vs. Platform Framing





Types of Wall Framing

- Western Platform Framing. Most modern residential construction has platform framing.
 - Roof
 - 2nd Story Walls
 - 2nd Story Platform
 - 1st Story Walls
 - 1st Story Platform/Slab
 - Foundation

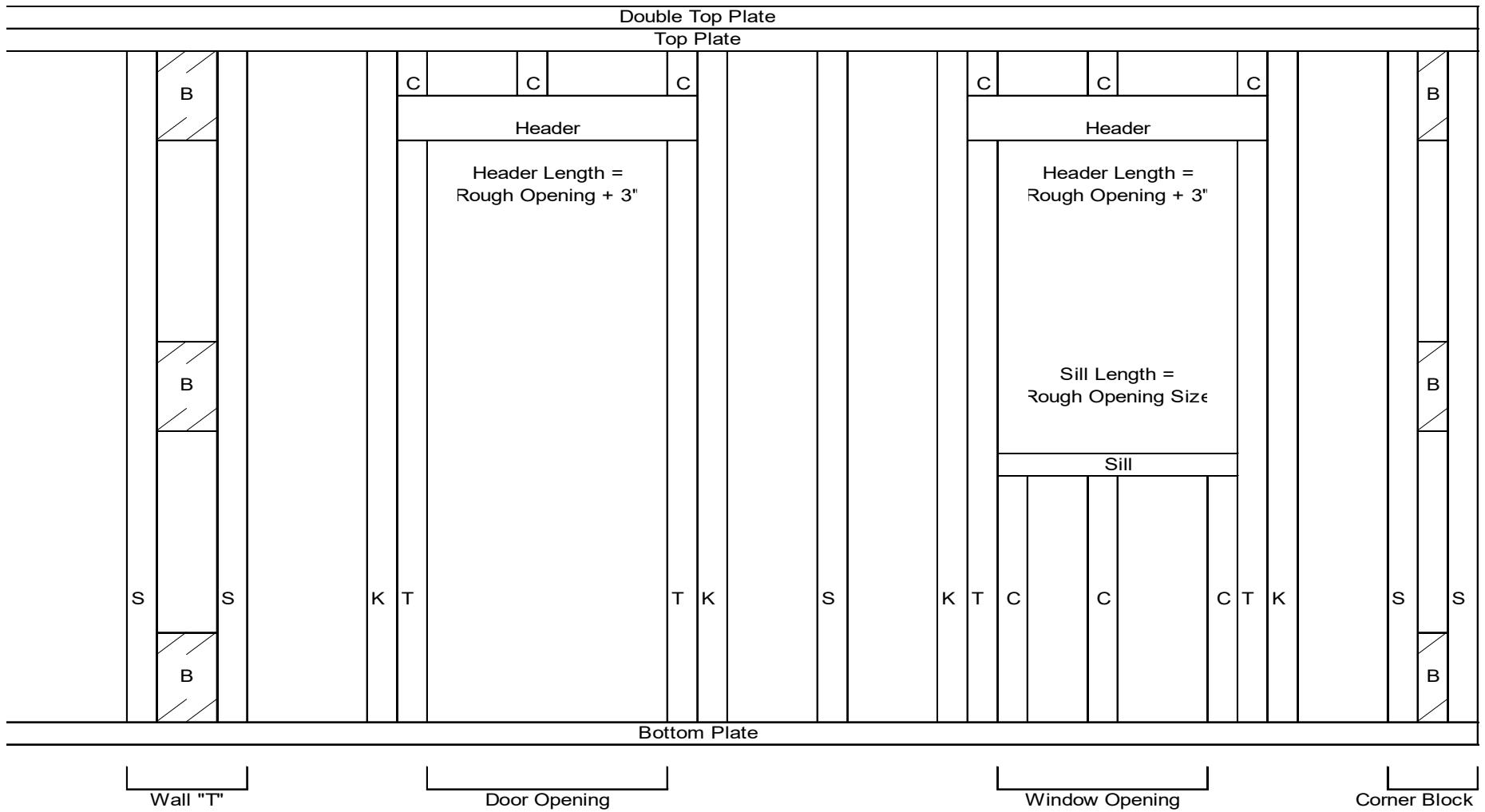
Parts of a Framed Wall





Parts of a Framed Wall

- Plates
 - Bottom
 - Top
 - Double Top
- Studs
 - Common
 - King
 - Trimmer
 - Cripple
- Headers
- Sills
- Corner Block
- Wall “T”



- KEY**
S = Common Stud
K = King Stud
T = Trimmer Stud
C = Cripple Stud

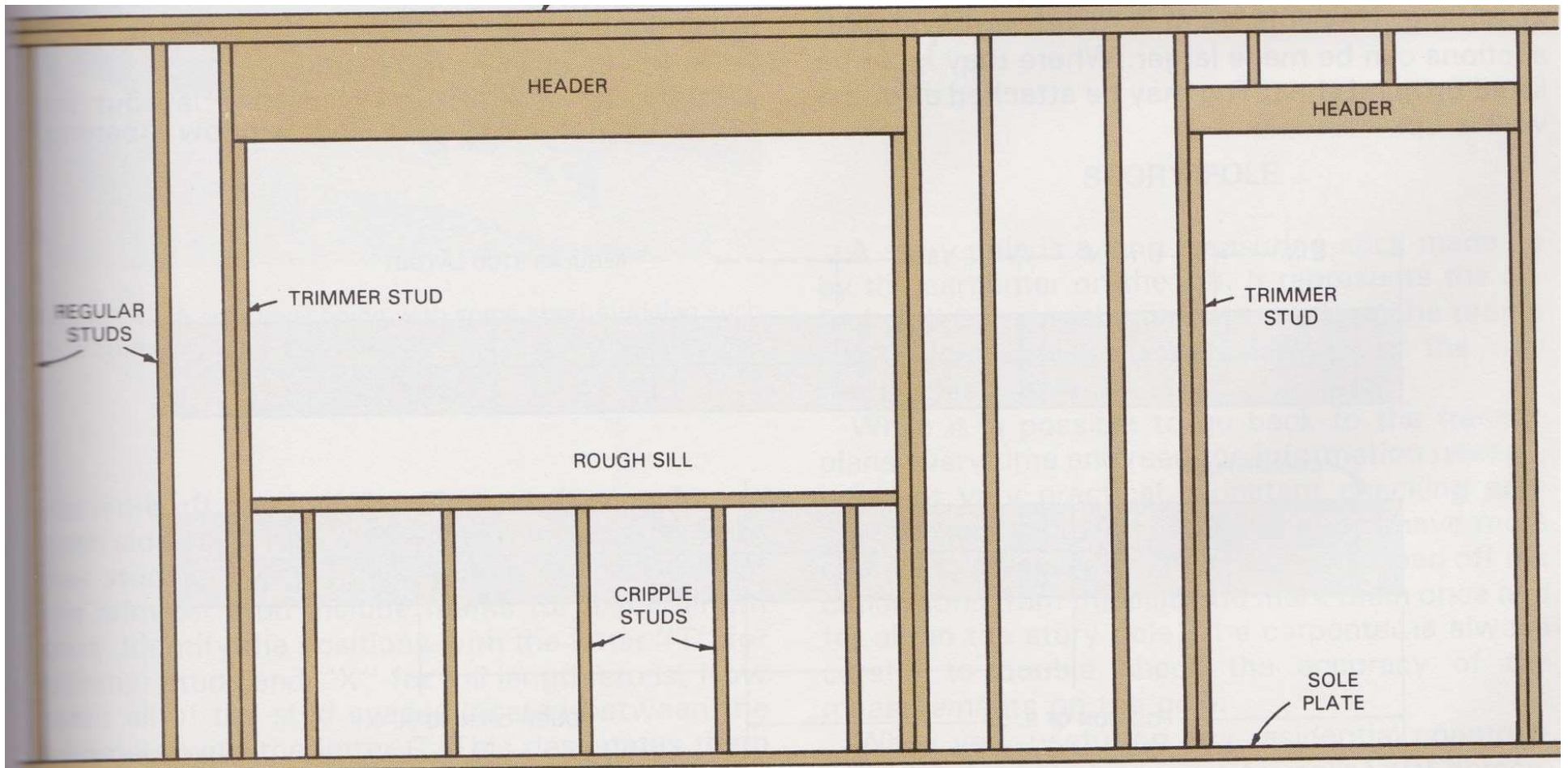
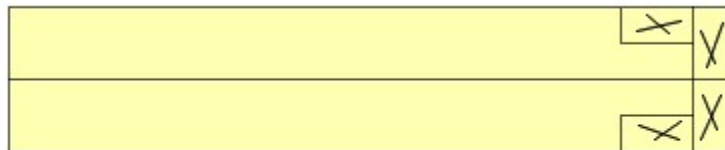


Fig. 8-10. Proper way to frame openings in walls. Trimmer studs carry the weight of the header. Header is wider than it needs

Corner Blocking



California Corner Marking

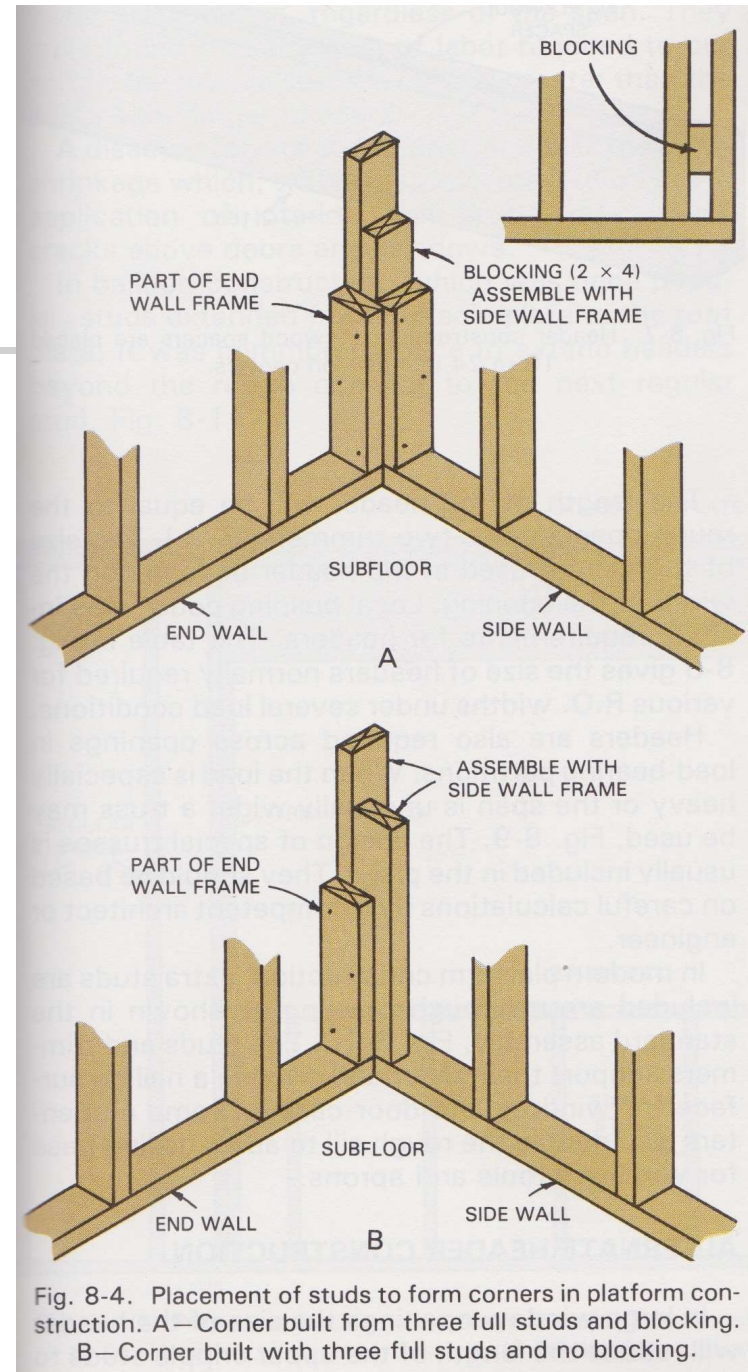
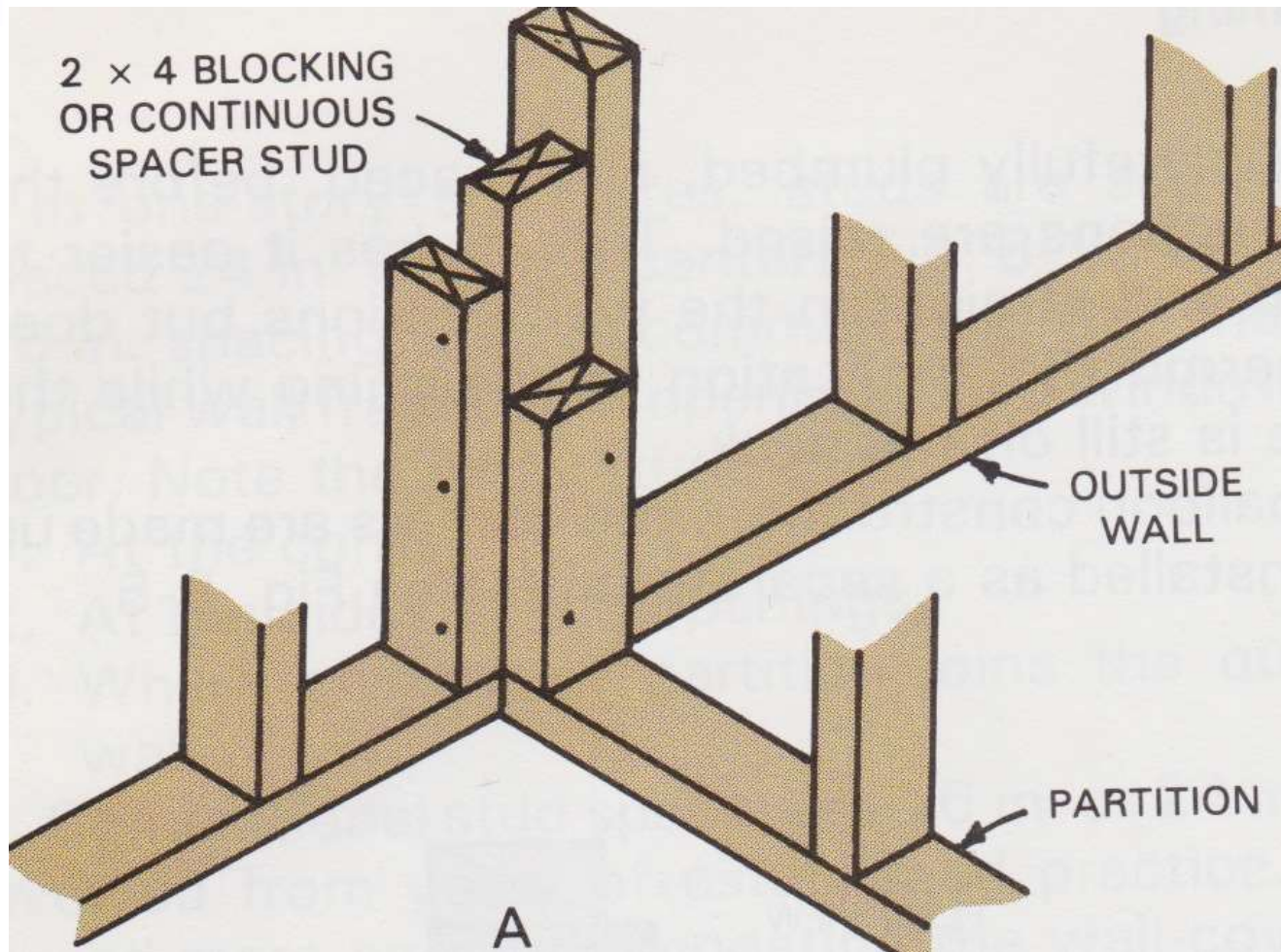


Fig. 8-4. Placement of studs to form corners in platform construction. A—Corner built from three full studs and blocking. B—Corner built with three full studs and no blocking.

Wall Intersection "T"





Parts of a Framed Wall

- Plates
- The principal horizontal parts of a framed wall are the plates; one at the bottom, and two at the top.
 - Bottom Plate
 - Top Plate
 - Double Top Plate



Parts of a Framed Wall

- Bottom Plate & Top Plate.
 - The bottom plate (also “sole” plate) is the horizontal structural member of a stud framed wall.
 - The bottom plate sits on the subfloor, nailed through the subfloor into floor joists.
 - The top plate is the top horizontal framing member of a framed wall. Ceiling joists or floor joists rest on the double top plate.
 - Top and bottom plates will be the same length.
 - The double top plate must overlap the joints of the top plate, so its dimensions may be different.



Parts of a Framed Wall

- Studs
 - A common stud is a 2x4 or 2x6 vertical framing member used to construct walls and partitions.
 - Common studs for 8-foot ceilings are pre-cut to $92 \frac{5}{8}$ ".
 - Common studs for 10-foot ceilings are pre-cut to $116 \frac{5}{8}$ ".
 - King Studs are common studs that are nailed to trimmer studs at window & door openings.
 - King studs are the same length as common studs.



Parts of a Framed Wall

- Trimmer studs are those that hold up headers for window & door openings.
 - Trimmer studs will be the same length for windows and doors so that all of the headers will be the same height.
- Cripple studs are short studs placed:
 - between a header and the top plate
 - between a window sill and the bottom plate.



Parts of a Framed Wall

- A header is a beam placed perpendicular to wall studs above doors, windows or other openings to carry the weight of structural loads.
 - The load from above is transferred through the header and trimmer stud to the foundation.
 - If there is space above the header, cripple studs must be placed where common studs would be located.



Parts of a Framed Wall

- A sill is the piece of structural wood forming the lower side of a window opening.
- To fill in the space below a sill, cripple studs must be placed where common studs would be located.



Parts of a Framed Wall

- A corner block is the wall stud and spacer blocks (or two studs at a right angle) that creates an interior nailing surface for drywall at a framed corner.
- A wall “T” is a blocking configuration of two studs with blocks in between that creates an interior nailing surface for drywall at a wall that intersects with another wall at a right angle.



Laying Out Wall Framing

- When laying out wall framing, the lead carpenter must be efficient, clear, and concise with the marking of the framing components.
- The job of marking out wall plates normally falls to the most experienced carpenter on the crew.
- Any mistakes made at this stage of the game will only slow up the progress of wall framing
- Time is money especially at today's prices
- There is no substitute for good planning.
- Study the floor plan before you start marking out walls, clear up any questions that you may have.



Laying Out Wall Framing

Tools

- Building Plan.
- Carpenter's Pencils.
 - Sharpen both end's of your carpenter's pencil, then when the lead breaks off, you won't have to stop and sharpen it.
- Construction Crayons.
 - Carry a black and red crayons.
 - You will most certainly make some errors.
 - Inform all framing crew members that red crayon takes precedence.
- Chalk Lines.
 - Carry a red and blue chalk lines.
 - Inform all framing crew members that blue chalk takes precedence.



Laying Out Wall Framing

- Mark and chalk exterior wall lines.
 - Start while the sub floor is still being laid, so the crew may begin framing walls as soon as they're finished decking.
- Mark and lay out the interior walls
 - Work out a plan so the wall framing crew won't be in your way and vice versa.
- Order
 - Through Walls
 - Butt Walls
 - Large areas
 - Smaller areas (closets, etc.)



Laying Out Wall Framing

Wall Framing Lay Out

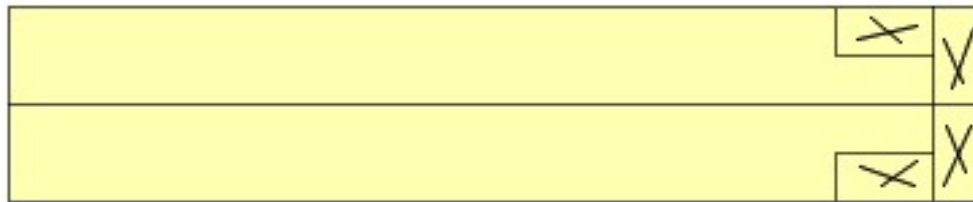
- Begin with the longest wall
 - This will be a through wall.
- Measure and cut two identical wall plates, one for top and bottom.
- Place bottom plate on edge exactly where it goes on the lay out line.
- Toe-nail it to the deck with 8 penny nails.
- Toe nail the top plate next to the bottom plate.
 - Only well enough to hold it in place.



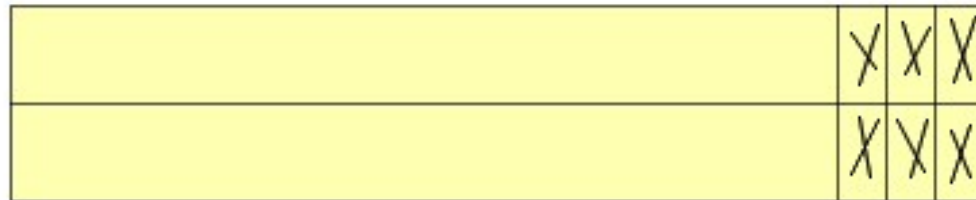
Laying Out Wall Framing

- **Typical Wall Layout Marks**
- 5. Mark corner's.

Laying Out Wall Framing



California Corner Marking



Stud Block Stud Corner



Laying Out Wall Framing

- 6. Locate and lay out all wall intersection's.

- | | | | | |
|--|---|----------|---|--|
| | X | B | X | |
| | X | B | X | |

Stud Block Stud Wall Intersect



Laying Out Wall Framing

- 7. Find center's of all window's and door's.
- 8. Lay out all window's and door's, make sure to write down each header and rough opening size in red pencil.



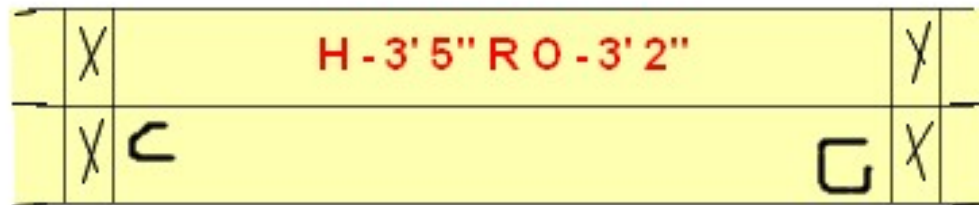
Laying Out Wall Framing

X	H - 2' 3" R.O. 2'x4'			X
X	C	C	C	X

Window Lay Out



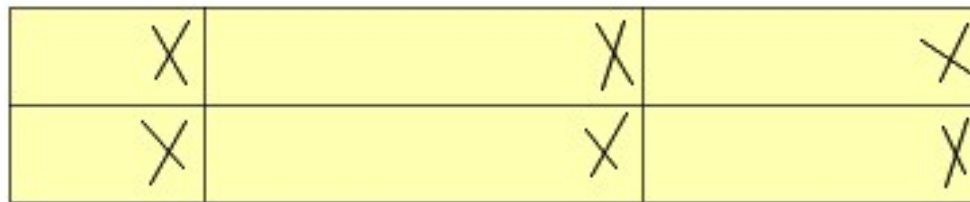
Laying Out Wall Framing



Door Layout

Laying Out Wall Framing

- 9. Mark all studs and cribbles.



Stud Lay Out

← 15 1/4" →



Laying Out Wall Framing

- 10. Measure, cut, and tack final top plate in place, leaving space for wall intersection tie in's and corner's
- 11. On to the next wall.



Laying Out Wall Framing



Laying Out Wall Framing



Laying Out Wall Framing

Begin by marking and chalking exterior lay out lines.

I like to start while the sub floor is still being laid, that way the crew can start framing wall's as soon as their finished.

Mark and lay out the interior wall's

Sharpen both end's of your carpenter's pencil, then when the lead breaks off, you won't have to stop and sharpen it.

Carry a black and red pencil. You will most certainly make some error's Have you ever tried to erase black carpenter pencil mark's from wood? When laying out tell all framing crew member's that red takes precedence.

Work out a plan so the wall framing crew won't be in your way and vice versa.

Build the wall's in proper order, don't paint yourself into a corner.



Cut List Procedure

A. Plates

- 1.** List the plates. For the contest project, all three will be the same. For residential walls, only list the bottom and top.

B. Openings/Partitions

1. Doors and Windows

a. List 2 King studs for each opening.

b. List Header parts:

Two 2 x

1/2" plywood (for 2 x 4 wall)

c. Upper cripples as needed.

d. Window: sill

e. Window: lower cripples

b. Note: Studs that fall within window and door openings will be cripples.



Cut List Procedure

2. Corners

- a. List two Common Studs.

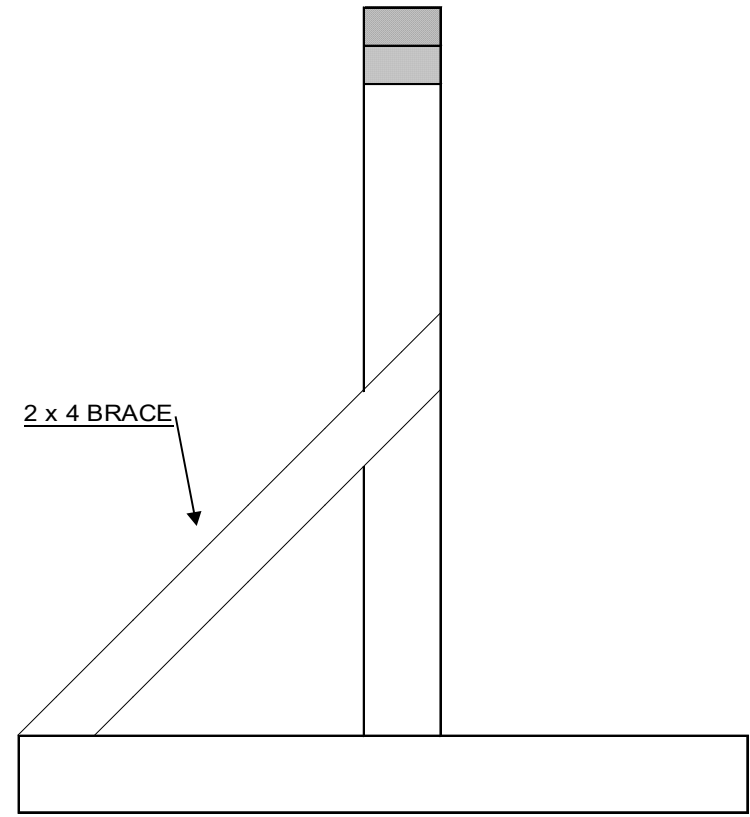
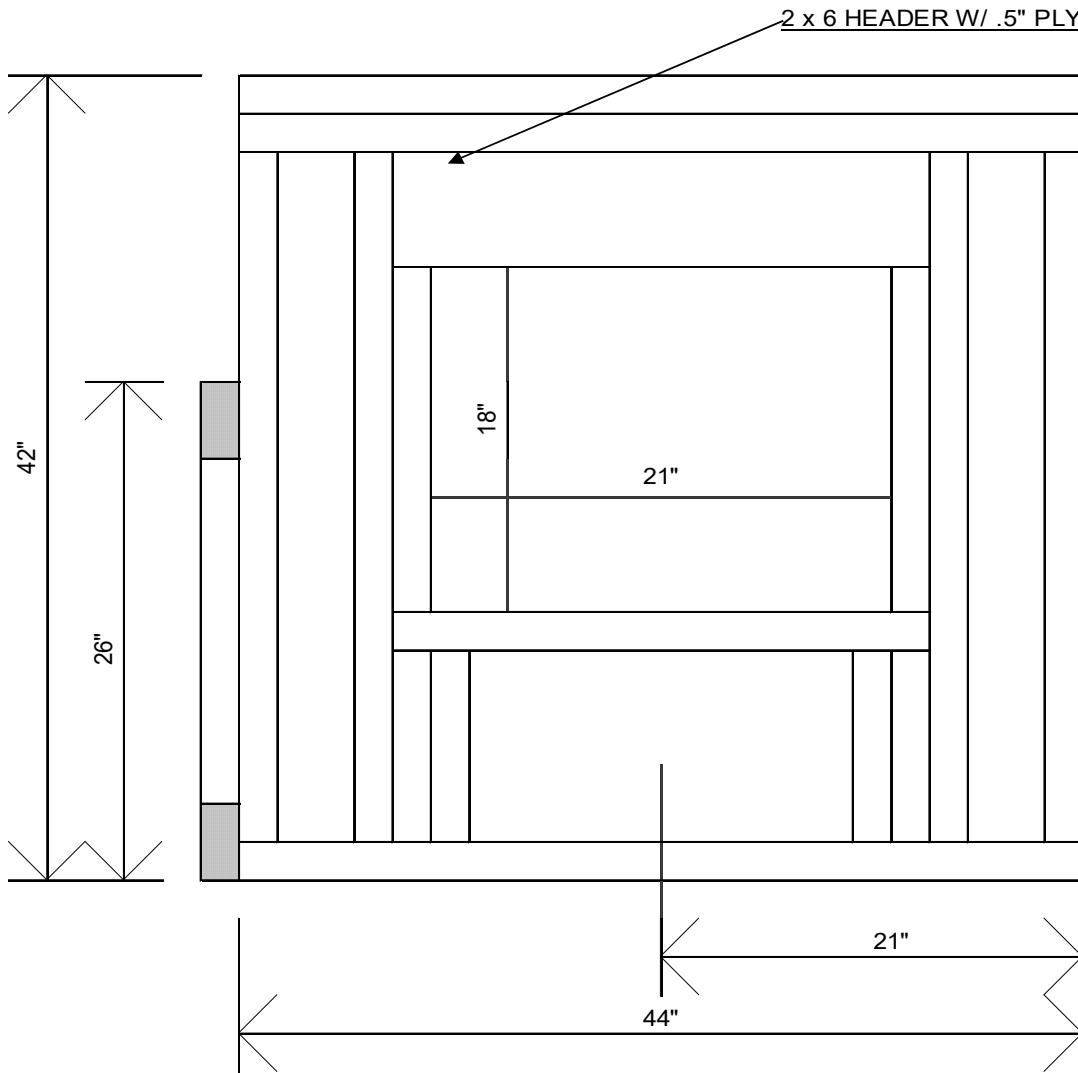
2. Wall Intersections

- a. List two Common Studs.
- b. List three 12" blocks.

C. Common Studs

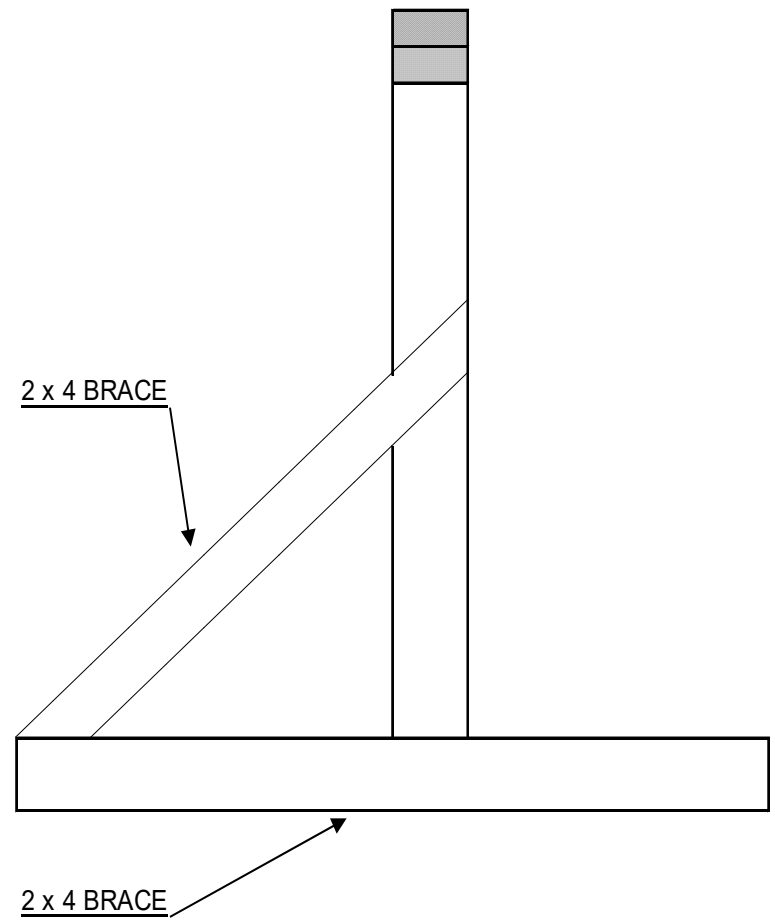
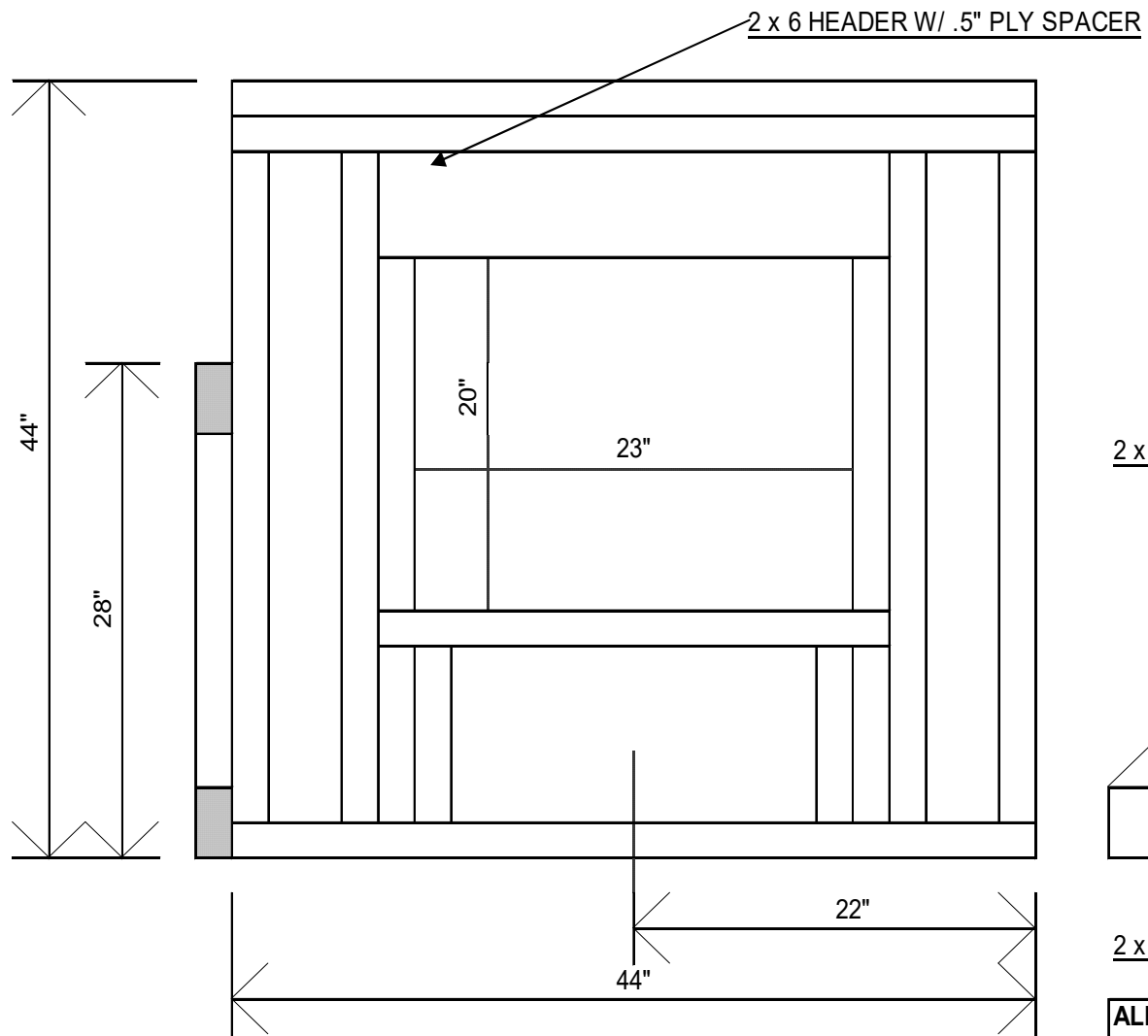
1. Calculate Common Studs.
 - a. $\#CS = (\text{wall length in inches} \div 16) + 1$

42" WALL



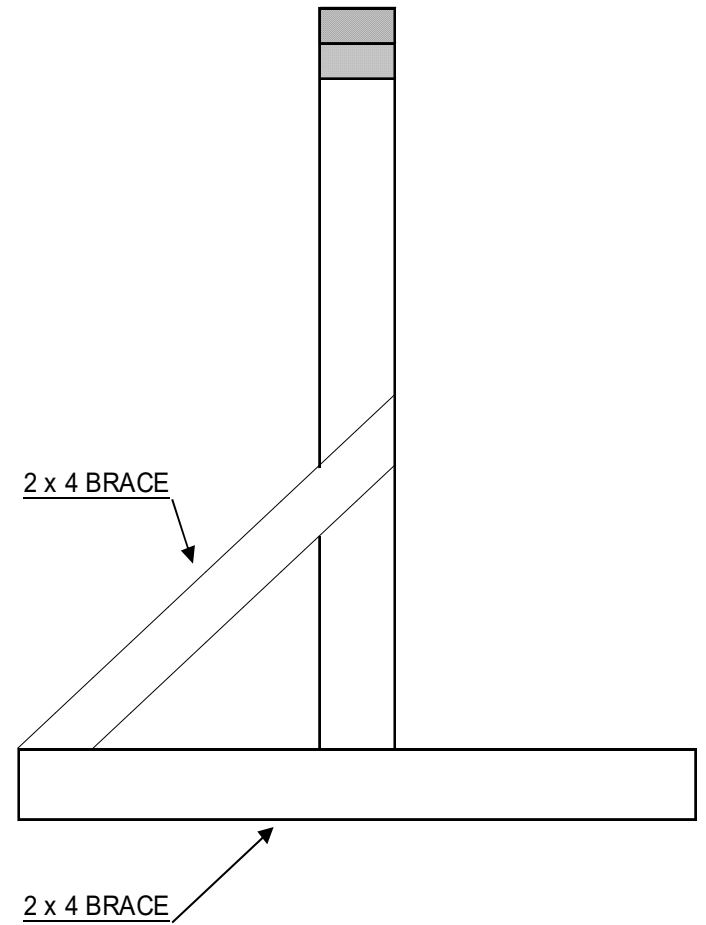
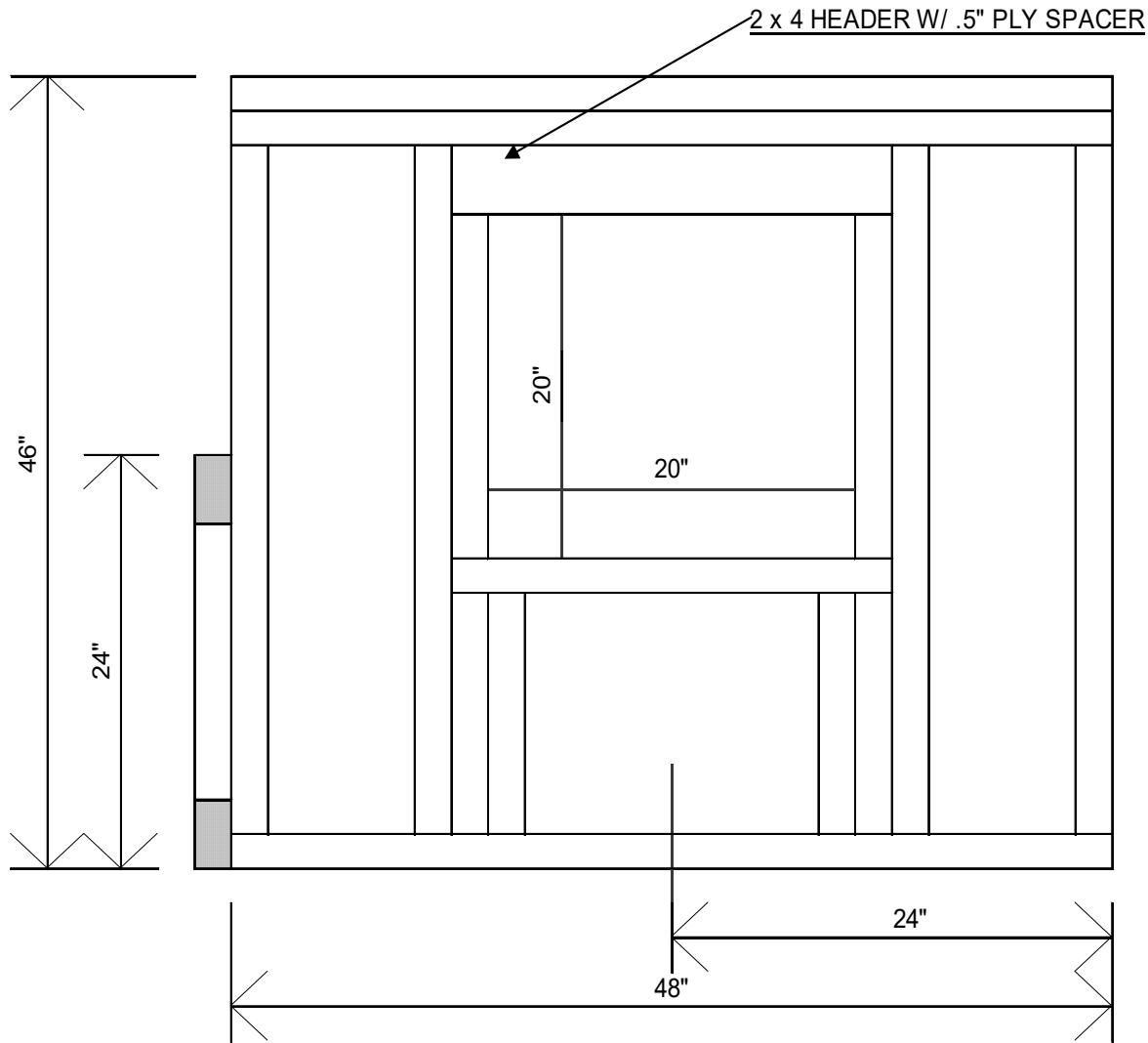
**ALL PLATES AND STUDS 2 x 4 MATERIAL.
BUILD ONE WALL SECTION AS SHOWN.
WALL SECTION TO BE ASSEMBLED W. 16p NAILS.**

44" WALL



**ALL PLATES AND STUDS 2 x 4 MATERIAL.
BUILD ONE WALL SECTION AS SHOWN.
WALL SECTION TO BE ASSEMBLED W. 16p NAILS.**

46" WALL



ALL PLATES AND STUDS 2 x 4 MATERIAL.
BUILD ONE WALL SECTION AS SHOWN.
WALL SECTION TO BE ASSEMBLED W. 16p NAILS.

