![Best Barns USA logo: BEST BARNS - Quality Do-it-yourself Barn Kits]

Best Barns USA
Assembly Book
Revised October 31, 2023

the Denver
12' x 20'

IMPORTANT INFORMATION ABOUT YOUR KIT

Thank you for purchasing our kit. Please read the following information before beginning construction. Always check with your local HOA or building code office for any requirements or restrictions.

Floor: Wood flooring is sold optionally. You may choose to build your own or pour a cement pad.

Always wear safety glasses when cutting or nailing!

Tools Required:

Hand or Circular Saw	Level	Safety Glasses
Cordless Drill	Measuring Tape	Dust Mask
Hammer	6'-8' Ladder(s)	Phillips Screwdriver
Pencil		Framing Square

Additional Materials - **Not included in kit:**

Windows are purchased separately

Required: Shingles or metal roofing, Drip Edge, Roofing Nails or Screws, Paint

Optional: Caulk, Ridge Vent

Terminology:

Square - Confirm corners are at 90 degrees
Plumb - Confirm walls and trusses are straight vertically
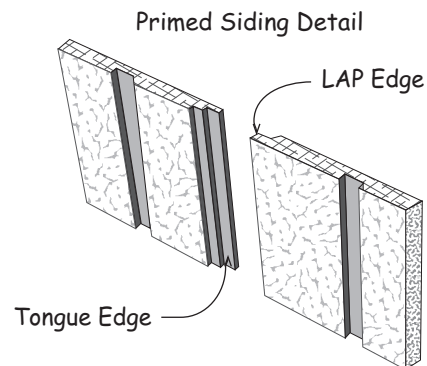Wall Plate - Top and bottom 2x4s used to frame walls
Tie Plate - 2x4s connecting wall sections together
Header - Spans top of door opening
OSB - Oriented Strand Board
LAP - Edge of siding that overlaps Tongue
Tongue - Edge of siding that is overlapped

Primed Siding Detail

LAP Edge

Tongue Edge

Organize:

Unpack all items & organize according to size and type. This will make items easier to find when instructed.

Review the parts list on the back page. Should there be missing items or sub-par material contact Best Barns Customer Service.

DO NOT discard any material including the pallet until your project is complete.

Assembly:

Review all instructions before you begin. Please follow steps carefully and in sequence for successful results.

If you have any questions we are happy to assist you. Please contact us at:

800-245-1577 - Mon - Fri 8AM - 5PM EST

724-866-4357 - After hours and weekends

Email - questions@barnkits.com

Constructing Details for Deluxe Floor System
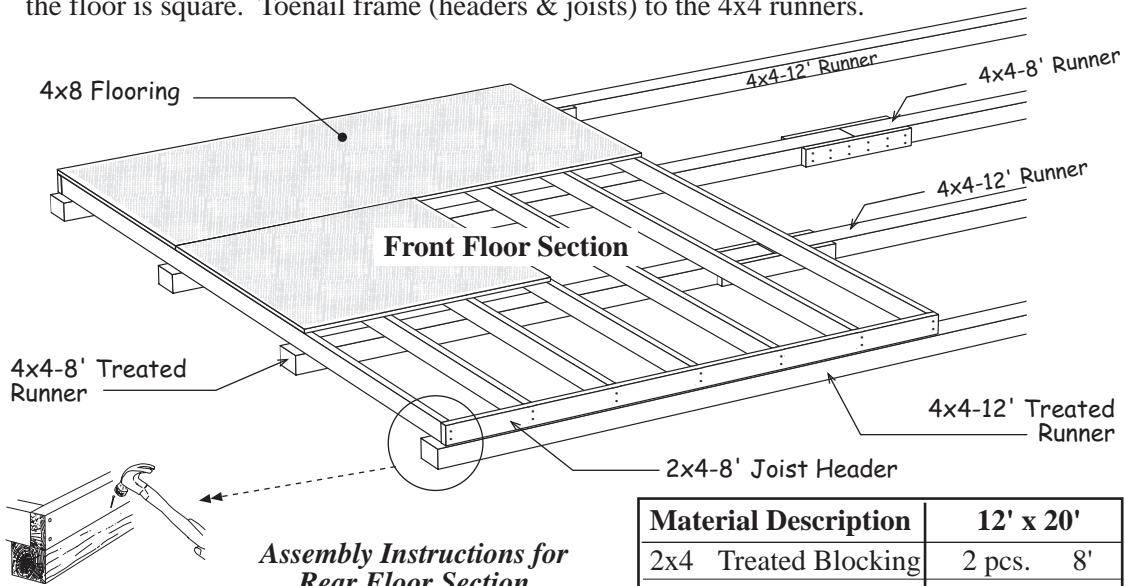*Floor System is optionally purchased*

Foundation size is 12'-0" x 20'-0". Check local building codes in your area, the construction may have to change. For a concrete slab, install sill sealer as a moisture barrier between the concrete and the wall plates. Foam sill sealer can be purchased at home centers in rolls 3-1/2" or wider.

1. Stagger the 4x4 timbers as shown below. Cut (2) two 2x4- 8' boards into 2' long blocks to secure the 4x4s where they butt together.

2. Cut (2) two 2x4-8' to a length of 8' -0". They will be used for the joist headers. Layout, from left, for 16" on center joist spacing. 'X' marks where floor joist will be placed.
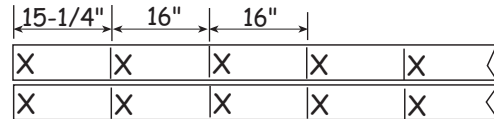
3. Cut (17) seventeen 2x4-12' treated boards to 11' -9". These will be the floor joists. *Treated lumber may be thicker than 1-1/2". Take this into account when cutting the length of floor joists. Shorten joist measurements if necessary to obtain 12'-0" building width.*

4. Install the floor joists cut above between the 8' joist headers. Secure with 16d galv. deck nails.

5. Place floor assembly over the 4x4s. Square floor assembly. Measure the floor diagonally (corner to corner) and then the opposite corners; these measurements will be the same when the floor is square. Toenail frame (headers & joists) to the 4x4 runners.

Front Floor Section

4x8 Flooring

4x4-12' Runner

4x4-8' Runner

4x4-12' Runner

4x4-8' Treated Runner

4x4-12' Treated Runner

2x4-8' Joist Header

Assembly Instructions for Rear Floor Section

6. Cut (2) two 2x4-12' to a length of 12' -0". Layout for 16" joist spacing, *See above*.

7. Install floor joists between the joist headers. Square the floor section and install against the section assembled above. Toenail to the 4x4s runners.

8. Install 4x8 flooring over the 2x4s. Use 8d galv. spiral nails spaced 8" apart.

Material Description	12' x 20'	
2x4 Treated Blocking	2 pcs.	8'
2x4 PT Joist Headers	2 pcs.	8'
2x4 PT Joist Headers	2 pcs.	12'
2x4 PT Floor Joist	17 pcs.	12'
4x4 Treated Runners	4 pcs.	8'
4x4 Treated Runners	4 pcs.	12'
Flooring 5/8" or 3/4"	8 pcs.	4x8
Galv Spiral Floor Nails	3 lb.	8d
Galvanized Deck Nails	5 lb.	16d

15-1/4" 16" 16"

X X X X X
X X X X X

Step 1   Assemble Trusses

☞ Temporarily screw 2x4 blocks to the floor to insure that all the trusses are assembled the same. Short 2x4s, *that may have an angle on one end*, are supplied in the kit.

1. Butt (2) two 72" long 2x4s together and secure them by nailing a 3-1/2" x 42-3/4" long plywood gusset across the top where they butt together. Use glue and 6d common nails. Install the gusset with the center line lined up where the 2x4 meet.

3/4" Plywood Gusset

72" long 2x4
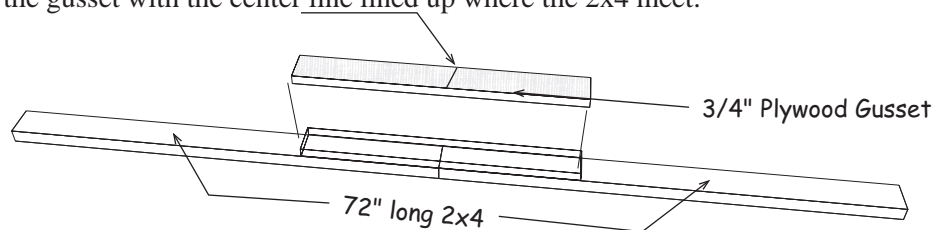
2. Repeat to assemble another Gable Plate.

3. Position a Gable Plate on the floor. Use 2x4 blocks to hold the 2x4 plate straight.

4. Position (2) two truss halves (*2x4s connected with a metal plate*) with the short legs against the 2x4 Gable Plate. **DO NOT** attach the Gable Plate Assembly to the truss. It is temporarily used to help hold the 2x4 truss parts in place and will be used in a later step.

5. Secure 2x4 blocks around the perimeter of truss to hold truss parts in place.

32" Top Gusset

Truss Half

Metal Plate

2x4 Block

Gable Plate
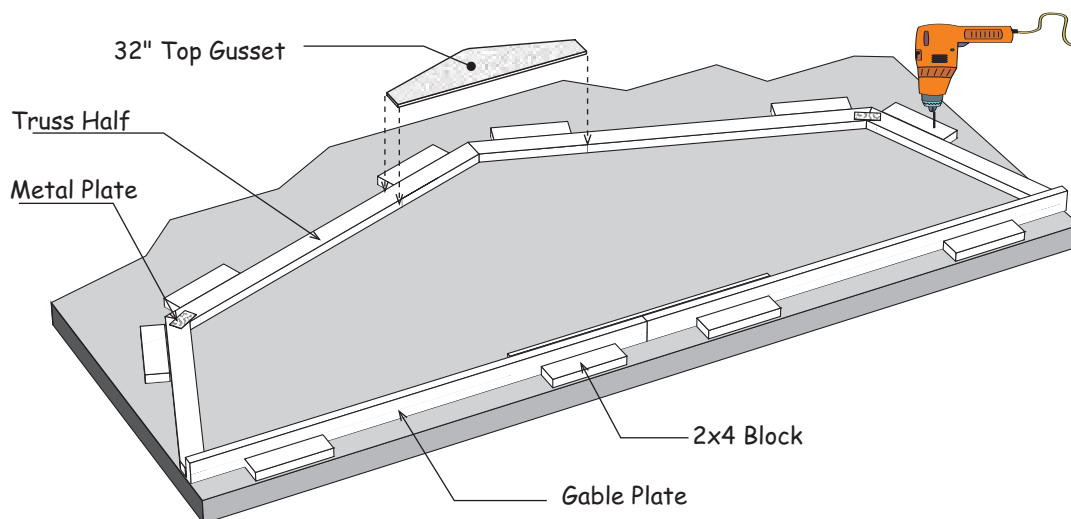
6. Secure the 2x4s at the peak with a 12" x 32" wood gusset. Apply wood glue between the gusset and truss and nail with (25) twenty-five 6d common nails.

7. Turn the truss over and install a gusset to the other side of the truss.

8. Repeat this process to assemble (8) eight more trusses.

☞ Set these trusses aside. **DO NOT use trusses for assembling the roof gables.**

Step 2   Assemble Roof Gables

☞ **DO NOT use pre-assembled truss halves for assembling the roof gables.**

1. Place (2) two 61" long and (2) two 34-3/4" long 2x4 gable rafters in the truss jig and secure with 1"x4" drive-on plates where they meet at the knee.

2. Cut a 50" long 2x4 to length and install in the center of the gable. Toenail the bottom to the plywood gusset with 10d sinkers. Secure the top with a 9" x 12" wood gusset.

3. Butt (2) two 40-3/4" long 2x4s against the wood gusset. Secure the bottom to the 2x4 plate by nailing through the plate with (2) two 10d sinkers. Secure the top with barbed plates.

4. Install (2) two 30-3/4" long 2x4s the same way.

9" x 12" Wood Gusset

2x4 Cut to Fit

40-3/4" Long 2x4

30-3/4" Long 2x4

1"x4" Drive-on Plate

1"x4" Drive-on Plate
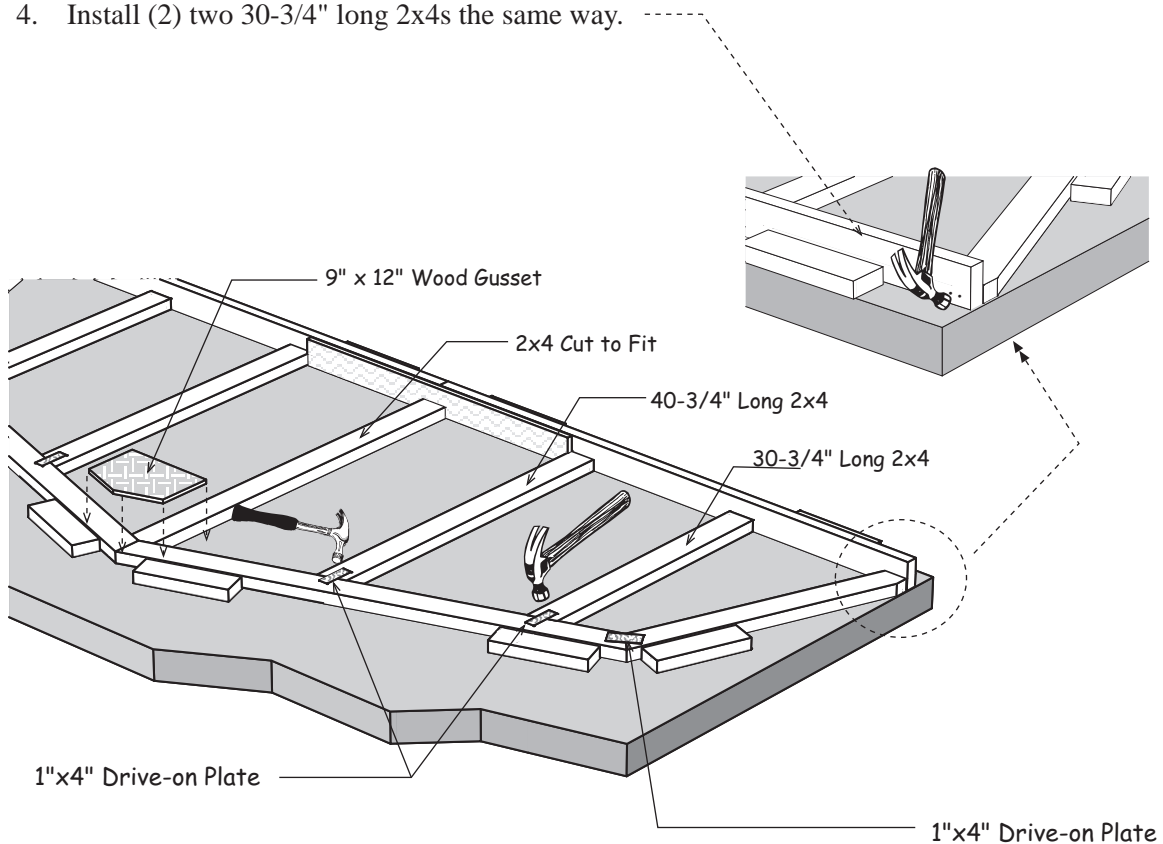
6. Repeat steps to assemble the front roof gable.

Step 3   Apply Siding and Trim to Roof Gables

1. Remove 2x4 blocks and turn the gable frame over.

2. Install pre-cut siding on rear gable. Bottom of siding extends 3/4" below the gable plate. Use 6d galv. nails spaced 12" apart.

3. Install (2) two 61" long 1x4 gable trim flush with the top edge of the gable. Install the ends with blue marks together. Install trim with 6d galv. nails.

Blue Marks on End - - - - - >

☞ **Note:** *Gable siding may need to be applied from right to left on one of the gables so the 'LAP' edge will lap over the 'Tongue' edge on the adjoining siding panel.*

4. Install (2) two 42-1/2" long 1x4 gable trim flush with the side edge of the gable.

5. Install trim on the front gable.

Siding Extends
3/4" Below Plate
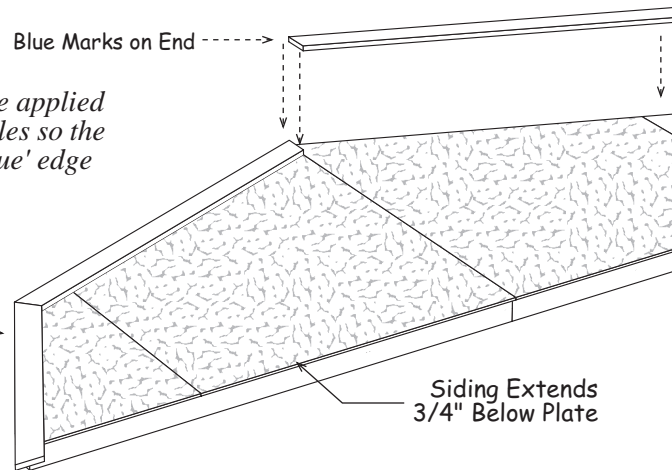
Step 4   Assemble Door Header & Bottom Wall Plate

Assemble door header using (2) two 75" long 2x6 boards and a 75" OSB filler panel. Apply wood glue with a brush between OSB and boards. Nail header together with 10d sinkers. Use (12) twelve nails on each side.

75" Long 2x6

OSB Filler
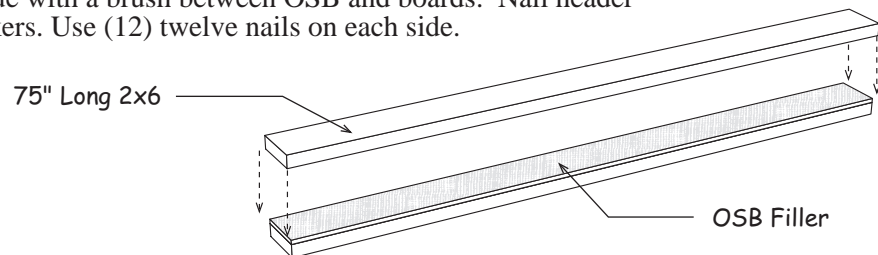
Butt (2) two 68-1/2" boards together. Center a 2x4-6' board (used as door spacer) on top and temporarily screw the boards together using (4) four 2-1/2" wood screws. Mark stud spacing as shown below.

Mark 'X'
for Stud

2x4 - 6' Board

32-1/2"

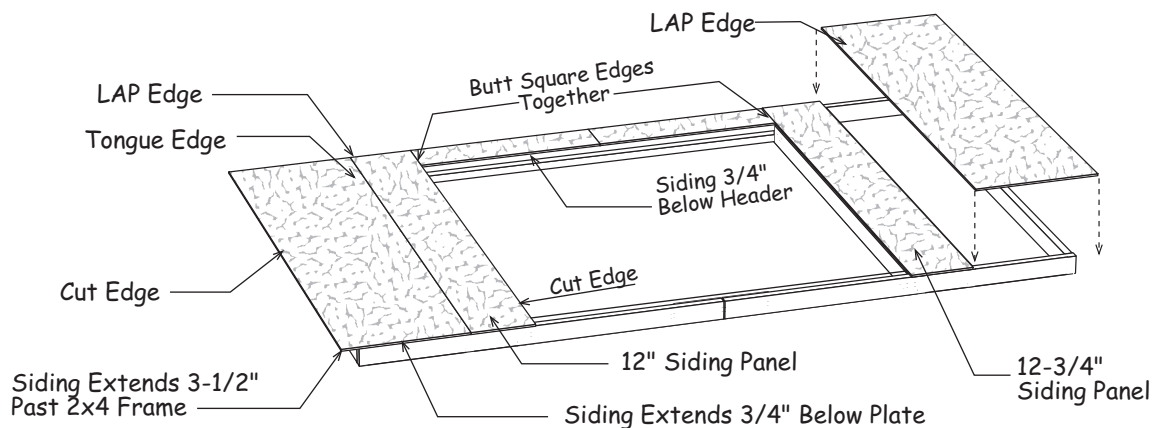19-3/4"

19-3/4"

2x4 - 68-1/2" Boards
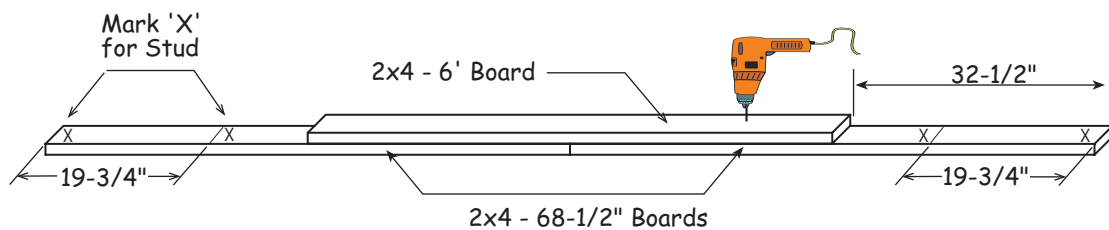
Step 5　　Assemble Front Wall

1. Gather the material listed below to assemble the door wall.

2. Install (4) four 80-1/4" wall studs over the 'X' marks. Use (2) two 10d sinkers on each end.

3. Install pre-built studs with the door jacks attached to either side of the door spacer.

4. Install door header on the door jacks. Use 10d sinkers.

Material List	
2	68-1/2" Wall Plates
4	80-1/4' Wall Studs
2	80-1/4' Wall Studs w/ door jacks attached
1	Door Header from **Step 4**
1	Bottom Plate from **Step 4**

68-1/2" Top Plate

2x6 Door Header

Wall Studs with Door Jacks Attached
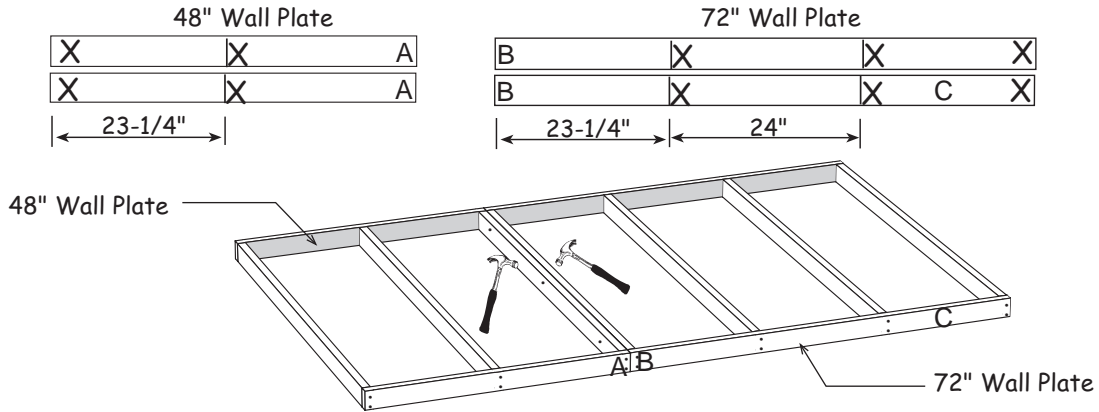
2x4-6' Door Spacer

2x4 Bottom Plate w/ Door Spacer
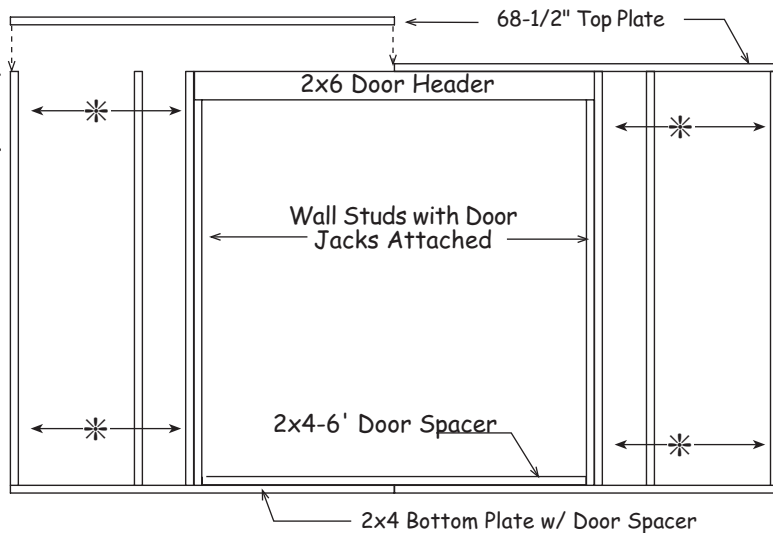
5. Square wall frame. *Measure diagonally (corner to corner). The measurements will be the same when the wall is square*.

6. Locate a 12" siding panel, *with a 'LAP edge'*. Position the 'cut' edge flush with the left side of the door opening. **Do not** nail the 'LAP' edge until the other siding is applied. Siding should extend 3/4" below the bottom plate. Use 6d galv. nails spaced 8" apart.

7. Select a 24" wide siding panel, *with a 'tongue edge'*, and install this siding panel at the left end of the wall frame as shown below. Siding should extend 3-1/2" past frame.

8. Install (2) two 7-3/4" pre-cut siding panels over the door opening, flush with the top plate.

9. Install a 12-34" siding panel with the 'cut' edge flush with the side of the door opening.

10. Install a 24" wide siding panel, *with a 'LAP edge'*. It will extend 3-1/2" beyond the 2x4 wall frame.

LAP Edge

LAP Edge

Tongue Edge

Butt Square Edges Together

Siding 3/4" Below Header

Cut Edge

Cut Edge

Siding Extends 3-1/2" Past 2x4 Frame

12" Siding Panel

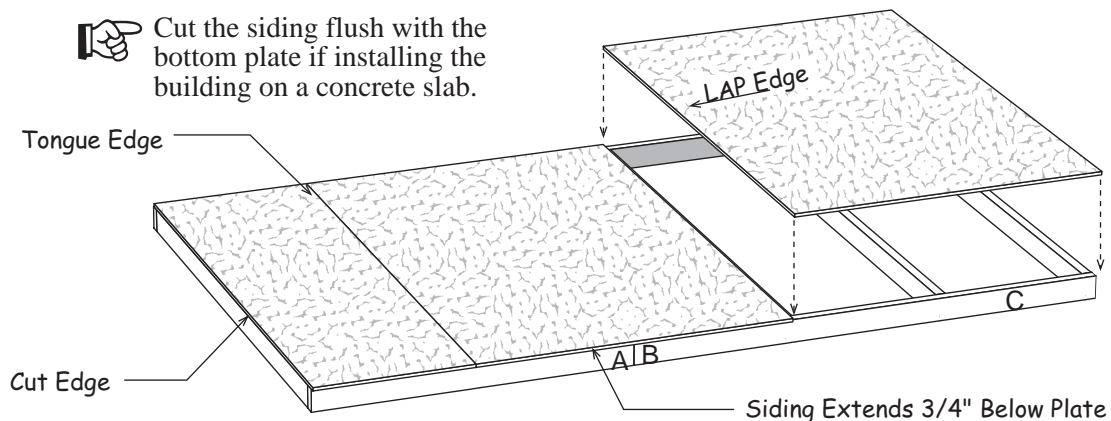Siding Extends 3/4" Below Plate

12-3/4" Siding Panel

Step 6A Assemble 10' Side Walls

1. Position (2) two 2x4-48" boards and (2) two 2x4-72" boards together and indicate with 'X' marks where the wall studs will be located. Mark the ends that will butt together with the letters 'A' and 'B'. Mark right side end with a 'C'. This will be referenced in a latter step.

48" Wall Plate

72" Wall Plate

23-1/4"

23-1/4" 24"

48" Wall Plate

72" Wall Plate

2. Install (7) seven 80-1/4" long wall studs between the wall plates. Use (2) two 10d sinkers at each end of stud. Nail the frames together with (4) four 10d sinkers on each side.

3. Repeat to assemble (3) three more 10' long side wall frames. **You will need to cut (2) two 64" long 2x4s to a length of 48" to assemble the last 48" wall frame**.

4. Square wall frame. *Measure diagonally (corner to corner); the measurements will be the same when the wall is square*.

5. Select a 24" wide siding panel, *with a 'tongue edge'*, and install this panel with the 'cut' edge flush with the end of the wall and extending 3/4" below the bottom plate. Use 6d galvanized nails spaced 8" apart. LAP edge panel will be used in next step.

6. Install (2) two more siding panels. Do not nail last panel along end of frame. This will be done later.

☞ Cut the siding flush with the bottom plate if installing the building on a concrete slab.

Tongue Edge

LAP Edge

Cut Edge

Siding Extends 3/4" Below Plate

7. Select (1) one of the 10' wall frames and repeat steps 4-6 to apply siding.

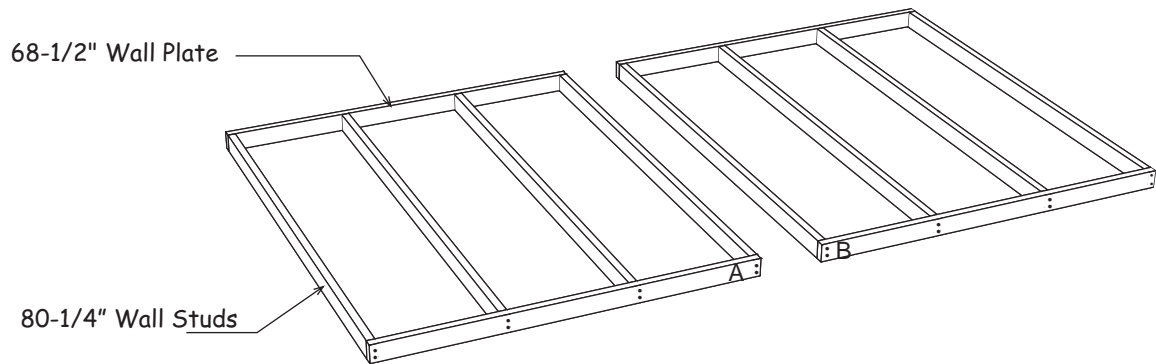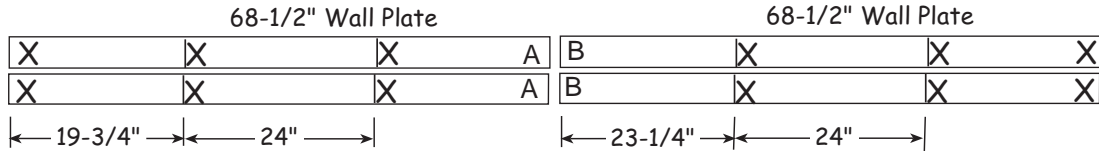## Step 6B   Assemble Side Walls for 20' Building Length

1. Select one of the 10' side walls with siding. Butt a 10' wall frame against this wall with the 'C' marks together. **Do Not** nail these frames together so they can be separated later.

2. Square the wall frame. Install a full width siding panel using 6d galvanized box nails spaced 8" apart. **Do Not** nail along the long edge that overlaps the sided wall frame. You can nail this edge after the wall panels are installed. This will enable you to separate the wall panels making them easier to handle.

Do Not Nail Along This Edge

LAP Edge

C

C

72" Wall Plate

10' Wall Panel from Step 5

LAP Edge

48" Wall Plate
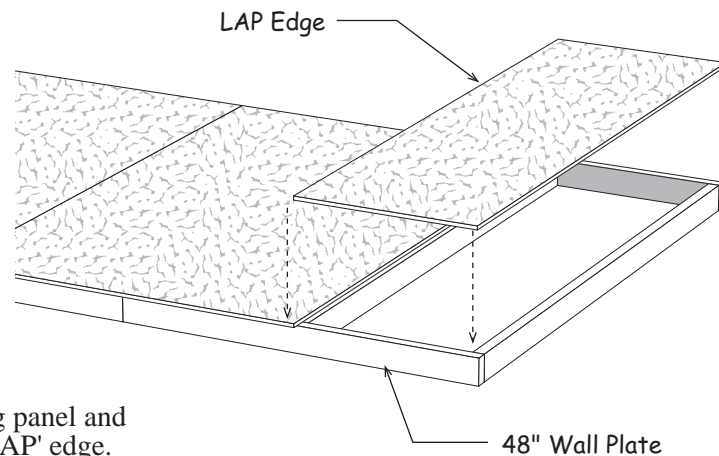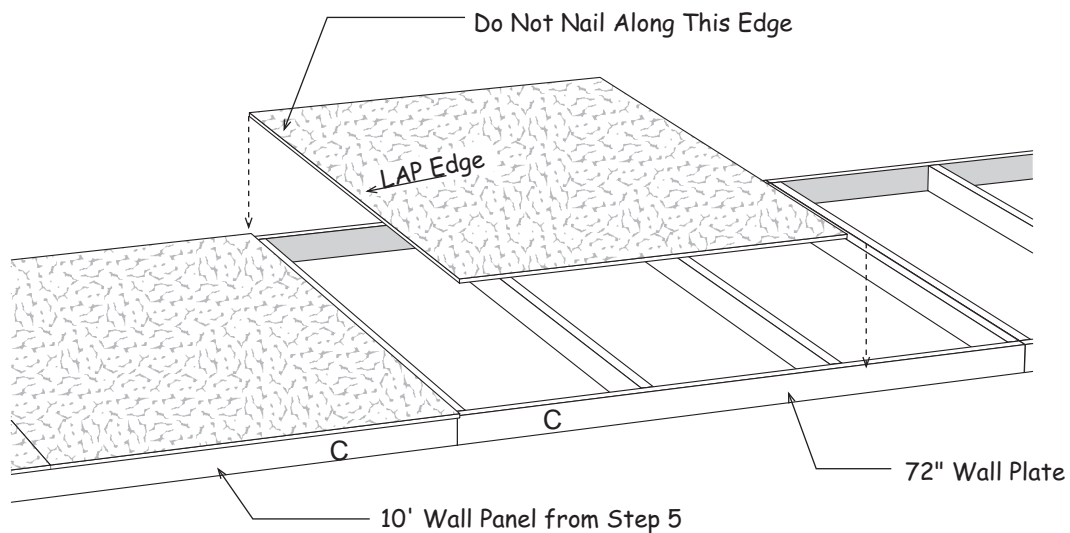
3. Install another full width siding panel and a 24" wide siding panel with 'LAP' edge.

4. Repeat to apply siding to the other 10' wall frame.

Step 7   Assemble Back Wall

1. Position (4) four 68-1/2" 2x4 boards together and indicate with 'X' marks where the wall studs will be located. Mark the ends that will butt together with the letters 'A' and 'B'.

2. Install (8) eight 80-1/4" long wall studs, between the wall plates, over the 'X' marks and where the plates meet. Use (2) two 10d coated sinkers at each end of a stud. Nail wall sections together using (4) four 10d coated sinker nails, on each side of the studs.

68-1/2" Wall Plate   68-1/2" Wall Plate

| X | X | X | A | B | X | X | X |
| X | X | X | A | B | X | X | X |

|← 19-3/4" →|← 24" →| |← 23-1/4" →|← 24" →|

68-1/2" Wall Plate

80-1/4" Wall Studs

3. Square wall frame. *Measure diagonally (corner to corner); the measurements will be the same when the wall is square*.

4. Install the 1st siding panel with the 'LAP' edge extending 3-1/2" past the wall frame. Use 6d galvanized box nails spaced 8" apart. The bottom will extend 3/4" below the bottom plate, or trim flush for cement slab.

5. Install (2) two more siding panels. Cut the last panel to extend 3-1/2" beyond the wall frame.

LAP
Edge

Siding Extends 3-1/2"
Past 2x4 Stud

Siding to extend 3/4"
below bottom plate
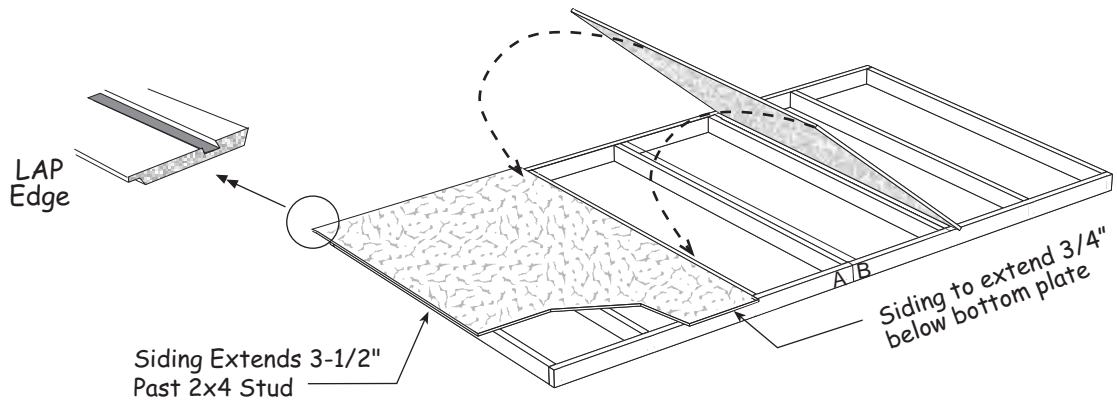
Step 8A   Build Center Wall Brace & Set Walls

1. Butt together a 7' long and a 60" long 2x4 on a flat level surface.

2. Lay a 7' long 2x4 on top of the 60" long board 3-1/2" from end. Next to this butt a 53" long 2x4. Secure all boards together with a double row of 2-1/2" long wood screws spaced 18" apart.

2x4- 53"

2x4- 7'

3-1/2" Space on each end

2x4- 7'

2x4- 60"
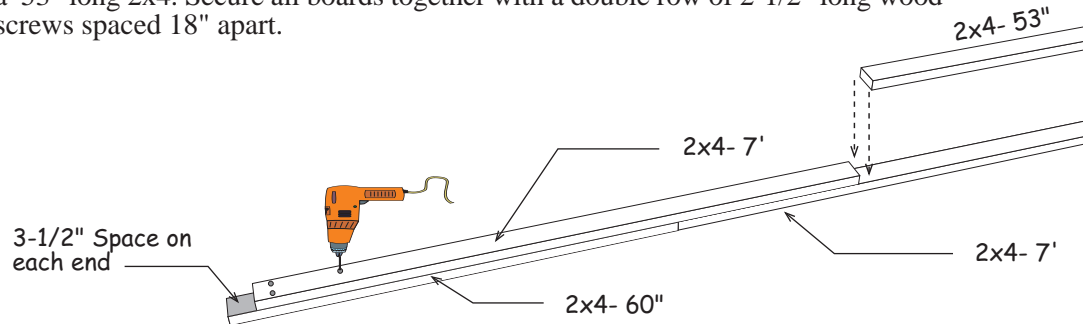
3. Set the back wall panel between (2) two 10' long side walls. Position the 'C' mark toward front of building. Secure wall panels together at the corners using (4) four 10d sinkers per corner.

4. Install the next (2) two side walls with the 'C' mark towards back of building. Nail with 10d sinkers. Nail siding edge where panels overlap.

5. Temporarily install (2) two 2x4-72" boards to hold side walls straight. These boards will be used later for tie plates.

6. Install front wall between the side walls. Nail along the siding edge where the side wall siding panels overlap.

7. See Detail 'D' top on next page to install center wall brace.

2x4 Wall Brace

Wall Brace

12' Long Rear Wall Panel

Nail Along Siding Edge
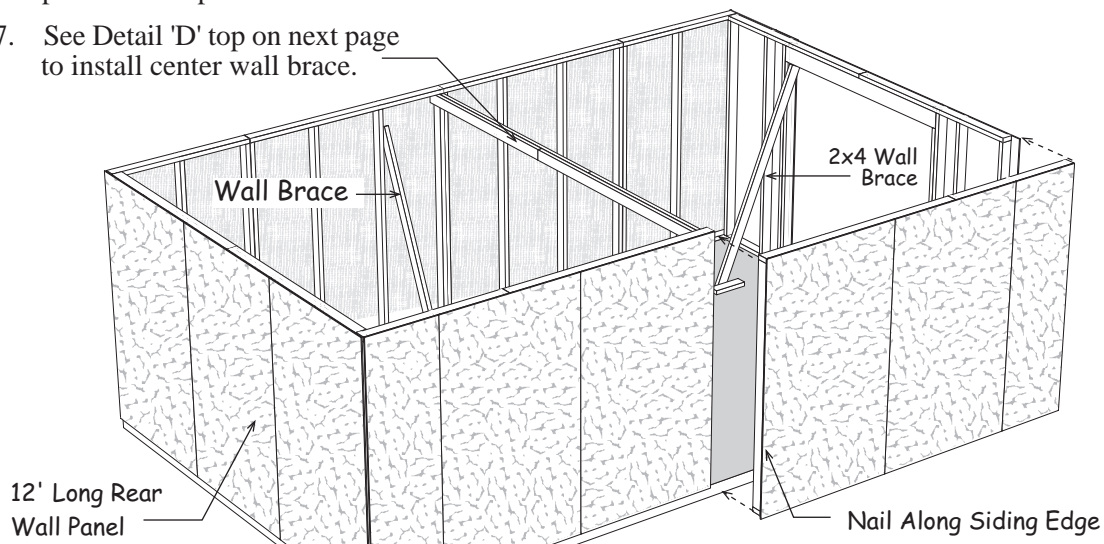
8. Remove the 2x4 door spacer and install it in the door opening to brace the front wall.

9. Cut and remove the bottom 2x4s in the door opening. These will be used later. Secure walls to floor using 10d sinkers or concrete anchor bolts (not supplied).

Step 8B   Build Center Wall Brace & Set Walls

10. Install the center Wall Brace in the center of the building between the side walls. Make
     sure the side walls are plumb. The shorter 2x4s will butt against a wall stud. Secure the
     longer 2x4 to the side of the stud with (2) two 3" long wood screws.

Center Wall Brace

DETAIL 'D'
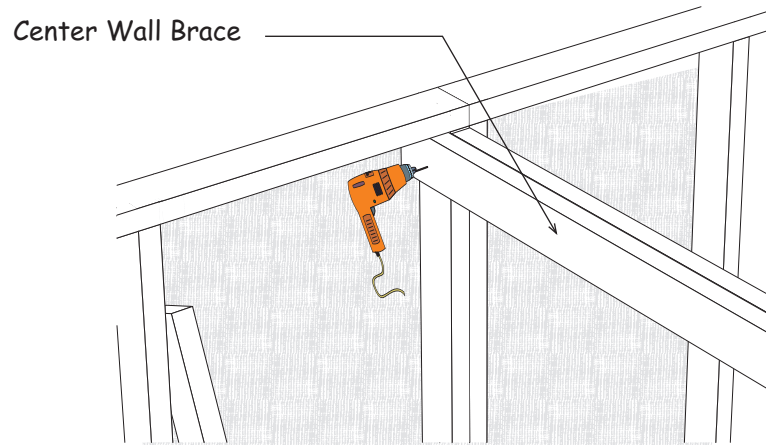
## Step 9   Install 1x4 Trim

1.   Install (2) two 84-1/2" long 1x4 corner trim on the back wall, flush with the siding on the side
     wall and the top 2x4 wall plate. Use 6d galv. nails.

2.   Install (2) two 1x4-72" trim boards across the top of the back wall. Cut to fit. Install the 1x4
     boards flush with the top of the 2x4 top plate. *See diagram below.*

3.   Repeat steps for front wall trim.

1x4 Trim

1x4 72" Top Trim
Cut to Fit

Back and Front Walls

flush

Side Wall

1x4 84-1/2" Corner Trim
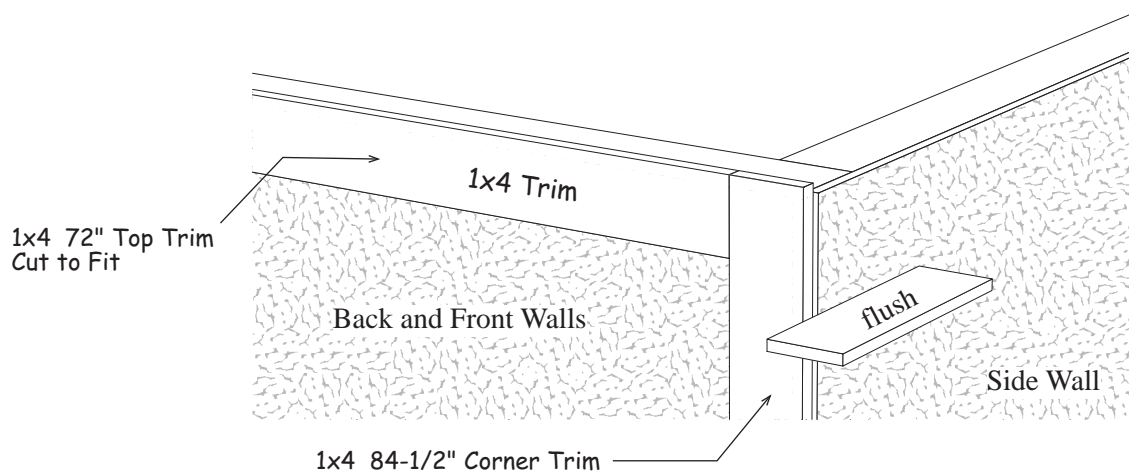
Step 10   Install Roof Gables

1. Install the rear gable on the rear wall. The siding on the gable must <u>extend over the 1x4 trim</u> board. *See detail*. Nail the gable to the 2x4 wall plate with 10d sinkers.

2. Install gable on front wall.

Bottom Edge of
Gable Siding

1x4 Trim
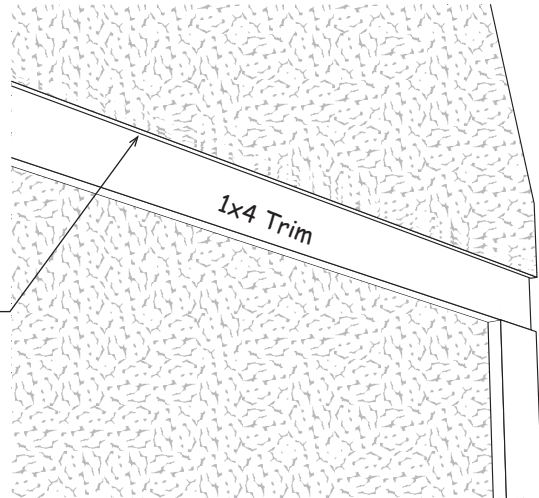
WARNING: The roof gables are heavy and awkward. You'll need helpers to lift and set gables in place.

Step 11   Install 2x4 Tie Plates on Side Walls

1. Install a 6' long 2x4 board as a tie plate over the side wall plate. Use 10d sinkers.

2. Install a 7' long 2x4 and cut another 7' long 2x4 to finish.

3. Repeat to install tie plates on the opposite side wall.

2x4 -7' Tie Plate

2x4 -6' Tie Plate

Rear Gable
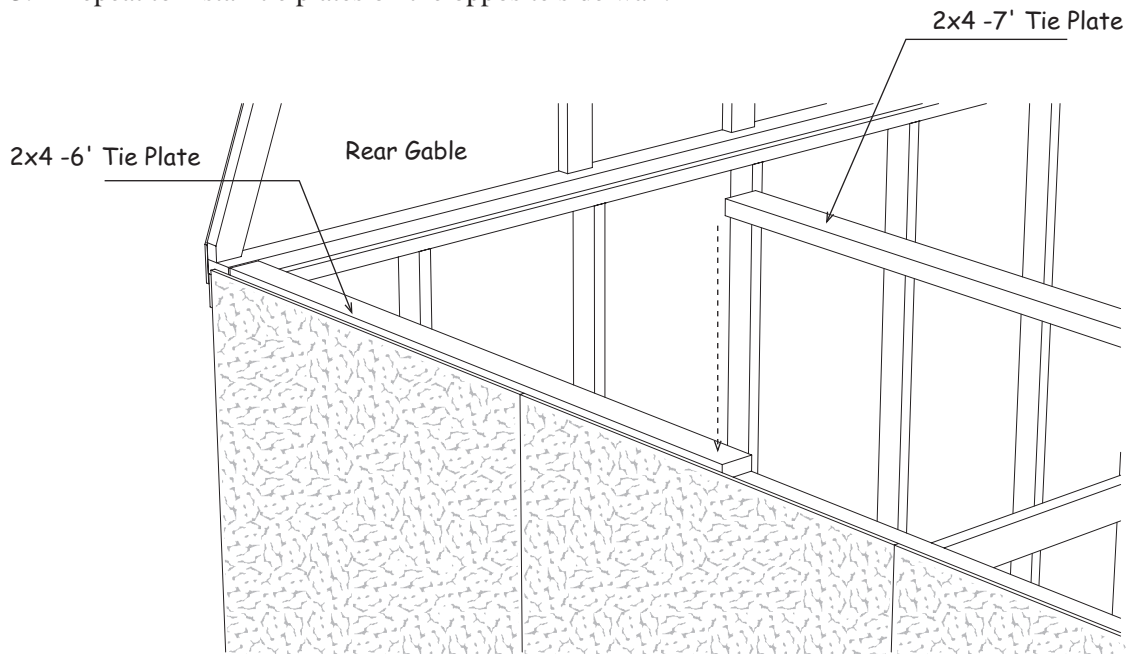
Step 12   Install Gable Support Shelf

1. Remove the 7' long wall braces.

2. Butt (2) two 68-1/2" long 2x4s together. Center one 2x4-7' over the 2x4s and secure them with 2-1/2" wood screws spaced 18" apart.

3. Repeat to assemble another gable shelf board.

2x4- 7'

2x4- 68-1/2"

2x4- 68-1/2"
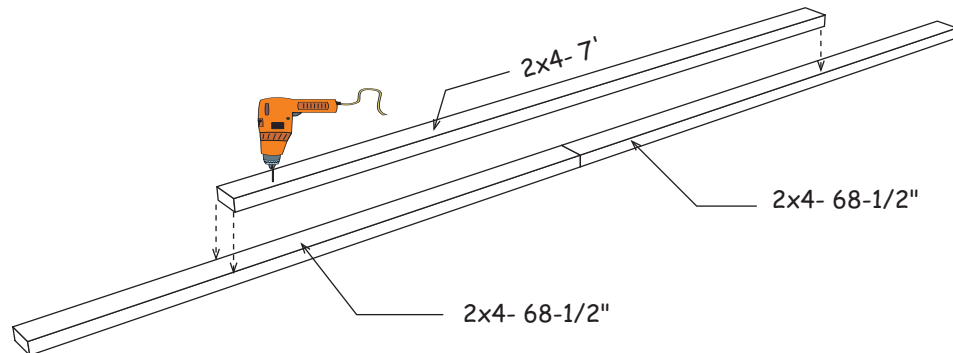
4. From 2x4s removed from door opening cut (2) two 2x4s to a length of 10-1/4".

5. Nail the 2x4 blocks to the rear corners, flush with the top of the 2x4 tie plate and against rear wall. Use (4) four 10d sinkers.

6. Nail one of the boards you assembled in previous step to blocks. Use 10d sinkers.

7. **Make sure the walls are square to each other**. Nail (2) two 15" x 72" OSB panels across the 2x4 gable plate (notch around plywood gusset) and the 2x4s. Use 6d common nails.

8. Repeat steps 4-7 to install support shelf at the front wall.

10-1/4" Block

137" Long 2x4
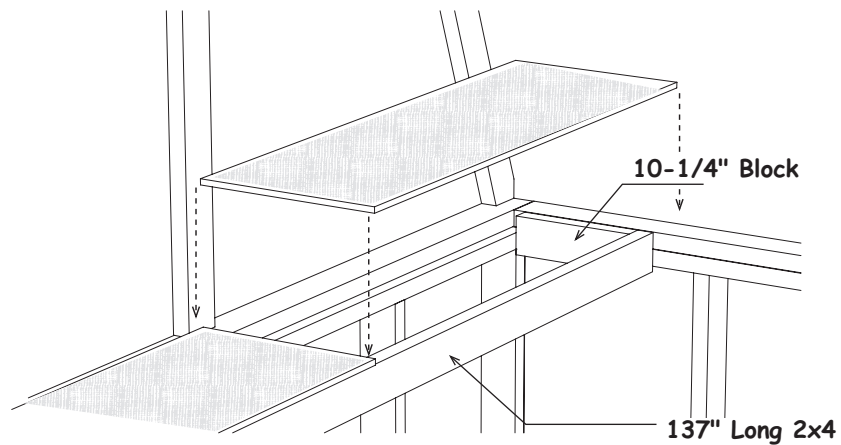
Step 13   Layout Roof Trusses

Starting at the back of the building, layout the truss spacing. Measure from the face of the gable trim to mark the location of the first truss. The last truss space will be more than 24".

Important: When marking the opposite wall, place the 'X' mark on the same side of the line so your trusses are parallel when they are installed.
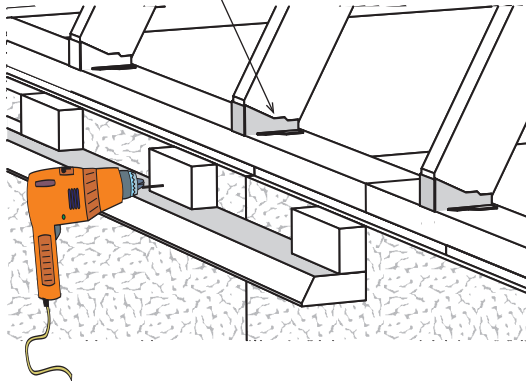
Rear Gable

24"

23-1/4"

Gable Trim
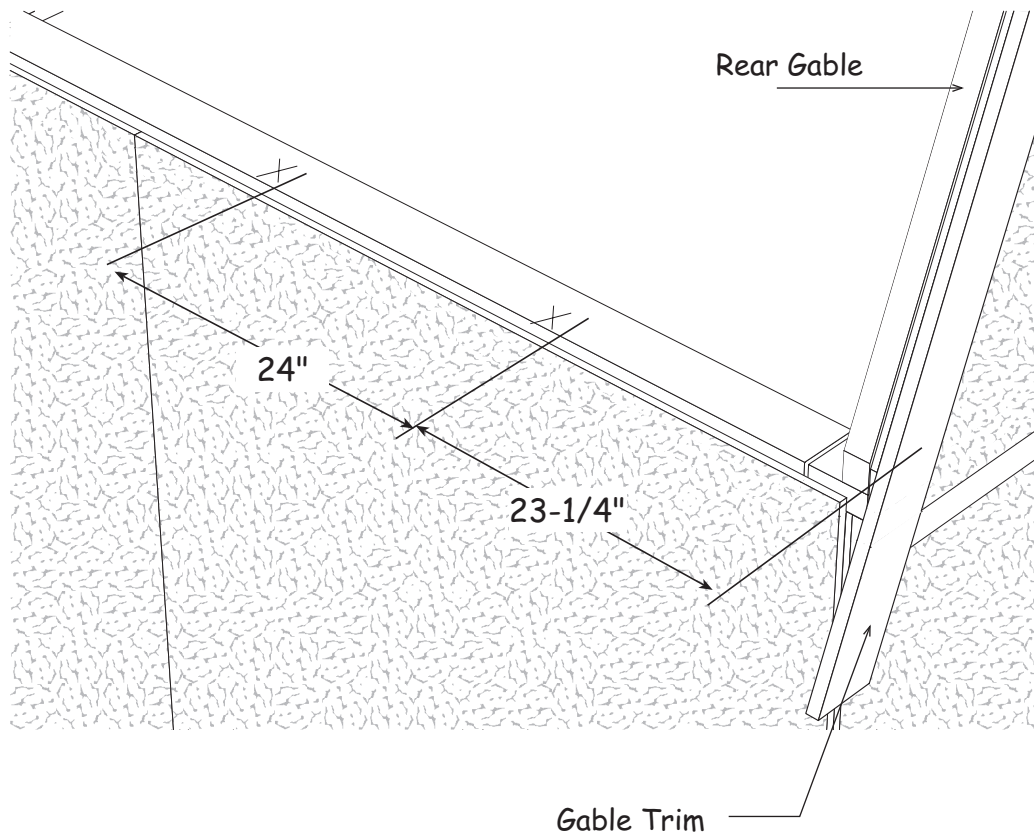
Step 14   Install Trusses & Soffit Boards

1. Place trusses over the 'X' marks and secure trusses to 2x4 truss plate using 2x4 hangers secured with 10d coated sinker nails. See Detail 'E'.

2. Locate (3) three 65-1/4" long soffit boards that have a beveled edge. Install one of these boards flush with the top of the siding and butting against the rear gable trim. Secure soffit board to the top wall plate with 3" long screws in each 2x3 block.

3. Install (2) two more soffit boards.

4. Install a 4' soffit board behind 1x4 trim on the front gable. Cut to fit.

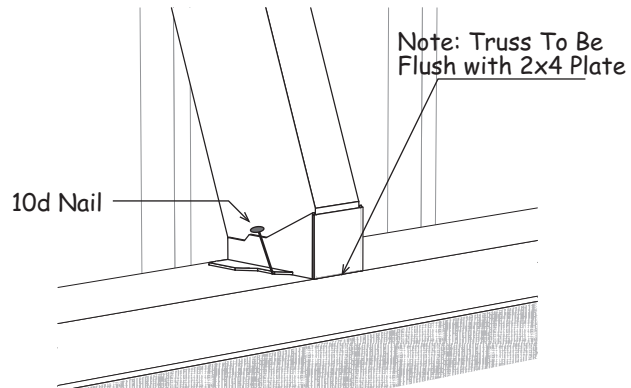5. Repeat to install soffit boards on opposite side wall.
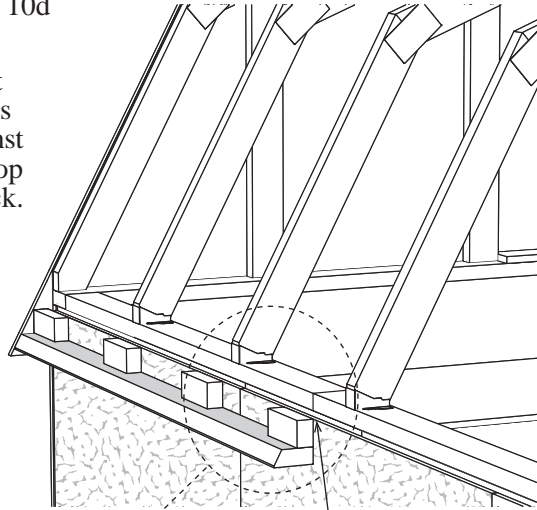
Metal Truss Hanger

Soffit Board
Flush With Siding

DETAIL 'E'

Note: Truss To Be
Flush with 2x4 Plate

10d Nail

Step 15   Install Roof Sheathing
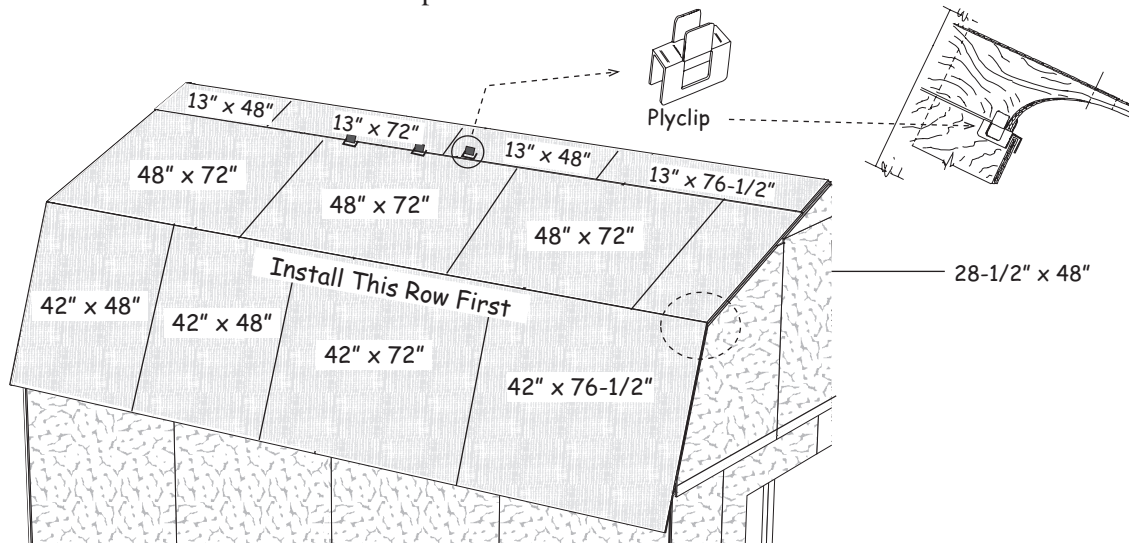
Straight Edge

1. Install a 42" x 48" OSB roof panel flush with the face of the rear gable trim. Use a straight edge to align the top of the sheathing with the top of the truss. Continue adding sheathing following the layout below. Use 6d common nails, spaced 8" apart.

2. Repeat step for opposite side.

☞ To prevent the nails from protruding thought the bottom of the soffit board, do not nail at an angle when nailing roof sheathing to the soffit boards.
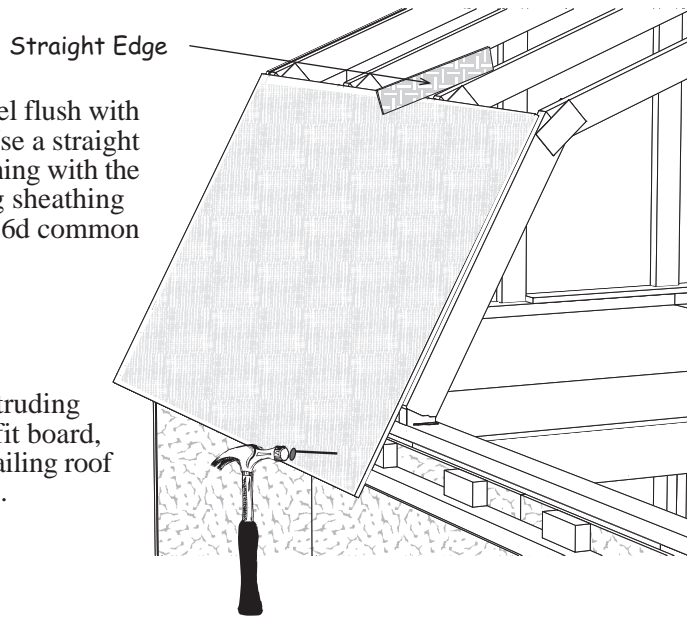
3. Apply roof sheathing across the top of the roof. There will be an air space at the peak of the trusses to allow for ventilation.

Insert (2) two plyclips into the roof sheathing between each truss at the top row.

Plyclip

13" x 48"

13" x 72"

13" x 48"

48" x 72"

48" x 72"

13" x 76-1/2"

48" x 72"

28-1/2" x 48"

Install This Row First

42" x 48"

42" x 48"

42" x 72"

42" x 76-1/2"

Step 16   Install Front Trim

1. Install loft door trim panel on the front gable by screwing through the back of the siding with 1" galv. screws.
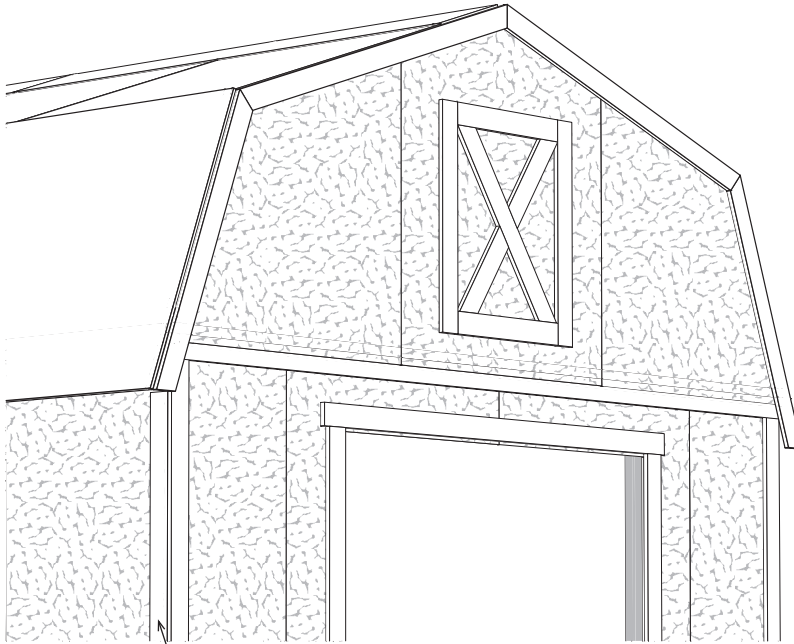
2. Install 80" long 1x4 trim boards on the corners of the side walls.

3. Install lx4x76-3/4" trim boards along each side of the door opening. Tack these boards with a couple nails; you may want to move the trim later when you install the doors.

4. Install a 1x4x81-3/4" board, *that has angle cuts on both ends*, over the door opening.

Step 17   Install Roofing — Not Supplied in Kit

Install metal roof edging perimeter of the roof area. If you are not installing shingles at this time, you can purchase felt paper to protect the sheathing. Install the felt paper before you install the metal roof edge.

Install shingles according to the instructions on the wrapper. If you need more detailed instructions on installing shingles, there are good publications at book stores or newsstands.
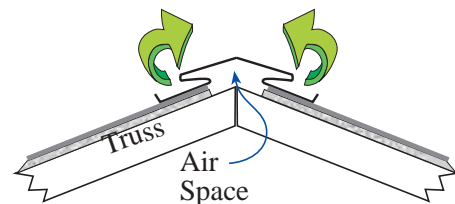
Optional ridge vent provides ideal ventilation.

Building Tip: Install ridge vent in lieu of shingles caps. Ridge vent provides ideal ventilation, preventing heat and moisture from damaging your building or its contents.

Step 18   Install Doors
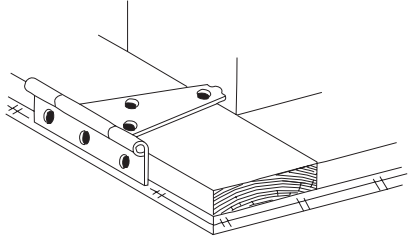
1. Lay the <u>left door</u> with the trim facing up. The siding on the left door <u>extends past the door trim</u>. See detail below.

2. Install 5" hinges to the left side of the door frame. To position the hinge properly, hold the rectangular plate against the frame. Use 1-3/4" black screws.

3. Install hinges to the right side of the other door.
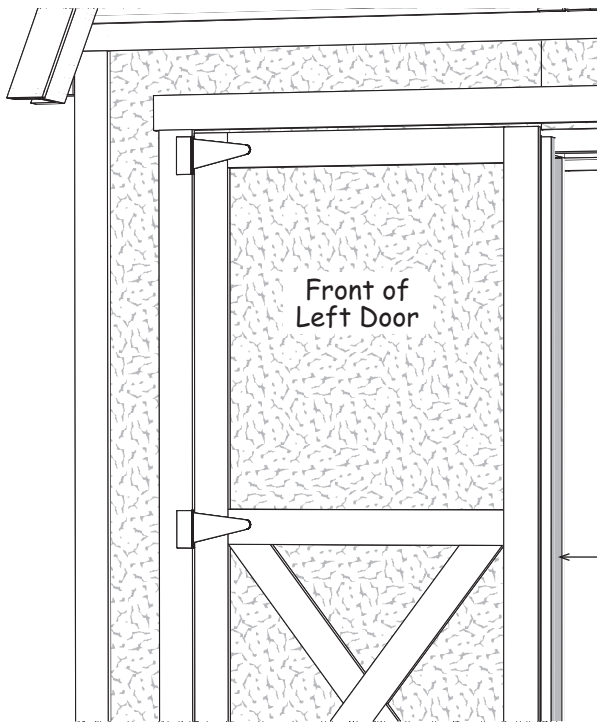
Before you fasten the hinges to the door trim, temporarily prop the doors in the opening. *Tip; set the door stop on a piece of siding to help hold the door in place.* Leave a space between the doors and the side trim to allow room for the doors to expand when they absorb moisture.

If your door opening is out of square, the space around the doors will not be even. You can reposition the side trim to make allowances for this. The side trim does not have to be flush with the frame of the door opening. You can move the trim in or out to make the door spacing equal.

Secure hinges to trim with 1-3/4" screws.

Front of
Left Door

——————— Siding Extends Past Trim

Back of
Left Door

6. Install a barrel bolt, on the lower back of the door to secure this door in place when closed. Drill a hole for the round shaft to drop into.

7. Install another bolt at the top of the door.

8. Install door latch.

Siding Shim
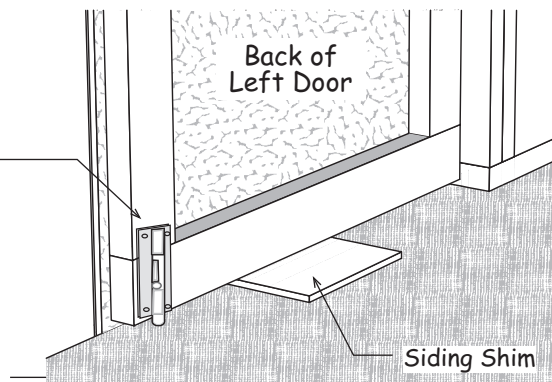
Qty.	2x4 Framing	Size
8	Wall Tie Plates	84 "
42	Wall Studs (2 with Door Jacks)	80 1/4"
14	Wall Plates	72 "
12	Wall Plates	68 1/2"
4	Gable Top Rafter	61 "
1	Wall Bracing	60 "
1	Wall Bracing	53 "
2	Gable Studs	50 "
8	Wall Plate	48 "
4	Gable Studs	40 3/4"
4	Gable Side Rafter	34 3/4"
4	Gable Studs	30 3/4"
	Miscellaneous Lumber	
2	Door Header	75 "
10	2 4 Blocks for Truss Jig 10" to 12"	
1	OSB Door Header Filler 5-1/4" x 75"	
18	Wood Gussets for Trusses	12" x 32"
2	Wood Gussets for Gables	9" x 12"

	Lower Wall Siding			Gable Siding
11	48" x 84"	4		48" x 55-1/4"
2	12" x 84"	4		24" x 37"
6	24" x 84"			
2	7-3/4" x 36" - over door opening			

Qty.	Pre-built Components	
18	Pre-built Truss Halves	
2	36" x 76" Pre-built Barn Doors	
1	36" x 31" Pre-built Loft Door Frame	
6	3-1/2" x 65-1/4" Pre-built Soffit Boards	
2	3-1/2" x 48" Pre-built Soffit Boards	

Qty.	Description		Size	
	Trim			
4	1x4	Gable Trim	61	"
4	1x4	Gable Trim	42	1/2"
4	1x4	Lower Wall Trim	72	"
4	1x4	Corner Trim	84	1/2"
4	1x4	Corner Trim	80	"
1	1x4	Door Trim	81	3/4"
2	1x4	Door Trim	76	5/8"
	Hardware			
5	lb. 10d Sinkers	40	7/16" Plyclips	
5	lb. 6d Galv.	1	Bottle Glue	
5	lb. 6d Common	50	Black Screws	
6	5" Door Himges	18	Truss Hangers	
12	1x4 Drive-on Plate	1	Door Hasp	
2	2" Screw Bit	2	Barrel Bolts	
		36	2-1/2" Screws	
		50	3" Screws	

Qty.	7/16" OSB Sheathing	
6	48" x 72"	Roof Sheathing
2	42" x 72"	Roof Sheathing
2	42" x 76-1/2"	Roof Sheathing
4	42" x 48"	Roof Sheathing
2	28-1/2" x 48"	Roof Sheathing
2	13" x 72"	Roof Sheathing
2	13" x 76-1/2"	Roof Sheathing
4	13" x 48"	Roof Sheathing
4	15" x 72"	Gable Shelf

Shingles by Owner   14 Bundles Shingles   9 pcs. Roof 'drip' Edge