

UNIVERSAL

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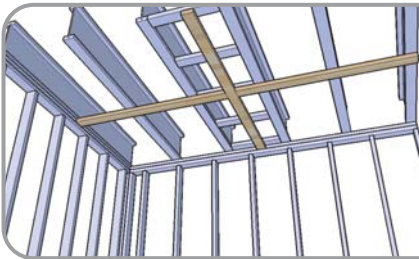
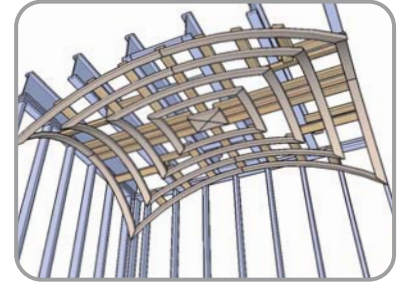
## Rectangular Groin Vault

Included in your groin vault kit:

- a. Groin Vault Struts
- b. Groin Plan

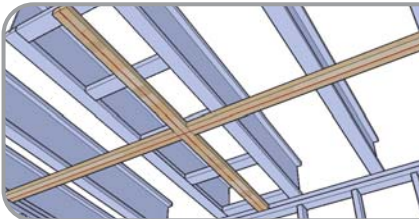
Tools needed:

- a. Nail Gun
- b. Circular Saw
- c. Tape Measure
- d. Square
- e. Level



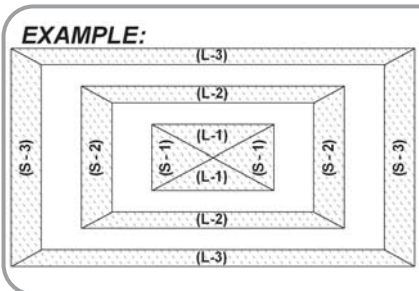
1

Using traditional framing construction to meet code requirements, frame your cross brace down the center of your desired location. The cross brace must be strong enough to support the weight of the groin vault and back bracing.



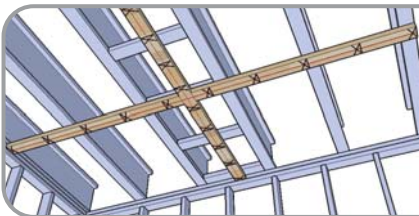
2

Snap center lines to the underside of the cross brace. *Note: The center lines must be centered in the groin vault area within 1/4".*



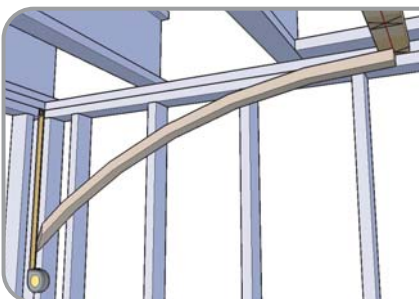
3

Each groin vault strut will be labeled with positioning indicators in parenthesis such as (S,3). The positioning indicators are used to specify the location of each strut within the overall groin vault. The "S" indicator signifies struts belonging to the shorter side, while the "L" indicator signifies struts belonging to the longer side. The number indicator signifies the positioning along the sides of the groin vault.



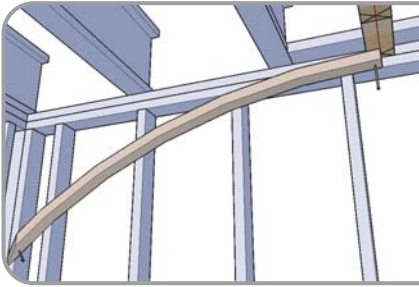
4

Referencing the "Groin Vault Plan" (see the last page), use a square to mark the underside of the cross brace according to the strut positioning measurements.



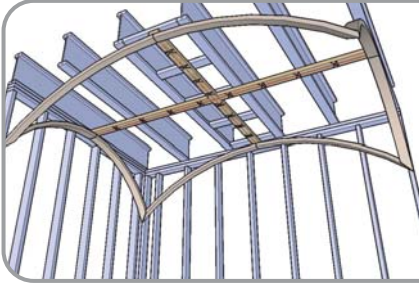
5

Referencing the positioning indicators, start with the outermost struts (made in halves). Line up the squared end of the half to the center mark on the cross brace. Reference the groin vault plan to find the rise of the groin vault and where the angled cut tips will secure to the point on the wall. *Note: Double check that the strut has been placed on the correct side and position.*



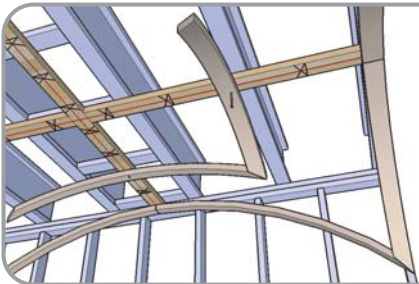
**6**

Use one nail to tack the strut half at the cross brace and one nail to tack the strut at its rise point on the wall. Nail at least 2" away from the tip to avoid splitting. *Note: Further adjustments may be needed before completely fastening.*



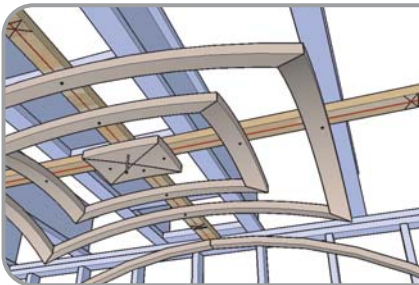
**7**

Repeat the process for all the outer strut halves. *Note: While the tips of the struts will line up, the mitered angle cuts may not line up through the full length of the cut. This will not have an effect on drywall and is common among rectangular groins vaults with exceedingly diverse sides.*



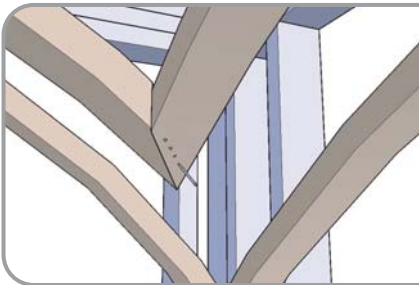
**8**

Moving inward from the outermost strut, skip any other struts made in halves, to the next whole strut. Referencing the positioning indicators, line up the center mark on the strut to the center mark on the cross brace. Use one nail to tack the whole strut to the cross brace.



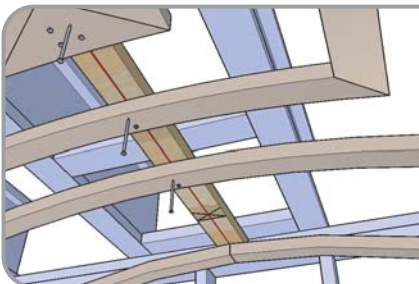
**9**

Repeat the process for all the whole struts on every side. The skipped struts, made in halves, will be installed in step 13.



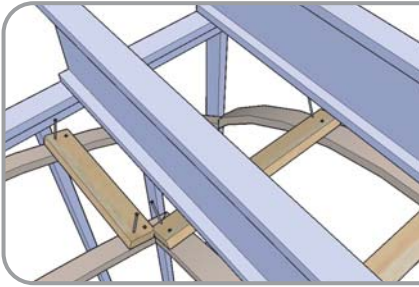
**10**

Once all the whole struts are tacked in place according the groin vault plan, line up the tips of the struts and fasten together using a brad nailer or stapler. Repeat for all corners.



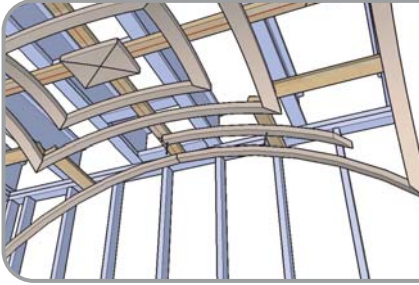
**11**

Once the struts tips are fastened securely together, re-nail each strut securely to the center of the cross brace.



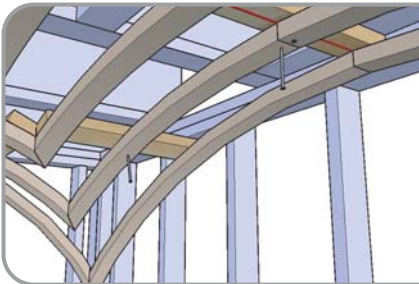
**12**

Nail back braces that run atop the outer struts and to the ends of the first whole struts.



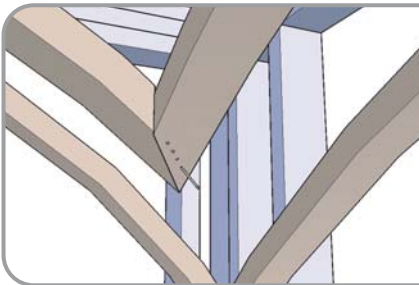
**13**

Once the back braces are secured in place, line up the strut halves, skipped in step 8, to the center line on the cross brace. Use one nail to tack the strut in place to the cross brace and one nail to each back brace.



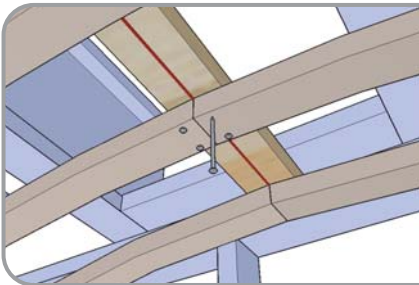
**14**

Repeat the process for each strut half on each side.



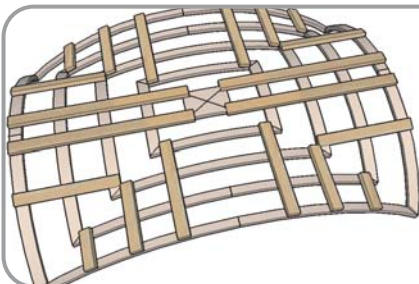
**15**

Line up the tips of the struts halves and fasten together using a brad nailer or stapler.



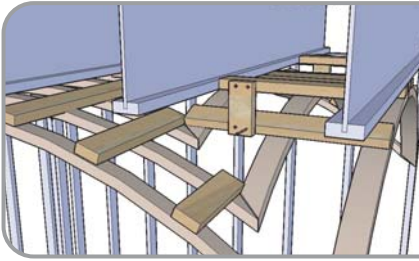
**16**

Once the strut tips are fastened securely together, re-nail each strut half securely to the center of the cross brace.



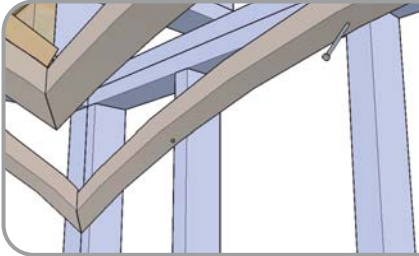
**17**

Complete the back bracing atop of the struts as shown.



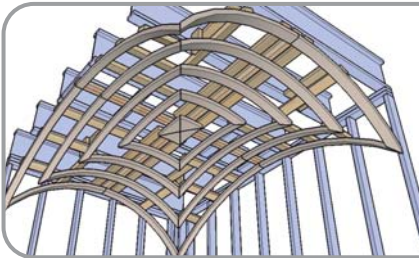
**18**

Any groin vaults with any side length between 5' - 12' will require four (4) cripples (1 at each diagonal) that run vertically from the joists or trusses down to the back bracing. Any side length between 12' - 16' will require eight (8) cripples (2 at each diagonal). Any side length between 16' - 20', will require twelve (12) cripples (3 at each diagonal).



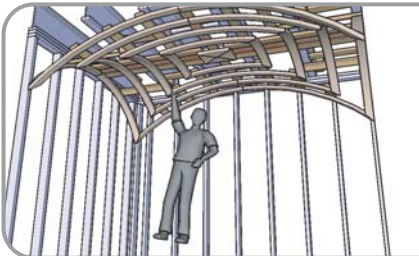
**19**

Toe-nail the outermost struts into the wall wherever a strut passes over a stud.



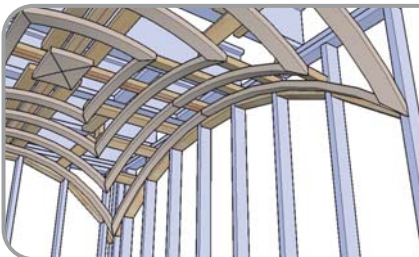
**20**

When completed, perform a visual inspection to confirm the diagonals of the groin vault line up evenly.



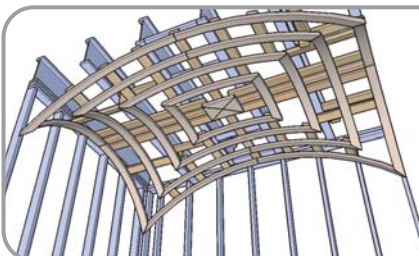
**21**

Perform a strength inspection to confirm that the groin vault can support all necessary materials and lighting.



**22**

If necessary and/or according to code requirements, fire block the groin vault along the perimeter of the outer struts.



**23**

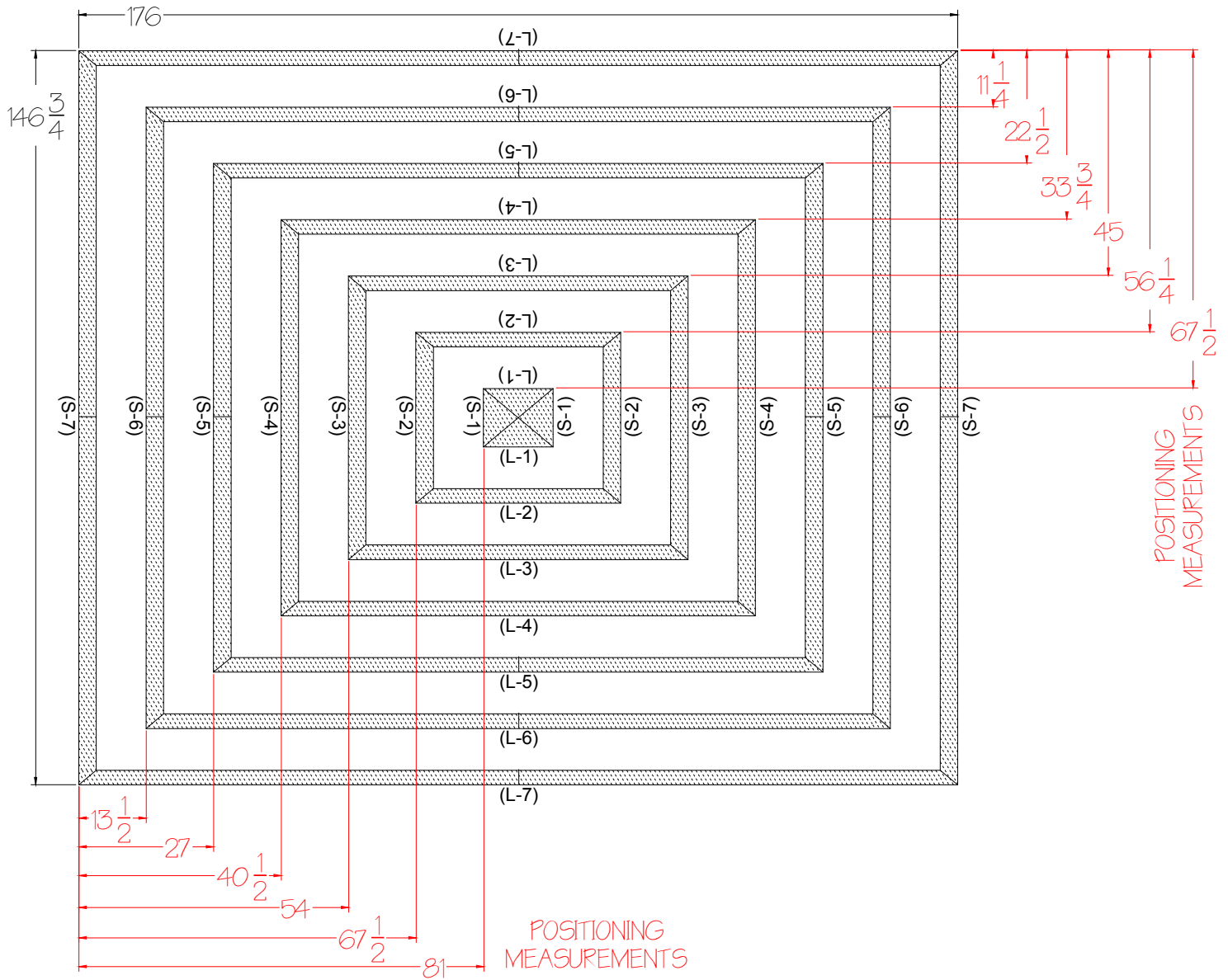
You are now ready for electric and drywall!

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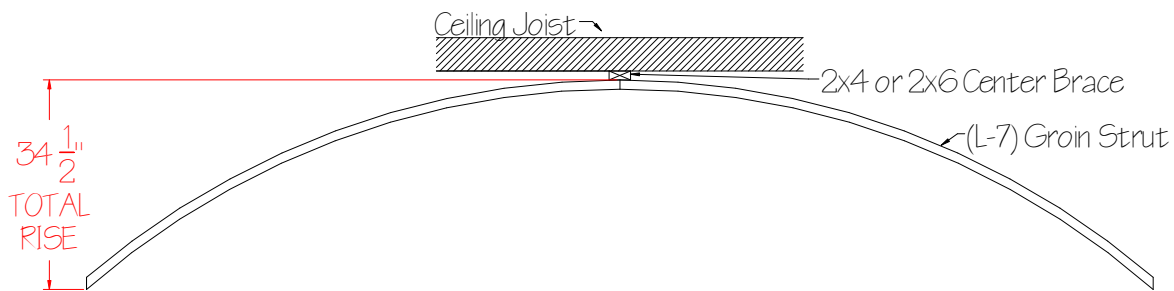
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PLAN VIEW

# Dinning Room Groin Vault Plan



ELEVATION



The total rise is measured from the top of the groin vault strut (including the thickness) down to the tip.

## GROIN PLAN

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