

APPENDIX B—Directions for constructing the model wall

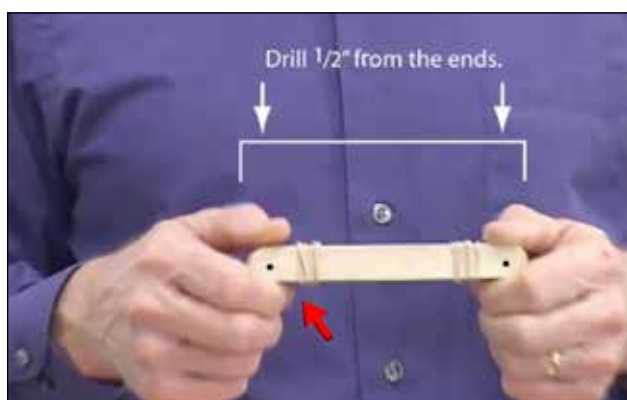
Watch video on how to construct the 4-cell model wall. Images in steps 1–6 below are screen grabs from the video:

[Build A Better Wall 1: Parts & Construction: How can a building be made stronger for earthquake safety?](#) (9:15 minutes)

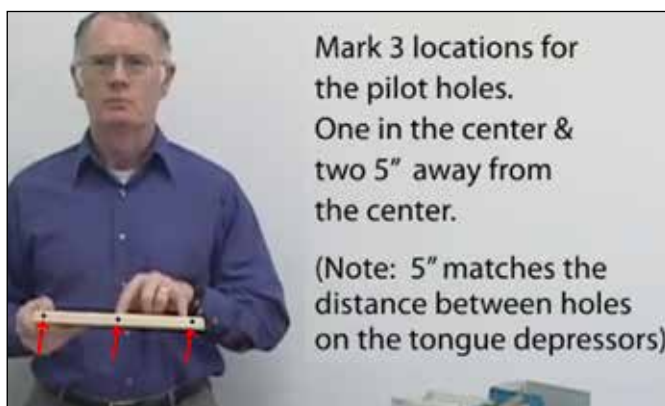


Left: Basic 4-cell model. **Right:** Expanded 9-cell model demonstrated in this video: [Build a Better Wall: How can we make a building more earthquake proof?](#)

1. Stack about 12 craft sticks one on top of the other. Wrap a rubber band around the center to hold them together. Using a 11/64" diameter drill bit, carefully drill a hole through all the sticks at once, 1/2" from the end of the stack. Drill slowly to avoid cracking the wood.



2. Mark the location of 3 holes in the base that will hold the first row of craft sticks. The first mark will be in the center of the narrow edge slightly closer to one edge to accommodate the end of the craft stick (see illustration). Then measure and place a mark 5" in each direction from the center also slightly closer to one edge. Use a 11/64" diameter drill bit to drill shallow 1/4" pilot holes for the 3 wood screws.



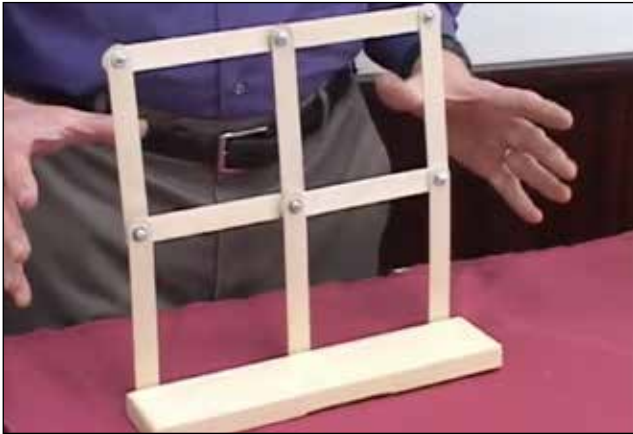
3. Using the bolts, washers, and nuts, assemble the 10 craft sticks to build a model wall. Note: Washers reduce friction and help support the craft sticks as they are manipulated.



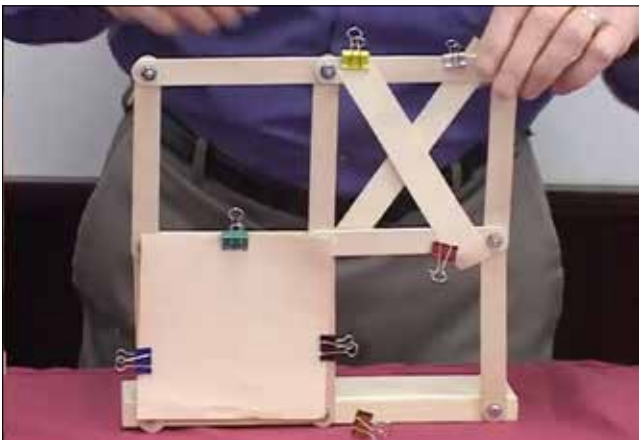
4. Use the small wood screws to mount the assembled wall to the 2" x 6" base, fastening at the bottom and in the center. Leave the pre-drilled holes sticking up far enough above the top to accept the drilled craft sticks. Tighten the wood screws until the tongue depressor can still easily pivot.



5. Experiment with tightening bolts and washers until they are just tight enough for the wall to stand on its own, but loose enough so that the wall will fall with horizontal motion.



6. Now for the fun part: testing the structural reinforcement components. See different styles of structural bracing on page 12.



Notes:

Structural reinforcement components for each wall (Parts shown in photo below, and template for the printout on next page):

After printing and cutting, assemble the reinforcement components in a quart-sized zip lock bag for each model wall.

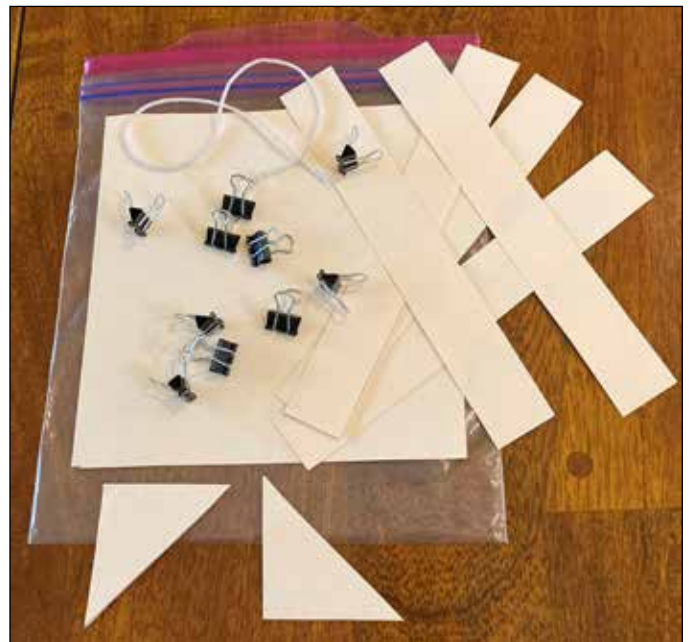
Note: if using a 3 X 3 cell model, provide additional cross members and binder clips.

For the 15-minute activity (basic 4-cell model wall):

- 1 Shear wall
- 2 Cross members
- 2 Gussets for corner bracing
- 10 or more small binder clips (1/4" or 5/16th capacity)

For the 5-minute demonstration and the 30- to 45-minute activity (basic 4-cell model wall):

- 1 Shear wall
- 6 Cross members
- 2 Gussets for corner bracing
- 10" string
- 16 or more small binder clips (1/4" or 5/16th capacity)



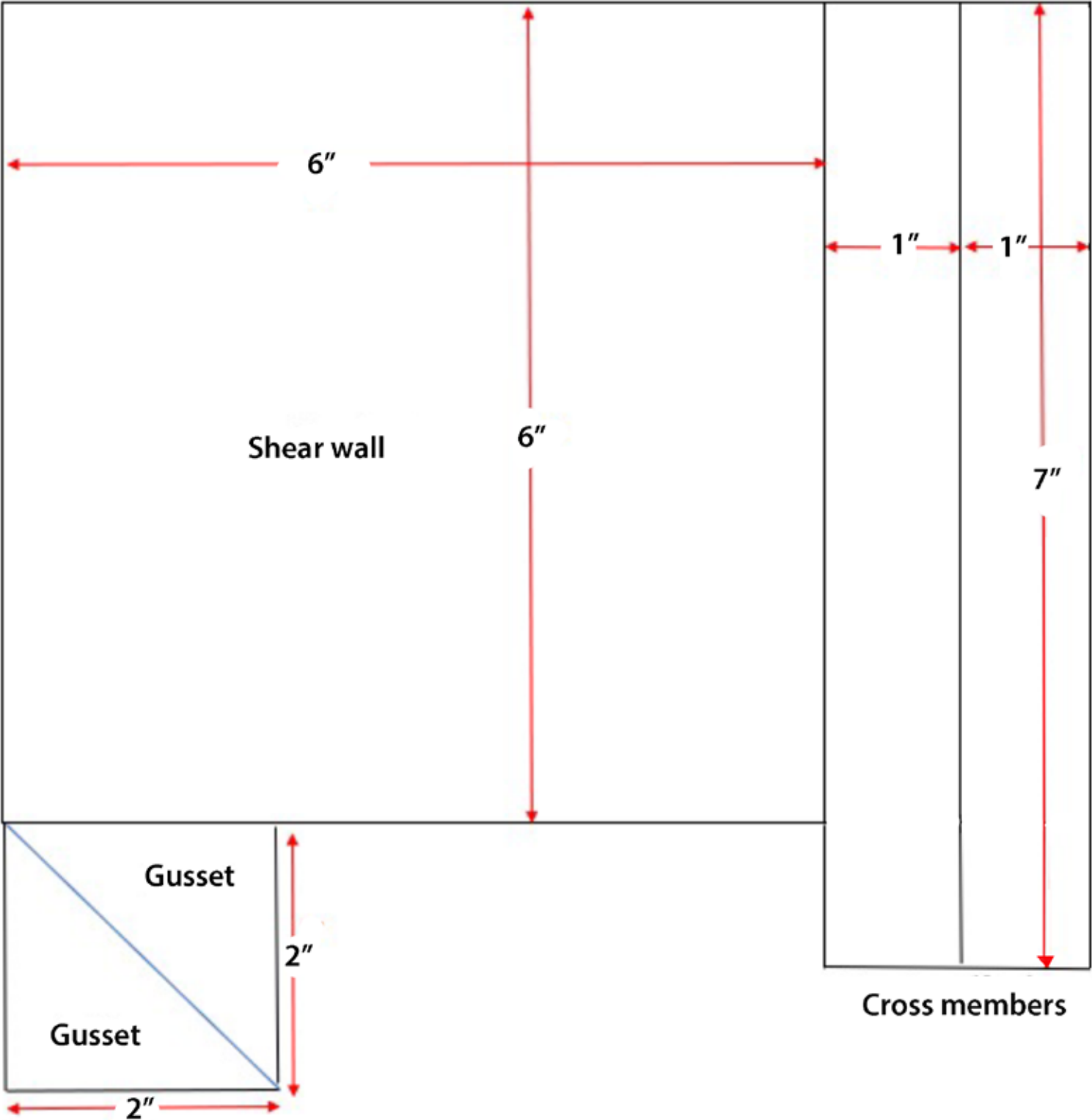
Structural components for adding to the wall. Note that the additional "structural members" are for the 30- to 45-minute hands-on activity.

Structural Reinforcement Template

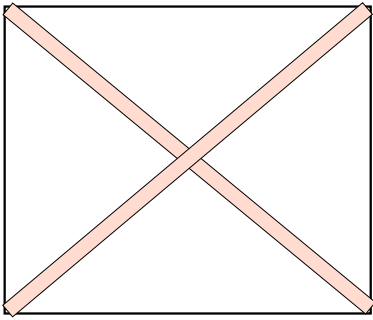
Print on manila card stock or similar.

1 Shear Wall, 2 Cross Members, and 2 Gussets

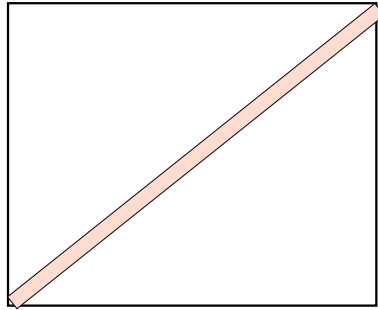
Note: create additional Cross Members for other reinforcement styles (see next page).



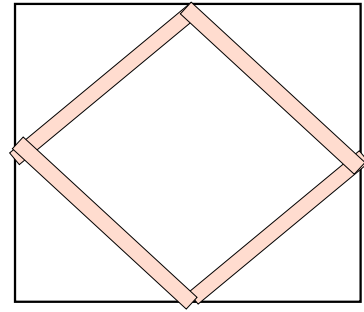
Types of Structural Bracing



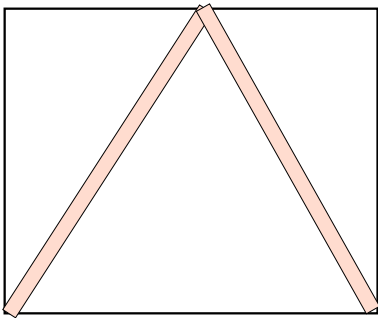
X-cross



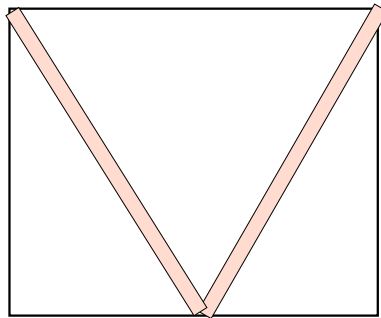
Single diagonal



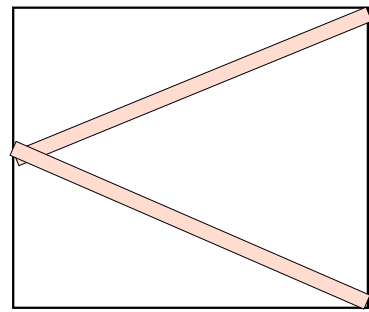
K-K (diagonal sway)



Inverted V (chevron)



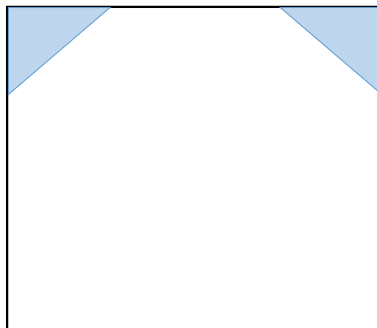
V (inverted chevron)



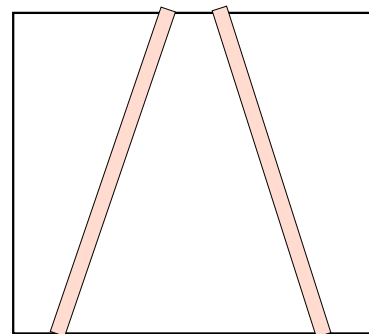
K (right angle chevron)



Sheer Wall



Corner (knee)



Eccentric bracing