



1. Hardboard (Masonite) is an excellent painting support, but it has some weaknesses:
  - a. **It will warp** when left leaning against a wall, especially when the piece is larger than about 18".
  - b. **It is difficult to frame.** Because it is so thin on the edge, there is not enough material to attach a frame to it. Cradling a panel makes it easy to exhibit, whether it is framed or not. The edges of the cradle should be primed along with the painting surface, and can be painted to present a clean, inexpensive means of exhibition without framing. On the back of the panel, screw eyes can be mounted inside the cradle to attach hanging wire.
  - c. **The edge is easily damaged.** A blow to the edge can chip the front surface of the panel, ruining the painting surface. Cradling will not entirely prevent this damage, but it helps. Framing is the only true prevention.
  
2. Materials
  - a. 3/16" Hardboard, cut to desired size. Note: 1/4" thick board is not necessary, since the cradle will support it.
  - b. Select Pine, 1" x 2". An 8-foot length at Lowe's is about \$4.40. Check to see it is not warped when you buy it.
  - c. Wood glue. Available in our studios.
  - d. #4 finish nails, about 1.5 inches long. Available in our studios.
  - e. Flat-Head wood screws may be substituted for nails, at your own expense. They make a stronger bond, and may be easier to use. Use a size 8 screw, one inch in length, which will be labeled as 8 x 1". Philips-head or star-head are much better than simple slotted screws. Check that your screwdriver will match the screws.
  - f. Sandpaper. 220-grit for fine surface finish; 150- or 100-grit for removing lots of wood quickly. Fold this around a small block of wood for hand sanding. Do not use a power belt sander.
  - g. Bar soap. If you are using screws and a hand-held screwdriver, this is a lubricant for the screw. Scrape some dry soap on to the threads of the screw before inserting.
  
3. Tools
  - a. Ruler with squared lines, or a plain ruler and a carpenter's square
  - b. Hammer
  - c. Clamps
    - i. Table-mounted corner clamp for any panel with a minimum dimension of 9 inches.
    - ii. Small corner clamps for making panels less than 9 inches
    - iii. C-clamps for mounting panel on cradle

- d. Hammer, if you are using nails.
  - e. Countersink punch, for nails
  - f. Screws, if you prefer them to nails
  - g. Electric drill, for screws
  - h. Countersink drill bit, matched to your screw (e.g., 8 x 1")
  - i. Philips-head or star-head screwdriver, or electric screwdriver
  - j. Soft pencil
  - k. Bench miter saw, for cutting one-by-two pine
  - l. Panel saw, for cutting hardboard
4. Process For Constructing a 10" X 12" Cradled Panel
- a. Cut hardboard 10" x 12", using panel saw.
  - b. Use bench saw to cut a mitered corner (45-degrees) on one end of your 1"x 2" pine.
  - c. Measure your next cut in the 1x2 by holding the hardboard panel against it. Mark with pencil line.
  - d. Cut opposite end of the 1" x 2" pine, so that you have one side of your four-sided cradle.
  - e. Proceed in the same manner to cut the remaining three pieces of the cradle.
  - f. To see if your panel and cradle pieces all fit together nicely, assemble them without glue or fasteners. Replace badly cut pieces if needed.
  - g. Place two pieces of your cradle in the table-mounted corner clamp. (Double-check that you have the correct pieces!) Adjust until the join is tight. Then remove one piece, add glue, and put it back in the clamp.
  - h. Use nails or screws to fasten the joint. Remove from clamp. Wipe away excess glue with damp paper towel.
  - i. Join remaining corners in the same manner.
  - j. Glue and clamp panel to cradle. Use 8 clamps per panel, minimum. Avoid excessively tight clamping, that will make indentations in your painting surface. Best practice: place small pieces of scrap hardboard or pine between the clamp and your panel face. This spreads out the pressure and avoids damaging the surface. Remove clamps after 30 minutes, but handle the panel very carefully for the next day, until glue is cured.
  - k. Bevel edges and corners of panel with sandpaper.
  - l. Prime front and sides with gesso
5. Variations
- a. Panels larger than 30 inches may need additional bracing, like a central crossbar (or two) or corner struts.
  - b. If you like the texture of canvas, but want the rigidity of panel, you may stretch canvas across a cradled panel.
  - c. If you use [Dibond](#) or [Omegabond](#) (3mm thick plastic panels with a veneer of aluminum), they do not need cradling for support. But—cradling allows cheap framing and exhibition. Just be sure to attach the panel to the cradle with epoxy, not wood glue.