

Camber and other curves: How do we draw them?

In most of our drawings, we refer to "camber". This means a curve going through three points, an arc of a circle. It is a very simple curve that can be drawn with a batten or PVC pipe. (Picture courtesy of Justin Pipkorn)

Camber is used in different places: for the molds (= stations = frames = bulkheads) or for other parts of the boat like the sole (cockpit floor) or seat tops.

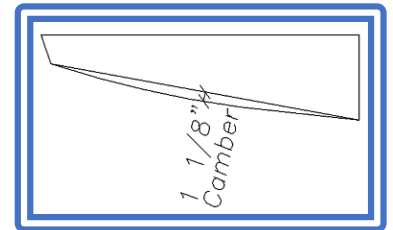


Let's look at some examples:

1. In this drawing of a floor frame, we show that the bottom side has camber: 1-1/8" (28 mm).

To draw that curve:

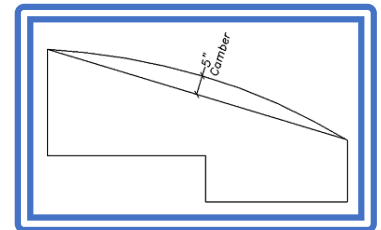
- Draw the part with the straight lines
- Mark the middle of the bottom side
- Mark a point 1 1/8" offset from the middle
- Draw a curve between the three points



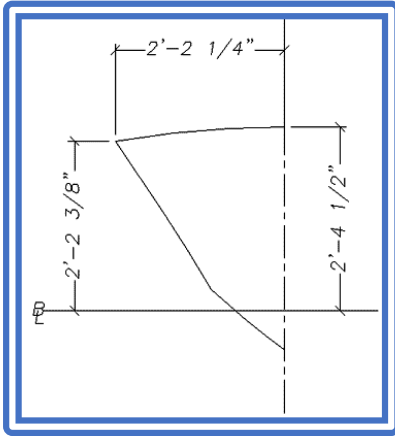
2. This is a seat top panel for a bow rider. All sides are straight except for the one along the hull as it has camber. The procedure is the same as for the floor frame above:

To draw that curve:

- Draw the complete outline with straight lines
- Along the hull side edge, mark the middle
- Offset that point 5"
- Draw a curve between the three points



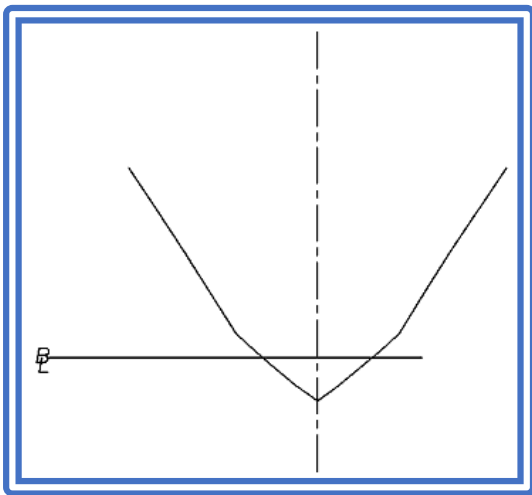
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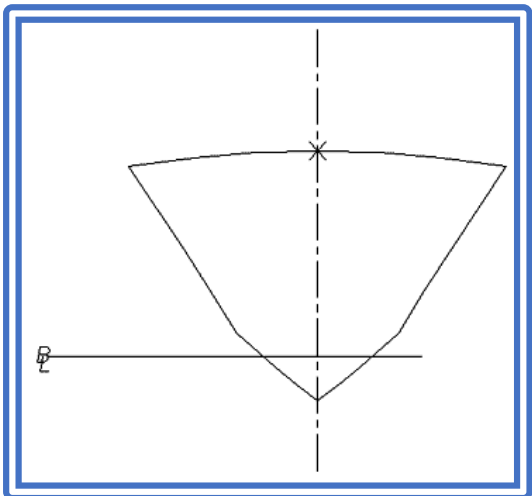
Next the deck camber:

In the case of a station, we may not show the two sides of a part. This is customary in boat design: boats are supposed to be symmetrical, why complicate the drawing with unnecessary lines? The drawing shows a typical forward frame of a power boat with a small deck. All dimensions not relevant to this discussion were removed for clarity. Note that all dimensions are always taken from the baseline and the centerline.

Step one: Draw the outline for the frame, two sides, without the deck.



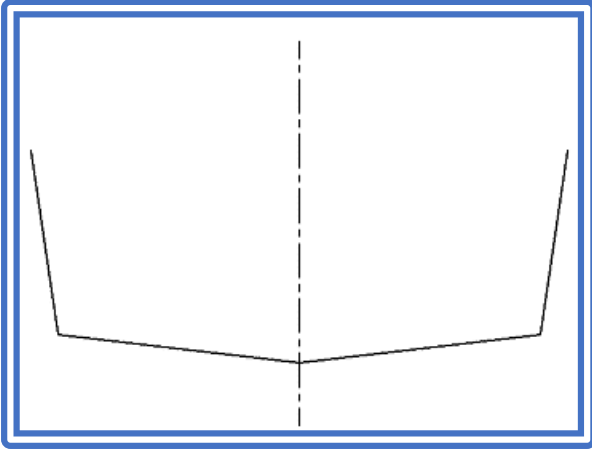
Step two: Mark the height of the center, draw the curve of the deck.



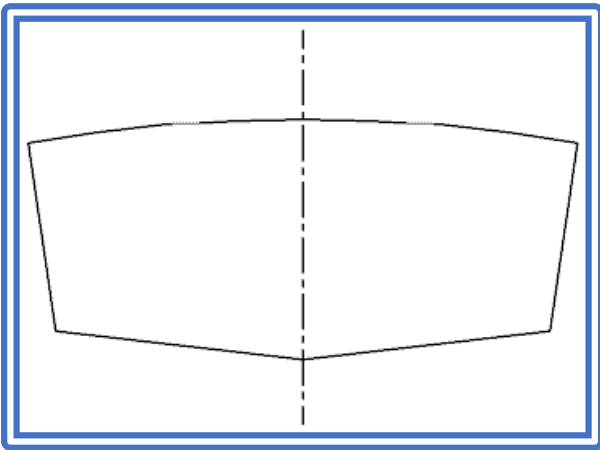
Last example, a transom with motorwell.

Step one: Draw the outline without deck.

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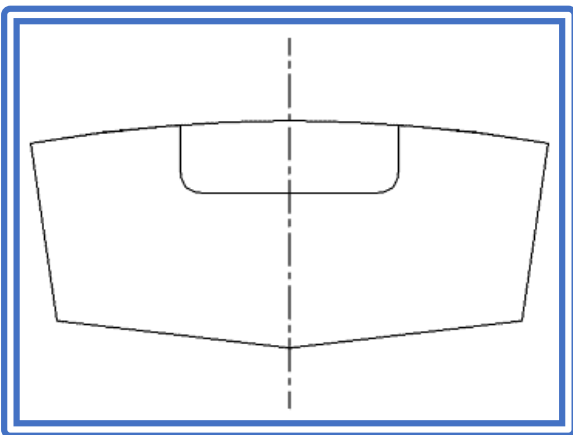


Step two: Draw the deck curve.



Step three: Draw the motorwell cut.

Taking it one step at a time makes it simple.



- Unless marked otherwise, camber is always measured from the middle of a line.
- Cambered curves may be an approximation of the exact shape, but the curves are always within 1/8" of the true curves.
- We try to restrict our hull lines to second or third-degree polynomials and this produces very fair cross section curves: conical or plain arcs.