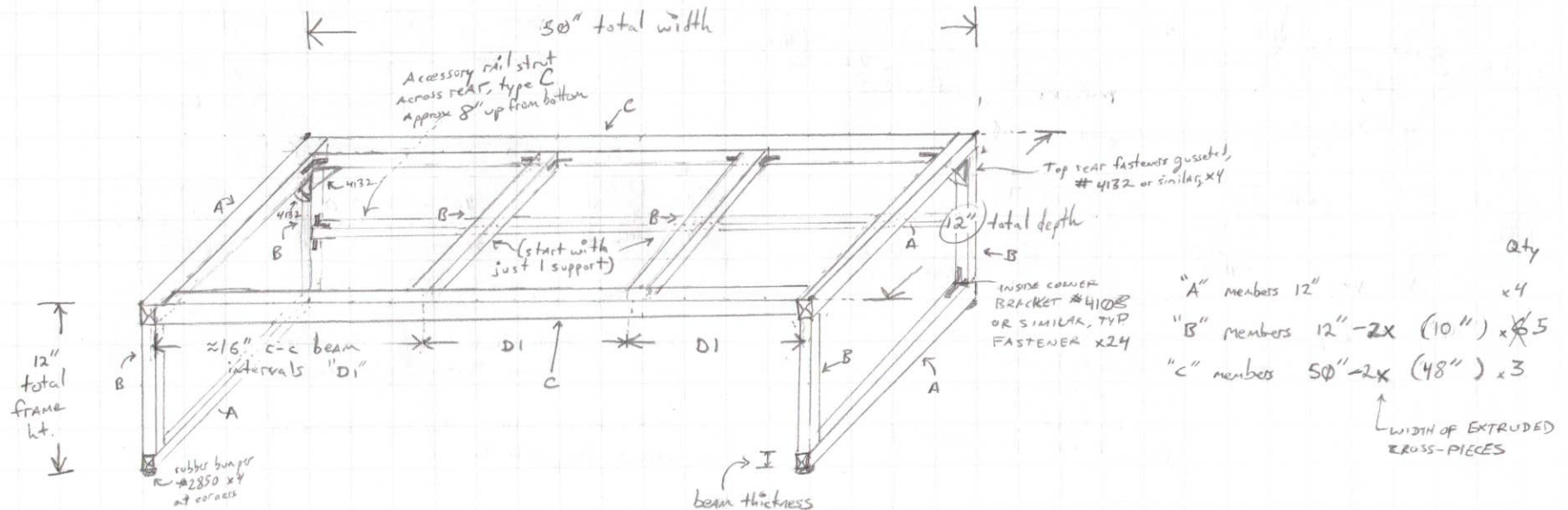


50" x 12" x 12" SHELF/HATCH
WITH REAR ACCESSORY STRUT



TOP SURFACE COVERED BY
12"x48" HDPE SHEET $\frac{1}{2}$ " thick
ANCHORED AT CORNERS AND
MIDPOINTS OF C MEMBERS
(NOT SHOWN)

DRAWING NOT TO SCALE

DESIGN WORKING LOAD 50#, EVENLY DISTRIBUTED

6/24/23 rev. 2.

SHELF SAG CALCULATION:

HDPE Young's Modulus $E = 600-1500 \text{ MPa} = 87 \text{ kpsi} - 217.6 \text{ kpsi}$ (152 kpsi Avg)

Rect. plate uniform load deflection, all sides supported:

$$100 \text{ lb load / spar: } \Delta y \text{ in } [0.14, 0.36], 0.2" \text{ typ} \quad \Delta y = \frac{0.142 p w^4}{E \cdot t^3 [2.21 (\frac{w}{t})^3 + 1]}$$

2 spars: $0.13" \text{ typ}$
[start with one midspan support, add 2nd as needed]