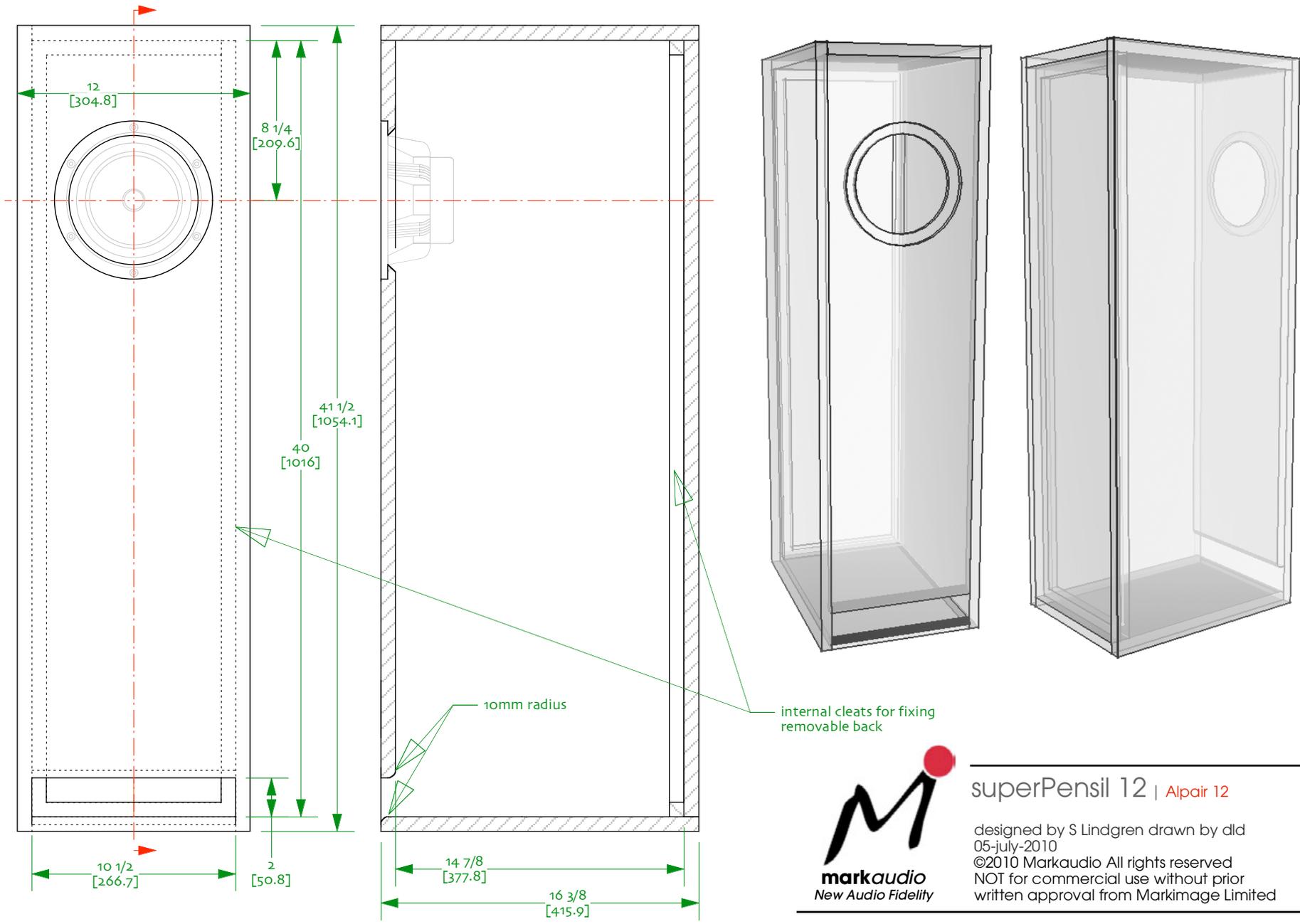
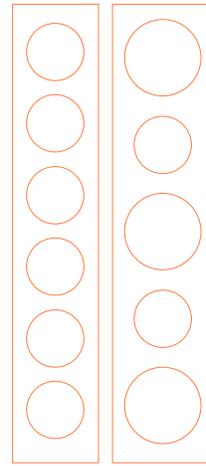
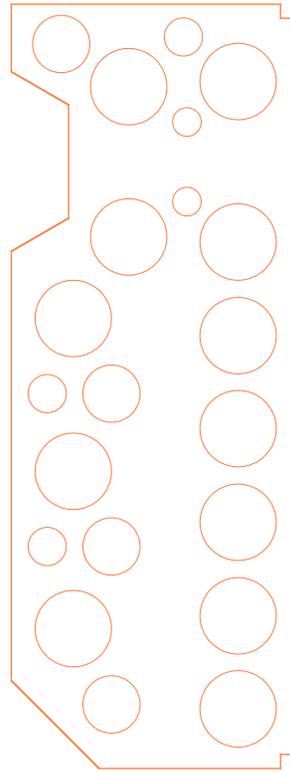
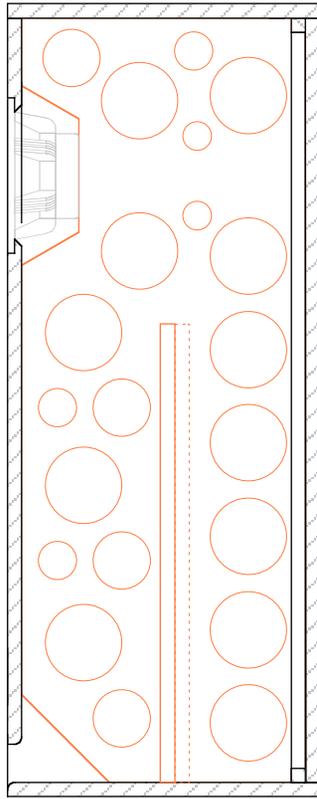
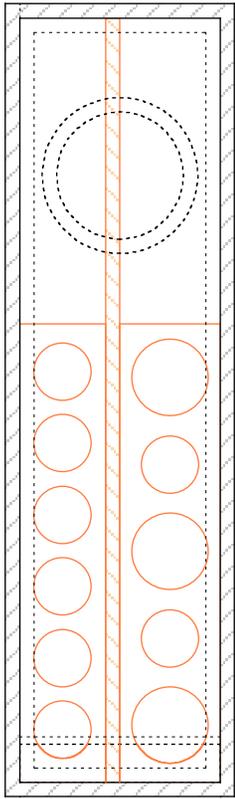


Notes:
 0/ drawing uses 3/4" (19.1mm) material. Quality multi-ply recommended
 1/ stuff with 1/2 to 3/4 pound per ft³ (1.15 to 1.8 pounds = 0.52 - 0.8 kg) of polyfill
 2/cleats on back to allow for removable back, useful for adjusting the stuffing
 3/ boptional racing shown on next sheet



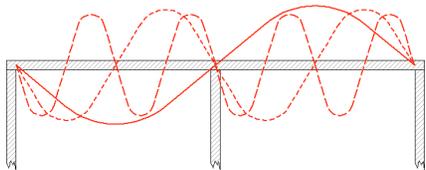
superPensil 12 | Alpair 12

designed by S Lindgren drawn by dld
 05-july-2010
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superPensil 12 | Alpair 12
 Optional bracing scheme
 designed by S Lindgren & D Dlugos
 18-july-2010 | drawn by dld
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- Notes:
- 0/ drawing uses 3/4" (19.1mm) material. Quality multi-ply recommended
 - 1/ large panel spans may be subject to unwanted resonance and colour the sound. Shown is an optional bracing scheme we have found to be effective in combatting this.
 - 2/ Any braces you add should not impede the 1/4-wave action of the design (ie they should be vertical), or impede the terminus slot
 - 3/ this scheme divides panels such that the aspect ratio of the subpanels is greater than the panel being braced.
 - 4/ braces are not dead centre as that does not affectively kill the 1st mode. (see figure below) They are placed with an edge on centre. Side to side braces have more placement latitude



panel modes with centred brace

5/ braces should be 30-50% holes. They do not have to be circles. This proportion of holes also acts to make side-to-side standing waves more complex (making them less audible) and to hold the fibrous damping material in place

6/ the brace behind the driver is intended to shunt vibration energy to the back panel, and not just leave it all in the baffle. This spreads the energy across more panels, reducing the likelihood of exciting a resonance. And if a resonance is excited, one on the back panel will be much less audible. The brace should be tight up against the magnet, but not so tight as to stress the basket. If you leave it a bit deep, fill the space with something relatively stiff (paper, wood, compressed neoprene closed cel foam).

Adding this bracing can be as much work as the whole rest of the cabinet, but really helps to get the last bit of performance out of the design

The same or similar scheme can be used on all the other pensils. On the smaller ones the side to side braces will be unnecessary and the driver brace can be abbreviated.

