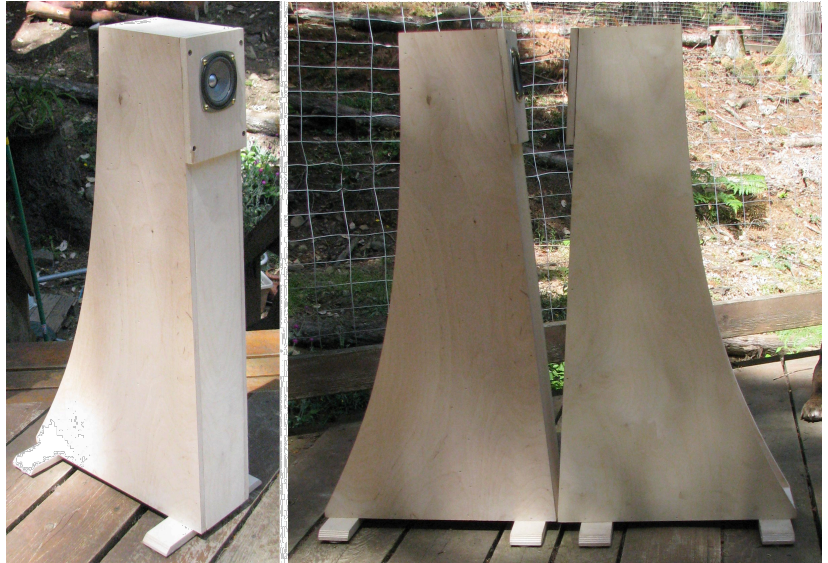
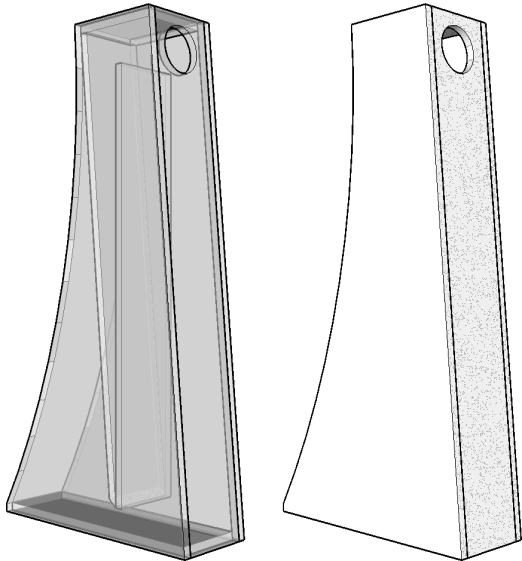


Frugel-Horn Lite

29-june-2015 | © 2010-2015 Frugal-Horn.com



In late 2006 – '07 a small group of enthusiasts collaborated to develop a compact, inexpensive corner-horn design for the DIY community. This project became the very successful Frugel-Horn, which even spawned an extremely expensive commercial adaptation.

The Frugel-horn Mk3 [FH3], a ground-up new design, followed and has been a very successful design with many 100s of builds.

The FH3 led to many requests for a similar cabinet for larger drivers. That led to the Frugel-Horn XL [FHxl].

Now we introduce the Frugel-Horn Lite, a smaller horn for 3" drivers. Initially designed and tested for the Fostex FF85wk, it has been simmed for other drivers and like the FH3 and FHxl should find itself suitable for a wide range of drivers.

Currently vetted drivers: Fostex FF85wk, Fountek FR88ex, FR89ex, FE85, Vifa TC9FD, AuraSound NS3, most 3" TB units (*some with the huge motors may have some clearance issues*), Mark Audio Alpair 6.2 M & P (*will require a supraBaffle to fit big bezel*), ScanSpeak 10F

Use of deflectors & supraBaffles yet to be explored.

Note: any commercial entity intent on manufacturing complete speakers or flat-paks for resale will need to follow the guidelines on the Frugal-Horn site + make a suitable donation to diyAudio.com: www.frugal-horn.com/use.html

This project's contributors:
DIYers who went ahead, assisted in beta testing, offered comment and suggestions
diyAudio: host for interactive discussion threads
Scott Lindgren <<http://www.wodendesign.com/>> design & documentation
Ron Clarke: the curved mouth
Chris Bobiak: Original test builds & drawing contribution
David Dlugos: drawings & testing.

Your name here: you can help with FAQ, assembly diagrams & pictures, photo gallery. Probably more.

Local cottage industry to make & distribute flat-paks encouraged, please contact Dave (david@planet10-hifi.com)

Drawings/Contents (provisional)

io/ Intro
ii/ Pictures
i2/ Notes

FHL-0/ Plan 12mm
FHL-1/ Side pattern creation
FHL-3/ Side template (metric 12mm)
FHL-4/ Side template (imperial 1/2")

D-0/ Damping
D-1/ full size side felt template (12mm)
D-2/ felt cut plan (12mm)

C-0/ 5x5 12mm cut plan
C-1/ 4x8 12mm cut plan

please email me <david@planet10-hifi.com> with corrections & suggestions to make this document more useful

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Notes

16-june-2015

Notes

o/ quality multi-ply/plywood is recommended. In general, void free, the greater number of plies the better
1/ reference build is 12mm plywood
2/ if MDF or particle board used a minimum panel thickness of 18mm, good multi-ply minimum 12mm
3/ the most difficult detail in the build is the joint at the bottom of back, inside divider.
4/ A full height rear deflector based on that shown in the Frugel-Horn Mk1 document can be added

Comments & tips pulled form forum posts

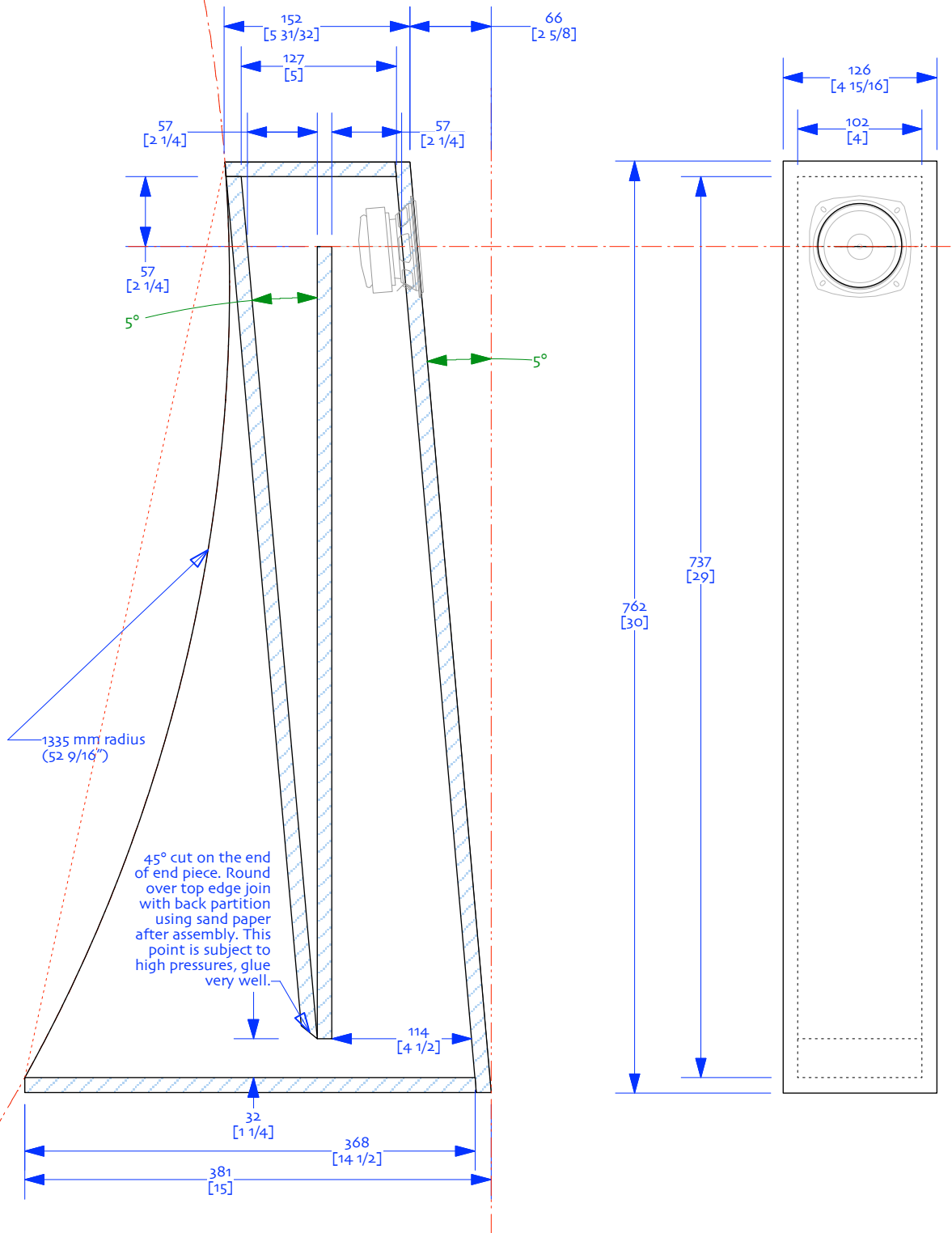
As several of the internal angles are not as convenient as the 5° common throughout the FH3, a magnetic angle gauge is very helpful. If you don't already possess one, it's a very good investment.



Not described in the drawing is the small tapered gluing block near apex of line (i.e near bottom joint)

For the angled (scarf) joint of bottom of back panel and internal divider, (item #3 opposite) a tenoning jig on table saw works perfectly. Using the magnetic gauge, set the blade to required angle and clamp back panel at 90°.

If a tenoning jig is not available for above step, the tapered wedge cut at 7° ensures a tight joint and increased glue surface area.



Notes:

- 1/ drawn with 12mm material
- 2/ Fostek FF85wk is the default driver but these have been checked & should work:
 Fountek FR88ex, FR89ex, FE85
 Vifa TC9FD
 AuraSound NS3
 most 3" TB units (some with the huge motors may have some clearance issues)
 Alpair 6.2 M & P (will require a supraBaffle to fit big bezel)
 ScanSpeak 10F

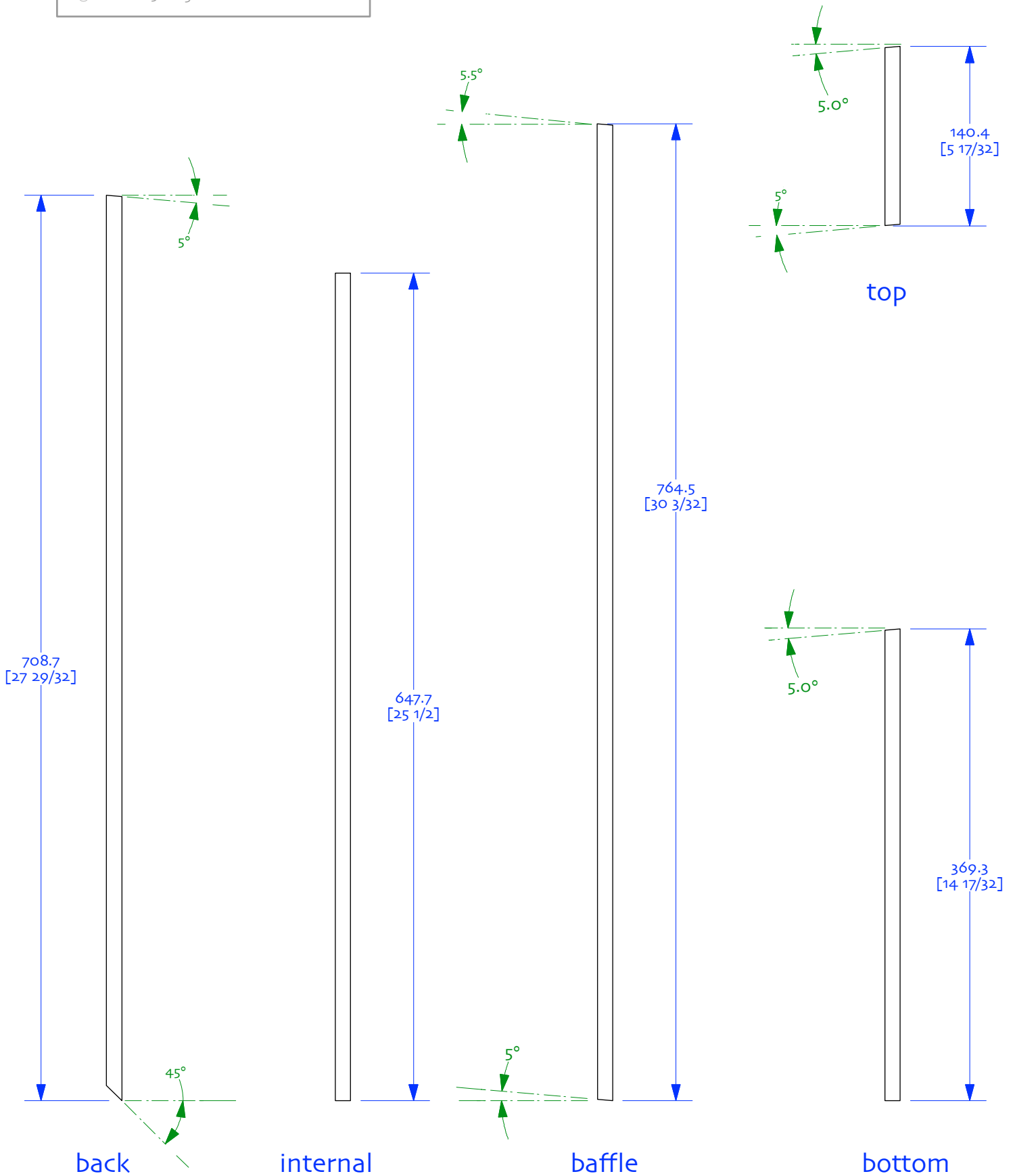
Frugal-Horn Lite ovg
sheet FHL1-o – 12mm Plan
 for FF85wk
 designed by S Lindgren | drawn by dld
 16-June-2015
 © 2010-15 Frugal-Horn.com

Frugal-Horn Lite ov9 sheet FHL1 – 12mm detail

designed by S Lindgren | drawn by dld
16-june-2015
© 2010-2015 Frugal-Horn.com

Notes:

1/ all parts 102 mm (4") wide, 12mm thick

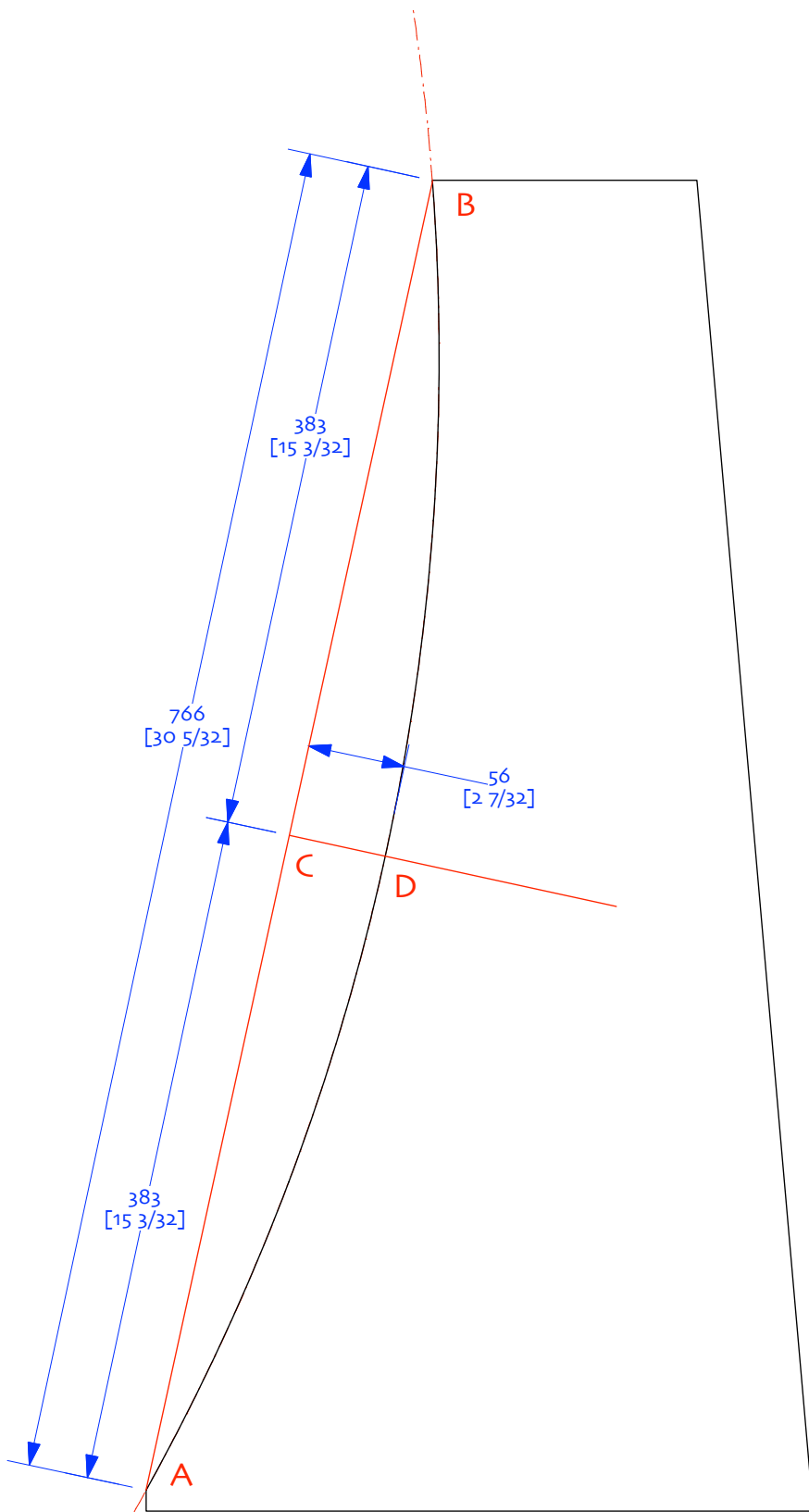


To fabricating a side panel template by hand, the curve can easily be drawn using a narrow flexible board (1/4" MDF works great) and the 4 points as dimensioned.

Mark points A,B (chord ends), C (chord centre line) and D (segment height) on the work-piece. Use a square to draw a perpendicular line (C-D)

Clamp or screw a wood block straddling the centreline at D, clamp the flexible board to this block and each end of the chord (A & B) then draw the curve.

Cut to the outside with jig or band saw, and carefully sand to line



Frugel-Horn Lite ov9
sheet FHL-1 – curve chord & height

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16-june-2015
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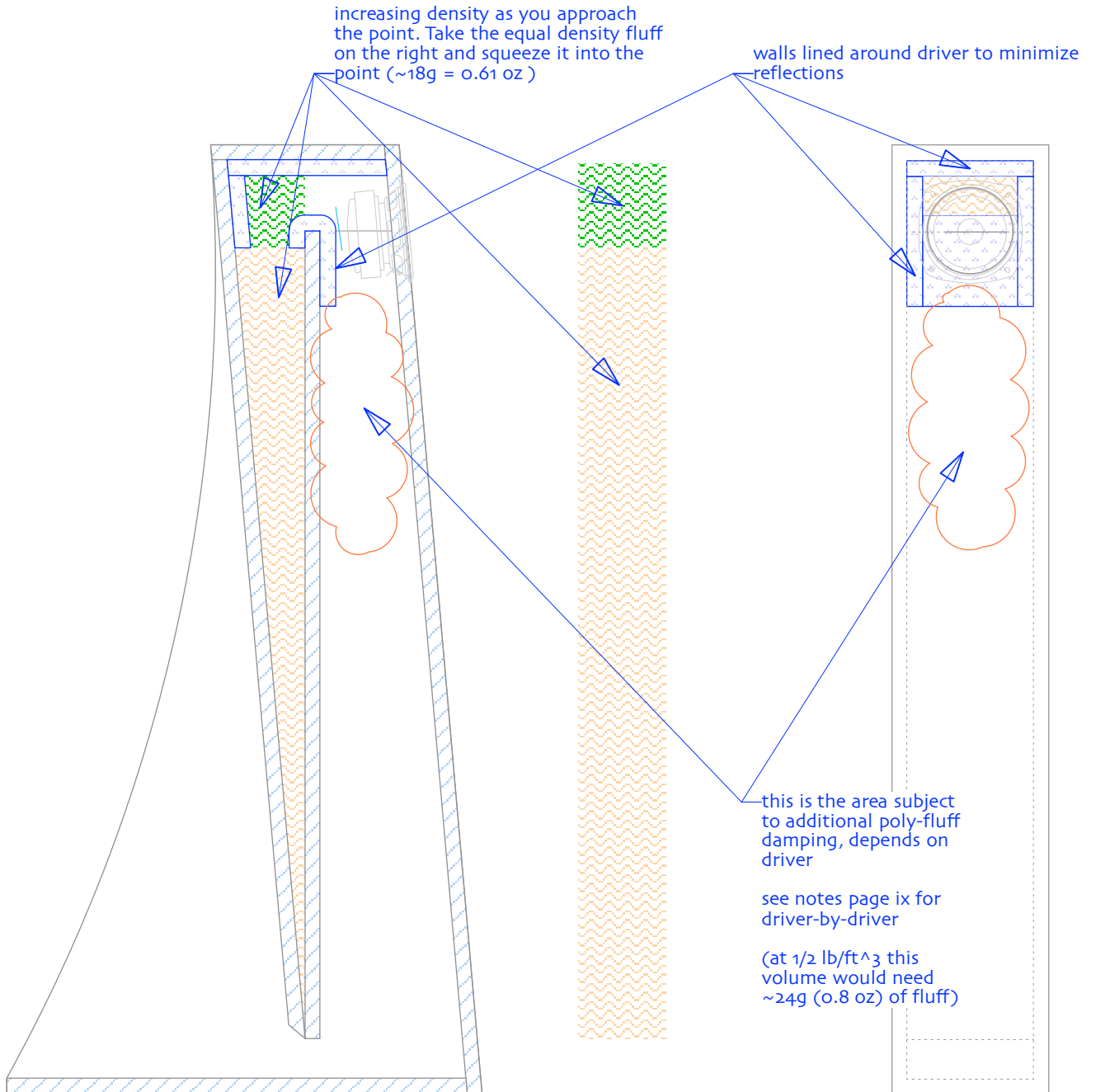
1/2" (12mm) cotton or wool felt

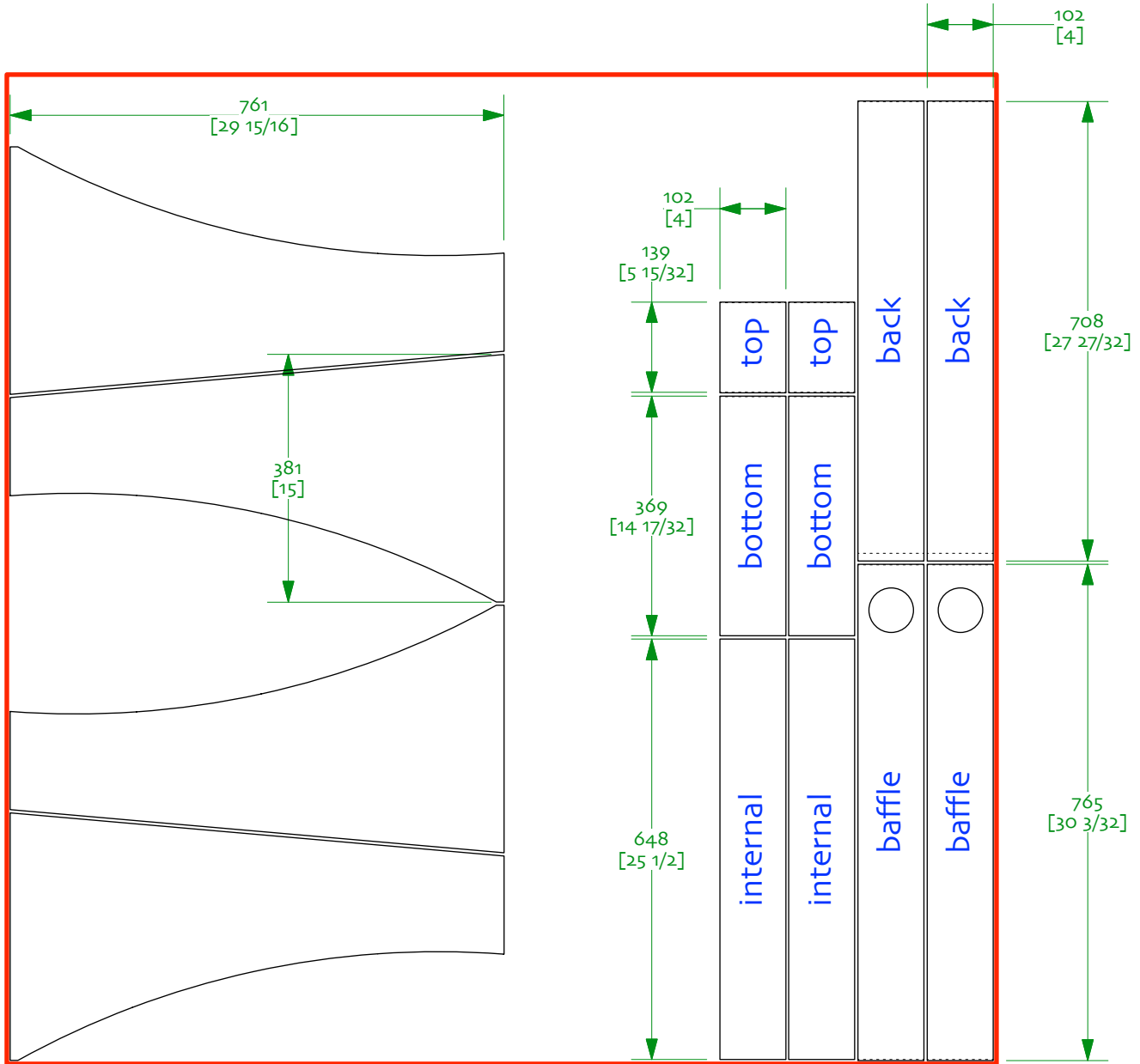


poly-fluff (BAF, acoustistuff, pillow stuffing -- different colours represent different "zones" to add stuffing to -- different material will have different characteristics).

Frugel-Horn Lite ov8 sheet D-o – damping plan

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Notes:
1/ 5mm kerf & trim allowance

Frugal-Horn Lite ovg
Sheet C-o – 5x5 12mm cut sheet

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Frugel-Horn Lite ov9
 Sheet C-1 – 4x8 12mm cut sheet

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Notes:
 1/ 5mm kerf & trim allowance

