



To Our Awesome Community

We encourage DIY and building of our enclosures.

Our official plans represent the best standard to help you reach the full performance of our products, anything less could compromise the experience, and we want the best for you and our brand.



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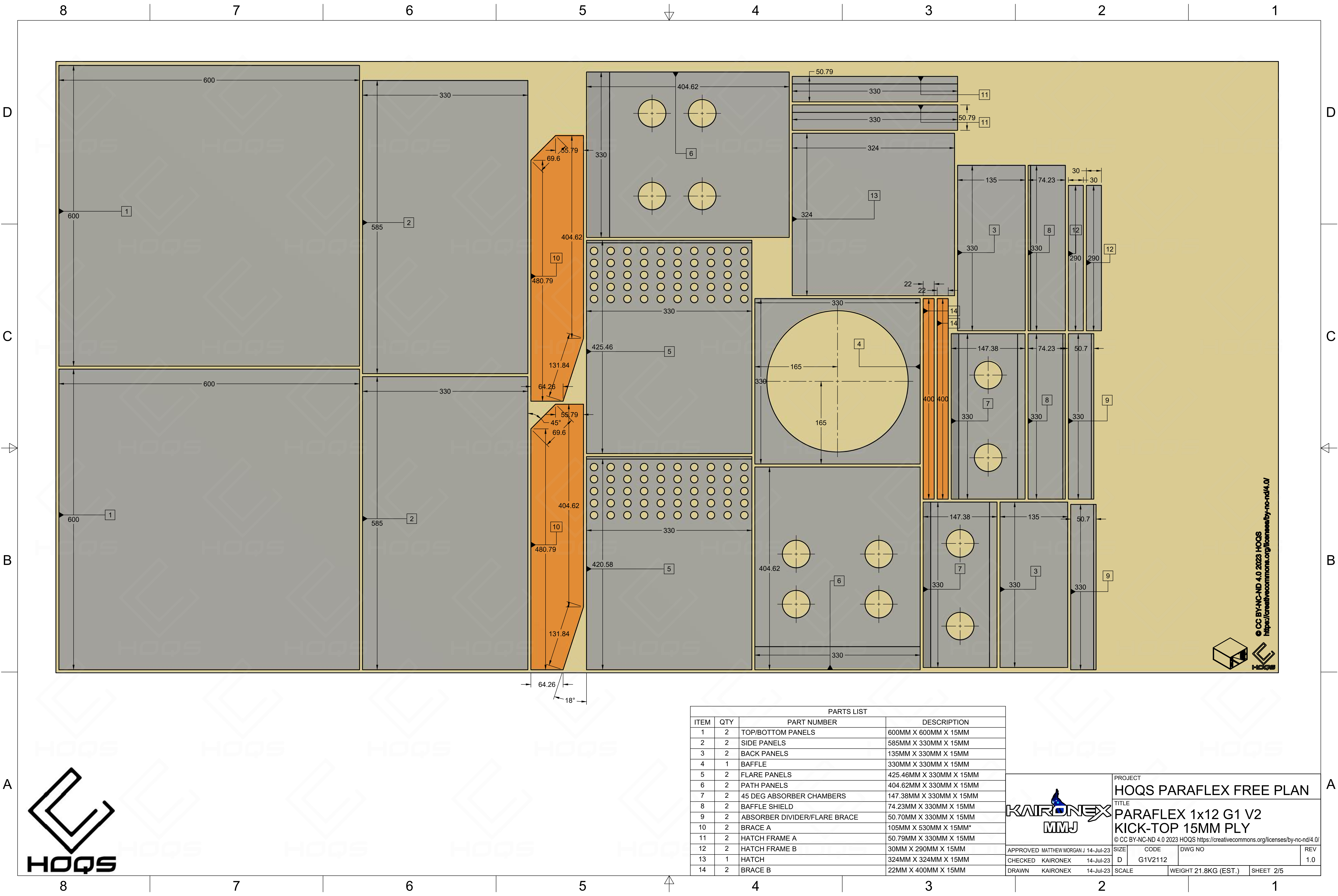
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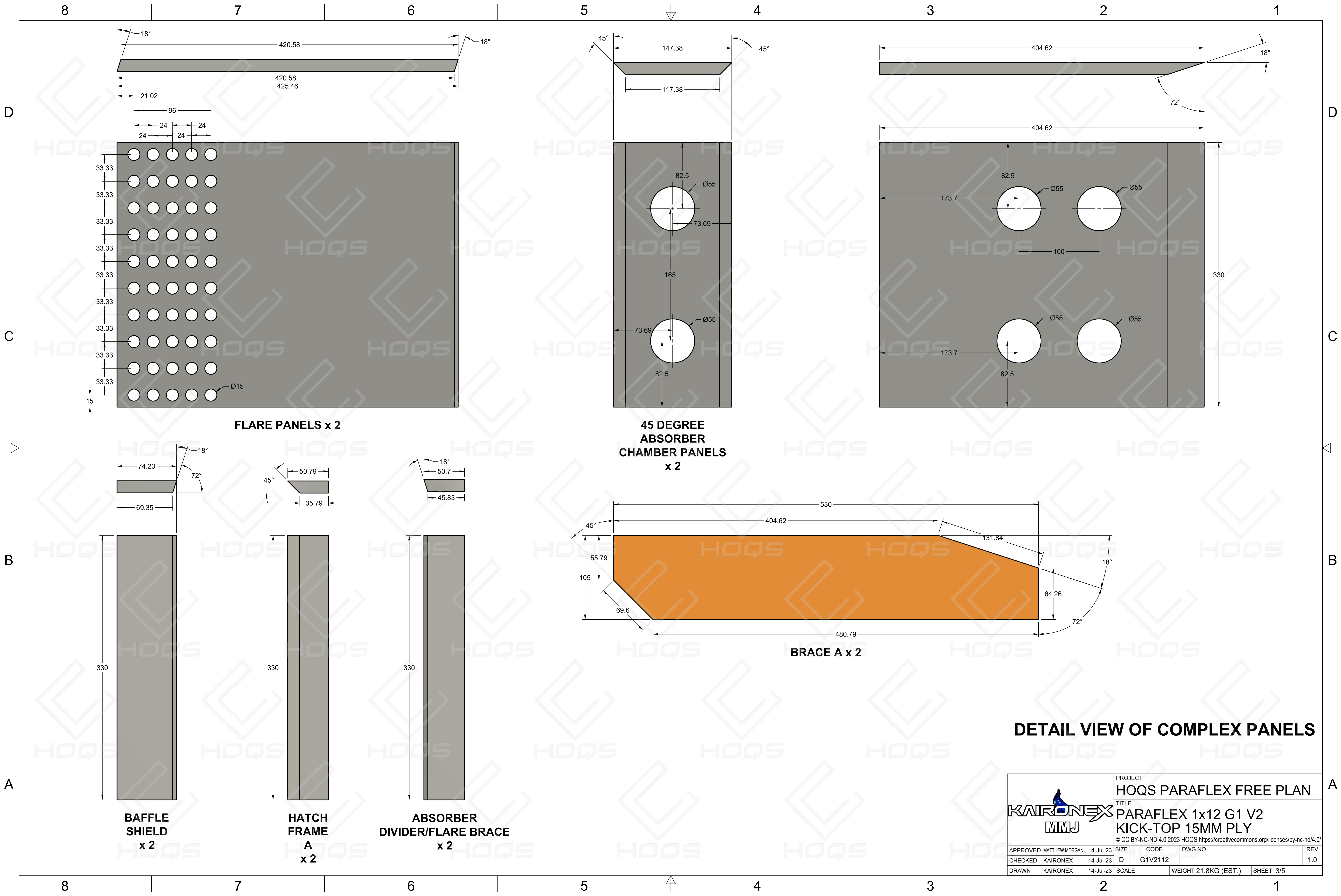
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HOQS PARAFLEX was founded in coordination with Matthew Morgan J, Dustin Morgan and J Vansickle then developed by The **HOQS** development community.





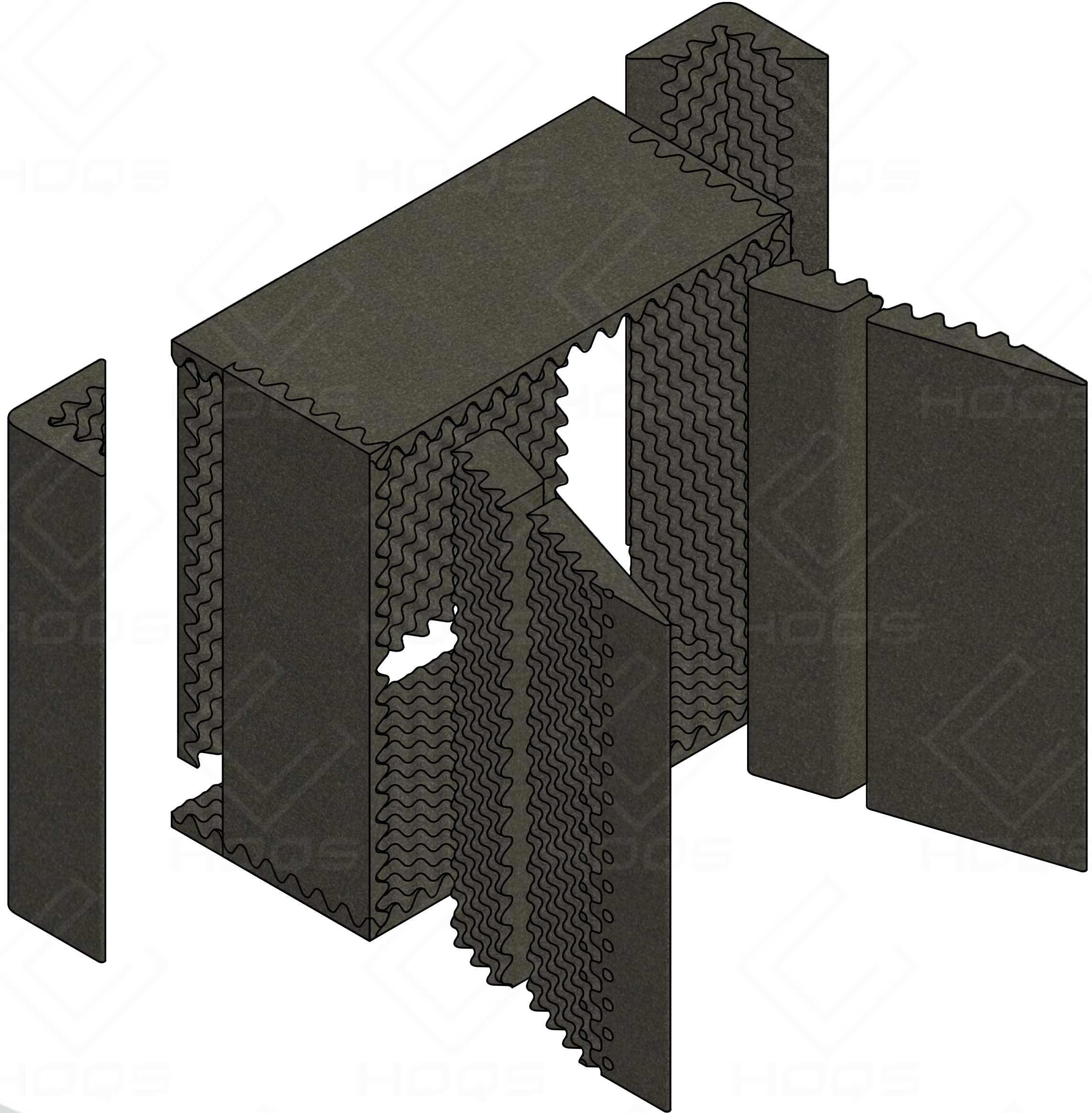
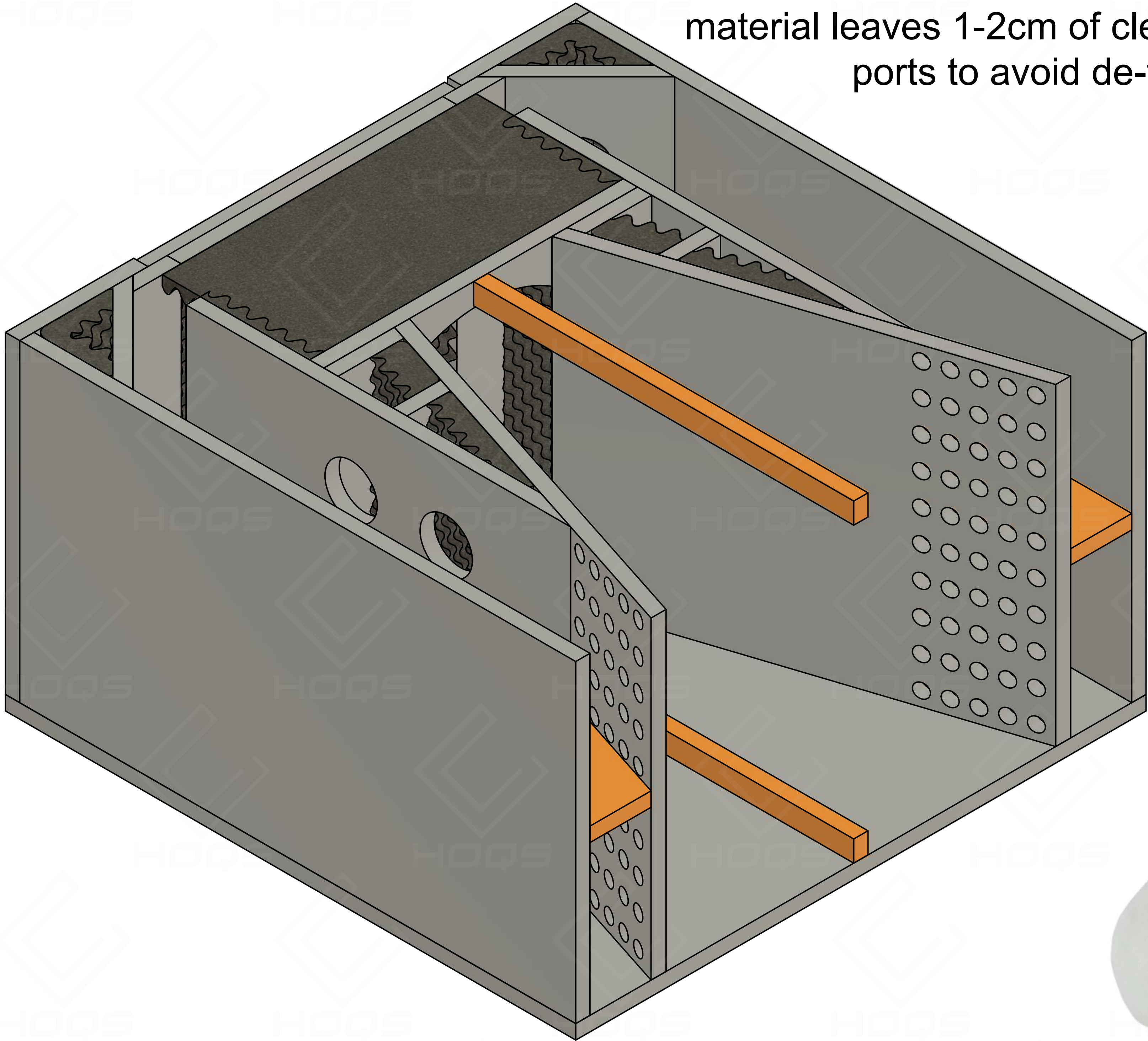



DETAIL VIEW OF COMPLEX PANELS

	PROJECT					
	HOQS PARAFLEX FREE PLAN					
	TITLE					
	PARAFLEX 1x12 G1 V2 KICK-TOP 15MM PLY					
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APPROVED	MATTHEW MORGAN J	14-Jul-23	SIZE	CODE	DWG NO	REV
CHECKED	KAIRONEX	14-Jul-23	D	G1V2112		1.0
DRAWN	KAIRONEX	14-Jul-23	SCALE		WEIGHT 21.8KG (EST.)	SHEET 3/5

ACOUSTIC DAMPING MATERIAL

Fill the resonators with Open Cell Acoustic Foam
or Polyester Fibre material 80-90%
Methods should be used to ensure the damping
material leaves 1-2cm of clearance from the
ports to avoid de-tuning.




			PROJECT			
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			PARAFLEX 1x12 G1 V2 KICK-TOP 15MM PLY			
© CC BY-NC-ND 4.0 2023 HOQS https://creativecommons.org/licenses/by-nc-nd/4.0/						
APPROVED MATTHEW MORGAN J 14-Jul-23			SIZE	CODE	DWG NO	REV
CHECKED KAIRONEX 14-Jul-23			D	G1V2112		1.0
DRAWN KAIRONEX 14-Jul-23			SCALE 1:16		WEIGHT 21.8KG (EST.)	SHEET 4/5

FROM MMJ AND THE HOQS DEVELOPMENT COMMUNITY

- Our goal of this update was to improve and smooth the midrange performance of the Paraflex GLOBAL #1 style 1x12" Kicktop design, but the solution we came up with also benefits the cabinet's lower frequency performance.
- We began this process by taking acoustical measurements of the cabinet's Low-Tuned Resonator Section (with the front of the microphone tucked into the LTR) which we compared with measurements taken with our mic placed in the High-Tuned Resonator section (HTR), both to be compared with standard combined measurements taken at 1 meter.
- This analysis revealed that some underdamped odd-order harmonic resonances produced by our LTR section are out of phase with our HTR section's output thereby causing interference in our combined response. These odd-order harmonic resonances can be seen as peaks in the LTR's measurement but create notches & dips in our combined response, most notably at around 500Hz and around 750Hz to 800Hz (in this particular design).
- We tried many different strategies involving offsets, damping materials, and various changes to geometry and chamber/resonator configurations, most all of which did not yield the desired improvements (sufficiently) until we began experimenting with Band-Stop Filters in the form of tuned chambers & ports.
- The Band-Stop Filter chambers which have also been called "*Absorber Chambers*" are a Helmholtz (chamber+port) based solution which effectively tame (damp) the LTR's odd-order harmonic resonances to such an extent that the amount of interference with our cabinet's HTR output is reduced to acceptable levels.
- Our first Band-Stop Filter chambers were created via the utilization of the previously unused volumes behind our flare panels by porting those volume to the LTR's paths, which also as a welcomed secondary benefit makes this volume available to the cabinet's LTR section increasing overall LTR volume in turn allowing for improved low frequency performance.
- In our efforts to optimize the tuned absorber chambers we found that splitting the volumes to double the amount of ported chambers increased their effectiveness in the midrange which makes sense when you consider the target wavelengths involved (as 500Hz and 800Hz do not require large Helmholtz resonator volumes).
- With more experiments we discovered that adding some damping material to the chambers and tuning the chambers a bit higher was beneficial.
- A tremendous amount of effort from HOQS people all around the world went into the improvement of our G#1 design and we are sure you will enjoy this culmination!

Truly,
~ Matthew Morgan J of The HOQS global collective.



			PROJECT			HOQS PARAFLEX FREE PLAN		
			TITLE			PARAFLEX 1x12 G1 V2 KICK-TOP 15MM PLY		
			© CC BY-NC-ND 4.0 2023 HOQS https://creativecommons.org/licenses/by-nc-nd/4.0/					
			APPROVED MATTHEW MORGAN J 14-Jul-23			SIZE	CODE	DWG NO
CHECKED KAIRONEX 14-Jul-23			D	G1V2112				1.0
DRAWN KAIRONEX 14-Jul-23			SCALE		WEIGHT 21.8KG (EST.)		SHEET 5/5	

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