



STABLCOR[®]

RIGIDITY

IF YOU WANT OPTIMUM RIGIDITY, THEN DO NOT USED SINGLE CORE IN THE CENTER. WHY? SEE NEXT SLIDE.

Estimated STABLCOR[®] Effect on PCB Rigidity

	PCB Material ratio FR4(%) / STABLCOR(%)															
	100/00 (FR4)	90/10		85/15		80/20		75/25		70/30		60/40		50/50		00/100 (STABLCOR)
	msi	msi	(x)	msi	(x)	msi	(x)	msi	(x)	msi	(x)	msi	(x)	msi	(x)	msi
ST10	3.00	3.72	1.24	4.08	1.36	4.44	1.48	4.80	1.60	5.16	1.72	5.88	1.96	6.60	2.20	10.20
ST325	3.00	5.85	1.95	7.28	2.43	8.70	2.90	10.13	3.38	11.55	3.85	14.40	4.80	17.25	5.75	31.50
ST600	3.00	6.28	2.09	7.91	2.64	9.55	3.18	11.19	3.73	12.83	4.28	16.10	5.37	19.38	6.46	35.75

Above numbers are represented based on material ratio calculation only

msi=millions of pounds per square inch

(x)= This many times rigid. Ex. 1.24x means 1.24time Rigid than FR4 boards



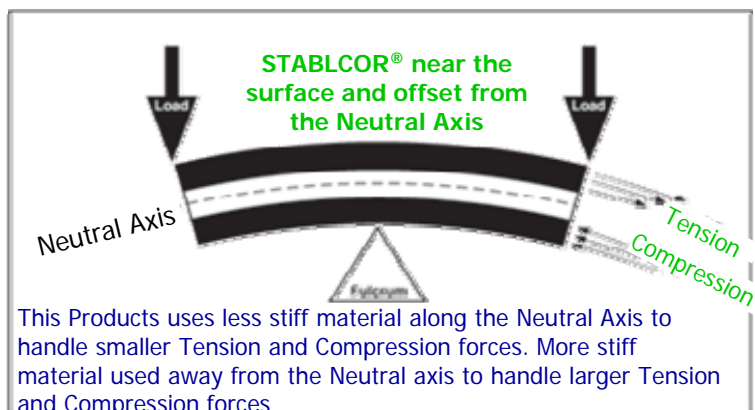
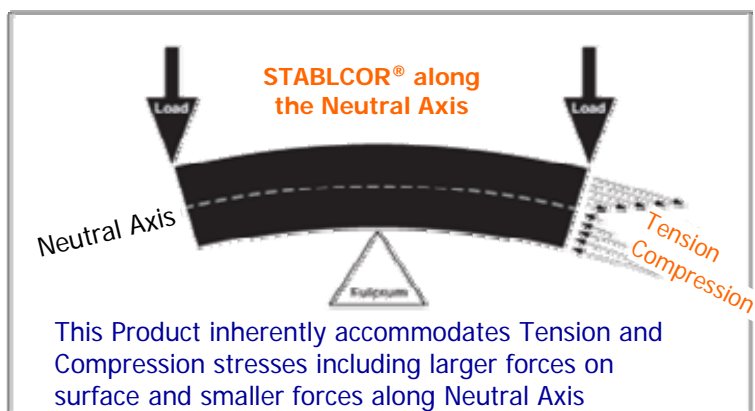
Carbon Core Laminates, LLC



STABLCOR[®]

STABLCOR[®] STRUCTURAL THEORY OF RIGIDITY

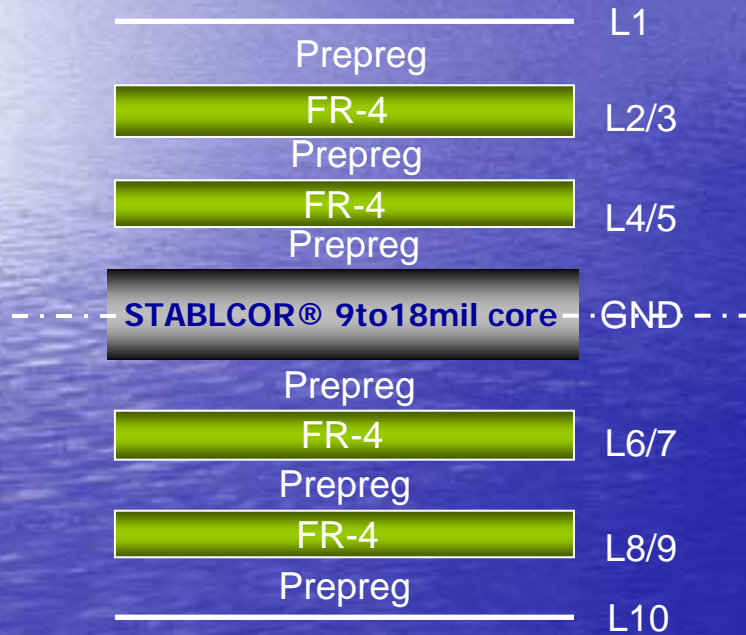
PRODUCT COMPARISON



As can be seen from Structural theory, there is very minimum tensile force and Compressive force at the neutral axis of the structure. Even though STABLCOR[®] material has very high tensile modulus compare to glass composite it will have very limited effect on overall rigidity if it is used only along the NEUTRAL AXIS. Based on graphic shown, the farther you space the two STABLCOR[®] layers away from each other and from the centerline, the greater the effect. This means it is better to use two thin STABLCOR[®] layers farther a part from each other than using single thick STABLCOR[®] layer in the center for Rigidity improvement.

Proposed stack-up to Optimize RIGIDITY Benefit

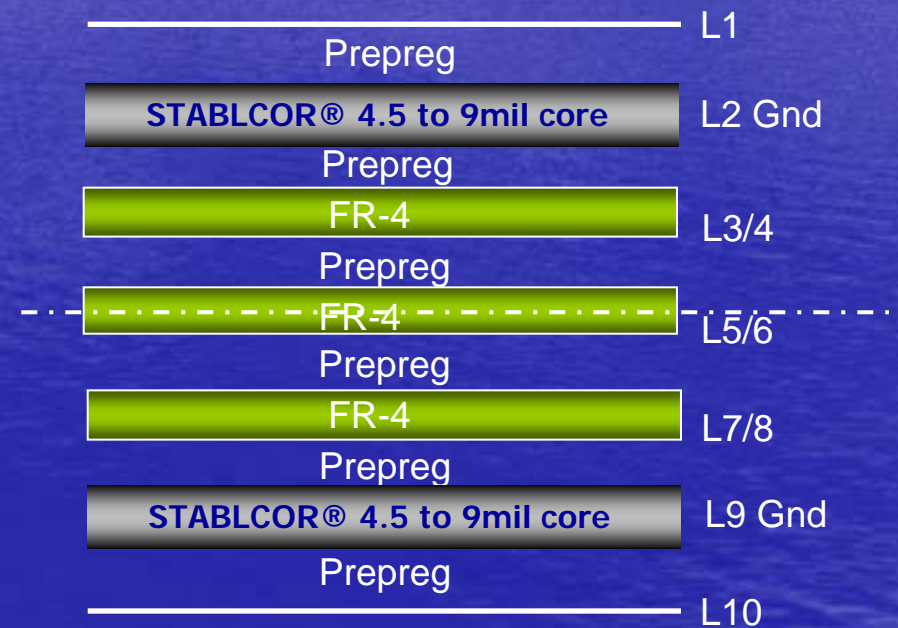
❖ Non-Optimized Stack-up for Rigidity



STABLCOR® along the Neutral Axis

❖ Optimized Stack-up for Rigidity

- ❖ Principle: Use STABLCOR® layers away from Neutral Axis
- ❖ Two thin STABLCOR® layers as arranged below would give higher stiffness than single thick core in a center



STABLCOR® near the surface and offset from the Neutral Axis