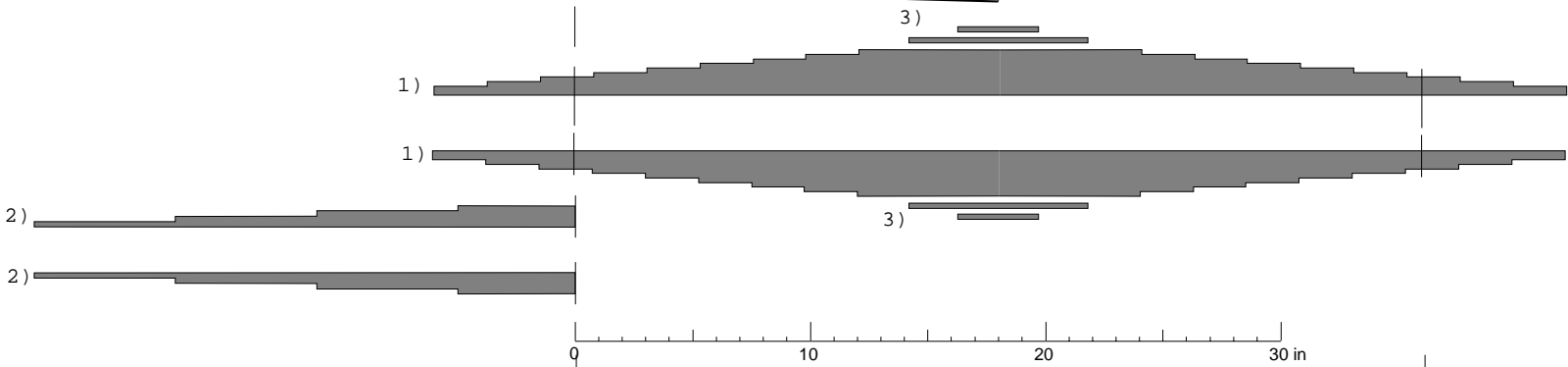


# Aegea II

## Wing Spar Materials



### Composite Structures Technology

#### Pre-cured prepreg strips

1)	16.90	cent	1/2" x 48" x 0.060" -> 0.014" dbl taper	C1952
2)	9.30	tips	3/8" x 48" x 0.030" -> 0.007" dbl taper	C1914
3)	2.85	fill	1/2" x 36" x 0.007" constant	C1023
	6.80	joiner	0.315" x 36" hollow carbon rod	T523-4
	5.45	joiner	0.230" x 36" hollow carbon rod	T519-4

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\$41.30

### Wing spar weights

caps	56 g	(prepreg uni CF)
core	15 g	(6 lb endgrain balsa)
wrap	15 g	(2.0oz, 0.75oz glass)
join	15 g	(0.315" CF tube)
tubes	3 g	(Kevlar)
boxes	6 g	(plywood, glass)
glue	6 g	

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116 g

### Design Loads

wing lift	150 lb @ 50 m/s
root bend.mom.	1400 lb-in
root cap load	3000 lb
root cap area	0.037 in <sup>2</sup> top
	0.037 in <sup>2</sup> bot
cap stress	81 ksi top
	81 ksi bot
wrap stress	11 ksi (shear)
root EI	78000 lb-in <sup>2</sup>
root curv.	0.018 l/in
tip defl.	12 in

root torsion	25 lb-in
root skin th.	0.007 in
wing skin shear	480 psi