

Balsa Wood Selection

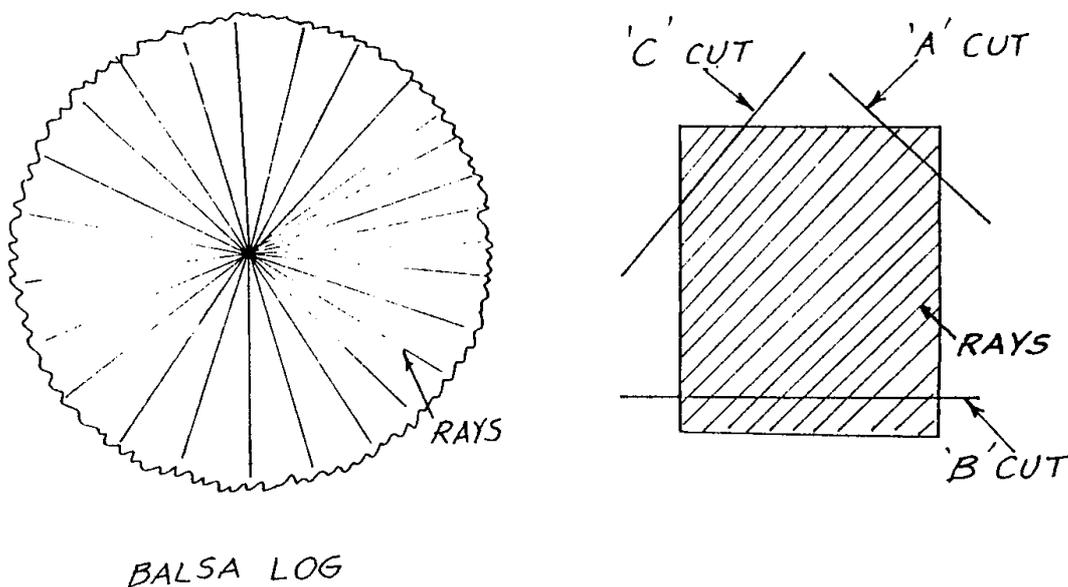
Why Use Balsa?

Balsa wood, which comes from South America, is about the fifth lightest wood in the world and has a very high strength/weight ratio. Despite the advent of many new modelling materials, it remains a favourite and has now been in use for some 60 years. It is 'user-friendly' although the wife/mother may complain about the dust!

Types of Balsa Cuts

There are 3 main types of cut, by convention known as 'A', 'B' and 'C', which determine the type of grain and therefore its stiffness and flexibility.

Unlike most other woods, the annual growth rings hardly show on a balsa log and what we see are the medullary rays which radiate out from the centre (if looking at the end-grain, do not be misled by circular saw cutting marks).



Identification and use of cuts

'A' Grain

- is flexible along and across the grain; it has thin, straight grain lines along its length. Use for sheeted leading edges, curved spars, and rolled tubes.

'B' 1 Grain

- is stiffer than 'A' grain, and tends to remain straight and true; it has more diffuse grain lines. Use for straight spars; OK for sheet tail surfaces and general use.

'C' or Quarter Grain

- very stiff in both directions; has a speckled appearance, sometimes described as mother of pearl chips. Use for ribs and trailing edges when cut from sheet. OK for fuselage sheet covering.

NB: you will also find 'random cuts' where the type of grain changes across the width of the sheet.

Balsa Density

TABLE TO DETERMINE THE WEIGHT PER CUBIC FOOT OF STANDARD Balsa WOOD SHEETS OF 36" LENGTH

SHEET SIZE	YELLOW			ORANGE		RED		GREEN		BLUE		BLACK		
	ULTRA LIGHT	LIGHT	MEDIUM LIGHT	MEDIUM	MEDIUM HARD	MEDIUM	MEDIUM HARD	HARD		EXTRA HARD		OAK!		
	5LB	6LB	7LB	8LB	9LB	10LB	11LB	12LB	13LB	14LB	15LB	16LB	17LB	18LB
$\frac{1}{16}$ " (1.5mm) x 3"	9	11	13	14	16	18	20	22	24	26	27	28	30	32
" x 4"	12	14	17	19	21	24	26	28	31	34	36	38	40	42
$\frac{3}{32}$ " (2.5mm) x 3"	14	16	19	21	24	27	30	32	35	38	40	42	45	48
" x 4"	18	21	25	28	32	36	39	42	46	50	53	56	60	64
$\frac{1}{8}$ " (3mm) x 3"	18	21	25	28	32	36	39	42	46	50	53	56	60	64
" x 4"	24	28	33	37	43	48	52	56	61	66	70	74	80	86
$\frac{3}{16}$ " (4.5mm) x 3"	27	32	38	42	48	54	59	64	70	76	80	84	90	96
" x 4"	35	42	49	56	63	70	77	84	91	98	105	112	119	126
$\frac{1}{4}$ " (6mm) x 3"	35	42	49	56	63	70	77	84	91	98	105	112	119	126
" x 4"	47	56	66	75	84	94	103	112	122	132	141	150	159	168
$\frac{3}{8}$ " (10mm) x 3"	53	63	74	84	95	106	116	126	137	148	158	168	179	190
" x 4"	70	84	98	112	126	140	154	168	182	196	210	224	238	252
$\frac{1}{2}$ " (12mm) x 3"	70	84	98	112	126	140	154	168	182	196	210	224	238	252
" x 4"	93	112	131	150	168	186	205	224	243	262	281	300	318	336

WEIGHT IN GRAMS (28.35 G = 1 OUNCE)

YOU CAN CALCULATE STRIP & BLOCK WEIGHTS FROM THIS TABLE IE 7LB $\frac{1}{4}$ " x $\frac{1}{4}$ " x 36" = $\frac{40}{12}$ = 4G.

R.G.J. SEPT '89.

Balsa density, and therefore its hardness, varies from 4 - 24 pounds per cubic foot. You can double the weight of your airframe with injudicious wood selection. While experience helps, the best way to determine density is to weigh each piece of wood, using a letter scale. I prefer the hand-held type calibrated in grams, where the object to be weighed is held in a spring clip. This can be used at the point of sale.

By reference to the above table, you can convert the weight found to density. Also included are the conventional terms used to describe each range of density (you will find plans calling for 'medium hard', etc), and a colour code which is useful for marking the end of the strips when they have been classified.

Application for Grades

Ultra Light	Indoor models
Light	Sheet covering ; cowling blocks
Medium Light	Large section leading edges and trailing edges All sheet tail surfaces
Medium	Spacers; stringers; trailing edges
Medium Hard	Longerons; carved rubber props; auxiliary wing spars
Hard	Main wing spars; small section longerons
Extra Hard	Small section mainspars

- ANY HARDER KEEP FOR THE GARDEN FENCE -

At the Model Shop

If your local model shop does not have a good selection of wood to choose from or objects to you weighing and sorting, take your custom elsewhere. The Balsa Cabin will supply wood of the grain and density you require. To save postage catch them at the major shows. When you ask for, say, quarter grain 1/8th sheet, they will give you a bundle of about 30 pieces to choose from (I have no connection with this firm, but recommend them for balsa, spruce, ply, etc.)