

## Materials used for Indoor Models

Balsa wood, bass wood, spruce plywood, music wire, thin aluminum sheet, extruded polystyrene foam and other plastics are materials commonly used to build indoor flying models.

Balsa wood comes in different densities, grains, sizes and thicknesses. It is most commonly sold in sheets 3" or 4" wide, 36" or 48" long and 1/32" to 1/2" thick.

The density of balsa varies from 4 pounds per cubic foot to over 16 pounds per cubic foot. The most commonly used densities for balsa construction are between 6 to 9 pounds per cubic foot.

Note the different appearance between A-grain and C-grain balsa. Most of our building will use A-grain wood. This is straight grained and the most commonly available. Within the sheet there can be hard or soft spots and areas that are more or less dense than other areas.

For critical component, such as spars and motor sticks, it might be necessary to cut a number of pieces from a sheet of wood. Then test each one to find the pieces most suitable for the specific task.

Basswood and Spruce are much heavier than balsa but also much stronger. These woods are often used in the leading edges of gliders to provide resistance to damage. If a minimum weight requires the use of ballast it might be advisable to use basswood or spruce instead of balsa to make very stiff motor sticks.

While not often considered an indoor model building material, thin plywood can be used with excellent results. Plywood used for indoor models is generally 0.015" (or 0.4 mm) and .030" (or 0.8mm) thick. It can make an excellent nose hook for catapult launched gliders and mounts for propeller bearings.

Rigid polystyrene foam can often be used in building light weight models. The most common polystyrene foam in model construction is extruded polystyrene foam. This should not be confused with expanded bead polystyrene foam. The expanded bead polystyrene foam is made from individual beads that have been expanded by heat and stick together almost like popcorn. Extruded polystyrene foam tolerates sanding to thin sections much better than the expanded bead polystyrene foam.

While extruded polystyrene foam is available in large sheets often used for building insulation it can be found in egg cartons, and take-out food containers.

Depending on whether a kit is used, the contents of the kit, or if you want to build your model from scratch, additional materials might be needed. These can include music wire usually 0.032" in diameter for propeller shafts and tail hooks, glass beads for thrust bearings, metal from soda cans for propeller hangers, sewing thread for binding and reinforcement, plastic bottles and cups for propellers. As you look at some of the building videos you will see opportunities to use many commonly available items in the construction of indoor models and structures.