

Bending Plywood

The following radii have been found to be appropriate minimums for mill-run panels of the thickness shown, bent dry. The radii given are minimums, and an occasional panel may develop localized fractures at these radii.

Panel Thickness (in.)	Bending Radii (feet) for Dry Panel Bent in Direction	
	Across Grain	Parallel to Grain
1/4	2	5
5/16	2	6
3/8	3	8
1/2	6	12
5/8	8	16
3/4	12	20

Shorter radii can be developed by selection for bending of areas free of knots and short grain, and/or by wetting or steaming. Exterior-type plywood should be used for such wetting or steaming. Panels to be glued should be redried before gluing.

The easiest method for wetting plywood is to apply towels, gunny sacks, or rags to the area in which the bend is to occur. The cloths should be kept soaking wet, preferably with warm water, and left in contact with the plywood long enough to saturate and to warm the area. Some period of time will be required to achieve this saturation, probably overnight. The bends should be made while the wood is still warm and the fibers are soft. As the plywood dries, it will regain its original hardness and strength. (It will also try to regain its original shape unless it is held rigidly in place.)

Faster and more efficient bending can be obtained with a steam box. A box can be constructed just large enough to receive the portion of the panel to be bent, and steam can be provided by simple methods such as heating a pan of water with an electric plate or gas burner. Two to four hours of good steaming is usually sufficient to make the wood flexible enough for easy bending. No damage to the exterior glue line will occur.

The wet panels should be fastened at the outside edge, and the bending should proceed from the point of maximum curvature toward the area where curvature is minimal.

Steaming or wetting plywood tends to cause face checking and/or grain raise, which can be objectionable from an appearance standpoint, although they do not affect the panels structurally. To prevent or minimize this effect, the plywood should be allowed to dry as slowly as practicable. After the panels have dried, an application of paste wood filler may be required to fill face checks. A prime coat of paint should then be applied and the plywood sanded lightly. Plywood should not be sanded before the prime coat of paint has been applied, since the paper will tend to dig into the soft springwood and ride over the hard summerwood, thus causing grain relief which may be objectionable, especially under enamel paint.

Technical Services Division
November 2002

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