



FORESTRY EXTENSION NOTES

GUIDELINES FOR CONSTRUCTING AND MAINTAINING WOODEN PLAYGROUND EQUIPMENT

Wood is one of the major materials used in the construction of playground equipment and structures. Selecting, assembling, and maintaining wood properly will greatly enhance its performance and durability.

Tips for Selecting Wood

- To avoid deterioration of outdoor wood by decay fungi or by wood-destroying insects, use either the heartwood of naturally durable species or wood pressure-treated with appropriate water-borne preservative chemicals. Avoid using wood treated with oil-borne preservatives such as creosote or pentachlorophenol for any application where direct people-contact is likely.
 - Among wood species that have naturally durable heartwood, only western redcedar or redwood are commonly available. These woods are also very stable when exposed to moisture changes, do not check excessively, wear uniformly, and are easy to finish. Select only all-heartwood grades of these woods; among the heartwood grades for each species, choose the particular grade that has the appearance and other characteristics needed for the application involved.
 - The other type of wood appropriate for use outdoors is material that has been commercially pressure-treated with leach-resistant, water-borne preservatives. The most common type of water-borne preservative is CCA (chromated copper arsenate). Make sure the treated wood is labeled or marked either as “Ground Contact” or “Foundation” grade to ensure the
- lumber has adequate retention of preservative chemicals. Southern pine is the most common type of lumber treated with CCA and may be the best choice because it is typically so easily penetrated with preservatives.
- Lumber used for playground structures or other outdoor applications should be dry. Wood used outdoors should be dried to a moisture content of 15 to 19 percent. Unless “Foundation” grade is specified, lumber treated with CCA often will have excessive moisture content; high moisture content wood may appear wet on the surface and be excessively heavy. CCA-treated material with obviously high moisture content should be properly stacked with spacers between layers of lumber and allowed to season for several weeks in a garage or open shed before installation. Or, purchase CCA-treated lumber labeled as “KDAT” (kiln dried after treatment); this lumber may be slightly higher cost.
 - Inhalation of sawdust from any type of wood should be avoided; when sawing, sanding, boring or planing wood, a two-strap dust mask should be worn. Eyes should be protected from flying particles when sawing or machining wood with power equipment; goggles should be worn when performing these activities. Protect hands from splinters and splinters by wearing durable leather gloves; wash hands before eating after working with treated wood. Never burn scraps of treated wood; dispose of these materials only at a landfill.
 - Wood components in playground structures should be assembled using corrosion-resistant

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nails, screws, or bolts. For cedar or redwood, high-quality hot-dipped galvanized or aluminum fasteners work very well; however, for CCA-treated material special stainless steel, silicon bronze, or copper fasteners are preferred. “Elastomeric” adhesives can also be used to augment nails, screws or bolts. These adhesives have good exposure durability, are tolerant of moisture and temperature variations, and develop a somewhat flexible glue line.

- Exterior wood should always be protected from deterioration by sunlight and moisture. Unless wood is protected from the weather, checks, splits, and surface roughness will develop; the color will also change to some shade of gray. Even CCA-treated wood needs to be given weather protection. Treat newly-installed cedar, redwood, or CCA-treated wood with either a “water-repellent preservative” or a “semi-transparent, oil-base stain.” Brush-apply two coats of one of these finishes to the surfaces as soon as the wood is dry enough to absorb the treatment. To enhance penetration of the finishes, initially brush on two coats; apply the second coat before the first one dries. Although treated wood can be painted, this type of film finish is generally not recommended for playground equipment.

Tips for Maintaining Wood

Wooden playground structures should be examined each year for broken parts, loose joints, deterioration, and finish failures. Follow specific maintenance procedures recommended by the component supplier.

Replace any broken, severely cracked, splintered, or very rough wood pieces. Wood components that have been severely weathered or worn may produce splinters hazardous to users.

- Check joints (where two pieces of wood come together) and the ends of boards for wood decay by probing with the blade point of a pocket knife. Sound wood cannot be easily penetrated with the point of a knife. Whenever possible, protect the ends of boards and the joints between board from excessive water penetration and accumulation.

- Evaluate finish performance annually; water-repellent preservatives or semi-transparent oil-base stains may require retreatment every two to three years. In high traffic areas or areas fully-exposed to sunlight and water, the wood may require more frequent, even annual, maintenance. When bare wood shows through the finish or when wood develops a gray weathered appearance, retreatment of the surface is recommended. Failure to provide weather protection when needed could result in definite reduction in service life for the wood components.
- Assess the performance of mechanical fasteners. Renail or tighten fasteners holding wood components together; replace broken, damaged, or corroded nails or screws.

Extension References Available

The following extension pamphlets and notes are available that provide additional information on the proper use of wood in outdoor applications:

F-303, *Air and Solar Drying of Lumber*

Pm-1032, *Controlling decay in buildings*

Pm-362, *Finishing exterior wood surfaces*

F-365, *Proper use of wood outdoors*

Pm-1033, *Selection and use of preservative-treated wood*

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