UF UNIVERSITY of FLORIDA
IFAS Extension

ENH 1142

Sustainable Landscape Construction:

Materials and Products — Wood[1]

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WOOD HAS MANY qualities that make it ideal for construction. It is a renewable resource; it sequesters carbon (even after processing into lumber); it is easy to use, structurally strong, and aesthetically pleasing. Because lumber is less processed than concrete or steel, it also has lower "embodied energy" (the energy used to manufacture, transport, and incorporate a given material). The major environmental impact of using wood in construction is unsustainable growth and harvesting techniques. Loss of habitat and topsoil, use of pesticides and herbicides in tree plantations, and wood preservation treatments all degrade the environment. There is also a tremendous amount of wood waste when boards are trimmed. Although wood scraps can be composted or recycled, wood scraps that have been pressure treated or contain glue or paint should not be recycled or burned.

To reduce wood waste and environmental impact, several strategies and techniques can be used:

DESIGN STRATEGIES

- **Build small, simple, and durable structures.** Size decks for typical use, use an open panel design for fences, and reduce the height when possible. Keep designs simple with less decoration.
- **Design wood structures with standard board dimensions to minimize cutting and wood waste.** The span (lumber sizing) tables allow for a margin of error, so it's not necessary to use a larger size.
- **Use properly certified wood.** It is best to use wood from companies that have been certified by the Forest Stewardship Council (FSC) or the Sustainable Forest Initiative (SFI) for using sustainable forest harvesting and management practices.
- **Use reclaimed wood from architectural salvage of old warehouses, barns, and industrial buildings.** These structures were often built from local, decay-resistant species, which are usually denser, stronger and closer grained.
- **Use wood in its natural form.** Tree branches could be used for fence posts or railings, for instance.

CONSTRUCTION TECHNIQUES

- **Use the lowest quality grade of wood feasible.** If the wood is not visible or structural, use the lowest quality grade of wood and the lowest adequate structural grades for the application.
- **Keep preservative use to a minimum.** Treat wood in contact with the ground with ACQ (ammoniacal copper quaternary) preservative, or use metal post bases to elevate posts above the ground.
- **Use screw and bolt connections rather than glue and nails.** Fasteners made of stainless steel or mild steel hot dipped (coated) with zinc or zinc/cadmium will resist corrosion.
- **Use engineered wood when possible.** Engineered wood can have less impact on the environment through the use of smaller-diameter trees and lower-grade tree species. Wood waste is also reduced because a high percentage of wood fiber is used in the product.

Adapted from:

Calkins, M. (2009). *Materials for sustainable sites: A complete guide to the evaluation, selection, and use of sustainable construction materials.* Hoboken, NJ: John Wiley & Sons, Inc.

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