



WHY COLD-FORMED STEEL BUILDING & LEED PRODUCTS! BuildingGreen.com

California Steel Framing Alliance (CASFA) Tools of the Trade



STEEL THE BETTER BUILDER!

**** Steel – Trees Love It! ****



- **CSI Section 05 12 00: Structural Steel Framing**
- Steel is both the most energy-intensive framing material, on a pound-for-pound basis, and the most recyclable. Overall, the steel industry's recycling rate is over 60%. Heavy-gauge structural steel framing members, from almost all sources, commonly have greater than 90% recycled content. The embodied energy of steel averages about 19,200 Btu/lb; manufacture of structural steel from recycled materials conserves 5,450 Btu/lb. In addition to having lower embodied energy, high-recycled-content steel results in lower impact associated with mining waste and pollution. Products listed here contain at least 90% recycled content.
- **Green Product Sub-category: Insulating Sheathing**
- Products listed here provide insulating qualities, often through the incorporation of a *radiant barrier*. When they face a heat source, radiant barriers work by reflecting heat. When faced away from a heat source, radiant barriers function primarily by virtue of their low emissivity. This means that the surface does not radiate heat well. A radiant-barrier surface on roof sheathing, for example, heats up from the sunlight striking the roof, but that heat energy is not readily emitted into the attic space—so that attic remains cooler. This is why the radiant barrier seems to "reflect" heat back out of the building. An air space is required on at least one side of a radiant barrier in order for it to function as designed. Radiant barriers in attics are most beneficial in reducing cooling loads; their effectiveness in reducing heating loads is more limited. Radiant barrier products usually do not include significant recycled content, because of the lower reflectivity of recycled aluminum and the difficulty in producing very thin foils from recycled aluminum; the high embodied energy of virgin aluminum can be recovered through energy savings. When comparing products, look for the lowest emissivity (which corresponds to the highest reflectivity). Do not rely on "effective" or "equivalent" R-values, which are only relevant in certain climates or under certain conditions.
- **Green Product Sub-category: Sheathing (including Plywood & OSB)**
- Sheathing comprises a significant portion of the materials used with many building types. Careful consideration of product selection and use can reduce the environmental impacts of a project. Wall sheathing is often used only as an additional layer of weather protection, although it may also be required for racking resistance. OSB can be made with PF or the non-formaldehyde-emitting methyl diisocyanate (MDI), a polyurethane binder. Paradoxically, exterior-rated products using PF binders are less of an off-gassing concern than interior-grade panels made with urea-formaldehyde. Oriented-strand board (OSB) can be an efficient use of forest resources because it can be produced from small-diameter or low-grade tree species. Wood products can carry the "FSC Mixed" label under a percentage-based standard based on the average certified and non-certified throughput of the facility at which they are made. Products listed here have one or more of the following attributes: FSC-certification; nonformaldehyde binders; nontoxic (to humans) borate insect treatments; or other environmental advantages over conventional OSB and plywood.

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