



## Guidelines for Land-Application of Processed Wood, Gypsum Wallboard, and Cardboard

This document provides guidelines for the on-site reuse of construction wood scraps, gypsum wallboard cut-offs and scrap cardboard generated during construction activity. These guidelines suggest the method of processing to prepare the materials for reuse, and offers guidelines for the land-application of the processed material. An accompanying document entitled *Land-Application of Construction Scrap: A Fact Sheet For Home Buyers* introduces the environmental issues related to this method of construction waste management to address the concerns of homeowners and their neighbors.

### Processing the Material

**Allowable material types.** Only the materials listed below in the "Allowed" column are to be processed and land-applied. All other construction materials, scrap or otherwise, are not permitted to be processed or land-applied.

Material Types	Allowed	Prohibited	Required Particle Size
Wood			
• solid sawn material (2x4s, etc)	●		minus 2-inches
• engineered wood products (OSB, plywood, I-joists, etc)	●		minus 2-inches
• painted		●	
• treated		●	
Gypsum wallboard			
• standard	●		minus 1-inch
• painted		●	
• type X		●	
• moisture resistant		●	
Cardboard			
• standard corrugated	●		minus 2-inch
• wax-coated		●	
All other materials		●	

**Equipment.** Efforts should be made to reduce the amount of air-borne particulate generated during the grinding process, e.g., a water-misting/spraying devise. Nails or other metal in wood waste must be removed using magnets or other removal methods.

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## Guidelines For Land-Application, continued

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### Construction wood scraps.

Wood waste is generated during new home construction at a rate of approximately 1.5-2 pounds per square foot of floor area. A 2,000 square foot home, for example, will generate about 3,500 pounds of wood waste, which is approximately 5-6 cubic yards after processing. This amount of wood chips will provide a 2-3 inch layer for approximately 700-800 square feet. Effective uses for wood chips include the following:

*Road stabilization.* Wood chips provide strength and cohesion to the driving surface, and promote the drainage of water away from the driving surface. The primary characteristic required is that wood waste be either chips or slivers with a minimum of fines. The presence of too many fines decreases strength or adhesion, and inhibits water drainage.

*Erosion control.* Wood chips can be used to stabilize soil while development is under way and can provide excellent erosion control on non-active sites as well. The use of wood waste for erosion control is limited to applications where degradability is desirable. Examples include:

- spread on road shoulders, or other areas where heavy equipment is used;
- temporary low-flow drainage swales;
- used in months too hot, dry, or cold to establish vegetation;
- in areas where vegetation is not wanted; and
- in areas of bare soil needing protection.

*Landscaping mulch.* Wood chips can be stockpiled and used after construction to mulch landscape beds, shrubs, and islands around trees. Landscape mulch is used as a ground cover material to control weeds, prevent moisture loss in soil, and for aesthetic purposes. In these applications, nitrogen can be added (20-30 pounds per acre) to aid decomposition.

*Protecting tree roots.* Tree roots can be protected from damage and soil compaction by mulching over the root zone. Spread a 10 to 12 inch layer of wood chips over the portion of the root zone to lessen the impact of heavy equipment. One pass by one vehicle can compact the soil by 75 percent, crushing shallow roots and preventing water infiltration.

### Gypsum Wallboard.

Cut-off scraps of gypsum wallboard generated during new home construction are generated at a rate of approximately one pound per square foot of floor area. The scrap drywall should be clean, i.e., no paint, no type X or moisture-resistant board, pulverized to a minus one inch size, and spread evenly around the site up to a range of 8 tons per acre. The table below can be used as a guide to determine appropriate application rates.

Amount of pulverized gypsum wallboard		Minimum "Tillable" Land (square feet)
House Size <sup>1</sup> (square feet)	Size of pile <sup>2</sup> (cubic yards)	
1,250	3 - 3.5	3,400 Square feet or 1/13 acre
1,500	3.5 - 4	4,100 SF or approx 1/11 acre
2,000	5	5,445 SF or 1/8 acre
2,500	6 - 7	6,800 SF or approx 1/6 acre
3,000	7.5 - 8	8,200 SF or 1/5 acre
3,500	8.5 - 9	9,525 SF or 1/4 acre

1. Based on a waste generation rate of one pound per square foot of floor area.

2. Based on a volume-weight conversion of 400 pounds/cubic yard, or 5 cubic yard/ton.



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## Land-Application of Construction Scrap *A Fact Sheet For Home Buyers*

This document introduces the environmental benefits associated with this method of construction waste management to address any concerns of homeowners and their neighbors. This fact sheet also briefly explains the methods used by home builders to prepare and land-apply the materials.

### **What is being done?**

- *Land application of wood chips.*

Wood chips are being used for erosion control and road stabilization. Adding an aggregate-like material such as chipped wood provides strength and cohesion to soft or muddy driving surfaces, and promote the drainage of water away from the driving surface. The use of wood chips for erosion control is limited to applications where degradability is desirable, such as in establishing turf or vegetation, or temporary low-flow drainage swales.

- *Land application of pulverized gypsum wallboard.*

Research has demonstrated that the beneficial effects of pulverized gypsum wallboard waste are nearly identical to those of agricultural grade gypsum. Gypsum improves plant growth on a variety of soils due to improved soil tilth and root penetration (particularly in clayey soils), and an increase in available calcium and sulfur.

### **Why is this being done?**

- *Helps disturbances at the site*

The grading, trenching, and excavation of construction activity disturbs the natural site - soils are often compacted, soil structure can change, and the natural drainage patterns can change as well. Land applying these materials in this fashion can offer beneficial solutions to these common and often unavoidable consequences of building a home.

- *Conservation of landfill space*

The construction of a 2,000 square foot home will generate three to four tons of wood, drywall and cardboard, which is typically disposed of in landfills. These materials typically comprise approximately 75 percent of the new residential construction waste stream, and in many areas of the country there are few reuse or recycling options. On-site processing and application of these three materials can be a cost-effective and environmentally friendly alternative to conventional landfilling.

### **Do these materials pose any threat to the local water supply, or grass and plant growth?**

No. Guidelines for the application of these materials have been prepared with the approval of the Indiana Department of Environmental Management. The materials being land-applied are clean, non-toxic, standard construction materials.

### **Why hasn't this been done before?**

This particular waste management technique is new. The equipment required to do this has only recently become available.

### **Do I need to do anything differently as a home owner?**

No. In fact, wood chips can be used as a mulch for landscape beds, shrubs, and islands around trees. Landscape mulch is used in this fashion as a ground cover material to control weeds, prevent moisture loss in soil, and for aesthetic purposes. In these applications, nitrogen can be added (20-30 pounds per acre) to aid decomposition.