

## 1.0 RAILROAD GRADE CROSSING SURFACES

Railroad grade crossings are surfacing materials placed between railroad tracks, and between the track and the road at highway and street railroad crossings, to enhance automobile and pedestrian safety. Railroad grade crossings are made from recovered rubber, concrete containing coal fly ash, or steel.

## 2.0 EPA'S RECOMMENDED CONTENT LEVELS

EPA's recommended Recovered Materials Content Levels for Railroad Grade Crossing Surfaces.

Product	Material	% Of Post Consumer Materials	% Of Total Recovered Materials
Concrete	Coal Fly Ash		15 - 20
Rubber	Tire Rubber		85 - 95
Steel	Steel	16 - Basic Oxygen Furnace (BOF) 67 - Electric Arc Furnace (EAF)	25 - 30 100

If the Architect/Engineer determines that use of certain materials meeting the CPG content standards and guidelines would result in inadequate competition, do not meet quality/ performance specifications, are available at an unreasonable price or are not available within a reasonable time frame, the Architect/ Engineer may submit to AF Contracting a written justification and supporting documentation for not procuring designated items containing recovered material using the Recovered Materials Determination Form.

The recommended recovered materials content for rubber railroad grade crossing surfaces are based on the weight of the raw materials, exclusive of any additives such as binders or adhesives.

The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is post-consumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is post-consumer.

### 3.0 DEFINITIONS

**Post Consumer Materials:** A material or finished product that has served its intended use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Post consumer materials are part of the broader category of recovered material.

**Recovered Materials:** Waste materials and byproducts that have been recovered or diverted from solid waste, but do not include materials and byproducts generated from, and commonly reused within, an original manufacturing process.

**Coal Fly Ash:** Is a component of coal, which results from the combustion of coal, resulting in mineral residue, which is typically collected from boiler stack gases by electrostatic precipitator or mechanical collection devices.

### 4.0 SPECIFICATIONS

UFGS Division 05 – Metals section 05650A - Railroads.

EPA has not identified any national specifications that preclude the use of recovered materials in railroad crossings. Many states, however, have developed guidelines or criteria for use in selecting a crossing surface.

EPA recommends that procuring agencies use the ASTM standards listed below when purchasing rubber railroad crossings.

ASTM Specification Number	Title
D 2000-96	Rubber Products in Automotive Applications
D 2240-97	Rubber Property -- Durometer Hardness
D 412-97	Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers -- Tension
D 297-93	Rubber Products -- Chemical Analysis
E 303-93	Measuring Surface Frictional Properties Using the British Pendulum Tester
D 1171-94	Rubber Deterioration -- Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)
D 573-88	Deterioration in an Air Oven
D 395-89	Rubber Property -- Compression Set
D 257-93	DC Resistance or Conductance of Insulating Materials
D 2137-94	Rubber Property -- Brittleness Point of Flexible Polymers and Coated Fabrics

EPA recommends that procuring agencies use the ASTM and AASHTO standards listed below when purchasing concrete railroad grade crossing surfaces.

ASTM Specification Number	Title
ASTM C 595	Standard Specification for Blended Hydraulic Cements
ASTM C 150	Standard Specification for Portland Cement
AASHTO M 240	Blended Hydraulic Cements
ASTM C 618	Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
ASTM C 311	Standard Methods of Sampling and Testing Fly Ash and Natural Pozzolans for Use as a Mineral Admixture in Portland Cement Concrete

Air Force Civil Engineering Spec: AFJMAN 32 – 1048 Railroad Track Standards.  
<http://www.e-publishing.af.mil/pubfiles/af/32/afjman32-1048/afjman32-1048.pdf>

U.S Department of Transportation Federal Highway Administration – Railroad-Highway Grade Crossing Handbook FHWA-TS-86-215.  
<http://www.fhwa.dot.gov/tfhrc/safety/pubs/86215/86215.pdf>

## 5.0 PRODUCTS

### 5.1 Concrete

#### Century Group, Inc

Century Group railroad grade crossing products are manufactured from pre-cast concrete using 15 – 20 % Coal Fly Ash. These products meet the EPA's percentage of total recovered material requirements.

Century Group produces the following crossings:

- Lightrail Transit Crossing
- Lagtype Crossing
- Custom
- Pedestrian Crossing
- Lagless Crossing

#### Century Group, Inc.

P.O. Box 228

Sulphur, LA 70664-0228

Tel: 800-527-5232

Fax: 800-887-2153

[sales@centurygrp.com](mailto:sales@centurygrp.com);

<http://www.centurygrp.com/crossings.asp>

See Railroad Grade Crossing Surfaces Appendix for further information.

## **OMNI Grade Crossing Systems**

OMNI Products, Inc., manufactures pre-cast concrete railroad grade crossing surfaces. Railroads, transit systems, cities, ports, manufacturing facilities and intermodal yards, use these crossings. These are manufactured from pre-cast concrete using 15 – 20 % Coal Fly Ash. These products meet the EPA's percentage of total recovered material requirements.

Corporate Office  
975 SE Sandy Blvd  
Portland, OR 97214  
Tel: 503-230-8034  
Toll-free: 800-203-8034  
Fax: 503-230-9002  
[willhite@omnirail.com](mailto:willhite@omnirail.com)  
<http://www.omnirail.com/index.html>

SouthEast Region  
Guy Oster  
[retso@msn.com](mailto:retso@msn.com)  
PO Box 71387  
Marietta, GA 30007  
Tel: 770-998-5234  
Fax: 770-998-0880  
Cell: 770-330-7471

See Railroad Grade Crossing Surfaces Appendix for further information.

## **OldCastle Precast**

OldCastle precast manufactures the StarTrack railroad grade crossing surface. This is made from pre-cast concrete using 15% Coal Fly Ash. This product meets the EPA's percentage of total recovered material requirements.

StarTrack Sales  
2800 Spring Ridge Circle  
Snellville, GA 30039  
Contact: Tom Shillington [tshillington@worldnet.att.net](mailto:tshillington@worldnet.att.net)  
Toll Free 1-800 316-1660 or Cell (770) 329-5205

OldCastle Precast Group Headquarters  
2820 A Street SE, P.O. Box 608  
Auburn, WA 98071-0608  
Tel 253-833-2777  
Fax 253-939-9126

See Railroad Grade Crossing Surfaces Appendix for further information.

## **5.2 Rubber**

### **HiRAIL Corporation**

HiRAIL systems are manufactured from 100 percent molded rubber and incorporate 85% post-consumer recycled tires. These products meet the EPA's

percentage of post consumer and total recovered material requirements. HiRail provides rubber grade crossing systems:

HiRAIL®  
PedeStrail®  
HiRAIL RS® Rail Seal

HiRAIL Corporation  
100 Kraiburg Boulevard  
Lisbon, IA 52253  
PH: 800-274-7245  
FX: 319-455-2914  
Email: [info@hirail.com](mailto:info@hirail.com)  
<http://www.hirail.com/>

See Railroad Grade Crossing Surfaces Appendix for further information.

### **5.3 Steel**

During the investigation of Railroad Grade Crossing Surfaces it was not possible to locate a manufacturer of steel railroad crossings.

## **6.0 RECOMMENDATIONS**

Recommend using one of these companies when circumstances dictate. See affirmative procurement requirements.

See Railroad Grade Crossing Surfaces Appendix for further information.