The Sustainable Materials Management Webinar Series

Ceiling Tile Recycling

Tuesday March 15, 2016/1:30 – 2:45PM EDT

Presenter:
Allen Jackson, Recycling Coordinator
Armstrong World Industries
Who We are

• A Global Leader In The Design & Manufacture Of Commercial And Residential:
  − Standard and Custom Ceiling Panels
  − Ceiling Installation Systems (grid)

  ▪ Operates 32 manufacturing facilities

  ▪ $2.4 billion in Sales in 2015

  ▪ 7,600 team members worldwide

  ▪ Environmentally-responsible products, programs & operations

  ▪ Founding Member of USGBC, CaGBC and GBC’s globally

  ▪ Member of the Energy Star and EPA Green Power Partnership

  ▪ Corporate Headquarters in Lancaster, PA - LEED EB Platinum certification
Over 150 Years and Counting...

Armstrong leads in sustainability as we design and manufacture floors and ceilings globally. Our portfolio of commercial products and services was developed to inspire our customers to deliver the exceptional interiors they envision for themselves and their clients. At work, in hospitals, classrooms, stores, and restaurants, Armstrong offers innovative sustainable interior solutions that help to enhance comfort and productivity, save time, improve building efficiency and overall performance, creating beautiful spaces, from Dubai to Shanghai, New York to São Paolo.
End of Life Solutions - Recycling

First of its kind closed loop ceiling recycle program in the commercial market. Over 190 million sf diverted from landfills.
Key Market Drivers for C & D Waste

- **Mandates Required**
  - Recycling Goals (State and Government)
  - Disposal Bans
  - GSA requirements for C&D

- **Building Codes**
  - California Green Building Code (CalGreen)
  - International Green Construction Codes (IgCC)
  - Whole Building Design Guide

- **Building Rating Systems**
  - Leadership in Energy and Environmental Design (LEED)
  - Green Globes – Building Environmental Design and Management Tool

Market Drivers for recycling of C&D waste are increasing
What products to include in your Construction Waste Management Plan?

- Woody and plant materials
- Concrete
- Gravel, aggregate, stone and rock
- Masonry and rubble
- Metals (ferrous and non-ferrous)
- Wood
- Plastic
- Glass
- Doors and windows
- Asphalitic roofing
- Gypsum board
- Ceiling tiles
- Carpet and pad
- Cardboard and paper
- Plumbing fixtures
- Lighting fixtures

Products and Systems:
Federal Green Construction Guide for Specifiers:
01 74 19 (01351) Construction Waste Management
02 41 13 (02220) Selective Site Demolition
31 10 00 (02230) Site Clearing

The key is Source Separation to maximize diversion rates and reduce landfill costs.
What’s changed?
- Split Location and Transportation from Sustainable Sites
- Integrated Process - encourage early analysis of the interrelationship of systems
- Materials and Resources - more holistic & integration of human health
- Indoor Environmental Quality- more low VOC requirements, added Acoustics.
## LEED® Comparison

### Materials and Resources

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<th>Prerequisite: Storage and Collection of Recyclables</th>
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<td>Prerequisite: Construction and Demolition Waste Management Planning</td>
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<td>Building Reuse</td>
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**Possible Points**

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- * Includes: Recycled content, biobased materials, and FSC wood
Intent: To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials.

There is 1 PR and 1 Credit:

**PREREQUISITE**
Establish waste diversion goals & **ID at least 5 materials** for diversion.

1. Specify whether materials will be separated or commingled and **describe diversion strategies**. Describe where the material will be taken and how it will be processed.

**CREDIT**
Meet Diversion Goals for Identified Material Streams (50% and 75%)
Armstrong Ceiling Recycling Program

- We started the program in 1999 …
  - Over 180 million square feet of ceilings have been recycled nationwide
  - 90,000 tons of construction waste was been diverted from landfills

- Our Closed loop process makes ceilings one of few interior finishes where 100% of what is returned is made into a new product.

- Year on Year the program grows. We are constantly looking at new ways to expand and improve the program.
Save the Ceilings

Recycle used ceiling tiles – keep them out of the landfill...

SAVE THE CEILINGS

... with the Armstrong Ceiling Recycling Program
Ceiling Recycling Process – How it Works

1. specify
2. register
3. confirm
4. remove
5. call us
Steps to Recycling

1. Develop a Construction Waste Management Plan. Include ceiling recycling in your project specifications.
   Download a guide specification at armstrong.com/recycling

2. Register your ceiling recycling project with the Armstrong Recycling Center.

3. Information needed:
   Details of the building: Name, address, date of the structure, square footage, contractors information.
   An Asbestos Survey for building older than 1980.
   If original building date is after 1980 and no asbestos was used, we can accept a signed letter from the owner.

4. Choose Recycling Method: Palletize or place ceiling tiles in a container

5. Coordinate pick-up with Armstrong Recycling Coordinator.
Acceptable for recycling:

- All brands of dry, pulpable mineral fiber ceiling panels or tiles.
- All metal splines must be removed from tiles (12" x 12").
- All brands of dry fiberglass panels. Facing must be easily removable.
- All vinyl or scrim-faced mineral fiber panels.
Step One: Specify

Develop a construction waste management plan. Include provisions for ceiling recycling in your project specifications. **Download a guide specification at armstrong.com/recycling**

Recycling spec: armstrong.com/ceilings/recycling
Step Two: Register

- Register your ceiling recycling project with the Armstrong Recycling Center at
  1-877-276-7876 (press option 1, then 4).
- Refer your customer directly to the Recycling Center.
- They will handle the approval, processing and scheduling of the shipment.
Step Three: Confirm

Confirm with the Armstrong Recycling Center:

A. Contact information for the project

B. Building information – (Year of Building Construction, General Contractor or Demolition Contractor, Building use, a copy of an asbestos survey, details on any abatement

C. Ceiling information – Material type, quantity, timing

D. Asbestos Survey for the building:
   Buildings constructed before 1990. Details of any asbestos abatement
   If a newer building (after 1980) and no asbestos was used in construction, then a signed letter from the building owner must be obtained.
Step Three: Confirm

After returning documentation:

1. Carrier Arrangements will Be made – allow 3-5 days to set up
2. Receive a PO outlining details of carrier pickup
3. Receive a Return Authorization Label - Return labels will be emailed for your use. These labels must be attached to each pallet of material to be returned.

Return Authorization #__________________

Please Secure to Each Pallet of Ceiling Material Returned to Armstrong

Issue Date: ___________ PO#________________________________

Project Name: __________________________ State: _____________

City: __________________________ State: _____________

How should the used tiles be packaged for shipment to Armstrong?

Recycled ceiling materials shall be placed neatly on 4’ x 4’ or 2’ x 4’ shipping pallets with bottom slats. Material must be kept in a dry environment at all times.

Pallets may be stacked 4’ high when double stacked in trailer or may be stacked up to 6’ high when a single stack loading configuration is used. All pallets stacked with ceiling material must be stretch wrapped tightly for stability during transit.

When using 2’ x 4’ pallets make sure to place two side by side to create one 4’ x 4’ pallet and shrink wrap tightly.

Blocking is required between pallets to prevent them from shifting.
Step Four: Remove

Palletize
- Stack the old panels on pallets, label, and stretch wrap or tightly band them.
- Coordinate on-site storage and logistics. Review the section on preparing recycled ceilings for shipment.
**Palletized Recycled Ceiling Model**

**Recycler**
- Segregates recycled ceilings into palletized stacks & sends to Armstrong or certified consolidator

**Consolidators**
- (mix of Network Consolidators and Outside Interior Removal Companies)

**Armstrong Plants**
- (PA, GA, FL, OR)
  - Armstrong covers the freight cost
  - Minimum pickup: 5 pallets or approx. 8,000 sf of tiles

**Stores Material & loads on truck**
- Sends to one of four Armstrong Plants
Step Four: Remove

- **Container**
  - Separate ceiling tiles from other construction debris.
  - Place loose panels in designated recycling container. Keep contents dry.
  - Coordinate removal of container with your local C&D partner
  - Consolidator bales ceilings and sends back to Armstrong
Contractor site separates the ceiling tiles at the job site and throws the tiles into a designated 30 yard roll-off container.

C&D Processor bales the ceiling tiles and prepares them for shipping.

Armstrong covers the freight cost from the C&D Processor to our plant.
Case Study of Chicago Project

101 E. Erie St. Chicago, IL
Armstrong Ceiling Recycling Project
CBRE Development Project

http://www.armstrong.com/commceilingsna/video-library.jsp?mediaId=c1eb45ed076c4b0faf91aa9d5366764e
Who can assist in Smaller Quantities?

Armstrong Certified Recycler Network
Companies trained on details of the Armstrong recycling program: best local resource to get job done. They are also Armstrong acoustical ceiling installers.

Armstrong Recycling Program Consolidation Partner
Companies who are Armstrong Ceiling Recycling Program Partners in consolidating ceilings in your local areas. Some locations are also Armstrong Distributor locations.

Armstrong Certified C&D Processor
Certified C&D Processor Companies that will consolidate ceilings in your local areas. They are able to receive and process material in bulk form from your job sites.

Don’t have a full truckload of recycled ceilings or need to remove smaller quantities from a larger project? Our North American network of recyclers, consolidators and C&D processors can assist with less-than-full truckload situations.

FIND A RECYCLING PARTNER, CONSOLIDATOR, C & D PROCESSOR
Challenges

• Asbestos Surveys
  ➢ Getting the survey from the Contractor
  ➢ Approving the Survey
  ➢ We do not accept any cross contamination issues.

• Palletizing the ceiling tiles
  ➢ We ask that the pallets be stacked 6’ high shrink wrapped

• Landfill & Tipping Fees
  ➢ The rates that are being charged for dumping vary quite dramatically across the country
    - Lowest amount is in Utah at $24.29 to as high as $91.00 in Maine. Georgia comes in around $40.00.

• Material & Moisture
  ➢ The ceiling tiles must remain dry, we at times get them back and they are moldy
  ➢ There are a few types of tiles that we cannot recycle
Armstrong Ceiling-2-Ceiling Products

- Industry’s highest level of recycled content from a closed loop, post-consumer process
- The only ceilings made from reclaimed ceilings.
- Highest Post Consumer LEED® Contribution %

Ceiling-2-Ceiling products include:
- Ultima®
- Cirrus®
- Dune ™

Ceiling-2-Ceiling products have the highest recycled content in the industry
Recycling Resources

www.armstrong.com/ceilings/recycling

Armstrong Recycling Program Video

Environmental Impact Calculator

See the Savings! Recycling/Diversion Calculator

Recycling Website - Click to take a tour

Recycling is part of the Armstrong cradle-to-cradle process (closed loop) designed to reduce environmental impact of our products.
Armstrong Sustainability Contacts:

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alsnader@armstrong.com
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Recycling Coordinator:
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Recycling Coordinator
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F: 717-396-4154
E: ahjackson@armstrongceilings.com
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QUESTIONS?

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