



LEED + WELL CONSULTING • COMMISSIONING
ENERGY MODELING • SUSTAINABILITY PLANNING

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Recycle Florida Today
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*We help create responsible, efficient and healthy places
where we live, work, learn and play.*



WE KNOW THAT...

IN THE UNITED STATES, BUILDINGS ACCOUNT FOR:

- 73%+ OF ALL ELECTRICITY CONSUMPTION
- 38%+ OF ALL GREENHOUSE GAS EMISSIONS
- 40%+ OF RAW MATERIALS USE
- 30%+ OF WASTE OUTPUT (136 MILLION TONS ANNUALLY)
- 13% OF POTABLE WATER CONSUMPTION
- WE SPEND 90%+ OF OUR TIME INDOORS

[HTTP://WWW.EPA.GOV/GREENBUILDING/PUBS/GBSTATS.PDF](http://www.epa.gov/greenbuilding/pubs/gbstats.pdf)

THEREFORE WE...

HELP DEVELOP BUILDINGS THAT:

- REDUCE ENERGY + WATER CONSUMPTION BY OVER 30%
- REDUCE CONSTRUCTION WASTE BY AT LEAST 50-75%
- RESPONSIBLY USE MATERIALS THAT PROMOTE HEALTH, REDUCE WASTE AND GREENHOUSE GAS EMISSIONS
- UTILIZE INNOVATIVE DESIGN FEATURES THAT PROMOTE PRODUCTIVITY, HEALTH AND CONNECTIONS TO NATURE
- MAXIMIZE ACCESS TO COMMUNITY ASSETS THROUGH PEDESTRIAN AND ALTERNATIVE TRANSIT OPTIONS

What is SUSTAINABILITY?

[Energy Efficiency]

[Solar Panels]

[Urban Location]

[Water Efficiency]

[Innovative Technology]

[Green Materials]

[Native Plants]

[LEED]

[Reduced Waste]

[Alternative Transit]

[Resiliency]

[Improved Indoor Air Quality]

[Bike Racks]

[Carbon Emissions]

[Safety]

[Low-VOC Paints]

[Electric Vehicles]



Material & Resources in LEEDv4

WHAT IS USGBC LEEDv4?

US Green Building Council

Leadership in **E**nergy and **E**nvironmental **D**esign

Version 4 (v1, v2, v2009 or v3)



DO THIS



INSTEAD OF THIS



WHY DOES LEED CARE ABOUT MATERIALS & RESOURCES?

40% of Total Waste Stream in the United States Comes from Construction & Demo Waste

Embodied Energy

Energy and transportation = CO2 emissions

Landfill- Land use

Less waste means less landfill and pollutants related



MAKING A BIG IMPACT

LEED Projects:

Responsible for 80 Million Tons of Waste
Diversion from Landfills

From 2000-2011 LEED Projects in Seattle
diverted an average of 90% of construction
waste, equating to over 175,000 tons of waste
diverted.



LEED Materials & Resource Credits

Storage and Collection of Recyclables

Construction & Demo Waste Management Planning

PBT Source Reduction – Mercury

Building Life-Cycle Impact Reduction

Building Product Disclosure Optimization:

- Environmental Product Declarations

- Sourcing of Raw Materials

- Material Ingredients

PBT Source Reduction – Lead, Cadmium and Copper

Furniture and Medical Furnishings

Design for Flexibility

Construction and Demolition Waste



FOR TODAY:

Storage and Collection of Recyclables

C&D Waste Management Planning

Product Disclosure Optimization:

Environmental Product Declarations

Construction and Demolition Waste



STORAGE & COLLECTION OF RECYCLABLES

Intent:

To reduce the waste that is generated in a building, and therefore reducing waste hauled and disposed of in a landfill.

Requirement:

Provide collection & storage of recyclable materials for entire building including: mixed paper, corrugated cardboard, glass, plastics, and metals.

Take appropriate measures for safe collection of 2 of following: batteries, mercury containing lamps, and e-waste.



STORAGE & COLLECTION OF RECYCLABLES



C&D WASTE MANAGEMENT PLANNING

Intent:

To reduce construction and demolition waste by recovering, reusing and recycling materials.

Requirement:

Develop/implement a C&D Waste Management Plan that:

- Establishes diversion goals for at least five materials
- Specify whether the materials will be separated or co-mingled, where the materials will be taken and how the recycling facility will process that material.

Provide final report detailing disposal & diversion rates.



C&D WASTE MANAGEMENT PLANNING



RECYCLING + WASTE MANAGEMENT PLAN

PROJECT: TAMPA 'RED BRICK' ARMORY
BUILDING OWNER: DEPARTMENT OF MILITARY AFFAIRS – NATIONAL GUARD
CONTRACTOR: STRICKLAND CONSTRUCTION
SUPERINTENDENT: MICKEY MYERS / EDWIN COULTER
WASTE/RECYCLE CONTACT:

INTENT

In order to satisfy the Material and Resources Credit 2: Waste Management Plan for the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) for New Construction v2009 certification, it is the project team's intent to draft a comprehensive Recycling/Waste Management Plan to aim to specifically outline the requirements of all project team members to reduce the amount of waste that will enter the landfill as a result of the demolition and new build out/construction of the Tampa Red Brick Armory project.

In order to reduce the amount of waste created during construction-related activities, and sent to the landfill, this project will aim to salvage and recycle as much as possible during demolition phase, limit the amount of waste brought onto the site created during construction and reduce the amount of waste sent to a landfill.

In order to achieve these project goals of waste reduction and increased recycling of materials leaving the site, all efforts must be made to reduce the amount of packaging and excess material brought onto the site by all sub-contractors, suppliers and field personnel. Further, a comprehensive recycling and reuse strategy is outlined below.

PROJECT GOALS

The Project Team, led by Strickland Construction, aims to reduce the amount of waste sent to a landfill by employing a strategy that encourages and tracks recycling efforts throughout construction, limits the amount of construction and debris waste entering the landfill, and ultimately reduces the project's impact on the environment. This reduction in environmental impact will be accomplished by: educating all project teams on the waste management strategy for the project, locating recycling bins throughout the job-site, and requiring all sub-contractors and laborers to dispose of recyclable waste properly.

In order to achieve the project goals to achieve MR Credit 2: Waste Management Plan, the project must reach 75% of waste diverted from a landfill through recycling, reuse or reduction in waste.

To ensure that all recyclable materials are diverted from landfill, the project team has selected a recycling strategy whereby various demo and construction waste bins will be collected in specific containers for recycling, and a commingled bin for landfill waste.

COMMUNICATION PLAN

REAL Building Consultants, Strickland Superintendents and field staff will execute field coordination and scheduling, as well as receptacle layout. Strickland Superintendents and staff will also run day-to-day field operations and will actively monitor proper placement of scrap materials generated during construction operations.

All Subcontractor Superintendents are notified in weekly meetings of the importance of this recycling program. Waste prevention, recycling training, and recycling activities will be discussed at each job site safety meeting with all employees of subcontractors or any other trade working on the job site.

- All contractor and subcontractor employees will be notified of this plan and will be expected to comply with the plan
- All contractor and subcontractor foremen will receive a copy of this plan
- All subcontracts for this project clearly specify that adherence by subcontractors with this waste management plan is mandatory

RECYCLING COLLECTION ON-SITE:

Rollaway bins will be located on-site, at convenient locations to ensure the ease of proper disposal of construction materials, and the reduction of waste on-site.

ON-SITE STORAGE, COLLECTION AND RECYCLING ACTIVITIES

From the beginning of the project appropriate concrete recycling and construction waste bins will be present on the site. Strickland Construction and REAL will be responsible for managing all subs, and educating them on the responsibility of cleaning workspaces, disposing waste in the appropriate bins, and supplying hoppers and extra areas for collection throughout the building.

There will generally be a concrete recycling bin and a commingled recycling construction waste container on-site.

If any issues arise throughout the project, all questions can be directed to project Superintendent, Edwin Coulter or Mickey Myers of Strickland Construction, or Taylor Ralph of REAL Building Consultants.

PROJECT RECYCLING MONITORING

REAL and Strickland Construction will monitor all recycling bins periodically to verify that the Recycling/Waste Management Plan is being followed. Bins will be monitored weekly by REAL, or as needed depending on the stage of construction & materials on-site.

DATA COLLECTION

The waste management provider will be responsible for removing the recycling bins as needed, and will replace with an empty bin whenever a full bin is removed. The weights of all waste, recycled material and non-recycled material, must be collected through tickets received at disposal locations, and will report the weight (in tons) of each material that is recycled and the non-recyclable waste sent to the landfill. This documentation will be provided by the waste management provider and will be reviewed and logged by REAL at least monthly throughout the project's construction. Any other material that is reused or donated will be recorded according to the requirements and intent of LEED™ MR Credit 2.

ON-SITE RECYCLING BIN LOCATIONS MAP

C&D WASTE MANAGEMENT PLANNING



ENVIRONMENTAL PRODUCT DECLARATIONS

Intent:

To encourage the use of products and materials for which life-cycle information is available and reward teams for selecting products that have verified improved environmental life-cycle impacts.

Requirement:

Achieve one of the following:

- 20 different permanently installed products from 5 different manufacturers w/ EPD's

- Use products that are third-party certified to demonstrate reduced global warming potential, and other attributes (multi-attribute)



WHAT IS AN ACCEPTABLE EPD?

LEED Defines an acceptable EPD as a Product that conforms to:

ISO14044

ISO14025

ISO14044

ISO21930



ENVIRONMENTAL PRODUCT DECLARATIONS



CONSTRUCTION & DEMOLITION WASTE MANAGEMENT

Intent:

To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing and recycling materials.

Requirement:

- Divert over 50% and 3 Materials Streams (1-2 Points)
- Divert over 75% and 4 Material Streams



CONSTRUCTION & DEMOLITION WASTE MANAGEMENT



Construction Waste Management
Monthly Project Recycling Report

09/08/2015 10:46:02

Project: Bob Sierra YMCA Gymnastics center Target Diversion: 75.0%
Est. End Date: 12/31/2014 Actual Diversion: 91.3%

Address: 4015 Ragg Rd
Tampa, FL 33624
Project MSA/CMA: Tampa-St. Petersburg-Clearwater, FL
WM Account Manager:
Project Size:
Floor Count: 1
Building Type: INSTL
Amusement-Leisure
LEED® Certification Type: Gold

Material Totals:

Material	Target %	Actual %	Total Qty	Diverted Qty	Residual Qty
Concrete	100.0%	100.0%	54.92	54.92	0
Metal	100.0%	100.0%	0.15	0.15	0
Co-Mingled	75.0%	75.1%	28.61	21.48	7.17
Residual	25.0%	0.0%	0.33	0	0.33
Cardboard	100.0%	100.0%	1.62	1.62	0
Total		91.3%	85.63	78.17	7.50

Ticket Details:

Ticket Date From: (All)
Ticket Date To: (All)

Ticket Month	Ticket Date	Ticket	Destination Facility	Hauler	Material	UOM	Divered		Residual	
							Qty	Act %		Qty
JULY 2014	7/9/2014	256292	WM Tampa C&D MRF		Co-Mingled	Tons	1.78	1.34	75.3%	0.45
JULY 2014	7/22/2014	272004	WM Tampa C&D MRF		Concrete	Tons	10.46	10.46	100.0%	0
JULY 2014	Total:						12.24	11.80	96.4%	0.45
AUGUST 2014	8/11/2014	297758	WM Tampa C&D MRF		Co-Mingled	Tons	5.44	4.08	75.0%	1.36
AUGUST 2014	8/18/2014	308117	WM Tampa C&D MRF		Concrete	Tons	14.77	14.77	100.0%	0
AUGUST 2014	8/20/2014	310646	WM Tampa C&D MRF		Co-Mingled	Tons	1.78	1.34	75.3%	0.45
AUGUST 2014	8/26/2014	318059	WM Tampa C&D MRF		Co-Mingled	Tons	2.65	1.99	75.1%	0.66
AUGUST 2014	Total:						24.64	22.18	90.0%	2.47



C&D WASTE MANAGEMENT DOCUMENTATION

Credit specific

Required Documentation BD&C	Option 1	Option 2
List of construction waste generated and diverted to landfill itemizing the waste, the material stream, waste total amount, and diverted amount per item and total for project. All units of measure must be consistent	x	
Evidence of average recycling rates for Commingled waste sorting Facilities (if applicable)	x	
Explanation why Waste-to-Energy Must be Used (if applicable)	x	
Proof of Certification for Waste-to-Energy Facilities (if applicable)	x	
Waste per Area for entire project		x

“Projects that cannot meet credit requirements using [reuse](#) and recycling methods, waste-to-energy systems may be considered [waste diversion](#) if the European Commission Waste Framework Directive 2008/98/EC and Waste Incineration Directive 2000/76/EC are followed and Waste to Energy facilities meet applicable European Committee for Standardization (CEN) EN 303 standards.”





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THANK YOU!

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