

LEED® in the Field

Lessons Learned

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US Army Corps
of Engineers

OVERVIEW

- **Fort Lewis Projects**
- **Challenges we've faced**
- **Practical Examples from a QA**
- **Conclusion**
- **Questions**



FY05 Whole Barracks Renewal

- Design Build and Design Bid-Build, \$44.5 million
- 200 person Barracks, 4 Company Operations Facilities
- Barracks designed for LEED® Gold, Company Buildings designed for LEED® Silver



Environmental Education & Conference Center

- Design Build, \$845,000
- Relocate and renovate WWII Chapel
- Designed for LEED® Gold
- Project completion September, 2007



Challenges We've Faced

- Why should we do it?
- New materials aren't proven or are unknown to field staff



Education is Critical

- Government field team doesn't know what to look for
- Contractor and subcontractor teams don't know what to do



Practical Examples from a QA

- Incorporate LEED® into all preparatory meetings
- Incorporate LEED® into all weekly safety briefings
- Consider LEED® like Safety – look for it every time you're in the field



Documentation

MR Credit 4 / MR Credit 5

FT LEWIS FY05 Whole Barracks Renewal

Materials Table

Description of Material	Vendor	Back Up Provided	Material Cost (Less Labor & Equipment)	MR Credit 4			MR Credit 5		
				Recycled Content			Local/Regional Materials		
				Post-Consumer (%)	Post-Industrial (%)	Value (\$)	Location	Distance	Credit 5.1 Manufacture (\$)
02 SITEWORK									
03 CONCRETE						\$0			
03200 Rebar	Addison Construction - Nuzor and Cascad	Yes	\$165,366	71%	27%	\$139,734	McMinnville	167	\$165,366
04 MASONRY						\$0			
05 METALS						\$0			
05120 Structural Steel	Allied Steel	Yes	1,235,300.00	80%	7%	\$1,031,476			
05500 Miscellaneous - Stainless Steel	Kadee Industries	Yes	12,805.00		90%	\$5,763	NA		NA
05210 Steel Joists	Seafco - USS Posco	Yes	278,400.00		68%	\$94,656	NA		NA
06 WOODS & PLASTICS						\$0			
06415 Custom Casework	Westmark - Roseberg Forest Products	Yes	\$430,095		100%	\$215,048			
07 THERMAL / MOISTURE PROTECTION						\$0			
07210 Building Insulation	SCS - Owens Corning	Yes	\$167,015	9%	26%	\$36,743			
07322 Concrete Tile Roofing	Monier Lifetime	Yes	\$174,889		4%	\$3,498	Lakewood, WA	8	\$174,889 within 500
07413 Metal Cladding	AEP Span	Yes	\$374,469	26%	0%	\$93,617	Tacoma, WA	15	\$374,469 NA
08 DOORS & WINDOWS						\$0			
08110 Steel Doors and Frames	American Direct	Yes	\$154,461	23%	7%	\$40,932	NA		NA
08120 Aluminum Doors and Frames	Trace	Yes	\$26,145	0%	25%	\$3,518	NA		NA
08210 Wood Doors	American Direct	Yes	\$47,222	0%	60%	\$14,167	NA		NA
08520 Aluminum Windows	Trace	Yes	\$228,083	0%	15%	\$17,106	NA		NA
08625 Aluminum Framed Skylights	Dea Mor	Yes	\$103,608	0%	24%	\$12,433	Vancouver, WA	120	\$103,608 NA
08800 Glazing	Dea Mor	Yes	\$103,608	0%	20%	\$10,261	Seattle, WA	45	\$103,608 NA
09 FINISHES						\$0			
09510 Acoustical Ceilings	Armstrong	Yes	\$63,000	0%	82%	\$25,830			
09660 Resilient Flooring	Johnsonite	Yes				\$0			
09990 Paints	Sherwin Williams	Yes	\$53,990	NA	NA	\$0	Tumwater, WA	20	\$53,990
09990 Paints	Sound Coatings	Yes		NA	NA	\$0	Centralia, WA	40	\$0
10 SPECIALTIES						\$0			
10990 Miscellaneous - Rollout Mat	Kadee Industries	Yes	\$12,046		50%	\$3,012	NA		\$0 NA
TOTAL						\$1,747,893			\$975,924

Total Materials Cost

\$9,148,875

Percentage of Recycled Content (MR Credit 4.1 and 4.2) - NEED 15%

19%

Local/Regional Materials Percentage (MR Credit 5.1) - NEED 40%

11%

17.00 x 11.00 in



Documentation

FT Lewis FY05					
MRc2: Construction Waste					
Last Updated: 4/26/07					
Total Recycled:		10,544,072			
Total Landfill:		3,674,775			
Total:		14,218,847			
% Recycled:		74.16%			
				RECYCLED/S	
DATE	COMPANY	MATERIAL	DESTINATION	ALVAGED LBS	LANDFILL LBS
4/15/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	3,640	
4/15/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	9,860	
4/15/2007	Recycling Service	Wood	Recovery 1	6,760	
4/15/2007	Recycling Service	Wood	Recovery 1	6,020	
4/15/2007	Recycling Service	Wood	Recovery 1	4,360	
4/9/2007	Recycling Service	Wood	Recovery 1	3,740	
4/9/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	10,200	
4/9/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	10,440	
4/5/2007	Keystone	Brick	Holroyd	16,800	
4/5/2007	Recycling Service	Wood	Recovery 1	9,060	
4/4/2007	Keystone	Brick	Holroyd	23,220	
4/2/2007	Recycling Service	Wood	Recovery 1	4,340	
3/26/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	12,380	
3/23/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	17,140	
3/19/2007	Recycling Service	Wood	Recovery 1	6,740	
3/15/2007	Keystone	Brick	Holroyd	16,980	
3/14/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	13,440	
3/9/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	8,240	
3/8/2007	Recycling Service	Wood	Recovery 1	4,960	
3/5/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	10,040	
3/2/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	13,780	
2/22/2007	Recycling Service	Wood	Recovery 1	10,460	
2/22/2007	Recycling Service	Wood	Recovery 1	5,060	
2/21/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	11,480	
2/20/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	12,520	
2/16/2007	Recycling Service	Commingled	Recovery 1		6,260
2/13/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	11,680	
2/13/2007	Recycling Service	Commingled	Recovery 1		6,460
2/12/2007	Recycling Service	Wood	Recovery 1	6,360	
2/8/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	12,460	
2/5/2007	Recycling Service	Gypsum Board	Auburn Recycling Center	9,160	
2/1/2007	Recycling Service	Wood	Recovery 1	6,240	
Feb-07	Renu	Commingled		56,380	2980



Sustainable Sites



Fundamental Commissioning

FY05 200 Person Barracks

Commissioning Plan--Construction Phase

FY05 Whole Barracks Renewal

200 Person Barracks

Commissioning Plan --Construction Phase--

December 28, 2006

Item No.	Date	Action	By
1	12/28/2006	Distribution	GBS
2	2/1/2007	Per COE review	GBS



Construction Waste Management



Recycled Content



Georgia-Pacific Gypsum Sustainable Materials Data Sheet

(See MSDS for additional information)

SECTION 1 Product and Company Identification

Product Name: ToughRock® Gypsum Board. Performance based qualities of this product based upon material composition are obtained by referencing ASTM C 36 and ASTM C 1398.

Product Use: Paper face and back non-combustible gypsum core for interior walls and ceiling applications.

Manufactured by: Georgia-Pacific Gypsum LLC
133 Peachtree Street
Atlanta, GA 30303
(800) 225-6119 (Technical Information)
(404) 652-5119 (MSDS Request)

Georgia-Pacific Canada, Inc.
Allanburg Road
Thorold, Ontario L2V 3Z8, Canada
(800) 225-6119 (Technical Information)
(404) 652-5119 (MSDS Request)

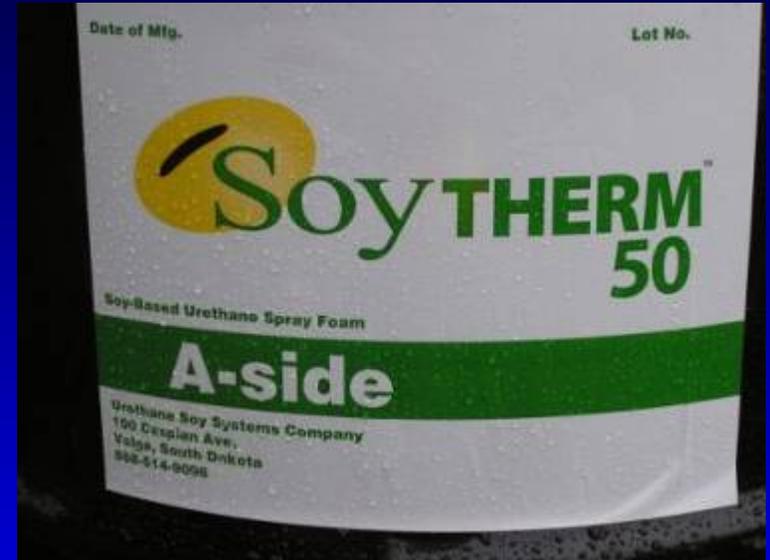
SECTION 2 Recycled Content (Percentages are by Weight and Vary by Location) (%LEED Recycled Content Credit 4.1)

Manufacturing Location	Total Recycled Content	Pre Consumer Recycled Content	Post Consumer Recycled Content
Acme, TX	6%	4%	2%
Antioch, CA	6%	4%	2%
Blue Rapids, KS	6%	4%	2%
Brunswick, GA	6%	4%	2%
Caledonia, ON, Canada	8%	6%	2%
Camden, NJ	6%	4%	2%
Edmonton, AB, Canada	10%	8%	2%
Ft. Dodge, IA	6%	4%	2%
Las Vegas, NV	7%	5%	2%
Lovell, WY	6%	4%	2%
Long Beach, CA	6%	4%	2%
Newington, NH	6%	4%	2%
Savannah, GA	6%	4%	2%
Sigurd, UT	6%	4%	2%
Surrey, BC	21%	19%	2%
Sweetwater, TX	6%	4%	2%
Wheatfield, IN	36%	34%	2%
Tacoma, WA	42%	40%	2%

Plants are being added on an on-going basis. Please call the technical information line to determine if a closer plant has been brought on-line.



Rapidly Renewable Materials



Construction IAQ



Low VOC Adhesives

VOC Limit*, Less Water and Less Exempt Compounds in Grams per Liter



Architectural Applications	Current VOC Limit
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Outdoor Carpet Adhesives	150
Wood Flooring Adhesive	100
Rubber Floor Adhesives	60
Subfloor Adhesives	50
Ceramic Tile Adhesives	65
VCT and Asphalt Tile Adhesives	50
Dry Wall and Panel Adhesives	50

Adhesives And Sealers

Zoom Out

V-11 Adhesive

Vinyl Composition Tile (VCT) & Premium Visual Tile (PVT) Adhesive
 VCT: Essentials™ / Designer Essentials® / PVT: Inspirations™ / Brushwork™
 Brushwork™ Brights / ColorPoint™ / SolidPoint™ / SafeWalks™

DESCRIPTION

V-11 is a solvent-free premium latex adhesive developed specifically for installing Mannington Commercial Vinyl Composition Tile. V-11 is nonflammable and provides a strong moisture-resistant and alkali-resistant bond. You may use it on all approved wood underlayments and on, above, or below-grade concrete substrates. Refer to Mannington Professional Installation Guide.

FEATURES

- Easy application
- VOC-compliant / solvent-free / low odor
- Non-flammable
- Moisture- and alkali-resistant
- Readily identifiable mylar chips
- Contains fungicide protection
- Complies with SCAQMD Rule 1168



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Low Emitting Materials



Conclusions

- Incorporate LEED® into daily activities
 - Consider LEED® like Safety
 - Include LEED® into preparatory meetings
- Encourage broad education
 - Contractor and Corps
- What to look for in the field
 - Documentation
 - Construction waste
 - Indoor air quality
 - Low emitting materials



Questions



Points of Contact

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<https://eko.usace.army.mil/fa/sdd/>

