MARKIM HALL

MATERIALS & RESOURCES CATEGORY

LEED FOR NEW CONSTRUCTION V2.2

6	Materials & Resources	Possible Points:	13

Y	Prereq 1	Storage & Collection of Recyclables	
	Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors, & Roof	1
	Credit 1.2	Building Reuse, Maintain 95% of Existing Walls, Floors, & Roof	1
	Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements	1
1	Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1
1	Credit 2.2	Construction Waste Management, Divert 75% from Disposal	1
	Credit 3.1	Materials Reuse, 5%	1
	Credit 3.2	Materials Reuse, 10%	1
1	Credit 4.1a	Recycled Content, 10% (Post-consumer + 1/2 pre-consumer)	1
	Credit 4.1b	Recycled Content, 20% (Post-consumer + 1/2 pre-consumer)	1
1	Credit 5.1	Regional Materials, 10% Extracted, Processed, and Manufactured Regionally	1
1	Credit 5.2	Regional Materials, 20% Extracted, Processed, and Manufactured Regionally	1
	Credit 6	Rapidly Renewable Materials	1
1	Credit 7	Certified Wood	1

MATERIALS & RESOURCES PREREQUISITE 1: STORAGE & COLLECTION OF RECYCLABLES

REQUIRED

Intent

Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills.

Requirements

Provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals.

Potential Technologies & Strategies

Coordinate the size and functionality of the recycling areas with the anticipated collection services for glass, plastic, office paper, newspaper, cardboard and organic wastes to maximize the effectiveness of the dedicated areas. Consider employing cardboard balers, aluminum can crushers, recycling chutes and collection bins at individual workstations to further enhance the recycling program.

CREDIT COMPLIANCE

Recycling collection bins are provided on every occupied floor of the building. There are built-in containers for commingled items in the coffee area and/or kitchen on each floor. There are also bins for paper and cardboard in the copy rooms on each floor. Built-in containers for paper and commingled items are available in the IGC Court. In addition, each office and conference/meeting room has its own recycling bin. The College maintenance staff collects the items placed in these bins nightly.

The College has a comprehensive recycling program for paper and cardboard, plastic, glass, and metal.

MATERIALS & RESOURCES CREDIT 2.1: CONSTRUCTION WASTE MANAGEMENT: DIVERT 50% FROM DISPOSAL

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MATERIALS & RESOURCES CREDIT 2.2: CONSTRUCTION WASTE MANAGEMENT: DIVERT 75% FROM DISPOSAL

2 POINTS

Intent

Divert construction, demolition and land-clearing debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Requirements

Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.

Potential Technologies & Strategies

Establish goals for diversion from disposal in landfills and incinerators and adopt a construction waste management plan to achieve these goals. Consider recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation. Designate a specific area(s) on the construction site for segregated or comingled collection of recyclable materials, and track recycling efforts throughout the construction process. Identify construction haulers and recyclers to handle the designated materials. Note that diversion may include donation of materials to charitable organizations and salvage of materials on-site.

CREDIT COMPLIANCE

A construction waste management plan was developed and implemented by both the construction contractor and architect. The following was diverted from the site:

Diverted Construction Waste Calculation:

Diverted/Recycled Materials Description	Diversion/Recycling Hauler or Location	Quantity of Diverted/Recycled Waste (tons)
Metal	Veit Como Recycling Transfer	10.32
Concrete	Veit Como Recycling Transfer	27.70
Cardboard – off site separation	Veit Como Recycling Transfer	1.96
Wood	Veit Como Recycling Transfer	28.82
Miscellaneous Construction Debris	Veit Como Reycling Transfer	27.61
Metal	Alliance Steel	3.33
Metal	American Iron	7.40
Metal	Great Western	7.94
Metal	Re-Alliance	3.32

Diverted/Recycled Materials Description	Diversion/Recycling Hauler or Location	Quantity of Diverted/Recycled Waste (tons)
Concrete	Veit Facilities	269.27
Concrete	Frador	90.00
Concrete	Hammes Sand & Gravel	360.00
Concrete	Carl Bolander	10.00
Concrete	CS McCrossan	20.00
Cardboard	Rock-Tenn	1.27
Cardboard- on site separation	Veit Como Recycling Transfer	1.01
Wood	Environmental Wood Supply	29.43
Ceiling Tile	Architectural Sales	0.75
Sheetrock	Vonco II	11.57

Landfill Construction Waste Calculation:

Landfill Materials Description	Landfill Hauler or Location	Quantity of Landfilled Waste
Miscellaneous Construction Debris non-recyclable	Veit Como Transfer/Recycling	64.84

Total Construction Waste Generated **976.54 tons**
Total Construction Waste Diverted **911.70 tons**
Total % Construction Waste Diverted From Landfill **93.360%**

The Waste Management Plan can be found in the appendix.

MATERIALS & RESOURCES CREDIT 4.1: RECYCLED CONTENT: 10% (post- consumer + ½ pre-consumer)

1 POINT

Intent

Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Requirements

Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.

The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

Mechanical, electrical and plumbing components and specialty items such as elevators shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7.

Recycled content shall be defined in accordance with the International Organization of Standards document, *ISO 14021—Environmental labels and declarations—Self-declared environmental claims (Type II environmental labeling*).

Post-consumer material is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose.

Pre-consumer material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Potential Technologies & Strategies

Establish a project goal for recycled content materials and identify material suppliers that can achieve this goal. During construction, ensure that the specified recycled content materials are installed. Consider a range of environmental, economic and performance attributes when selecting products and materials.

CREDIT COMPLIANCE

Material Name	Manufacturer	Material Cost ($)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Recycled Content Info. Source
Aluminum Framing	EFCO	26,625.00	49.00	21.00	Manufacturer
Glass (wood framed windows)	Cardinal	58,466.00	0	23.00	Manufacturer
Nailbase-ISO 95+ Insulation	Firestone	23,600.00	15.00	19.00	Manufacturer
Exterior Alum.	Firestone	43,169.00	0	30.00	Manufacturer

Material Name	Manufacturer	Material Cost ($)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Recycled Content Info. Source
Exterior Copper Panel	Firestone	16,899.0	0	82.00	Manufacturer
Exterior Zinc Panel	Firestone	71,501.00	0	30.00	Manufacturer
Miscellaneous Steel	Metro Manufacturing	55,289.00	25.00	0	Industry Standard
Gypsum Wallboard	National Gypsum	15,300.00	5.00	4.00	Manufacturer
Exterior Sheathing	DensGlass Gold	7,500.00	0	4.0	Manufacturer
Steel Studs	Clark Western	32,000.00	32.00	16.00	Manufacturer
Shaftwall Metal Framing	USG	1,000.00	0	25.00	Manufacturer
Shaftwall Liner Panels	USG	800.00	5.00	0	Manufacturer
Thermal Batt Insulation	Owens Corning	7,200.00	9.00	26.00	Manufacturer
Board Insulation	Dow Thermax	1,500.00	11.00	0	Manufacturer
Ceramic Tile	EcoDark Slate	17,000.00	0	73.00	Manufacturer
Ceramic Tile	EcoGrey Matte	3,300.00	0	15.20	Manufacturer
Ceramic Tile	Oceanside Shire	4,500.00	0	30.00	Manufacturer
Ceramic Tile	Oceanside Moroccan Desert	2,700.00	72.29	13.19	Manufacturer
Carpet	Patcraft Velvet	26,357.00	0	36.80	Manufacturer
Linoleum Floor	Forbo Maarmoleum Dual	722.00	0	45.00	Manufacturer
Ultima Acoustic Tile	Armstrong	4,660.00	15.00	65.00	Manufacturer
Suprafine Ceiling Grid	Armstrong	2,045.00	23.00	7.00	Manufacturer
Metalworks Vector Ceiling Tile	Armstrong	7,933.00	0	25.00	Manufacturer
Prelude XL Ceiling Grid	Armstrong	4,090.00	23.00	7.00	Manufacturer
New Dimensions Ceiling Panel	Wall Technology	3,795.00	9.00	26.00	Manufacturer
Concrete Cast-in-place	Cemstone	84,301.00	0	7.60	Manufacturer
Rebar	Ambassador	59,831.00	83.00	15.00	Manufacturer
Aggregate	Buck Blacktop	691.00	100.00	0	Manufacturer

Material Name	Manufacturer	Material Cost ($)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Recycled Content Info. Source
Arreis Fiberboard	SierraPine	1,150.00	0	100.00	Manufacturer
Purekor MDF Plus	Panel Source	24,050.00	0	100.00	Manufacturer
Signage-Interior	Shetkastone	7,860.00	85.00	0	Manufacturer
Countertops/Interior Window Sills	Shetkastone	30,516.00	85.00	0	Manufacturer
Dakota Burl	Environ Biocomposites	1,589.00	0	84.00	Manufacturer
Novodor PC-5 FSC	Algoma	7,573.00	0	12.00	Manufacturer
Fire Core Door	Algoma	4,958.00	0	16.00	Manufacturer
Carousel Tables-Site Furniture	Landscapeforms	9,580.00	59.00	31.00	Manufacturer
Sonoma Bench	Landscapeforms	7,200.00	41.00	22.00	Manufacturer
Sonoma Backless Bench	Landscapeforms	3,550.00	14.00	7.00	Manufacturer

Actual Materials Cost (excluding labor and equipment)	**$1,517,029.00**
Total Value of Post-Consumer Content	**$138,754.96**
Total Value of Pre-Consumer Content	**$159,343.64**
Total Combined Recycled Content Value: post-consumer + ½ pre-consumer	**$218,426.78**
Combined Recycled Content Values as a Percentage of Total Materials Cost	**14.398%**

MATERIALS & RESOURCES CREDIT 5.1: REGIONAL MATERIALS: 10% EXTRACTED, PROCESSED & MANUFACTURED REGIONALLY

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MATERIALS & RESOURCES CREDIT 5.2: REGIONAL MATERIALS: 20% EXTRACTED, PROCESSED & MANUFACTURED REGIONALLY

2 POINTS

Intent

Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Requirements

Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7.

Potential Technologies & Strategies

Establish a project goal for locally sourced materials, and identify materials and material suppliers that can achieve this goal. During construction, ensure that the specified local materials are installed and quantify the total percentage of local materials installed. Consider a range of environmental, economic and performance attributes when selecting products and materials.

CREDIT COMPLIANCE

Product Name	Manuf.	Total Product Cost ($)	% Compliance	Compliant Product Value	Harvest Dist. (mi)	Manuf.Dist. (mi)	Harvest/Manufacture Location Info Source
Granite Sill	Cold Spring Granite	14,007.00	100	14,007.00	80.00	80.00	Manufacturer
Valders Stone	Acme-Ochs Brick	137,921.00	100	137,921.00	101.00	101.00	Manufacturer
Gypsum Wallboard	National Gypsum	15,400.00	100	15,300.00	184.00	176.00	Manufacturer
Exterior Sheathing	DensGlass Gold	7,500.00	100	7,500.00	176.00	176.00	Manufacturer
Countertops /Interior Window Sills	Shetkastone	30,516.00	100	30,516.00	47.00	47.00	Manufacturer
Dakota Burl	Environ Bicomposite	1,589.00	100	1,589.00	317.00	67.00	Manufacturer

Product Name	Manuf.	Total Product Cost ($)	% Compliance	Compliant Product Value	Harvest Dist. (mi)	Manuf.Dist. (mi)	Harvest/Manufacture Location Info Source
Granite – Interior	Cold Spring	5,241.00	100	5,241.00	80.00	80.00	Manufacturer
Signage-Interior	Shetkastone	7,869.00	100	7,860.00	47.00	47.00	Manufacturer
Cast-in-place Concrete	Cemstone	84,301.00	100	84,301.00	435.00	3.00	Manufacturer
Landscape Plantings	Arteka	9,828.00	100	9,828.00	19.00	19.00	Manufacturer
Native Prairie Grass	Arteka	1,200.00	100	1,200.00	19.00	19.00	Manufacturer
Drainage Rock	Aggregate Industries	4,020.00	100	4,020.00	21.00	21.00	Manufacturer
Rock at Slab on Grade	Aggregate Industries	9,500.00	100	9,500.00	21.00	21.00	Manufacturer
Rock at Pavers	Aggregate Industries	2,250.00	100	2,250.00	21.00	21.00	Manufacturer
Granular Backfill	Rehbein	8,400.00	100	8,400.00	16.00	16.00	Manufacturer
Asphalt Paving	Buck Blacktop	2,882.00	95	2,737.90	7.00	7.00	Manufacturer

Actual Materials Cost (excluding labor and equipment) **$1,517,029.00**
Total Value of Locally Manufactured and Extracted Materials **$342,170.90**
Local Material Value as a % of Total Material Cost **22.555%**

MATERIALS & RESOURCES CREDIT 7: CERTIFIED WOOD

1 POINT

Intent
Encourage environmentally responsible forest management.

Requirements
Use a minimum of 50% of wood-based materials and products, which are certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes.

Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7.

Potential Technologies & Strategies
Establish a project goal for FSC-certified wood products and identify suppliers that can achieve this goal. During construction, ensure that the FSC-certified wood products are installed and quantify the total percentage of FSC-certified wood products installed

CREDIT COMPLIANCE

Product Name	Vendor	Product Cost ($)	Wood Component Percentage (%)	FSC Certified Wood % of Wood Component (%)	FSC Chain-of-Custody Certificate# from Vendor Invoice
Miscellaneous Blocking, Backing	Certified Wood Products	21,750.00	100.00	100.00	SW-COC-419
H Window-Wood Frame	H Window Company	26,959.00	100.00	100.00	SW-COC-740
Nailbase-ISO 95+ Insulation	Firestone	23,600.00	35.00	0.00	n/a
Fire Core Door FSC	Algoma Hardwoods	4,561.00	15.50	100.00	SW-COC-342
Novodor PC-5 FSC	Algmoa Hardwoods	7,118.00	100.00	82.00	SW-COC-342
Sonoma Bench	Landcapeforms	7,200.00	50.00	100.00	SW-COC-1261
Sonoma Backless Bench	Landscapeforms	3,550.00	68.00	100.00	SW-COC-1261
Architectural Millwork	Aaron Carlson	105,961.00	100.00	57.66	SW-COC-2114

Total Value of Wood Components	**$176,768.95**
Total Value of FSC Certified Wood Components	**$122,363.83**
FSC Certified Wood Value as a % of Total New Wood-Based Cost	**69.222%**