

*Cash for Trash: The Case for  
Deconstruction, Reuse and LEED®*

**MBITA**

**2<sup>nd</sup> Annual Green Network Summit**

**Santa Cruz, CA**

**September 25, 2009**

**Jordan Daniels, LEED AP**





Monterey, California



Uptown Monterey

FOOTHILL PARTNERS  
REAL ESTATE AND URBAN ECONOMICS



Former structure

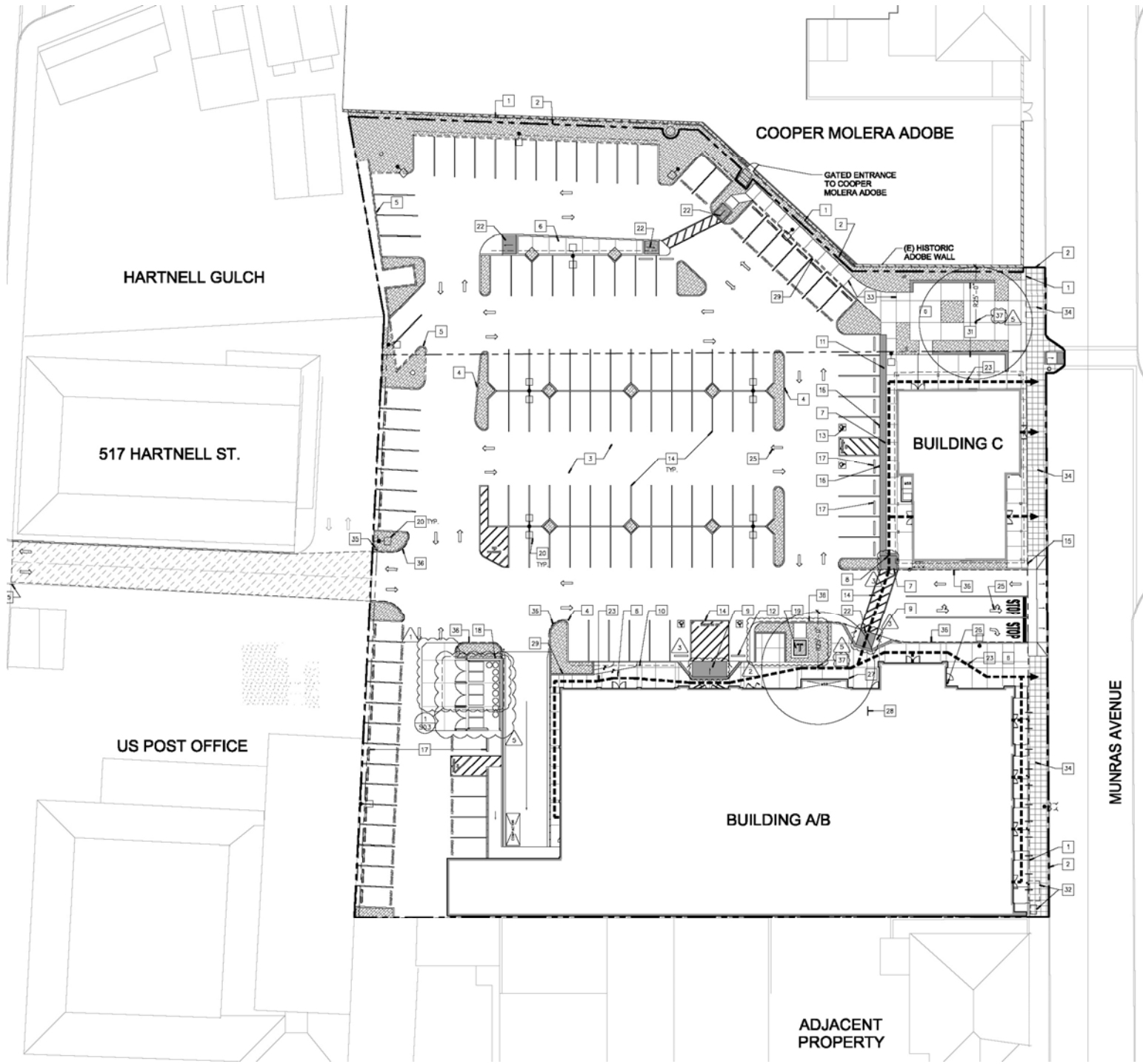
# Uptown Monterey

570 Munras Avenue, Monterey, California



Rauschenbach  
Marvelli  
Becker  
architects





HARTNELL GULCH

517 HARTNELL ST.

US POST OFFICE

COOPER MOLERA ADOBE

GATED ENTRANCE TO COOPER MOLERA ADOBE

(E) HISTORIC ADOBE WALL

BUILDING C

BUILDING A/B

ADJACENT PROPERTY

MUNRAS AVENUE



**Former roof**

**Salvageable wood  
(456) 18' long 2x10s**



02 05 2007

# What is LEED?

- U.S. Green Building Council
- Leadership in Energy and Environmental Design
- Benchmark for green buildings
- Measures performance of buildings
- Five key areas of human and environmental health:
  - sustainable site development
  - water savings
  - energy efficiency
  - materials selection
  - indoor environmental quality



# LEED Certification Levels



LEED for Core & Shell\* Projects:

“Certified” 23-27 points

“Silver” 28-33 points

“Gold” 34-44 points

“Platinum” 45-61 points

\* 2008 Rating System



# Design Charette

What level of LEED can we achieve within the constraints?

- Can we reuse salvaged 2x10s? Stone?
- Size HVAC for high efficiency?
- Waterless urinals okay? Dual flush toilets?
- Skylights?
- Shower?
- EV charging stations?

# Selected 27 points for LEED “Certified”

- ✓ Construction Activity Pollution Prevention
- ✓ Site Selection
- ✓ Development Density & Community Connectivity
- ✓ Alternative Transportation, Public Transportation Access
- ✓ Alternative Transportation, Parking Capacity
- ✓ Heat Island Effect, Roof
- ✓ Tenant Design & Construction Guidelines
- ✓ Water Efficient Landscaping, Reduce by 50%
- ✓ Water Use Reduction, 30% Reduction
- ✓ Fundamental Commissioning of the Building Energy Systems
- ✓ Minimum Energy Performance
- ✓ Fundamental Refrigerant Management
- ✓ Optimize Energy Performance
- ✓ Measurement & Verification - Tenant Sub-metering
- ✓ Storage & Collection of Recyclables
- ✓ Building Reuse, Maintain 50% of Existing Walls, Floors & Roof
- ✓ Construction Waste Management, Divert 75% from Disposal
- ✓ Materials Reuse, 1%
- ✓ Recycled Content, 20% (post-consumer + ½ pre-consumer)
- ✓ Regional Materials, 10% Extracted, Processed & Manufactured Regionally
- ✓ Minimum IAQ Performance
- ✓ Environmental Tobacco Smoke (ETS) Control
- ✓ Construction IAQ Management Plan, During Construction
- ✓ Low-Emitting Materials, Adhesives & Sealants
- ✓ Low-Emitting Materials, Paints & Coatings
- ✓ Indoor Chemical & Pollutant Source Control
- ✓ Thermal Comfort, Design

# “No Cost” LEED Points

(for Uptown Monterey project)

- ✓ Site Selection
- ✓ Development Density & Community Connectivity
- ✓ Alternative Transportation, Public Transportation Access
- ✓ Alternative Transportation, Parking Capacity
- ✓ Heat Island Effect, Roof
- ✓ Water Efficient Landscaping, Reduce by 50%
- ✓ Measurement & Verification - Tenant Sub-metering
- ✓ Storage & Collection of Recyclables
- ✓ Building Reuse, Maintain 50% of Existing Walls, Floors & Roof
- ✓ Low-Emitting Materials, Paints & Coatings



## Breakdown of LEED Material & Construction Costs - Estimated

Material	Type	Location	LEED Credits	Conventional	Green	
				Total	Total	Cost premium
Metal	Roof deck	Bldg. A/B	MR 4.1 MR 5.1	\$0	\$0	\$0
	Structural steel	Bldg. A/B	MR 4.1 MR 5.1	\$0	\$0	\$0
	Angle iron	Bldg. A/B	MR 4.1 MR 5.1	\$0	\$0	\$0
	Anchors, brackets	Bldg.s A/B & C	MR 4.1 MR 5.1	\$0	\$0	\$0
	Rebar	Bldg.s A/B & C	MR 4.1 MR 5.1	\$0	\$0	\$0
	Bike rack	Bldg.s A/B & C	MR 4.1, MR 5.1	\$0	\$0	\$0
	Pipe	Fire sprinklers	MR 3	\$0	\$0	\$0
Roof	Tile	Bldg. C	MR 4.1 MR 5.1	\$0	\$0	\$0
	Built-up roof	Bldg. A/B	MR 4.1 MR 5.1	\$0	\$0	\$0
Concrete	CMU	Seat wall, trash enclosure	MR 4.1 MR 5.1	\$0	\$0	\$0
	Flyash	Bldg. A/B	MR 4.1 MR 5.1	\$0	\$0	\$0
	Slag	CMU wall, slab, sidewalks, curbs	MR 4.1 MR 5.1	\$8,560	\$8,960	\$400
HVAC (premium costs)	5 ton units	all units	EAp2	\$0	\$15,000	\$15,000
Insulation	Batts - R13	Int. walls	MR 4.1 MR 5.1	\$4,495	\$5,896	\$1,110
	Batts - R19	Ext. walls	MR 4.1 MR 5.1	\$6,996	\$9,960	\$2,964
	Batts - R30	Ceiling	MR 4.1 MR 5.1	\$2,494	\$0	\$0
Plaster	Exterior	Exterior walls	MR 5.1	\$0	\$0	\$0
Masonry	Stone veneer	Seat wall	MR 5.1	\$0	\$0	\$0
Wood	GL Beam	Roof structure	MR 4.1 MR 5.1 MR 6	\$0	\$0	\$0
	SSI	Sealing joints	MR 5.1, MR 6	\$0	\$0	\$0
	Framing	Bldg. C	MR 3	\$13,193	\$0	-\$13,193
Doors & Windows	Exterior doors	Exterior doors	MR 4.1 MR 5.1	\$0	\$0	\$0
	Interior doors	Interior doors	MR 4.1 MR 5.1	\$0	\$0	\$0
	Windows	Windows	MR 4.1 MR 5.1	\$0	\$0	\$0
Finishes	Gyp board	Interior walls	MR 4.1 MR 5.1	\$0	\$0	\$0
	Paint	Lav. Walls	EQ 4.2	\$77	\$155	\$78
	Urinals	Lavatories	WE 2, WE 3.1	\$2,700	\$4,500	\$1,800
	Toilets	Lavatories	WE 2, WE 3.1	\$2,200	\$3,300	\$1,100
	Faucets	Lavatories	WE 2, WE 3.1	\$1,650	\$0	\$0
	Sinks	Lavatories	MR 4.1, MR 5.1	\$0	\$0	\$0
	Greywater reuse	Lavatories	WE 2, WE 3.1	\$0	\$0	\$0
Landscaping	Trees from local nursery	Exterior	WE 1.1, MR 5.1 MR 5.1	\$0	\$0	\$0
Other	Wheel stops	Parking lot	MR 4.1 MR 5.1	\$0	\$0	\$0
	Door mats	Exterior doors	EQ	\$0	\$0	\$0
	Entry floor frames	Exterior doors	EQ	\$0	\$0	\$0
	Truck recharging	Loading ramp	ID	\$0	\$500	\$500
	Construction waste	project	MR 2	not in original estimate		
	Salvaged stone	Courtyard	MR 1	not in original estimate		

Estimated Construction Cost Premium = \$9769

2100 tons of concrete and asphalt diverted from landfill

96% construction waste diversion = 3 LEED points





Deconstruction & Salvaged Material Reuse helped with 3 LEED points

Proximity to public transit = 1 LEED point



Extra cost to deconstruct vs. demolish = \$3000

Market value of new wood displaced by salvaged wood = \$24,573





Steel framing helped  
with 2 LEED points



## Breakdown of LEED Material & Construction Costs - Actual

Material	Type	Conventional	Green		
		Total	Total	Premium	Actual
Metal	Roof deck	\$0	\$0	\$0	\$0
	Structural steel	\$0	\$0	\$0	\$0
	Angle iron	\$0	\$0	\$0	\$0
	Anchors, brackets	\$0	\$0	\$0	\$0
	Rebar	\$0	\$0	\$0	\$0
	Bike rack	\$0	\$0	\$0	\$0
	Pipe	\$0	\$0	\$0	\$0
Roof	Tile	\$0	\$0	\$0	\$0
	Built-up roof	\$0	\$0	\$0	\$0
Concrete	CMU	\$0	\$0	\$0	\$0
	Flyash	\$0	\$0	\$0	\$0
	Slag	\$8,560	\$8,960	\$400	n/a
HVAC (premium costs)	5 ton units	\$0	\$15,000	\$15,000	\$1,500
Insulation	Batts - R13	\$4,495	\$5,606	\$1,110	n/a
	Batts - R19	\$6,986	\$9,960	\$2,974	n/a
	Batts - R30	\$24,494	n/a	n/a	n/a
Plaster	Exterior	\$0	\$0	\$0	\$0
Masonry	Stone veneer	\$0	\$0	\$0	-\$2,100
Wood	GL Beam	\$0	\$0	\$0	\$0
	SSI	\$0	\$0	\$0	\$0
	Framing	\$13,193	\$0	-\$13,193	-\$10,195
Doors & Windows	Exterior doors	\$0	\$0	\$0	\$0
	Interior doors	\$0	\$0	\$0	\$0
	Windows	\$0	\$0	\$0	\$0
Finishes	Gypsum board	\$0	\$0	\$0	\$0
	Paint	\$77	\$155	\$78	\$0
	Urinals	\$2,700	\$4,500	\$1,800	\$4,500
	Toilets	\$2,200	\$3,300	\$1,100	\$1,100
	Faucets	\$1,650	\$0	\$0	\$0
	Sinks	\$0	\$0	\$0	\$0
	Greywater reuse	\$0	\$0	\$0	n/a
Landscaping	Trees from local nursery	\$0	\$0	\$0	\$0
Other	Wheel stops	\$0	\$0	\$0	\$0
	Door mats	\$0	\$0	\$0	\$0
	Entry floor frames	\$0	\$0	\$0	n/a
	Truck recharging	\$0	\$500	\$500	n/a
	Construction waste		not in original estimate		-\$1,041
	Salvaged stone		not in original estimate		-\$10,674

Actual Construction Cost  
= - \$16,910 (savings)

# The Economics of Deconstruction & Reuse

Uptown Monterey Project



# Net Capital Costs for LEED

## Uptown Monterey Project



Does not include PG&E rebates or life-cycle savings.



# LEED Certification Timeline

- April 16, 2007 – Registration
- August 23, 2007 – Pre-certification
- November 2007 – Opening Ceremony
- January 2008 – Commissioning
- January 23, 2008 – Submittal to USGBC
- February 27, 2008 – Preliminary Review Complete
- March 12, 2008 – Clarifications Sent
- April 7, 2008 – Final Review Complete – “Certified” level
- April 15, 2008 – Appeal Started
- August 4, 2008 – Certification Granted – “Silver” level

# Lessons Learned / Planning for the next project

- Design charette is essential
- LEED cost analysis – manage expectations
- Understand the Commissioning Requirements
- Turn-around time for Certification
- Submit for Design Review
- Site separation of waste vs straight to the MRF
- Field Crew and Subcontractor “buy-in” and education
- LEED requirements in invitations to bid, specs, and subcontracts
- First time LEED Admin costs (less costly next time)
- City Ordinances
- City assistance with some points, e.g. Development Densities
- Take advantage of educational opportunities early

- Developer: Foothill Partners (public-private partnership with the City of Monterey)
- Architect: Rauschenbach Marvelli Becker Architects
- Engineer: LP Consulting Engineers, Inc.
- General Contractor: Daniels & House Construction Co.

# Info

- Jordan@BuildingWise.net
- (831) 633-9473
- [www.BuildingWise.net](http://www.BuildingWise.net)
- Documentary film:  
[www.deconstructiondvd.org](http://www.deconstructiondvd.org)

