

Home on the Range

Offices for Northern Plains Resource Council & Western Organization of Resource Councils
Billings, MT

Montana's First and Only LEED® Platinum Certified Building



Before Renovation



After Renovation

3-PART ENERGY STRATEGY

The combination of energy efficiency measures and on-site renewable energy resulted in a **79% Reduction in Energy Use** (compared to baseline energy code for the same building)

- 1) **REDUCE DEMAND FOR ENERGY**
Super-insulated building shell minimizes energy demand and strategically located **light shelves** and **rooftop monitors** maximize daylight.
- 2) **SUPPLY REMAINING ENERGY NEEDS EFFICIENTLY**
High efficiency mechanical systems include radiant floor heating, evaporative cooling, and photosensors to turn off lights when there is adequate daylight
- 3) **MAXIMIZE % OF ENERGY FROM RENEWABLE SOURCES**
9.9kW **photovoltaic** system generates 53% of electricity used in the building

WATER EFFICIENCY STRATEGY

- Micro-flush composting toilets and waterless urinal reduce interior water use by 60%
- Drip irrigation and drought-resistant plants have reduced exterior water use for irrigation by 50%.
- 90% less wastewater than code compliant building

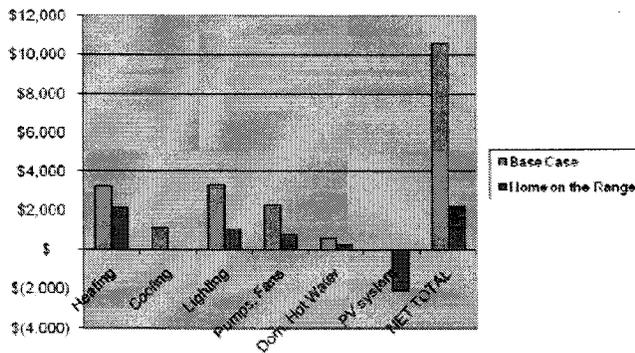
SALVAGED AND RECYCLED MATERIALS

- Renovated existing 8,300 SF, 1940 concrete block grocery store, 95% of existing building reused
- 10% of materials have recycled content including fly ash concrete, permeable pavement mats, agri-fiber casework, and ceramic tile.
- 16% of materials were from salvaged sources
- 92% of construction & demolition waste diverted from landfill (by weight)

INDOOR ENVIRONMENTAL QUALITY

- 100% of regularly occupied rooms have high levels of daylight and views to outside
- All paints, adhesives, and coatings are low-VOC

Annual Energy Cost Comparison (\$)



LEED® PLATINUM CERTIFICATION
(57 points)



WHEN WE BUILD LET US THINK THAT WE BUILD FOREVER.
LET IT NOT BE FOR PRESENT DELIGHT, NOR FOR PRESENT
USE ALONE, LET IT BE SUCH WORK AS OUR DESCENDANTS
WILL THANK US FOR.

JOHN RUSKIN





HIGH PLAINS ARCHITECTS

Costs of a LEED® Platinum Certified Building

Home on the Range: offices for Northern Plains Resource Council & Western Organization of Resource Councils
Billings, Montana

Conventional Approach*		Green Building Approach (Home on the Range actual costs)	
Property	\$ 182,500	\$ 182,500	Property
Professional Services (10% Const. + Site + Landscaping Cost)	\$ 134,770	\$ 122,000	Professional Services
Demolition (8,300 SF main floor + 1,200 SF basement)	\$ 70,500	\$ 15,000	Deconstruction (partial)
New Construction (8,300 SF main floor @ \$135/SF + 1,200 SF basement @ \$30/SF)	\$1,156,500	\$ 839,200	Renovation (8,300 SF main floor + 1,200 SF basement)
-	-	\$ 66,200	Alternative Energy Systems (PV, solar hot water system)
Parking Lot + other Site Improvements	\$ 116,200	\$ 118,300	Parking Lot + other Site Improvements
Landscaping (25,000 SF @ \$3)	\$ 75,000	\$ 47,400	Landscaping
-	-	\$ 12,800	LEED-related costs & fees

TOTAL CAPITAL COSTS **\$1,735,470**

\$1,403,400

TOTAL CAPITAL COSTS

\$332,070

Capital Savings

10 years of Operation Costs** **\$127,493**

\$26,413

10 years of Operation Costs**

\$101,079

Operating Savings

20 years of Operation Costs** **\$316,213**

\$65,512

20 years of Operation Costs**

\$250,702

Operating Savings

30 years of Operation Costs** **\$595,566**

\$123,387

30 years of Operation Costs**

\$472,179

Operating Savings

*Capital cost estimates based on RS Means 2006 Square Foot Costs; new construction built to meet current energy code equivalent, ASHRAE 90.1-1999

**Operation Costs based on annual energy escalation rate of 4%, which is regarded as moderately conservative; carbon credits are not considered

Calculations by Ed Gulick, A.A.I.A., LEED AP

Oct-07

provided by Matt Leow (NPRC) 396-1766 matt@northernplains.org



WHEN WE BUILD LET US THINK THAT WE BUILD FOREVER.
LET IT NOT BE FOR PRESENT DELIGHT, NOW FOR PRESENT
USE ALONE LET IT BE SUCH WORK AS OUR DESCENDANTS
WILL THANK US FOR.

JOHN BUSKIN

