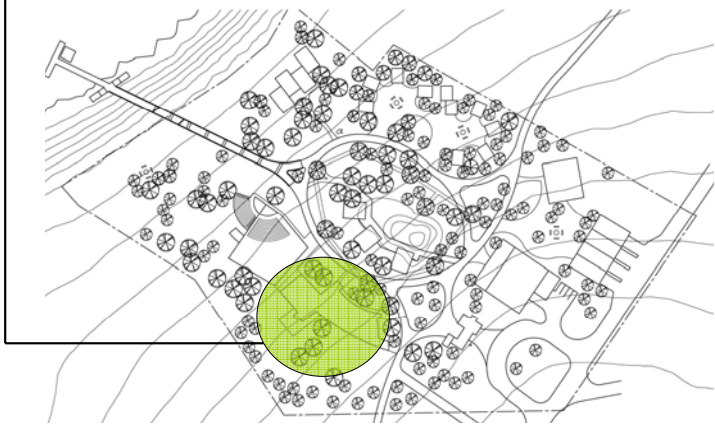
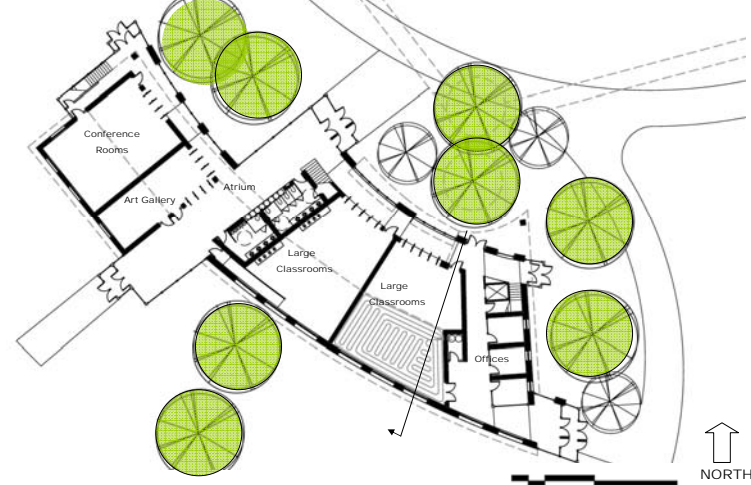


CLASSROOM/CONFERENCE

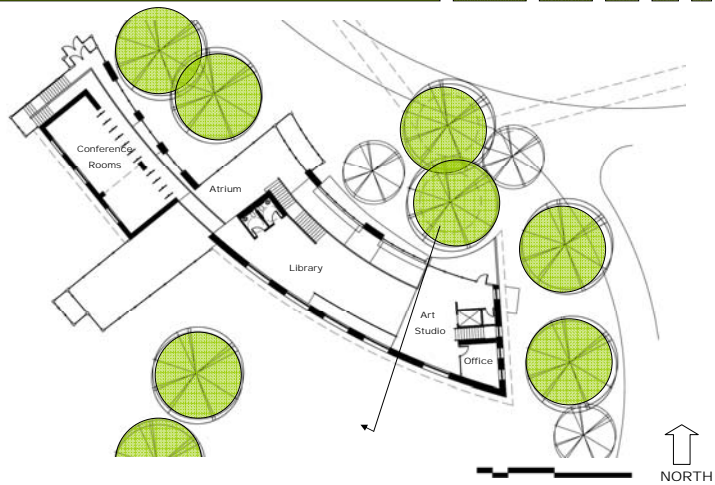


MORPH: EVOLUTION OF EARTH AS ARCHITECTURE
THE SEAMLESS TRANSITION OF PEOPLE AND THE ENVIRONMENT

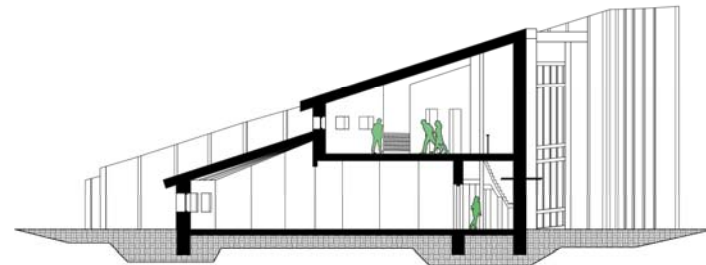
MAIN FLOOR PLAN



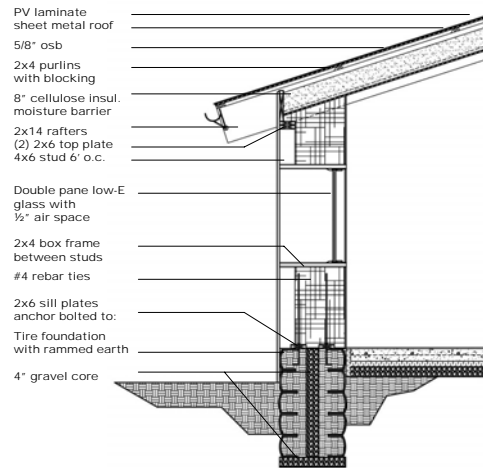
SECOND FLOOR PLAN



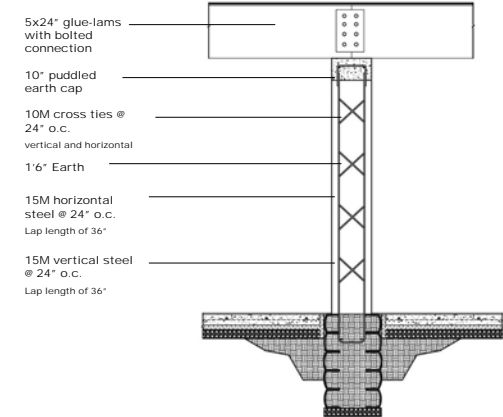
BUILDING SECTION



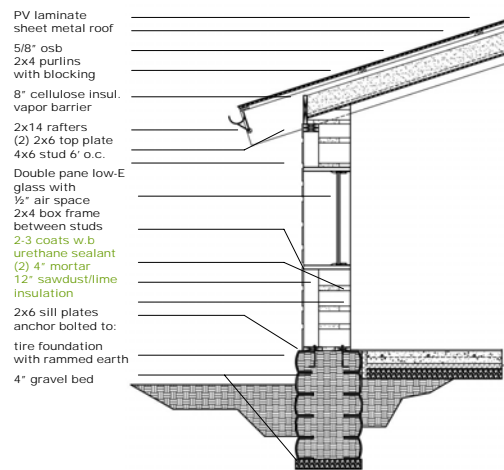
STRAW BALE (R-55)



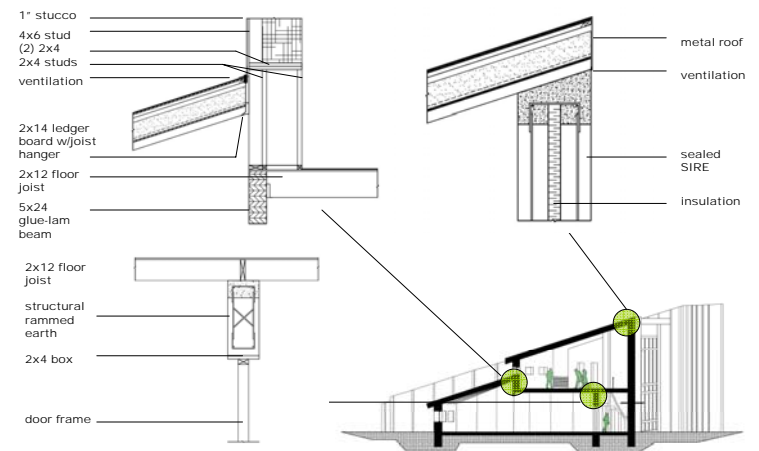
RAMMED EARTH (Thermal mass)



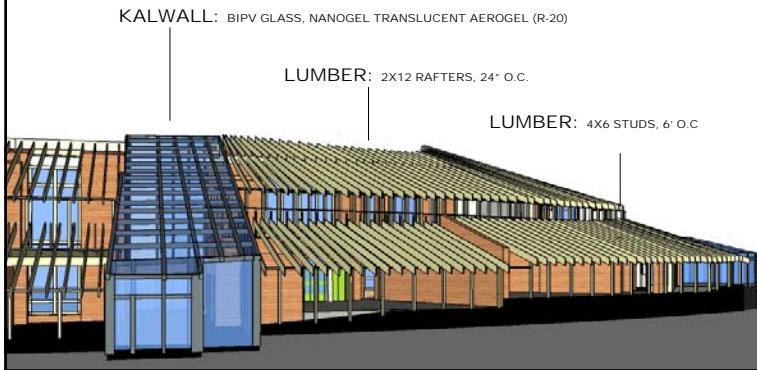
CORDWOOD (R-34)



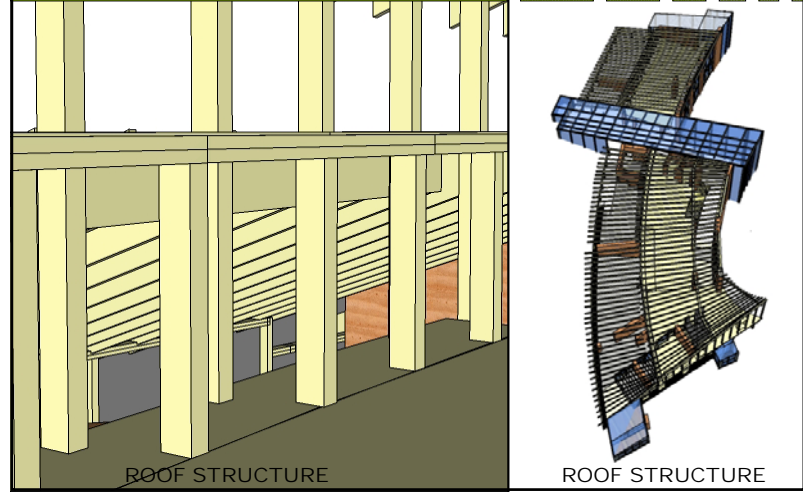
BUILDING SECTION



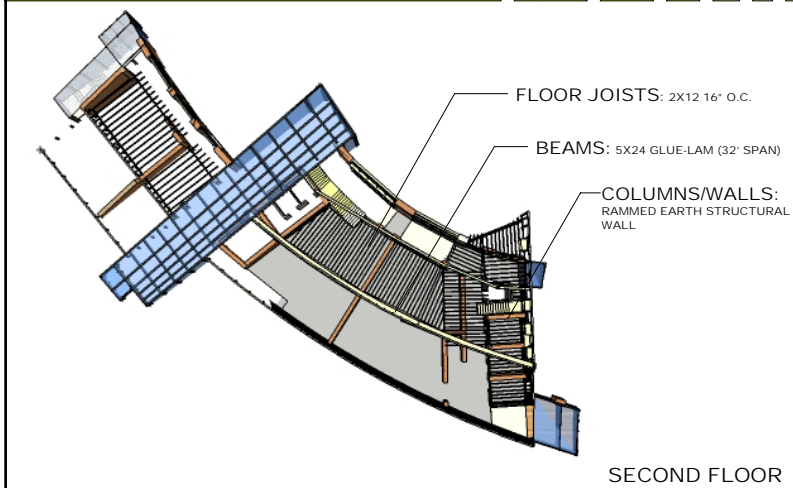
STRUCTURE



STRUCTURE (MODEL PICS)



STRUCTURE (MODEL PICS)



STRUCTURE



EXTERIOR MODEL SHOT



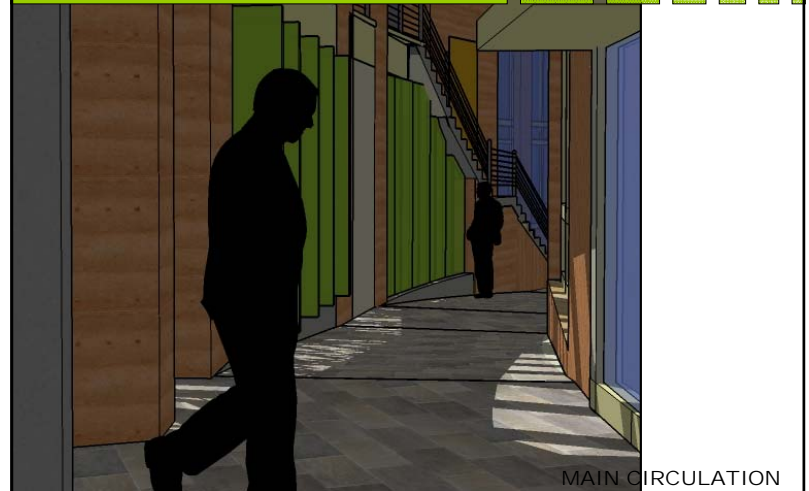
EXTERIOR MODEL SHOT



EXTERIOR MODEL SHOT



INTERIOR MODEL SHOT



INTERIOR MODEL SHOT



INTERIOR MODEL SHOT



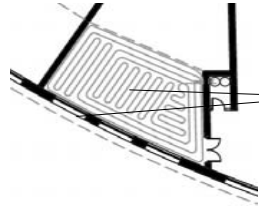
INTERIOR MODEL SHOT



WATER PURIFICATION (rain)



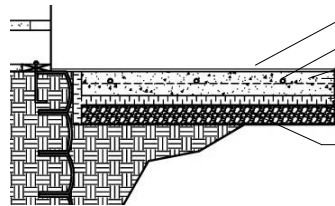
Radiant flooring



Geothermal: Horizontal Ground Loops

Typical room layout:

- two loops of equal length (275 ft)
- two 119 gallon water tanks
- initial wrap around room



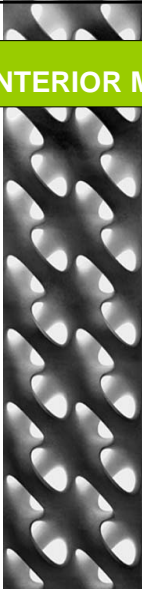
- flooring material
- 7/8" durapoly tubes 16" o.c.
- 6" concrete slab
- welded wire fabric
- 2" polyiso. rigid insulation
- moisture barrier
- 4" gravel bed

BUILDING MATERIALS (CO2)



- DIMENSIONAL LUMBER (LOW)
- GLUELAM BEAMS (LOW)
- CORDWOOD (LOW)
- RAMMED EARTH (LOW)
- TIRES (LOW)
- METAL ROOF (MED)
- 5/8" OSB (LOW)
- STRAW BALE (LOW)
- CONCRETE SLAB (40%) FLY ASH (MED)
- NU-WOOL CELLULOSE INSULATION (LOW)
- POLYISO. RIGID INSULATION (MED-HIGH)
- RECYCLED POLYCARBONATE TUBES (LOW)
- ALUMINUM KALWALL SYSTEM (MED)

INTERIOR MATERIALS (CO2)



FLOORING:

- RECYCLED CARPET TILES (INTERFACE)
- RECYCLED STONE TILES (ECO-CYCLE STONE)
- LINOLEUM (FORBO'S MARMOLEUM)
- EXPANKO CORK
- TERAGREN BAMBOO

WALLS:

- DRY ERASE WALL COVERING (OPTI-RITE 5)
- MODULAR LIMESTONE BAS-RELIEF PANELS

CEILING:

- PERFORATED ACOUSTICAL WOOD TILES

MISC:

- PAPERSTONE COMPOSITE COUNTERS
- 3-FORM VARIA ECORESIN PANELS

INTEGRATION OF SYSTEMS



HEATING/COOLING:

- NATURAL VENTILATION
- GEOTHERMAL RADIANT FLOORING
- BIO-FUEL PLANT (BACKUP)

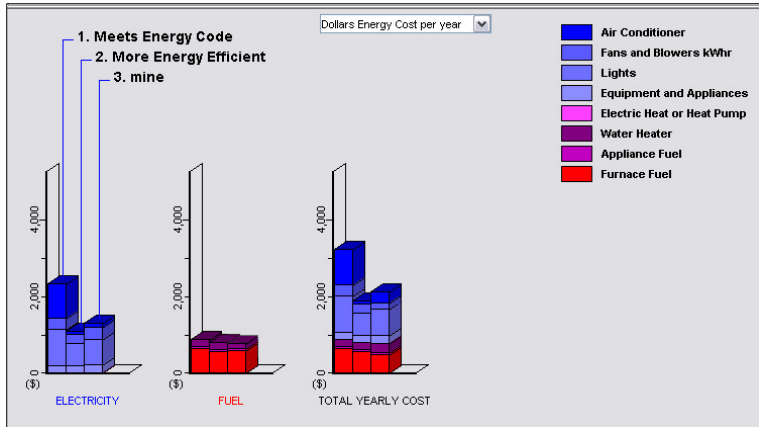
LIGHTING:

- NATURAL LIGHTING
- PHOTOVOLTAIC LAMINATE (136 W)

WATER:

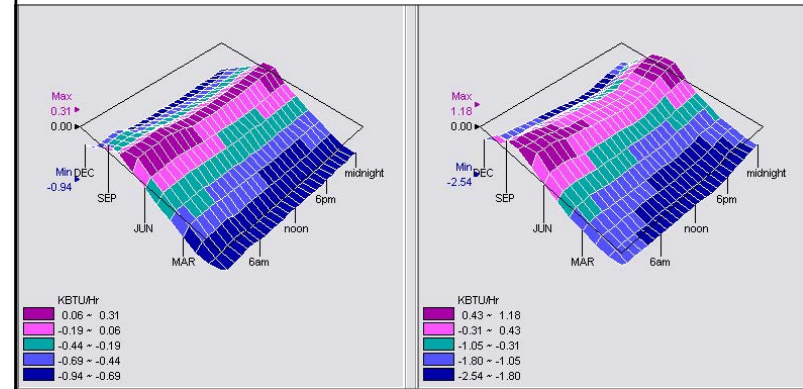
- PURIFIED RAIN WATER (TOILETS, SINKS, FOUNTAINS)
- EXPORTED TO LIVING MACHINE
- LIVING MACHINE (BACKUP)

HEED ANALYSIS



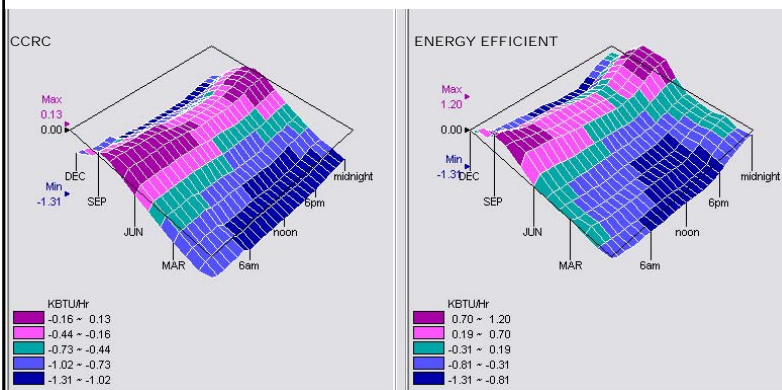
DOLLARS ENERGY COST PER YEAR

HEED ANALYSIS



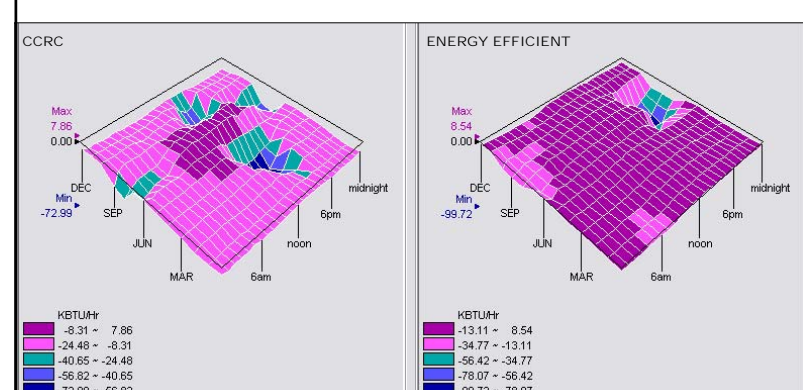
NORTH GLAZING

HEED ANALYSIS



SOUTH GLAZING

HEED ANALYSIS



VENTILATION

ENERGY STAR TARGET

Target Energy Performance Results (estimated)			
Energy	Design	Target	Top 10%
Energy Performance Rating (1-100)	91	92	90
Energy Reduction (%)	37	40	35
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	66.8	65.6	69.2
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	22.2	21.0	23.0
Total Annual Source Energy (kBtu)	668,223.1	655,564.2	692,379.2
Total Annual Site Energy (kBtu)	221,700.0	217,570.6	229,797.3
Total Annual Energy Cost (\$)	\$ 3,250	\$ 3,188	\$ 3,367

Facility Information [Edit](#)

CCRC
 MCCALL, ID 83638
 United States

Facility Characteristics		Estimated Design Energy		
Space Type	Gross Floor Area (Sq. Ft.)	Energy Source	Units	Estimated Total Annual Energy Use
K-12 School	10,000	Electricity	kWh	65,000
Total Gross Floor Area	10,000			

Energy Rate (\$/Unit): \$ 0.050/kWh

Source: Data adapted from DOE-EIA. See EPA Technical Description.