PIONEER ROOFING
151 Maple Street, P.O.Box 277 - Johnson Creek, WI 53038-0277
Phone (920) 699-2731
Fax (920) 699-2733

Friday December 10, 2010

Bryan Cooper
City of Madison
Department of Public Works
Engineering Division
City-County Bldg., Rm. 115
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703-3342

SUBJECT: MADISON CENTRAL PUBLIC LIBRARY GREEN ROOFING BUDGET NUMBERS

Bryan:

Below are the budget numbers you requested:

Intensive
Fully Vegetated ~~Extensive~~ Green Roof Budget Numbers:

- Furnish and install Electric Field Vector Mapping Leak Detection System (EFVM). This includes Vector Screening.
- Furnish and install root barrier.
- Furnish and install composite protection/drainage mat system to maximize stormwater retention.
- Furnish and install 21" tall FSC Certified wood planters and/or prefabricated recycled concrete edging to retain green roof engineered media.
- Furnish and install 18" of media in intensive planting bed.
- Furnish and install drip irrigation system for intensive planting bed areas (able to be tied into recycled rainwater irrigation system).
- Clean up site and remove all debris.

Square Foot Budget Price: $41.25

Extensive
~~Intensive~~ Green Roof Budget Numbers:

- Furnish and install Electric Field Vector Mapping Leak Detection System (EFVM). This includes Vector Screening.
- Furnish and install root barrier.
- Furnish and install composite protection/drainage mat system to maximize stormwater retention.
- Furnish and install 6" perforated green roof edging with filter cloth in all areas where extensive green roof planting beds are adjacent to the washed stone drainage edge and/or pavers on pedestals.
- Furnish and install 5" of extensive green roof media in all extensive planting beds.
- Furnish and install drip irrigation system for extensive planting bed areas.
- Furnish and install fully vegetated sedum tiles in all extensive green roof planting beds. This includes organic fertilizer and media amendments.
- Clean up site and remove all debris.

Square Foot Budget Price: $16.85

	DESCRIPTION	QUANTITY		UNIT $	TOTAL $'s
ROOFING					
6100.266	2" x 12" MOISTURE TREATED ROOF BLOCKING	1,486.0	LF	5.11	7,593
6105.300	ROOF PROTECTION - NEIGHBOR BUILDING	5,000.0	SF	2.35	11,769
	TOTAL ROUGH CARPENTRY				**51,045**
	TOTAL ROUGH CARPENTRY				**51,045**
	MEMBRANE ROOFING				
	SINGLE-PLY MEMBRANE ROOFING				
7530.100	60 MIL FULLY ADHERED WHITE EPDM ROOFING SYSTEM w/ TAPERED 4" POLYISO INSULATION	29,087.0	SF	8.25	239,968
	TOTAL SINGLE-PLY MEMBRANE ROOFING				**239,968**
	GREEN ROOF COMPONENTS				
7590.100	EXTENSIVE GREEN ROOF SYSTEM	3,995.0	SF	24.00	95,880
	TOTAL GREEN ROOF COMPONENTS				**95,880**
	TOTAL MEMBRANE ROOFING				**335,848**
	FLASHING, SHEET METAL & ROOF ACCESSORIES				
	SHEET METAL FLASHING & TRIM				
7620.100	SHEET METAL COUNTER FLASHING	687.0	LF	10.00	6,870
7620.130	SHEET METAL CAP FLASHING	1,486.0	LF	14.00	20,804
7620.150	SHEET METAL CAP FLASHING - EXISTING BUILDING TO NEW ROOF	250.0	LF	20.00	5,000
	TOTAL SHEET METAL FLASHING & TRIM				**32,674**
	ROOF SPECIALTIES & ACCESSORIES				
7750.100	PRECAST CONCRETE PAVERS - PUBLIC ACCESS	758.0	SF	16.00	12,128
	TOTAL ROOF SPECIALTIES & ACCESSORIES				**12,128**
	TOTAL FLASHING, SHEET METAL & ROOF ACCESSORIES				**44,802**
	TOTAL ROOFING				**479,695**
INTERIOR CONSTRUCTION					
	CAST-IN-PLACE CONCRETE				
	CIP CONCRETE - FOOTINGS & FOUNDATIONS				
3360.602	SET & FILL PIPE BOLLARDS w/ CONCRETE	2.0	EA	150.00	300
	TOTAL CIP CONCRETE - FOOTINGS & FOUNDATIONS				**300**
	TOTAL CAST-IN-PLACE CONCRETE				**300**
	MASONRY WORK				
	UNIT MASONRY				
4220.618	8" INTERIOR BLOCK w/ #4@ 48"O.C. FULLY GROUTED - 1 HR	5,858.0	SF	13.15	77,033
	TOTAL UNIT MASONRY				**77,033**
	TOTAL MASONRY WORK				**77,033**
	METAL FABRICATIONS				
	MISC. METAL FABRICATIONS				
5500.016	MISC. FABRICATIONS - INTERIOR CONSTRUCTION	119,557.0	SF	0.10	11,956
5500.080	6" PIPE BOLLARDS	2.0	EA	120.00	240

Mortenson construction

CITY OF MADISON
MADISON CENTRAL PUBLIC LIBRARY
MADISON, WISCONSIN

TOTAL CONSTRUCTION - TOTAL PROJECT

UNIFORMAT SYSTEM SUMMARY
SCHEMATIC DESIGN ESTIMATE
January 4, 2011

UniFormat System Breakdown	System Area SF	UM	per Sys. SF	per GSF	Total
FOUNDATIONS	32,604	sf	$6.32	$1.72	$206,066
BASEMENT CONSTRUCTION	0	cf	$0.00	$0.00	$0
SUPERSTRUCTURE	84,464	sf	$9.56	$6.76	$807,739
EXTERIOR ENCLOSURE	44,914	sf	$69.69	$26.18	$3,130,231
ROOFING	33,082	sf	$14.50	$4.01	$479,695
INTERIOR CONSTRUCTION	119,557	sf	$24.36	$24.36	$2,912,614
STAIRS	325	rise	$871.58	$2.37	$283,264
INTERIOR FINISHES	119,557	sf	$16.83	$16.83	$2,012,581
CONVEYING	10	stop	$24,000.00	$2.01	$240,000
PLUMBING	119,557	sf	$4.40	$4.40	$526,051
HVAC	119,557	sf	$32.09	$32.09	$3,836,527
FIRE PROTECTION	119,557	sf	$2.68	$2.68	$319,927
ELECTRICAL	119,557	sf	$26.51	$26.51	$3,169,464
EQUIPMENT	119,557	sf	$0.61	$0.61	$73,160
FURNISHINGS	119,557	sf	$2.09	$2.09	$250,370
SPECIAL CONSTRUCTION	0	sf	$0.00	$0.00	$0
SELECTIVE BUILDING DEMOLITION	94,275	sf	$10.98	$8.66	$1,035,095
SITE PREPARATION	6,684	sf	$2.82	$0.16	$18,830
SITE IMPROVEMENTS	6,684	sf	$5.92	$0.33	$39,585
SITE CIVIL / MECHANICAL UTILITIES	6,684	sf	$4.94	$0.28	$33,000
SITE ELECTRICAL UTILITIES	6,684	sf	$0.00	$0.00	$0
GENERAL REQUIREMENTS	119,557	sf	$5.01	$5.01	$598,519
UNIFORMAT SYSTEM - SUBTOTAL				$167.06	$19,972,718
CONSTRUCTION ESCALATION			0.000%	$0.00	$0
SUBTOTAL					$19,972,718
EST./CONST. CONTINGENCY			3.000%	$5.01	$599,181
SUBTOTAL					$20,571,899
INSURANCES			0.900%	$1.55	$185,146
SUBTOTAL					$20,757,045
FEE			2.000%	$3.47	$415,140
TOTAL CONSTRUCTION					$21,172,185
PER GROSS SQUARE FOOT				$177.09	$/GSF
GROSS SQUARE FEET				119,557	GSF

CITY OF MADISON
MADISON CENTRAL PUBLIC LIBRARY
MADISON, WISCONSIN

PROJECT ALTERNATES LOG
January 4, 2011

		Estimated	Accepted	Pending	Alternate	Rejected	Ball-in-Court	$$	Design	Performance	Schedule	Comments / Status
10.	Provide rubber tile flooring i.l.o. cork plank throughout the building.	($205,330)		($205,330)								
11.	Provide a second new staff elevator in a portion of the existing mechanical shaft, adjacent to the staff elevator shown on the drawings. This includes mechanical shaft modifications.	$199,212		$199,212								
ADDITIONAL OPTIONS												
BUILDING EXTERIOR												
B202	Provide new stone cap i.l.o. cleaning existing.	$171,894		$171,894								
B204	Provide a zinc metal clad canopy i.l.o. LED backlit glass.	($25,615)		($25,615)								
B206	Provide wood plank deck i.l.o. concrete pavers at the outdoor public areas on the third level.	$4,914		$4,914								
B208	Provide a fully vegetated extensive green roof system i.l.o a tray system for the entire second level roof.	$397,848		$397,848								
MECHANICAL SYSTEMS												
D202	Provide a storm water reclaim system with a capacity of 500 gallons.	$98,771		$98,771								
	TOTAL ADD OPTIONS	$1,558,696	$0	$1,558,696	$0	$0						
	TOTAL DEDUCT OPTIONS	($502,600)	$0	($502,600)	$0	$0						
	TOTAL OPTIONS	$1,056,096	$0	$1,056,096	$0	$0						
January 04, 2011 Schematic Design Estimate			$0				16					Items Pending
	TOTAL CONSTRUCTION		$0									

The Value Analysis items listed above have been provided to generate conversation and possible solutions for achieving the owner's desired project scope and budget, and should not be interpreted as engineered solutions. By acceptance of any item and prior to incorporating into the design, the Architect / Engineer of Record shall be solely responsible for verification of all design compatibility within the project including but not limited to life safety, code requirements, thermal and moisture protection, building functionality and program requirements.

	DESCRIPTION	QUANTITY		UNIT $	TOTAL $'s
EXTERIOR ENCLOSURE					
9250.013	GPDW BD.- 1S / 1L, 1-5/8" STUD @ 24"O.C. - SPANDREL GLASS LOCATIONS	1,524.0	SF	3.00	4,572
9250.015	GPDW BD.- 1S / 1L, 1-5/8" STUD @ 24"O.C. - METAL PANEL GLAZED INTO CURTAIN WALL	576.0	SF	3.00	1,728
9251.003	GPDW BD.- 1S / 1L, 3-5/8" STUD @ 16"O.C. - INTERIOR DRYWALL FURRING @ EXISTING BRICK	6,511.0	SF	3.50	22,789
9251.004	GPDW BD.- 1S / 1L, 3-5/8" STUD @ 16"O.C. - INTERIOR DRYWALL FURRING @ NEW CMU BACKUP	5,071.0	SF	3.50	17,749
9251.005	GPDW BD.- 1S / 1L, 3-5/8" STUD @ 16"O.C. - INTERIOR DRYWALL FURRING @ BASE ENCLOSURE	2,247.0	SF	3.50	7,865
9251.010	5/8" DENS DECK - PARAPET PROTECTION BOARD - BEHIND EXISTING STONE PARAPET	1,976.0	SF	5.11	10,097
	TOTAL GYPSUM BOARD WALLS				**64,799**
	TOTAL PLASTER & GYPSUM BOARD				**300,624**
PAINTS, WALLCOVERINGS, & COATINGS					
PAINTING					
9900.528	PAINT H.M. DOORS	8.0	EA	65.00	520
9900.530	PAINT H.M. FRAMES, SINGLE	2.0	EA	75.00	150
9900.540	PAINT H.M. FRAMES, DOUBLE	3.0	EA	120.00	360
9900.565	PAINT EXTERIOR OVERHEAD SECTIONAL DOOR	213.0	SF	3.00	639
	TOTAL PAINTING				**1,669**
	TOTAL PAINTS, WALLCOVERINGS, & COATINGS				**1,669**
SPECIALTIES					
LOUVERS & VENTS					
10200.100	EXTRUDED ALUMINUM LOUVERS	1,180.0	SF	60.00	70,800
10200.101	- FINISH TO MATCH ZINC METAL WALL PANELS				
	TOTAL LOUVERS & VENTS				**70,800**
IDENTIFICATION DEVICES					
10430.100	EXTERIOR BUILDING SIGNAGE ALLOWANCE - BY OWNER	1.0	NIC		
	TOTAL IDENTIFICATION DEVICES				
	TOTAL SPECIALTIES				**70,800**
	TOTAL EXTERIOR ENCLOSURE				**3,130,231**
ROOFING					
METAL FABRICATIONS					
ORNAMENTAL METAL					
5700.422	GLASS & STAINLESS STEEL RAILING - ROOF	192.0	LF	250.00	48,000
	TOTAL ORNAMENTAL METAL				**48,000**
	TOTAL METAL FABRICATIONS				**48,000**
ROUGH CARPENTRY					
ROUGH CARPENTRY					
6100.256	2" x 6" MOISTURE TREATED ROOF BLOCKING	6,519.0	LF	4.86	31,682

Sunset

« Return to How to build the perfect raised bed

How to build the perfect raised bed

Make a great planting box for your vegetable garden

Norm Plate

Your guide to making a raised garden bed

A raised bed is one of the best ways to grow vegetables.

Materials for a raised bed:

One 6-foot-long 4-by-4 ($15)
Six 8-foot-long 2-by-6s ($75)
One 10-foot-long 1-inch PVC pipe ($3)
Two 10-foot-long ½-inch PVC pipes ($6)
32 3½-inch #14 wood screws and 16 ½-inch #8 wood screws ($29)
One 4- by 10-foot roll of ¼-inch-mesh hardware cloth ($15)
Eight 1-inch galvanized tube straps (semicircular brackets; $3.60)
32 cubic feet (1 1/5 cu. yd.) soil mix ($100 in bags; look for combination of topsoil, compost, and potting soil).
With a table or power saw, cut the 4-by-4 into four 16-inch-tall corner posts. Cut two of the 2-by-6s in half. Cut the 1-inch PVC pipe into four 12-inch-long pieces and the ½-inch PVC pipes into 6-foot-long pieces. Assemble pieces on a hard, flat surface.

Full article

Norm Plate

Assemble

Build bed upside down. Set a 4-foot 2 -by-6 on its thin edge on pavement, and place a 16-inch post at one end. Secure post with two 3½-inch screws. Repeat at other end of board. Repeat with other short board.

Join short sides with an 8-foot board; and secure with two screws. Add other long side. Add second layer of 2-by-6s.

Full article

Position

With help from a buddy, flip the bed right side up. Move it into position in the yard, marking with a trowel each corner post's location. Move the bed aside; dig a 5- to 6-inch-deep hole for each post.

Put the bed back into place, with posts in holes; fill around posts with soil.

Full article

Norm Plate

Norm Plate

Install Lining

Rake the existing soil at the bottom of the bed to level it, then tamp it smooth. Line the bed with hardware cloth to keep out gophers and moles; trim the cloth with shears to fit around corner posts.

Full article


Norm Plate

Attach pipe

To hold hoops for bird netting or row covers, attach four 12-inch pieces of 1-inch PVC pipe inside the bed: On the long sides, space pipes 4 feet apart, 2 feet from each end; screw on two tube straps to secure each pipe.

Fill the bed with a planting mix of topsoil, compost, and potting soil; rake it smooth, and moisten it with a gentle spray from the hose.

More about soil for raised beds

Video: How to get great dirt

Full article


Norm Plate

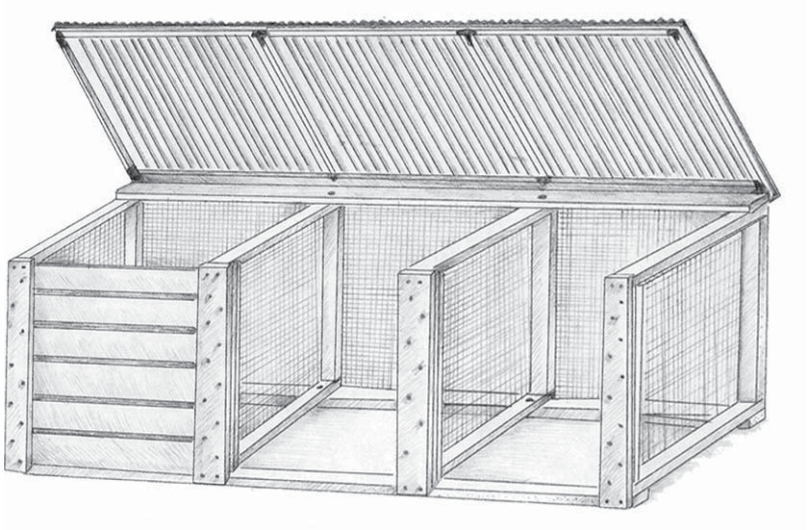
Insert the hoops

To cover newly planted seedlings with bird netting or season-extending row covers, simply bend two 6-foot pieces of ½-inch PVC pipe to form semi-circles, and slip their ends into the 1-inch pipes inside the bed.

Then drape the bird netting or row covers over them.

Full article

Wood and Wire Stationary 3-bin System



This system is used to compost large amounts of yard materials in a brief period of time.

Yard materials can either be stored until there is enough to fill an entire bin or added as available. Materials should be chopped or bruised, moistened, and mixed to ensure a hot compost.
A pile made with a balance by volume of 50% fresh greens and 50% dried, brown or woody materials and turned every seven to fourteen days can be ready to use in three to six weeks. Aged compost is more beneficial as a soil amendment, but aging will add 3 to 6 weeks to the compost process. The texture of the finished compost depends on the materials composted.

This unit can be built for approximately $300-375. Construction requires basic carpentry skills and tools. Do not use treated wood or treat the finished 3-bin unit with wood preservatives or paint of any kind. If you can afford the extra expense, using cedar for all bin parts will extend the life of the bin.

For additional composting information consult the *Composting at Home* guide available through the Natural Lawn & Garden Hotline, 206.633.0224, or the web addresses listed on the back of this sheet.

Materials*

2	18 foot cedar 2x4s
4	12 foot (or 8, 6 foot) cedar 2x4s
1	9 foot 2x2
2	6 foot 2x2s
1	16 foot cedar 2x6
9	6 foot cedar lx6s
22	foot of 36" wide ½" hardware cloth
12	½" carriage bolts 4" long
12	washers and 12 nuts for bolts
3	lbs. of 16d galvanized nails
½	lb. of 8d galvanized casement nails
250	poultry wire staples or power stapler
1	12 foot sheet and
1	8 foot sheet, 4 oz. clear corrugated fiberglass
3	8 foot lengths of wiggle moulding
40	gasketed aluminum nails for corrugated fiberglass roofing
2	3" zinc plated hinges for lid
8	flat 4 corner braces with screws
4	flat 3" T-braces with screws

Tools

hand saw or circular power saw

drill with ½" and ⅛" bits

screwdriver

hammer or power stapler with 1" long galvanized staples

tin snips

tape measure

pencil

¾ socket or open-ended wrench

carpenter's square

safety glasses

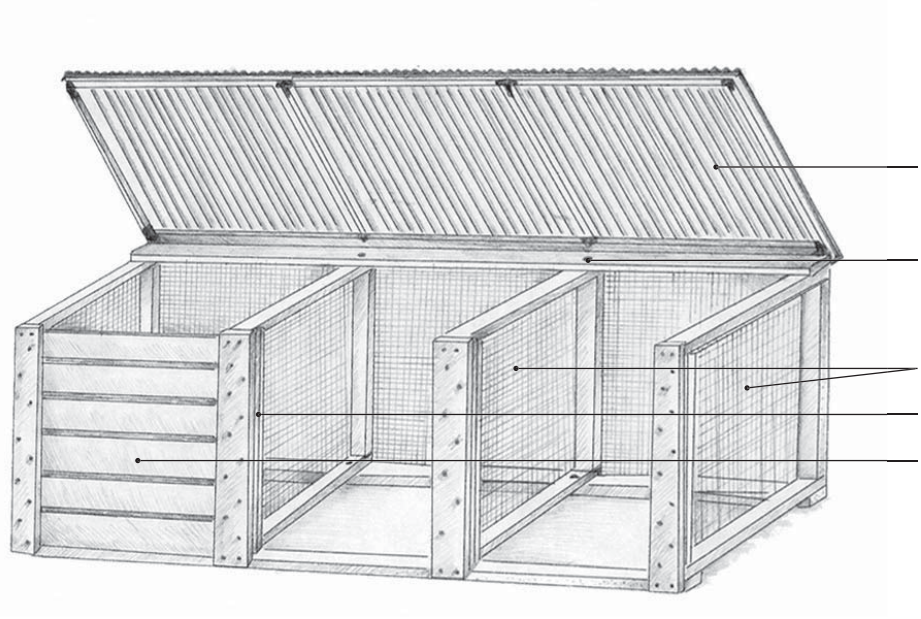
ear protection

The Natural Soil Building Program
is sponsored by Seattle Public Utilities and managed by the Seattle Tilth Association.

This recycled paper is recyclable. Revised 12/03

Seattle Public Utilities

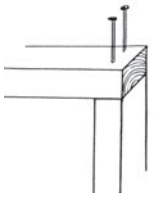
*Wood products that have the FSC logo give "the consumer a guarantee that the product has come from a forest which has been evaluated and certified as being managed according to agreed social, economic and environmental standards."



Overall outside dimension
9' wide x 36" deep x 32" high

Each bin section
35⅛" wide x 36" deep x 32" high

Construction Details:


butt end nail

Build Dividers Cut two 31½" and two 36" pieces from each 12 foot 2x4. Butt end nail the four pieces into a 35" x 36" section. Check to make sure each divider section is square. Repeat for other three sections. Cut four 37" long sections of hardware cloth, bend back edges 1". Stretch hardware cloth across each frame, check for squareness of the frame and staple screen tightly into place every 4" around edge.

Set Up Dividers Set up dividers parallel to one another 3 feet apart. Measure and mark centers for the two inside dividers. Cut four 9 foot pieces out of the two 18 foot 2x4 boards. Place two 9 foot base boards on top of dividers and measure the positions for the two inside dividers. Mark a centerline for each divider on the 9 foot 2x4. With each divider, line up the centerlines and make the baseboard flush against the outer edge of the divider. Drill a ½" hole through each junction centered 1" in from the inside edge. Secure baseboards with carriage bolts, but do not tighten yet. Turn the unit right side up and repeat the process for the top 9 foot board. Using the carpenter's square or measuring between opposing corners, make sure the bin is square, and tighten all bolts securely. Fasten a 9 foot long piece of hardware cloth securely to the backside of the bin with staples every 4" around the frame.

Front Slats and Runners Cut four 36" long 2x6s for front slat runners. Cut lengthwise two of these boards to 4 ¾" wide and nail them securely to the front of the outside dividers and baseboard, making them flush on top and outside edges. Save remainder of rip cut boards for use as back runners. Center the remaining full width boards on the front of the inside dividers flush with the top edge, and nail securely. To create back runners, cut the remaining 2x6 into a 34" long piece and then rip cut into 4 equal pieces, 1¼" x 2". Nail back runner parallel to front-runners on side of divider leaving a 1" gap for slats. Cut all the 1x6" cedar boards into slats 31¼" long.

Fiberglass Lid Use the last 9 foot 2x4 for the back of the lid. Cut four 32½" 2x2s and one 9 foot 2x2. Lay out into position on ground as illustrated on front page and make sure they are square. Screw in corner braces and T-braces on bottom side of the frame. Center lid frame, brace side down on bin structure and attach with hinges. Cut wiggle board to fit the front and back 9 foot sections of the lid frame. Pre-drill wiggle board with ⅛" drill bit and nail with 8d casement nails. Cut fiberglass to fit flush with front and back edges. Overlay pieces at least one channel wide. Pre-drill fiberglass and wiggle board for each nail hole. Nail on top of every third hump with gasketed nails.

More on Natural Yard Care:
To receive the Naturals Guides: *Composting at Home*, or *Building Healthy Soil* or for more information on composting please call the Natural Lawn & Garden Hotline at 206.633.0224 or email them at: lawn&gardenhotline@seattletilth.org

More resources can also be viewed at these websites:
www.ci.seattle.wa.us/util/composting
www.cityofseattle.net/util/rescons/
www.savingwater.org
www.compostwashington.org/

This and other compost bin plans can be found at:
www.seattletilth.org/download/download.html
www.dnr.metrokc.gov.swd/ResRescy/composting/composting/shtml