

SCHEMATIC DESIGN
COST PLAN

for

Mitchell Park Library
Palo Alto, California

DAVIS LANGDON

May 5, 2008

SCHEMATIC DESIGN COST PLAN

for

Mitchell Park Library
Palo Alto, California

Group 4
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May 5, 2008

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BASIS OF COST PLAN

Cost Plan Prepared From

Information provided by Group 4 January 2008

Conditions of Construction

The pricing is based on the following general conditions of construction

The general contract will be competitively bid with qualified general and main subcontractors

There will not be small business set aside requirements

The contractor will be required to pay prevailing wages

Phasing may be required

The general contractor will have full access to the site during normal business hours

EXCLUSIONS

Owner supplied and installed furniture, fixtures and equipment
Loose furniture and equipment except as specifically identified
Library stacks (FF & E)
AV equipment (Technology Budget)
Security equipment and devices
Hazardous material handling, disposal and abatement
Compression of schedule, premium or shift work, and restrictions on the contractor's working hours
Design, testing, inspection or construction management fees
Architectural and design fees
Scope change and post contract contingencies
Assessments, taxes, finance, legal and development charges
Environmental impact mitigation
Builder's risk, project wrap-up and other owner provided insurance program
Land and easement acquisition
Cost escalation beyond January 2008
Contingency for Design

OVERALL SUMMARY

Library and Community Center	52,000 SF	463.06	24,079
Sitework			4,115

TOTAL Building & Sitework Construction			28,194
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Alternates:

1. Scheme 1B Water Cooled Packaged VAV and WSHP	ADD	(96)
2. Scheme 1C Geothermal, Water to Water Heat Pump	ADD	602
3. Scheme 1D, Night Sky Radiant Cooling (ADD to Scheme 1A)	ADD	107
4. Two Phase Construction (Demo existing Library after completion of new)	ADD	103
5. Daylight Harvesting	ADD	133
6. Green Roof in lieu of Built-up	ADD	154
7. PV Panel System	ADD	410
8. Solar Hot Water	ADD	58

LIBRARY AND COMMUNITY CENTER AREAS & CONTROL QUANTITIES

Areas	SF	SF	SF
Enclosed Areas			
First Floor	36,000		
Second Floor	16,000		
SUBTOTAL, Enclosed Area		52,000	
Covered area			
SUBTOTAL, Covered Area @ ½ Value			
TOTAL GROSS FLOOR AREA			52,000

Control Quantities

			Ratio to Gross Area
Number of stories (x1,000)	2	EA	0.038
Gross Area	52,000	SF	1.000
Enclosed Area	52,000	SF	1.000
Covered Area	0	SF	0.000
Footprint Area	52,000	SF	1.000
Volume	936,000	CF	18.000
Basement Volume	0	CF	0.000
Gross Wall Area	40,000	SF	0.769
Retaining Wall Area	0	SF	0.000
Finished Wall Area	40,000	SF	0.769
Windows or Glazing Area	40.00%	16,000 SF	0.308
Roof Area - Flat	44,000	SF	0.846
Roof Area - Sloping	0	SF	0.000
Roof Area - Total	44,000	SF	0.846
Roof Glazing Area	500	SF	0.010
Interior Partition Length	2,600	LF	0.050
Finished Area	52,000	SF	1.000
Elevators (x10,000)	2	EA	0.385
Plumbing Fixtures (x1,000)	71	EA	1.365

LIBRARY AND COMMUNITY CENTER COMPONENT SUMMARY

	Gross Area: 52,000 SF		
		\$/SF	\$x1,000
1. Foundations		20.00	1,040
2. Vertical Structure		12.50	650
3. Floor & Roof Structures		56.42	2,934
4. Exterior Cladding		95.96	4,990
5. Roofing, Waterproofing & Skylights		20.60	1,071
<i>Shell (1-5)</i>		205.48	10,685
6. Interior Partitions, Doors & Glazing		22.52	1,171
7. Floor, Wall & Ceiling Finishes		33.90	1,763
<i>Interiors (6-7)</i>		56.42	2,934
8. Function Equipment & Specialties		13.57	706
9. Stairs & Vertical Transportation		5.67	295
<i>Equipment & Vertical Transportation (8-9)</i>		19.24	1,001
10. Plumbing Systems		10.33	537
11. Heating, Ventilating & Air Conditioning		56.78	2,953
12. Electric Lighting, Power & Communications		46.65	2,426
13. Fire Protection Systems		6.00	312
<i>Mechanical & Electrical (10-13)</i>		119.76	6,227
<i>Total Building Construction (1-13)</i>		400.90	20,847
14. Site Preparation & Demolition		0.00	0
15. Site Paving, Structures & Landscaping		0.00	0
16. Utilities on Site		0.00	0
<i>Total Site Construction (14-16)</i>		0.00	0
<i>TOTAL BUILDING & SITE (1-16)</i>		400.90	20,847
General Conditions	10.00%	40.10	2,085
Contractor's Overhead & Profit or Fee	5.00%	22.06	1,147
<i>RECOMMENDED BUDGET</i>		463.06	24,079
		<i>May 2008</i>	

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
<u>1. Foundations</u>				
Mat or stiff grade beam system	52,000	SF	20.00	1,040,000
				1,040,000
<u>2. Vertical Structure</u>				
Moment frame lateral system	130	TN	5,000.00	650,000
				650,000
<u>3. Floor and Roof Structure</u>				
Floor and roof				
Slab on grade	36,000	SF	10.00	360,000
Steel floor framing 12#/sf	96	TN	4,000.00	384,000
Steel roof framing 11#/sf	242	TN	4,000.00	968,000
Metal deck and concrete fill	60,000	GSF	10.00	600,000
Raised floor system	37,000	GSF	14.00	518,000
Miscellaneous metals	52,000	GSF	2.00	104,000
				2,934,000
<u>4. Exterior Cladding</u>				
Applied exterior finishes				
Exterior framing and insulation	40,000	SF	15.00	600,000
Exterior finish - slate @ 25%	10,000	SF	45.00	450,000
Cement plaster	30,000	SF	25.00	750,000
Green screen over metal frame - 20%	10,000	SF	20.00	200,000
Interior finish to exterior wall	24,000	SF	6.00	144,000
Veil at library at courtyard	1,000	SF	50.00	50,000
Windows, glazing and louvers				
Aluminum windows and storefront	16,000	SF	100.00	1,600,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Exterior doors, frames and hardware				
Automatic sliding	1	EA	10,000.00	10,000
Sliding doors	5	EA	5,000.00	25,000
Exterior doors	42	EA	3,000.00	126,000
Gates (inc. drop down at CC RR)	1	LS	35,000.00	35,000
Fascias, bands, screens and trim	40,000	WSF	10.00	400,000
Terrace railing	100	LF	300.00	30,000
Soffits - plaster	8,000	SF	25.00	200,000
Painted metal trellis	1,200	SF	100.00	120,000
Glass canopy with metal supports	1,000	SF	250.00	250,000
				4,990,000

5. Roofing, Waterproofing & Skylights

Roofing including insulation				
Standing seam metal roof with integral gutters over water and ice shield	15,000	SF	30.00	450,000
Built up roof	26,000	SF	15.00	390,000
Green roof				Alternate
Terrace	1,000	SF	50.00	50,000
Roofing upstands and sheet metal	42,000	RSF	3.00	126,000
Roof lights	6	EA	500.00	3,000
Caulking and sealants	52,000	GSF	1.00	52,000
				1,071,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
<u>6. Interior Partitions, Doors & Glazing</u>				
Interior partitions	2,600	LF	250.00	650,000
Window walls and borrowed lights	2,100	SF	50.00	105,000
Interior doors and frames and hardware	80	EA	3,000.00	240,000
Special doors	1	LS	25,000.00	25,000
Moveable partition	85	LF	600.00	51,000
Railing	200	LF	500.00	100,000
				1,171,000
 <u>7. Floor, Wall & Ceiling Finishes</u>				
Floors and bases				
Terrazzo	3,000	SF	35.00	105,000
Ceramic tile	1,500	SF	15.00	22,500
Wood flooring	3,000	SF	15.00	45,000
Vinyl tile	1,000	SF	5.00	5,000
Carpet tile	43,500	SF	6.00	261,000
Base - wood and rubber	7,400	LF	6.00	44,400
Walls				
Miscellaneous wall finishes	52,000	SF	3.50	182,000
Column furring	52,000	GSF	3.00	156,000
Ceilings				
Exposed metal acoustic deck ceilings at library high ceilings, multipurpose and teen room	10,000	SF	15.00	150,000
Wood slat accent - 10%	5,000	SF	40.00	200,000
Acoustic tile or suspended gypsum	37,000	SF	16.00	592,000
				1,762,900

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
8. Function Equipment & Specialties				
Protective guards, barriers and bumpers				
Corner guards and bumper rails	1	LS	5,000.00	5,000
Prefabricated compartments and accessories				
Toilet room partitions, counters and accessories	1	LS	50,000.00	50,000
Shelving and millwork				
Library stacks				FF & E
Storage room and janitor closet shelving	1	LS	5,000.00	5,000
Cabinets and countertops				
Info desk	1	LS	15,000.00	15,000
Miscellaneous built-in casework - allow	37,000	SF	5.00	185,000
Chalkboards, insignia and graphics				
Code required signage, general signage and graphics - allow	52,000	SF	2.50	130,000
Chalkboards, tack boards and marker boards - allow	1	LS	5,000.00	5,000
Mailboxes and cubbies	1	LS	3,000.00	3,000
Light and vision control				
Window covering allowance - 60%	10,000	SF	10.00	100,000
Projection screen and projector mount	5	EA	7,500.00	37,500
Amenities and convenience items				
Entrance mats	1	LS	10,000.00	10,000
Lockers	1	LS	2,000.00	2,000
Fire extinguisher and cabinet	10	EA	400.00	4,000
Special use equipment				
Audio visual equipment and wiring				FF & E
Book theft detection system	1	EA	20,000.00	20,000
Book drops	3	EA	3,000.00	9,000
Café & kitchen equipment	500	SF	250.00	125,000
				705,500

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
9. Stairs & Vertical Transportation				
Stairs				
Open	1	EA	70,000.00	70,000
Exit	1	EA	25,000.00	25,000
Elevator - 2 stop - passenger	1	EA	90,000.00	90,000
Service elevator - 2 openings	1	EA	110,000.00	110,000
				295,000

10. Plumbing Systems

Sanitary fixtures and connection piping	71	FX)		
Water closets	26	EA	1,475.00	38,350
Urinals	5	EA	1,425.00	7,125
Lavatories	22	EA	1,350.00	29,700
Breakroom sinks	7	EA	1,275.00	8,925
Kitchen sink, double bowl	1	EA	1,500.00	1,500
Service sinks	5	EA	2,250.00	11,250
Drinking fountain, dual height	3	EA	3,250.00	9,750
Shower	2	EA	2,700.00	5,400
Sanitary waste, vent and service pipework				
Floor drains and sinks, <=4", connection pipework, trap primers (allow)	11	EA	2,000.00	22,000
Hose bibbs, 3/4"	1	LS	11,000.00	11,000
Rough-in waste, vent, and service pipework, including pipe, fittings, valves and specialties, supports and insulation	71	FX	4,500.00	319,500
Reduced pressure backflow preventer				
Water treatment, storage and circulation				
Gas fired water heater	2	EA	7,500.00	15,000
Mechanical equipment makeup water	1	LS	10,000.00	10,000
Natural gas distribution (allow)	1	LS	7,500.00	7,500

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Roof and surface water drainage	1	LS	40,000.00	40,000
				537,000

11. Heating, Ventilation & Air Conditioning

Scheme 1A - Air cooled chillers

Heating and Cooling generation equipment

Heating Equipment

Boilers, 1,400,000 BTUH	2	EA	50,000.00	100,000
Water treatment	1	LS	10,000.00	10,000

Chilling Equipment

Air Cooled Chillers, 90 ton	2	EA	90,000.00	180,000
Water treatment	1	LS	10,000.00	10,000

Thermal expansion compensation and circulation

Expansion tank/air separators, incl. makeup water assembly	1	LS	15,000.00	15,000
Primary chill water pumps	2	EA	3,500.00	7,000
Secondary chill water pumps	2	EA	4,500.00	9,000
Primary Heating water pumps	2	EA	3,500.00	7,000
Inertia base	6	EA	1,250.00	7,500
VFD	6	EA	3,500.00	21,000

Piping, fittings, valves and insulation

Condenser water and heating hot water pipework, fittings, valves, specialties, and insulation	52,000	SF	10.00	520,000
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Radiant heating

Recessed linear convectors, Library perimeter	750	LF	175.00	131,250
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Air handing equipment

AHU - 3 each	47,000	CFM	6.50	305,500
Fan Coil Units, 4-pipe, <= 3,500 cfm	6	EA	12,000.00	72,000
Fan Coil Units, 4-pipe, <= 2,000 cfm	8	EA	8,000.00	64,000
Terminal boxes, reheat, Library areas (allow)	25	EA	1,100.00	27,500

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Air distribution and return				
Galvanized sheet metal ductwork	45,000	LB	10.00	450,000
Plenum dividers, underfloor air highways, Library	2,500	LB	9.00	22,500
Flexible ductwork	1,250	LF	15.00	18,750
Dampers, volume	250	EA	110.00	27,500
Dampers, smoke/fire (allow)	1	LS	10,000.00	10,000
Motorized dampers, underfloor	1	LS	7,500.00	7,500
Insulation	27,000	SF	4.90	132,300
Diffusers, registers and grilles				
Library DRG's, include special floor diffusers	37,000	SF	3.00	111,000
Community center DRG's	15,000	SF	1.50	22,500
Controls and instrumentation	52,000	SF	8.00	416,000
Test and balance	600	HR	125.00	75,000
Commissioning	52,000	SF	2.00	104,000
Unit ventilation/exhaust fans				
General and whole house exhaust	1	LS	24,000.00	24,000
Kitchen grease exhaust & makeup air unit	1	LS	15,000.00	15,000
Relief louvers & backdraft dampers	300	SF	100.00	30,000
				2,952,800

12. Electrical Lighting, Power & Communication

Service and distribution				
Main switchboard, 480V/3, main breaker, meter, TVSS	1,200	AM	38.00	45,600
Transformer, 480-120/208V/3	225	KVA	100.00	22,500
Distribution panel board, 120/208V/3, TVSS	800	AM	32.00	25,600
Panel board breakers 277V/1 - mechanical	42	EA	105.00	4,410
Feeder conduit and cable	100	LF	150.00	15,000
Community center's service and distribution				
Transformer, 480-120/208V/3	113	KVA	110.00	12,375

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Meters	3	EA	1,000.00	3,000
Distribution panel, 120/208V	400	AM	32.00	12,800
Panel board breakers 277V/1 - mechanical	42	EA	105.00	4,410
Feeder conduit and cable	265	LF	90.00	23,850
PV panel system				Alternate
Emergency power				
Emergency lighting battery inverter, including feeder conduit and cable	15	KVA	2,350.00	35,250
Machine and equipment connection				
One phase project - HVAC Scheme 1A				
Connections, including switch, conduit and cable				
Elevator connection	2	EA	5,000.00	10,000
Air handling unit < = 50 hp	3	EA	5,000.00	15,000
Chiller 90 ton	2	EA	9,000.00	18,000
Fan coil units < = 15hp	13	EA	2,000.00	26,000
Primary/ secondary chill water pumps < = 20 hp	4	EA	2,500.00	10,000
Primary Heating water pumps < = 10 hp	2	EA	1,500.00	3,000
Boilers, natural gas, 120V/1 connection	2	EA	1,200.00	2,400
Fire smoke dampers, connections (allow)	20	EA	550.00	11,000
Miscellaneous connections including VAV boxes, hand dryers, plumbing fixture sensor, motorized windows, water heater, drinking fountains, and kitchen equipment connections	150	EA	550.00	82,500
User convenience power				
Panel board breakers 120V/1 - library	210	EA	115.00	24,150
Panel board breakers 120V/1 - community center	168	EA	115.00	19,320
Feeder conduit and cable	460	LF	48.00	22,080
Receptacles including conduit/ raised floor system and cables	52,000	SF	4.75	247,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Lighting				
Panel board breakers 277V/1 - library	84	EA	115.00	9,660
Panel board breakers 277V/1 - community center	42	EA	115.00	4,830
Feeder conduit and cable	250	LF	45.00	11,250
Lighting fixtures, including conduit and cables - Library	37,000	SF	13.50	499,500
Lighting fixtures, including conduit and cables - Community center	15,000	SF	14.50	217,500
Switches, occupancy sensors, including conduit and cables	52,000	SF	0.75	39,000
Exterior building lighting - allow	1	LS	50,000.00	50,000
Light and power specialties				
Grounding, ufer ground, including telecom room grounding	1	LS	15,000.00	15,000
Lighting control relay panel, programmable and 4 scene -presets	3	EA	15,000.00	45,000
Day light harvesting control/dimming panel				Alternate
Miscellaneous 120V/1 connections	75	EA	550.00	41,250
Telephone data and communication system				
Telecom/server room IDF - rough-ins including racks, vertical wire way, cable runway, plywood backboard, patch panels, terminal blocks	1	EA	10,000.00	10,000
Multipurpose, and technology room IDF room rough ins	2	EA	10,000.00	20,000
Telephone data wall outlets/ library - including conduit drop to raised floor system, and cable	119	EA	650.00	77,350
Telephone data outlets in raised floor box, including cable/ library	19	EA	950.00	18,050
Telephone or data outlet - wall outlet / library	12	EA	550.00	6,600
Data outlet ceiling mounted/ library	1	EA	550.00	550
Telephone data wall outlets/ community center - including conduit drop to raised floor system, and cable	50	EA	650.00	32,500
Telephone data outlets in raised floor box, including cable/ community center	1	EA	950.00	950
Telephone or data outlet - wall outlet / community center	15	EA	550.00	8,250

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Data outlet ceiling mounted	3	EA	550.00	1,650
Wireless access points	52,000	SF	0.25	13,000
Under floor duct	52,000	SF	0.50	26,000
Infrastructure conduit and cable	52,000	SF	0.75	39,000
J- hooks, allow	52,000	SF	0.20	10,400
Paging system including speaker, conduit and cable	52,000	SF	1.25	65,000
AV system				
AV conduit, and floor/wall boxes, racks	1	LS	30,000.00	30,000
AV equipment, speakers, cabling, installation - allow	1	LS	50,000.00	50,000
Assistive listening	1	LS	8,000.00	8,000
Fire alarm system				
Including fire alarm control, annunciator panels, fire alarm initiating devices, flow, tamper switch and PIV connections, fire alarm fire smoke damper connections and battery back-up power	52,000	SF	3.50	182,000
Security system				
Security card reader, security control panel, book theft gate connections and conduit and cable	52,000	SF	1.40	72,800
Security alarm/acces control system, including conduit and cable				
Motion detectors	32	EA	450.00	14,400
Door switch	50	EA	225.00	11,250
Request to exit	23	EA	225.00	5,175
Duress alarm button	3	EA	500.00	1,500
CCTV including camera conduit and cable, DVD/VCR,	52,000	SF	1.50	78,000
Coordination, short circuit study and testing	120	Hrs	125.00	15,000
				2,425,660

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
<u>13. Fire Protection Systems</u>				
Automatic wet sprinkler system	52,000	SF	6.00	312,000
				<hr/>
				312,000

SITWORK COMPONENT SUMMARY

		Gross Area: 160,000 SF	
		\$/SF	\$x1,000
14. Site Preparation & Demolition		3.86	618
15. Site Paving, Structures & Landscaping		14.65	2,345
16. Utilities on Site		3.75	600
TOTAL BUILDING & SITE (1-16)		22.27	3,563
General Conditions	10.00%	2.23	356
Contractor's Overhead & Profit or Fee	5.00%	1.23	196
RECOMMENDED BUDGET		25.72	4,115
		<i>May 2008</i>	

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
14. Site Preparation & Building Demolition				
Demolition of buildings and structures Existing Library and CC	20,400	SF	8.00	163,200
Site protective construction Erosion control	140,000	SF	0.25	35,000
Site clearing and grading	140,000	SF	3.00	420,000
				618,200
15. Site Paving, Structures & Landscaping				
Signal & intersection at Mayview	1	LS	250,000.00	250,000
Vehicular paving and curbs including striping				
Impervious paving	26,000	SF	8.00	208,000
Parking - porous paving	17,000	SF	12.00	204,000
Curbs	3,000	SF	25.00	75,000
Pedestrian paving				
Special concrete paving	7,000	SF	15.00	105,000
Interlocking pavers	4,000	SF	25.00	100,000
Walkway paving	10,000	SF	10.00	100,000
Basketball court	1,400	SF	25.00	35,000
Concrete steppers	80	EA	100.00	8,000
Landscape planting and maintenance				
Shrubs and groundcover, including soil amendment, irrigation and maintenance	40,000	SF	10.00	400,000
Drainage	65,400	SF	2.00	130,800
Infiltration basin	1	LS	250,000.00	250,000
Lighting	104,000	SF	2.00	208,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Fencing and miscellaneous accessories				
Pots	12	EA	1,500.00	18,000
Benches	5	EA	2,000.00	10,000
Bike racks	1	LS	10,000.00	10,000
Concrete stairs	40	SF	250.00	10,000
Seatwall (courtyard)	200	LF	250.00	50,000
Seating steps	175	SF	250.00	43,750
Double gates	1	EA	5,000.00	5,000
Bollards	7	EA	1,000.00	7,000
Entrance/sign wall	260	LF	250.00	65,000
Miscellaneous	104,000	SF	0.50	52,000
				2,344,550

16. Utilities on Site

Site utilities	1	LS	600,000.00	600,000
				600,000

	Quantity	Unit	Rate	Total
1. Scheme 1B Water Cooled Packaged VAV and WSHP				
DEDUCT Scheme 1A:				
Heating and Cooling generation equipment				
Heating Equipment				
Boilers, 1,400,000 BTUH	(2)	EA	50,000.00	(100,000)
Water treatment	(1)	LS	10,000.00	(10,000)
Chilling Equipment				
Air Cooled Chillers, 90 ton	(2)	EA	90,000.00	(180,000)
Water treatment	(1)	LS	10,000.00	(10,000)
Thermal expansion compensation and circulation				
Expansion tank/air separators, incl. makeup water assembly	(1)	LS	15,000.00	(15,000)
Primary chill water pumps	(2)	EA	3,500.00	(7,000)
Secondary chill water pumps	(2)	EA	4,500.00	(9,000)
Primary Heating water pumps	(2)	EA	3,500.00	(7,000)
Inertia base	(6)	EA	1,250.00	(7,500)
VFD	(6)	EA	3,500.00	(21,000)
Piping, fittings, valves and insulation				
Chill water and heating hot water pipework, fittings, valves, specialties, and insulation	52,000	SF	(10.00)	(520,000)
Air handing equipment				
AHU - 3 each	(47,000)	CFM	6.50	(305,500)
Fan Coil Units, 4-pipe, <= 3,500 cfm	(6)	EA	12,000.00	(72,000)
Fan Coil Units, 4-pipe, <= 2,000 cfm	(8)	EA	8,000.00	(64,000)
Controls and instrumentation	52,000	SF	(8.00)	(416,000)
ADD Scheme 1B				
Heating and Cooling generation equipment				
Heating Equipment				
Boilers, 1,000,000 BTUH	2	EA	35,000.00	70,000
Water treatment	1	LS	10,000.00	10,000
Heat Exchanger	1	EA	20,000.00	20,000

	Quantity	Unit	Rate	Total
Condenser Water Equipment				
Closed circuit cooling tower	2	EA	80,000.00	160,000
Water treatment	1	LS	10,000.00	10,000
Thermal expansion compensation and circulation				
Expansion tank/air separators, incl. makeup water assembly	1	LS	15,000.00	15,000
Primary condenser water pumps	2	EA	3,500.00	7,000
Primary Heating water pumps	2	EA	3,500.00	7,000
Inertia base	4	EA	1,250.00	5,000
VFD	4	EA	3,500.00	14,000
Piping, fittings, valves and insulation				
Condenser water and heating hot water pipework, fittings, valves, specialties, and insulation	52,000	SF	8.00	416,000
Air handing equipment				
ACU - 3 each	47,000	CFM	6.50	305,500
Water Source Heat Pump Units, <= 3,500 cfm	6	EA	17,500.00	105,000
Water Source Heat Pump Units, <= 2,000 cfm	8	EA	12,000.00	96,000
Controls and instrumentation	52,000	SF	8.25	429,000
Markups	28.21	%	(74,500.00)	(21,013)
				(95,513)

	Quantity	Unit	Rate	Total
<u>2: Scheme 1C Geothermal, Water to Water Heat Pump</u>				
DEDUCT Scheme 1A:				
Heating and Cooling generation equipment				
Heating Equipment				
Boilers, 1,400,000 BTUH	(2)	EA	50,000.00	(100,000)
Water treatment	(1)	LS	10,000.00	(10,000)
Chilling Equipment				
Air Cooled Chillers, 90 ton	(2)	EA	90,000.00	(180,000)
Water treatment	(1)	LS	10,000.00	(10,000)
Thermal expansion compensation and circulation				
Expansion tank/air separators, incl. makeup water assembly	(1)	LS	15,000.00	(15,000)
Primary chill water pumps	(2)	EA	3,500.00	(7,000)
Secondary chill water pumps	(2)	EA	4,500.00	(9,000)
Primary Heating water pumps	(2)	EA	3,500.00	(7,000)
Inertia base	(6)	EA	1,250.00	(7,500)
VFD	(6)	EA	3,500.00	(21,000)
Piping, fittings, valves and insulation				
Chill water and heating hot water pipework, fittings, valves, specialties, and insulation	52,000	SF	(10.00)	(520,000)
Air handing equipment				
AHU - 3 each	(47,000)	CFM	6.50	(305,500)
Fan Coil Units, 4-pipe, <= 3,500 cfm	(6)	EA	12,000.00	(72,000)
Fan Coil Units, 4-pipe, <= 2,000 cfm	(8)	EA	8,000.00	(64,000)
Controls and instrumentation	52,000	SF	(8.00)	(416,000)
ADD Scheme 1C:				
Heating and Cooling generation equipment				
Heating Equipment				
Water to water heat pumps, 380 mbh	3	EA	55,000.00	165,000
Water treatment	1	LS	10,000.00	10,000

	Quantity	Unit	Rate	Total
Geothermal field				
Vertical wells, 250 feet deep	43,750	LF	16.50	721,875
Thermal expansion compensation and circulation				
Expansion tank/air separators, incl. makeup water assembly	1	LS	15,000.00	15,000
Primary condenser water pumps	3	EA	3,500.00	10,500
Primary Heating water pumps	2	EA	3,500.00	7,000
Inertia base	5	EA	1,250.00	6,250
VFD	5	EA	3,500.00	17,500
Piping, fittings, valves and insulation				
Condenser water and heating hot water pipework, fittings, valves, specialties, and insulation	52,000	SF	7.50	390,000
Air handling equipment				
ACU - 3 each	41,000	CFM	6.50	266,500
Water Source Heat Pump Units, <= 3,500 cfm	6	EA	17,500.00	105,000
Water Source Heat Pump Units, <= 2,000 cfm	8	EA	12,000.00	96,000
Controls and instrumentation	52,000	SF	7.75	403,000
Markups	28.21	%	469,625.00	132,458
				602,083

	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
<u>3: Scheme 1D, Night Sky Radiant Cooling (ADD to Scheme 1A)</u>				
Deduct Scheme 1A				
Heating and Cooling generation equipment				
Chilling Equipment				
Air Cooled Chillers, 90 ton	(2)	EA	90,000.00	(180,000)
Water treatment	(1)	LS	10,000.00	(10,000)
ADD Scheme 1D:				
Heating and Cooling generation equipment				
Chilling Equipment				
Air Cooled Chillers, 75 ton	2	EA	75,000.00	150,000
Water treatment	1	LS	8,750.00	8,750
Heat exchanger	1	LS	15,000.00	15,000
Night sky radiant cooling				
Evaporative cooling roof spray pipework, nozzles, pumps, filtration, valves and specialties, controls, includes water collection pipework (allow)	1	LS	30,000.00	30,000
Underground storage tank, fiberglass, single wall, 15,000 gallon (allow)	1	LS	60,000.00	60,000
Makeup water to night sky radiant cooling storage tank	1	LS	10,000.00	10,000
Markups	28.21	%	83,750.00	23,622
				107,372

	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
<u>4. Two Phase Construction (Demo existing Library after completion of new)</u>				
Demo existing library at completion of new	1	LS	80,000.00	80,000
Markups	28.21	%	80,000.00	22,564
				102,564
<u>5. Daylight Harvesting</u>				
Daylight harvesting control/dimming panel	52,000	SF	2.00	104,000
Markups	28.21	%	104,000.00	29,333
				133,333
<u>6. Green Roof in lieu of Built-up</u>				
Add premium for green roof	6,000	SF	20.00	120,000
Markups	28.21	%	120,000.00	33,846
				153,846
<u>7. PV Panel System</u>				
Including solar panels, DC combiner boxes, inverter isolation transformer, disconnects, interconnection at main switch board and associated distribution conduit and wiring	4,000	SF	80.00	320,000
Markups	28.21	%	320,000.00	90,256
				410,256

	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
<u>8. Solar Hot Water</u>				
Pumps/piping/solar panels	1	LS	45,000.00	45,000
Markups	28.21	%	45,000.00	12,692
				<hr/> 57,692