

Milwaukee Public Library

Martin Luther King Jr. Library

310 W. Locust St.
Milwaukee, WI 53212

Schematic Design Estimate
June 23, 2023

For Owner Review
June 26, 2023

Project: 2020A053

Prepared For:
Moody Nolan
209 South LaSalle Street
Suite 820
Chicago, IL 60604

NOTES REGARDING PREPARATION OF ESTIMATE

This estimate was prepared based on the following documents provided by Moody Nolan Architects:

1. MPL-MLK Library Schematic Design Drawings issued March 31, 2023.
2. MPL-MLK Library Schematic Design Narratives issued March 31, 2023.
3. Information regarding the project was also obtained via meetings, phone conversations, and email messages that clarified the project scope.

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been generated from current material/labor rates, historical production data, and discussions with relevant subcontractors and material suppliers. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated.

Pricing reflects probable construction costs obtainable in the Milwaukee, Wisconsin area on the bid date. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors with a minimum of 3 bidders for all items of subcontracted work and a minimum of 3 bidders for a general contractor. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since The Concord Group has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, this statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents The Concord Group's best judgment as professional construction cost consultants familiar with the construction industry. However, The Concord Group cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

CURRENT MARKET CONDITIONS

It should be noted that there is ongoing volatility in the construction materials market due to the effects of the pandemic on both the production and supply of materials. Due to the lack of in stock materials suppliers are struggling to fulfill orders in a timely manner, which in turn leads to much longer than normal lead times. The impact of ongoing global raw material shortages and fuel price increases adds to the overall spike in material pricing coupled with the increased demand for construction that the construction industry is now seeing. These factors should be considered when determining the bidding strategy and schedule for projects.

ASSUMED CONSTRUCTION PARAMETERS

The pricing is based on the following project parameters:

1. A construction notice to proceed date of January 15, 2024.
2. A substantial completion date of December 20, 2024.
3. The contract will be competitively bid to multiple contractors.
4. All contractors will be required to pay prevailing wages.
5. There are no phasing requirements.
6. The contractors will have full access to the site during normal working hours
7. Estimate detail includes pricing as of May 2023.

EXCLUSIONS

The following are excluded from the cost of this estimate:

1. Professional Design Fees
2. Testing Fees
3. Owner Contingencies/Scope Changes
4. Construction Contingency
5. Premium Time / Restrictions on Contractor Working Hours
6. Cost Escalation
7. Finance and Legal Charges
8. Environmental Abatement Costs
9. Temporary Owner Facilities
10. Moisture Mitigation
11. Stairs
12. Fire Place
13. Equipment (Owner Furnished/Installed)
14. Artwork
15. Elevator
16. Third Party Commissioning
17. Telephone / Data Equipment
18. Contaminated Soil Removal
19. Structurally Unsuitable Soil Removal
20. Future Cost Impacts Based on Supply Chain Impacts

COST SUMMARY		17,635 GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		\$0.00	\$0
02000	EXISTING CONDITIONS		\$0.00	\$0
03000	CONCRETE		\$0.07	\$1,217
04000	MASONRY		\$0.00	\$0
05000	METALS		\$2.56	\$45,200
06000	WOODS, PLASTICS & COMPOSITES		\$12.93	\$227,974
07000	THERMAL & MOISTURE PROTECTION SYSTEM		\$0.34	\$5,925
08000	OPENINGS		\$13.53	\$238,575
09000	FINISHES		\$50.03	\$882,266
10000	SPECIALTIES		\$16.64	\$293,420
11000	EQUIPMENT		\$4.23	\$74,576
12000	FURNISHINGS		\$16.57	\$292,261
13000	SPECIAL CONSTRUCTION		\$0.00	\$0
14000	CONVEYING EQUIPMENT		\$0.00	\$0
21000	FIRE SUPPRESSION		\$2.13	\$37,474
22000	PLUMBING		\$10.19	\$179,730
23000	HEATING, VENTILATING & AIR CONDITIONING		\$58.43	\$1,030,432
26000	ELECTRICAL		\$33.17	\$584,956
27000	COMMUNICATIONS		\$25.58	\$451,169
28000	ELECTRONIC SAFETY AND SECURITY		\$12.11	\$213,555
31000	EARTHWORK		\$0.00	\$84
32000	EXTERIOR IMPROVEMENTS		\$0.00	\$0
33000	UTILITIES		\$9.53	\$168,149
SUBTOTAL			\$268.04	\$4,726,964
	DESIGN CONTINGENCY	10.00%	\$26.80	\$472,696
	GENERAL CONDITIONS/BOND/INSURANCE	9.00%	\$26.54	\$467,969
	CONTRACTOR'S FEES	3.50%	\$11.25	\$198,367
	ESCALATION TO MID-POINT OF CONSTRUCTION	4.50%	\$14.97	\$263,970
TOTAL ESTIMATED CONSTRUCTION COSTS			\$347.60	\$6,129,967
ALTERNATES INCLUDING MARKUPS				
	Alternate #1: MLK Letters and Bench		ADD	\$101,313
	Alternate #2: Underfloor Plumbing		ADD	\$69,569
	Alternate #3: Roofrop PV Panels and Conduits		ADD	\$392,933
	Alternate #4: Library Electrical Service		ADD	\$86,649
	Alternate #5: Geothermal Well Field		ADD	\$453,883
	Alternate #6: Central Boiler and Chiller Plant		ADD	\$650,397
	Alternate #7: Two (2) Dedicated EV Charging Stations		ADD	\$64,840
HVAC SYSTEM OPTIONS INCLUDING MARKUPS (FOR INFORMATION ONLY)				
	HVAC Option #1: Distributed Geothermal Heat Pumps			\$1,877,366
	HVAC Option #2A: 4-Pipe System Fancoils w/ Geothermal			\$2,073,247
	HVAC Option #2B: 4-Pipe System Fancoils w/ Boiler/Chiller Plant			\$1,791,573
	HVAC Option #3A: 4-Pipe System w/AHU & VAV w/ Geothermal			\$2,330,220
	HVAC Option #3B: 4-Pipe System w/AHU & VAV w/ Boiler/Chiller Plant			\$2,033,372

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
BASE BID				
03000 CONCRETE				
03900 Miscellaneous Concrete				
Formwork at stair landing	15	SQFT	10.33	155
Concrete slab on grade, 6" thk, with mesh reinforcement, stair landing	50	SQFT	6.34	317
Geofoam fill for stair landing	2	CUYD	125.78	252
Concrete fill at metal pan stair tread	15	LNFT	32.86	493
SUBTOTAL: Miscellaneous Concrete				\$1,217
TOTAL: CONCRETE				\$1,217
05000 METALS				
05100 Structural Steel				
Structural steel allowance at movable walls	2	TONS	5,842.37	11,685
SUBTOTAL: Structural Steel				\$11,685
05300 Stairs				
Metal pan stairs	15	LNFT	53.08	796
Steel railing system, painted	10	LNFT	122.50	1,225
SUBTOTAL: Stairs				\$2,021
05900 Miscellaneous Metals				
Miscellaneous angles, channels, lintels, etc.	17,635	SQFT	1.79	31,494
SUBTOTAL: Miscellaneous Metals				\$31,494
TOTAL: METALS				\$45,200
06000 WOODS, PLASTICS & COMPOSITES				
06200 Rough Carpentry				
Miscellaneous wood blocking & rough carpentry	17,635	SQFT	1.83	32,269
SUBTOTAL: Rough Carpentry				\$32,269
06300 Millwork				
Built-in wall seating	10	LNFT	449.96	4,500
P-lam base cabinets and solid surface countertops	58	LNFT	644.18	37,363
P-lam wall hung cabinets	45	LNFT	387.44	17,435
Interactive wall, 6'-6" h. x 2'-0". Wood veneer/PLam	28	LNFT	559.30	15,660
Interactive wall, 5'-0" h. x 2'-0". Wood veneer/PLam	25	LNFT	385.26	9,631
Solid surface countertops	54	LNFT	233.58	12,613
Solid surface window sills	209	LNFT	131.30	27,442
Circulation desk	44	LNFT	1,615.04	71,062
SUBTOTAL: Millwork				\$195,705
TOTAL: WOODS, PLASTICS & COMPOSITES				\$227,974
07000 THERMAL & MOISTURE PROTECTION				
07800 Caulking & Sealants				

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Miscellaneous caulking & sealants	17,635	SQFT	0.34	5,925
SUBTOTAL: Caulking & Sealants				\$5,925
TOTAL: THERMAL & MOISTURE PROTECTION				\$5,925

08000 OPENINGS

08400 Interior Doors, Frames, & Hardware

HM frame, 3'-0" x 7'-0"	13	EACH	634.30	8,246
HM frame, 4'-6" x 7'-0"	1	EACH	786.45	786
HM frame, 6'-0" x 7'-0"	6	EACH	821.45	4,929
HM door, (2) 3'-0" x 7'-0"	4	EACH	1,274.30	5,097
AL/GL door, (2) 3'-0" x 7'-0"	2	EACH	8,034.30	16,069
Frameless glass door, at office fronts, 3'-0" x 10'-0". Assume pivot hinges and ladder pulls	6	EACH	8,744.45	52,467
WD door, 3'-0" x 7'-0"	13	EACH	767.15	9,973
WD door, 3'-0" x 7'-0" and 1'-6" x 7'-0"	1	EACH	1,209.30	1,209
WD door, (2) 3'-0" x 7'-0"	2	EACH	1,534.30	3,069
Hardware set, single	13	EACH	1,084.30	14,096
Hardware set, double	7	EACH	1,768.60	12,380
Fire rated, 60 minute per leaf	8	EACH	120.00	960
SUBTOTAL: Interior Doors, Frames, & Hardware				\$129,281

08500 Interior Glazing

Interior storefront	1,000	SQFT	67.36	67,363
Vinyl graphic film on glass, 10'-0" h.	1,453	SQFT	20.03	29,098
SUBTOTAL: Interior Glazing				\$96,461

08800 Louvers & Vents

Aluminum louvers	66	SQFT	194.43	12,833
SUBTOTAL: Louvers & Vents				\$12,833

TOTAL: OPENINGS				\$238,575
------------------------	--	--	--	------------------

09000 FINISHES

09100 Plaster & Gypsum Board

Gypsum board ceiling, suspended, GB-1	2,182	SQFT	12.12	26,450
Gypsum board ceiling, suspended, GB-2, moisture resistant	497	SQFT	12.12	6,025
Gypsum board soffit - quantity allowance at movable partition	2,500	SQFT	19.12	47,800
Gyp board bulkhead	1,136	SQFT	13.96	15,863
Partition standard - 1-hr; 3-5/8" metal studs, 5/8" type x gypboard each side, 3" mineral fiber blanket insulation, 1-hr rated, full-height	4,529	SQFT	13.34	60,430
Partition furring - 1-hr; 3-5/8" metal studs, 5/8" type x gypboard one side, 3" mineral fiber blanket insulation, 1-hr rated, full-height	113	SQFT	10.36	1,171
Partition standard; 3-5/8" metal studs, 5/8" type x gypboard each side, 3" mineral fiber blanket insulation, full-height	12,117	SQFT	13.11	158,890
Partition plumbing; (2) 3-5/8" metal studs, 5/8" type x gypboard one side, (2) 3" mineral fiber blanket insulation, full-height	1,154	SQFT	19.69	22,724

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Partition furring; 3-5/8" metal studs, 5/8" type x gypboard one side, 3" mineral fiber blanket insulation, full-height	2,356	SQFT	10.13	23,869
Partition column enclosure; 3-5/8" metal studs, 5/8" type x gypboard one side, full-height	2,671	SQFT	8.42	22,494
SUBTOTAL: Plaster & Gypsum Board				\$385,716
09200 Floor Finishes				
Porcelain tile floor, PTF-1	3,768	SQFT	16.06	60,507
Porcelain tile base, PTF-2	819	LNFT	20.46	16,759
Luxury vinyl tile, LVT-1	3,462	SQFT	9.28	32,136
Rubber base, RB-1	2,060	LNFT	3.12	6,425
Rubber base, RB-2	300	LNFT	3.12	936
Carpet tile, CPT-1	879	SQFT	6.46	5,674
Carpet tile, CPT-2	1,190	SQFT	6.46	7,682
Carpet tile, CPT-1 & CPT-2	4,946	SQFT	6.46	31,927
Walk off carpet, WO-1	732	SQFT	33.28	24,364
SUBTOTAL: Floor Finishes				\$186,410
09300 Wall Finishes				
Wood wall, WD-1	1,359	SQFT	32.29	43,886
Porcelain wall tile, CT-1	857	SQFT	15.77	13,515
Vinyl wall covering, WC-1	2,351	SQFT	4.36	10,239
Branding wall, 10'-0" high, custom wall graphic	328	SQFT	7.61	2,495
SUBTOTAL: Wall Finishes				\$70,135
09400 Ceiling Finishes				
ACT system, 2'x2', AC2	3,092	SQFT	8.40	25,969
ACT, 2'x8', AC3	4,114	SQFT	12.94	53,219
ACT, 2'x8', AC4	3,610	SQFT	11.59	41,823
Specialty ceiling, SP2. Perforated metal panel	360	SQFT	57.61	20,738
Felt baffle ceiling, 8" x 108", SP1	78	EACH	424.65	33,123
Specialty ceiling, felt panel, SP3	450	SQFT	50.86	22,888
SUBTOTAL: Ceiling Finishes				\$197,759
09600 Paints & Coatings				
Concrete sealer	2,075	SQFT	1.73	3,596
Paint walls, PT-1	21,167	SQFT	1.22	25,898
Paint gyp board ceiling/soffit, GB-1	5,367	SQFT	1.52	8,150
Paint gyp board ceiling/soffit, GB-2, moisture resistant	497	SQFT	1.52	755
Paint exposed structure, ES-1	2,198	SQFT	1.75	3,848
SUBTOTAL: Paints & Coatings				\$42,247
TOTAL: FINISHES				\$882,266
10000 SPECIALTIES				
10100 Visual Display Units				
Glass markerboard	2	EACH	456.20	912
SUBTOTAL: Visual Display Units				\$912

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
10200 Signage				
Exterior signage allowance	1	LSUM	20,000.00	20,000
Interior signage - allowance	17,365	SQFT	4.44	77,052
SUBTOTAL: Signage				\$97,052
10300 Movable Partitions				
Operable partition, solid, 10' high, approx 11' long	1	EACH	11,692.04	11,692
Operable partition, glazed, assume 10' high including one (1) door, approx 25' long	1	EACH	59,084.09	59,084
Operable partition, glazed, assume 10' high including two (2) doors, approx 44' long	1	EACH	106,168.18	106,168
SUBTOTAL: Movable Partitions				\$176,944
10400 Toilet Accessories				
Toilet partition, accessible	2	EACH	1,584.30	3,169
Toilet partition, standard	3	EACH	1,237.44	3,712
Toilet paper dispenser, double roll	7	EACH	114.05	798
Paper towel dispenser	2	EACH	103.58	207
Napkin disposal, stainless steel, surface mounted	5	EACH	128.58	643
Baby diaper changing station	3	EACH	786.26	2,359
Soap dispenser	6	EACH	93.58	561
Electric hand dryer	4	EACH	567.15	2,269
Utility mop holder & shelf, stainless steel	1	EACH	194.05	194
Grab bar set, three piece	4	EACH	290.73	1,163
Mirror above sink	6	EACH	239.15	1,435
SUBTOTAL: Toilet Accessories				\$16,510
10600 Lockers & Benches				
Locker, two tier	6	EACH	333.58	2,001
SUBTOTAL: Lockers & Benches				\$2,001
TOTAL: SPECIALTIES				\$293,420
11000 EQUIPMENT				
11200 Library Equipment				
Theft detection gates, dual corridor	2	EACH	33,123.20	66,246
Theft detection equipment, desensitizers	1	EACH	1,268.60	1,269
Book drop, through wall	1	EACH	3,937.20	3,937
SUBTOTAL: Library Equipment				\$71,452
11900 Miscellaneous Equipment				
Microwave oven, break room, assumed CFCI	1	EACH	581.48	581
Refrigerator, break room, assumed CFCI	1	EACH	972.47	972
Undercounter refrigerator, lacion room, assume CFCI	1	EACH	704.39	704
Dishwasher, break room, assumed CFCI	1	EACH	865.61	866
SUBTOTAL: Miscellaneous Equipment				\$3,124
TOTAL: EQUIPMENT				\$74,576

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
12000 FURNISHINGS				
12100 Window Treatment				
Manual window shades	2,510	SQFT	9.37	23,518
SUBTOTAL: Window Treatment				\$23,518
12300 Loose Furniture				
Loose Furniture / FFE Allowance	17,635	SQFT	15.24	268,743
SUBTOTAL: Loose Furniture				\$268,743
TOTAL: FURNISHINGS				\$292,261
21000 FIRE SUPPRESSION				
21200 Fire Sprinkler Equipment & Specialties				
Wet sprinkler system - interior buildout	17,635	SQFT	2.13	37,474
SUBTOTAL: Fire Sprinkler Equipment & Specialties				\$37,474
TOTAL: FIRE SUPPRESSION				\$37,474
22000 PLUMBING				
22200 Plumbing Fixtures				
Water closet, wall hung, dual-flush manual flush valve	7	EACH	1,797.72	12,584
Lavatory, wall hung, based on Bradley Omnideck	6	EACH	5,945.52	35,673
Urinal, wall hung, battery-op automatic flush valve	1	EACH	2,345.52	2,346
Sink, kitchen, stainless steel, single basin self-rimming, manual faucet	2	EACH	1,803.51	3,607
Sink, kitchen, stainless steel, double basin self-rimming, manual faucet	1	EACH	2,292.15	2,292
Electric water cooler, SS recessed ADA-bilevel, w/bottle filler	1	EACH	6,005.87	6,006
Mop basin, floor fixture	1	EACH	2,197.40	2,197
SUBTOTAL: Plumbing Fixtures				\$64,705
22300 Plumbing Equipment & Specialties				
Domestic water heater, electric	1	EACH	10,536.47	10,536
DHW recirculating pump	1	EACH	1,678.21	1,678
Expansion tank	1	EACH	511.22	511
Thermostatic mixing valve - central	1	EACH	4,072.76	4,073
Floor drains	7	EACH	507.55	3,553
Cleanouts - wall	5	EACH	404.55	2,023
Vent thru roof	3	EACH	302.29	907
SUBTOTAL: Plumbing Equipment & Specialties				\$23,281
22400 Domestic Water, Waste & Vent, & Storm Drainage Piping				
Domestic water pipe, fittings, and supports, type L copper	700	LNFT	55.37	38,759
Cold water piping to humidifier, type L copper - allowance	50	LNFT	55.37	2,768
Pipe insulation, CW piping to humidifier	50	LNFT	20.25	1,012
Pipe insulation, domestic water piping	700	LNFT	20.25	14,172
Vent pipe, fittings, and supports, sched. 40 PVC, AG, 2"	300	LNFT	38.41	11,523
Storm drainage pipe, fittings, and supports, CI no-hub, AG	160	LNFT	88.36	14,138
Incoming service, w/meter & backflow preventers	1	EACH	5,418.28	5,418

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Pipe and valve tagging	750	LNFT	1.37	1,027
System pressure testing, water pipe chlorination, and pipe flushing - domestic plumbing	1	LSUM	2,925.60	2,926
SUBTOTAL: Domestic Water, Waste & Vent, & Storm Drainage Piping				\$91,744

TOTAL: PLUMBING \$179,730

23000 HEATING VENTILATION & AIR CONDITIONING

23200 Ventilation & Exhaust

DOAS AHU, 5 tons/2,000 cfm, w/energy recovery	1	EACH	35,784.00	35,784
Humidifier, electric, 12 lbs/hr	1	EACH	3,164.00	3,164
AC split system, MDF room, 1-1/2 tons	1	EACH	5,528.00	5,528
Refrigeration tubing, AC split system	60	LNFT	21.53	1,292
Pipe insulation, refrigeration piping, AC split system	60	LNFT	11.10	666
Condensate drain piping - AC split system	30	LNFT	27.87	836
Pipe insulation, condensate drain piping - AC split system	30	LNFT	10.07	302
Condensate drain piping - water source heat pumps	400	LNFT	55.42	22,169
Pipe insulation, condensate drain piping - heat pumps	400	LNFT	12.80	5,121
Exhaust fan, rooftop, w/curb, backdraft damper	4	EACH	1,664.00	6,656
Heat pump, water-air, 2-stage, 6 ton	2	EACH	15,892.00	31,784
Heat pump, water-air, 2-stage, 5 ton	1	EACH	14,392.00	14,392
Heat pump, water-air, 2-stage, 4 ton	2	EACH	8,892.00	17,784
Heat pump, water-air, 2-stage, 2 ton	1	EACH	6,428.00	6,428
Heat pump, water-air, 2-stage, 1.5 ton	1	EACH	5,546.00	5,546
Heat pump connections - valves, fittings, and insulation	9	EACH	1,607.00	14,463
VVT zone dampers	9	EACH	741.00	6,669
Galvanized steel duct & insulation	17,635	SQFT	13.71	241,707
Registers, grilles and diffusers	150	EACH	113.20	16,980
Flexible duct, insulated	500	LNFT	23.55	11,775
Louvers, OA	2	EACH	2,482.00	4,964

SUBTOTAL: Ventilation & Exhaust \$454,010

23300 Central Hydronic & Steam Equipment & Specialties

XXXX Heat pump, water-water, 5 ton	2	EACH	14,392.00	28,784
Geothermal circulating pump, inline	3	EACH	2,343.80	7,031
HW circulating pump, primary, inline	2	EACH	743.80	1,488
HW circulating pump, secondary, inline	2	EACH	743.80	1,488
Vibration isolation, pumps	7	EACH	1,818.80	12,732
Isolation valves, pumps, butterfly, geothermal	7	EACH	542.06	3,794
Flexible pump connections, geothermal pumps	14	EACH	184.90	2,589
Triple duty valve, geothermal pumps	7	EACH	909.40	6,366
Pump strainer, Y-type, geothermal pumps	7	EACH	257.35	1,801
HW buffer tank	1	EACH	9,462.80	9,463
Air separator, geothermal pumps	1	EACH	1,625.24	1,625
Pressure fill/makeup water system	1	EACH	9,975.20	9,975

SUBTOTAL: Central Hydronic & Steam Equipment & Specialties \$87,136

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
23400 Heating & Ventilating Terminals				
Cabinet unit heaters, HW hydronic	4	EACH	3,287.60	13,150
Unit heaters, HW hydronic	2	EACH	1,787.60	3,575
Fintube radiators, HW	216	LNFT	130.95	28,285
HW connections - valves, fittings, and specialties	6	EACH	593.80	3,563
SUBTOTAL: Heating & Ventilating Terminals				\$48,574
23500 HVAC Piping				
Humidifier piping	50	LNFT	29.02	1,451
GTWS/R geothermal piping mains, std. wgt. blk. steel pipe, fittings, and supports	900	LNFT	114.92	103,431
GTWS/R geothermal condensing water runouts, type L copper, w/fittings, and supports	450	LNFT	28.08	12,635
HHWS/R runout piping to perimeter heaters, type L copper	1,000	LNFT	44.66	44,661
Pipe insulation, humidifier piping	50	LNFT	9.62	481
Pipe insulation, GTWS/R mains	900	LNFT	17.16	15,446
Pipe insulation, GTWS/R runouts to heat pumps	450	LNFT	10.07	4,534
Pipe insulation, HHWS/R runouts to perimeter heaters	1,000	LNFT	20.40	20,397
Pipe and valve tagging - interior bldg HVAC piping	2,400	LNFT	1.32	3,178
SUBTOTAL: HVAC Piping				\$206,213
23600 Temperature Controls				
DDC controls - DOAS AHU	1	EACH	5,000.00	5,000
DDC controls - AC split system - MDF room	1	EACH	2,500.00	2,500
DDC controls - heat pumps, water source, water-air	7	EACH	4,000.00	28,000
DDC controls - humidifier unit	1	EACH	2,000.00	2,000
DDC controls - exhaust fans	4	EACH	2,500.00	10,000
DDC controls - VVTdampers	9	EACH	1,500.00	13,500
DDC controls - heat pumps, water source, water-water	2	EACH	4,000.00	8,000
DDC controls - hydronic pumps, variable speed	7	EACH	7,500.00	52,500
Thermostats/temperature sensors	10	EACH	500.00	5,000
CO2 sensors	9	EACH	500.00	4,500
Miscellaneous points & devices	1	LSUM	15,000.00	15,000
Utility meter interfaces	1	LSUM	15,000.00	15,000
Headend/central controls	1	LSUM	15,000.00	15,000
Interface with existing building BAS-DDC system	1	LSUM	7,500.00	7,500
Programming, testing, and training	1	LSUM	10,000.00	10,000
SUBTOTAL: Temperature Controls				\$193,500
23700 Testing, Balancing, & Commissioning				
Air testing and balancing	1	LSUM	18,000.00	18,000
Pipe system testing and balancing	1	LSUM	11,000.00	11,000
HVAC system commissioning assistance	1	LSUM	12,000.00	12,000
SUBTOTAL: Testing, Balancing, & Commissioning				\$41,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$1,030,432

26000 ELECTRICAL

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
26200 Main Power Distribution				
Panelboards MLO 84ct double tub 250A - Panel A	1	EACH	8,037.76	8,038
Panelboards MLO 42ct 225A - Panel B	1	EACH	4,960.88	4,961
Panelboards MLO 42ct 225A - Panel C	1	EACH	4,960.88	4,961
Panelboards MLO 42ct 100A - Panel U	1	EACH	4,138.88	4,139
New 20 KVA UPS unit	1	EACH	38,217.76	38,218
Feeder installation 600 V, including conduit and XHHW wire, 60A	30	LNFT	28.06	842
Feeder installation 600 V, including conduit and XHHW wire, 100A	100	LNFT	34.03	3,403
Feeder installation 600 V, including conduit and XHHW wire, 225A	200	LNFT	53.72	10,744
Feeder installation 600 V, including conduit and XHHW wire, 250A	30	LNFT	61.78	1,853
SUBTOTAL: Main Power Distribution				\$77,158
26400 Grounding & Lightning Protection System				
Grounding System per code	1	LSUM	7,606.53	7,607
SUBTOTAL: Grounding & Lightning Protection System				\$7,607
26500 Lighting				
Lighting System - Miscellaneous light fixtures including installation and hook up	17,635	SQFT	13.16	232,010
Lighting System - Blue Ridge Technologies lighting control system, including cabling and connections	17,635	SQFT	2.17	38,317
Lighting System - Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	17,635	SQFT	3.66	64,486
SUBTOTAL: Lighting				\$334,813
26600 Branch Power Distribution & Devices				
Branch Power - Miscellaneous receptacles and electrical equipment hook up	17,635	SQFT	0.82	14,522
Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	17,635	SQFT	4.90	86,382
SUBTOTAL: Branch Power Distribution & Devices				\$100,904
26700 Mechanical Equipment Connections & Feeders				
Motors connection, disconnect switches and associated feeders - AC split system, MDF room, 1-1/2 tons	1	EACH	2,700.00	2,700
Motors connection, disconnect switches and associated feeders - DHW recirculating pump 1	1	EACH	1,200.00	1,200
Motors connection, disconnect switches and associated feeders - DOAS AHU, 5 tons/2,000 cfm	1	EACH	3,500.00	3,500
Motors connection, disconnect switches and associated feeders - Exhaust fan, rooftop	4	EACH	2,500.00	10,000
Motors connection, disconnect switches and associated feeders - HW circulating pump, primary, inline	2	EACH	2,600.00	5,200
Motors connection, disconnect switches and associated feeders - HW circulating pump, secondary, inline	2	EACH	2,200.00	4,400
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 6 ton	2	EACH	3,600.00	7,200
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 5 ton	1	EACH	3,600.00	3,600
Motors connection, disconnect switches and associated feeders - Geothermal circulating pump, inline	3	EACH	1,800.00	5,400

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 4 ton	2	EACH	3,200.00	6,400
Motors connection, disconnect switches and associated feeders - Heat pump, water-water, 2-stage, 5 ton	2	EACH	3,600.00	7,200
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 2 ton	1	EACH	2,750.00	2,750
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 1.5 ton	1	EACH	2,500.00	2,500
Motors connection, disconnect switches and associated feeders - Humidifier, electric	1	EACH	1,200.00	1,200
Motors connection, disconnect switches and associated feeders - Domestic water heater, electric	1	EACH	850.00	850
Motors connection, disconnect switches and associated feeders - Electric water cooler,	1	EACH	375.00	375
SUBTOTAL: Mechanical Equipment Connections & Feeders				\$64,475
TOTAL: ELECTRICAL				\$584,956

27000 COMMUNICATIONS

27200 Tele/Data Systems

Provision for IT room, plywood, cable tray, grounding, sleeves	1	EACH	5,802.67	5,803
MDF rack assembly 3 racks, switching equipment by Owner	1	EACH	5,747.20	5,747
Telecommunication/Data & Television System, complete	17,635	SQFT	12.26	216,270

SUBTOTAL: Tele/Data Systems \$227,820

27300 Intercom & Public Address Systems

Mass notification system, complete	17,635	SQFT	3.61	63,629
------------------------------------	--------	------	------	--------

SUBTOTAL: Intercom & Public Address Systems \$63,629

27500 Clock System

Wireless clock system	17,635	SQFT	1.85	32,625
-----------------------	--------	------	------	--------

SUBTOTAL: Clock System \$32,625

27600 Audio/Visual & Television System

Audio/visual System, complete	17,635	SQFT	7.21	127,095
-------------------------------	--------	------	------	---------

SUBTOTAL: Audio/Visual & Television System \$127,095

TOTAL: COMMUNICATIONS \$451,169

28000 ELECTRONIC SAFETY & SECURITY

28200 Fire Alarm Systems

Fire alarm system, complete	17,635	SQFT	3.83	67,583
-----------------------------	--------	------	------	--------

SUBTOTAL: Fire Alarm Systems \$67,583

28300 Intrusion Detection & Access Control Systems

Physical access control system, complete	17,635	SQFT	3.35	59,114
--	--------	------	------	--------

SUBTOTAL: Intrusion Detection & Access Control Systems \$59,114

28400 CCTV System

Video surveillance system, complete	17,635	SQFT	4.93	86,858
-------------------------------------	--------	------	------	--------

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
SUBTOTAL: CCTV System				\$86,858
TOTAL: ELECTRONIC SAFETY & SECURITY				\$213,555
31000 EARTHWORK				
31200 Site Grading				
Fine grading at bench area	125	SQFT	0.67	84
SUBTOTAL: Site Grading				\$84
TOTAL: EARTHWORK				\$84
33000 UTILITIES				
33200 Site Water Service				
Domestic water service provisions	1	LSUM	82,210.97	82,211
SUBTOTAL: Site Water Service				\$82,211
33300 Site Sanitary & Storm Sewer				
Storm and sanitary sewer provisions	1	LSUM	83,547.00	83,547
SUBTOTAL: Site Sanitary & Storm Sewer				\$83,547
33400 Natural Gas Service				
Coordinate gas service provision with local utility	1	LSUM	2,391.02	2,391
SUBTOTAL: Natural Gas Service				\$2,391
33800 Site Electrical				
SUBTOTAL: Site Electrical				\$0
TOTAL: UTILITIES				\$168,149
TOTAL: BASE BID				\$4,726,964
ALTERNATE #1: MLK LETTERS & BENCH				
03000 CONCRETE				
03600 Precast Architectural Concrete				
Precast concrete seat and back, bench	1	EACH	5,385.43	5,385
SUBTOTAL: Precast Architectural Concrete				\$5,385
03900 Miscellaneous Concrete				
Formwork for strip footings, bench	80	SQFT	10.17	814
Formwork for foundation walls, bench	344	SQFT	10.98	3,779
Reinforcement in strip footings, avg 65 lbs/cy, bench	130	LBS	1.63	212
Reinforcement in foundation walls, avg 115 lbs/cy, bench	460	LBS	1.73	795
Concrete in strip footings, bench	2	CUYD	238.62	477
Concrete in foundation walls, bench	4	CUYD	246.28	985
Concrete slab on grade, 4" thk, with mesh reinforcement, bench	58	SQFT	6.34	368
SUBTOTAL: Miscellaneous Concrete				\$7,431
TOTAL: CONCRETE				\$12,816
04000 MASONRY				

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
04100 Exterior Masonry				
Brick facade, modular, 2-2/3"x8"x4" thk, bench	78	SQFT	34.12	2,661
Cast stone coping, 18" wide x 4" deep, bench	20	LNFT	173.40	3,468
CMU backup, bench	78	SQFT	19.69	1,536
SUBTOTAL: Exterior Masonry				\$7,665
TOTAL: MASONRY				\$7,665
05000 METALS				
05100 Structural Steel				
Structural steel beams, HSS Tubes, bench	374	LBS	4.10	1,534
SUBTOTAL: Structural Steel				\$1,534
TOTAL: METALS				\$1,534
10000 SPECIALTIES				
10200 Signage				
Monumental sign, "MLK" letters, 6'-0" high	1	EACH	55,000.00	55,000
SUBTOTAL: Signage				\$55,000
TOTAL: SPECIALTIES				\$55,000
31000 EARTHWORK				
31300 Foundation Excavation & Fill				
Excavate for bench foundation	23	CUYD	11.94	275
Backfill with imported material	12	CUYD	48.55	583
SUBTOTAL: Foundation Excavation & Fill				\$857
31700 Pavement Bases				
CA-6 base, 6" thk at bench	5	CUYD	50.53	253
SUBTOTAL: Pavement Bases				\$253
TOTAL: EARTHWORK				\$1,110
TOTAL: ALTERNATE #1: MLK LETTERS & BENCH				\$78,125
ALTERNATE #2: UNDERFLOOR PLUMBING				
22000 PLUMBING				
22400 Domestic Water, Waste & Vent, & Storm Drainage Piping				
Sanitary/waste pipe and fittings, CI hub and spigot, UG	250	LNFT	85.02	21,255
Storm drainage pipe and fittings, CI hub and spigot, UG	200	LNFT	161.96	32,392
SUBTOTAL: Domestic Water, Waste & Vent, & Storm Drainage Piping				\$53,646
TOTAL: PLUMBING				\$53,646
TOTAL: ALTERNATE #2: UNDERFLOOR PLUMBING				\$53,646
ALTERNATE #3: ROOFTOP PV PANELS & CONDUITS				
26000 ELECTRICAL				

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
26200 Main Power Distribution				
New photovoltaic system on roof, 119 KW	1	EACH	300,000.00	300,000
New photovoltaic system raceway from main panel to roof	1	EACH	3,000.00	3,000
SUBTOTAL: Main Power Distribution				\$303,000

TOTAL: ELECTRICAL \$303,000

TOTAL: ALTERNATE #3: ROOFTOP PV PANELS & CONDUITS \$303,000

ALTERNATE #4: LIBRARY ELECTRICAL SERVICE

26000 ELECTRICAL

26200 Main Power Distribution

Main Distribution Switchboard 480/277V 3ph 4w 800A - MDP	1	EACH	23,902.67	23,903
Transient suppressor/voltage regulator, including connection to switchboard	1	EACH	1,821.68	1,822
Feeder installation 600 V, including conduit and XHHW wire, 800A UG (assumed length)	50	LNFT	291.86	14,593
SUBTOTAL: Main Power Distribution				\$40,317

TOTAL: ELECTRICAL \$40,317

33000 UTILITIES

33800 Site Electrical

Utility company provisions and coordination,	1	EACH	6,500.00	6,500
Telecommunication duct bank (3) 4" PVC to existing utility manhole	1	EACH	20,000.00	20,000
SUBTOTAL: Site Electrical				\$26,500

TOTAL: UTILITIES \$26,500

TOTAL: ALTERNATE #4: LIBRARY ELECTRICAL SERVICE \$66,817

ALTERNATE #5: GEOTHERMAL WELL FIELD

33000 UTILITIES

33500 Site HVAC

Geothermal wellfield, including bores, vaults, and field piping - per vertical lft	14,000	VLFT	25.00	350,000
SUBTOTAL: Site HVAC				\$350,000

TOTAL: UTILITIES \$350,000

TOTAL: ALTERNATE #5: GEOTHERMAL WELL FIELD \$350,000

ALTERNATE #6: CENTRAL BOILER & CHILLER PLANT

23000 HEATING VENTILATION & AIR CONDITIONING

23300 Central Hydronic & Steam Equipment & Specialties

HW boilers, condensing, based on 400 mbh	2	EACH	29,876.00	59,752
CA duct, HW boilers	100	LNFT	22.43	2,243
Boiler flue/vent	100	LNFT	170.61	17,061
Chiller, 45 tons air-cooled	1	EACH	54,876.00	54,876
CHW, HW pumps, inline	4	EACH	4,460.24	17,841

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Variable frequency drive, pumps, (MC supply, EC install)	4	EACH	2,654.66	10,619
Vibration isolation, pumps	4	EACH	1,843.80	7,375
Isolation valves, pumps, butterfly, HW, CHW pumps	4	EACH	1,190.15	4,761
Flexible pump connections, HW, CHW pumps	8	EACH	411.80	3,294
Triple duty valve, CHW, HW pumps	4	EACH	3,759.50	15,038
Pump strainer, Y-type, CHW, HW pumps	4	EACH	1,215.35	4,861
Expansion tank	2	EACH	6,225.20	12,450
Air separator, CHW, HW pumps	2	EACH	4,198.23	8,396
Chemical pot feeder	2	EACH	2,275.20	4,550
Sidestream filters	2	EACH	2,975.20	5,950
Pressure fill/makeup water system	1	EACH	9,487.60	9,488
SUBTOTAL: Central Hydronic & Steam Equipment & Specialties				\$238,556
23500 HVAC Piping				
CHWS/R mech. room piping, std. wgt. blk. steel pipe, fittings, and supports, welded/flanged	300	LNFT	188.83	56,650
HHWS/R mech. room piping, std. wgt. blk. steel pipe, fittings, and supports, welded/flanged	300	LNFT	188.83	56,650
Natural gas piping, std. wgt. blk. steel pipe, fittings, and supports, threaded	100	LNFT	41.29	4,129
Pipe insulation, CHWS/R mains	300	LNFT	21.54	6,462
Pipe insulation, HHWS/R mains	300	LNFT	21.54	6,462
Pipe and valve tagging - interior bldg HVAC piping	700	LNFT	1.32	927
SUBTOTAL: HVAC Piping				\$131,281
23600 Temperature Controls				
DDC controls - HW boilers	2	EACH	3,000.00	6,000
DDC controls - chiller, air-cooled	1	EACH	4,000.00	4,000
DDC controls - hydronic pumps, variable speed	4	EACH	7,500.00	30,000
Miscellaneous points & devices	1	LSUM	15,000.00	15,000
Utility meter interfaces	1	LSUM	15,000.00	15,000
Headend/central controls	1	LSUM	15,000.00	15,000
Interface with existing building BAS-DDC system	1	LSUM	7,500.00	7,500
Programming, testing, and training	1	LSUM	10,000.00	10,000
SUBTOTAL: Temperature Controls				\$102,500
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$472,336
26000 ELECTRICAL				
26700 Mechanical Equipment Connections & Feeders				
Motors connection, disconnect switches and associated feeders - Chillers, air-cooled, 45 tons	1	EACH	7,800.00	7,800
Motors connection, disconnect switches and associated feeders - CHW, HW pumps, inline	4	EACH	3,200.00	12,800
Motors connection, disconnect switches and associated feeders - HW boilers, condensing, 400 mbh	2	EACH	2,600.00	5,200
Install VFD	4	EACH	850.00	3,400
SUBTOTAL: Mechanical Equipment Connections & Feeders				\$29,200

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
TOTAL: ELECTRICAL				\$29,200
TOTAL: ALTERNATE #6: CENTRAL BOILER & CHILLER PLANT				\$501,536
ALTERNATE #7: TWO (2) DEDICATED EV CHARGING STATIONS				
26000 ELECTRICAL				
26200 Main Power Distribution				
Dual EV charging station and associated feeder	1	EACH	50,000.00	50,000
			SUBTOTAL: Main Power Distribution	\$50,000
TOTAL: ELECTRICAL				\$50,000
TOTAL: ALTERNATE #7: TWO (2) DEDICATED EV CHARGING STATIONS				\$50,000
HVAC OPTION #1: DISTRIBUTED GEOTHERMAL HEAT PUMPS				
23000 HEATING VENTILATION & AIR CONDITIONING				
23200 Ventilation & Exhaust				
DOAS AHU, 5 tons/2,000 cfm, w/energy recovery	1	EACH	35,784.00	35,784
Humidifier, electric, 12 lbs/hr	1	EACH	3,164.00	3,164
AC split system, MDF room, 1-1/2 tons	1	EACH	5,528.00	5,528
Refrigeration tubing, AC split system	60	LNFT	21.53	1,292
Pipe insulation, refrigeration piping, AC split system	60	LNFT	11.10	666
Condensate drain piping - AC split system	30	LNFT	27.87	836
Pipe insulation, condensate drain piping - AC split system	30	LNFT	10.07	302
Condensate drain piping - water source heat pumps	400	LNFT	55.42	22,169
Pipe insulation, condensate drain piping - heat pumps	400	LNFT	12.80	5,121
Exhaust fan, rooftop, w/curb, backdraft damper	4	EACH	1,664.00	6,656
Heat pump, water-air, 2-stage, 6 ton	2	EACH	15,892.00	31,784
Heat pump, water-air, 2-stage, 5 ton	1	EACH	14,392.00	14,392
Heat pump, water-air, 2-stage, 4 ton	2	EACH	8,892.00	17,784
Heat pump, water-air, 2-stage, 2 ton	1	EACH	6,428.00	6,428
Heat pump, water-air, 2-stage, 1.5 ton	1	EACH	5,546.00	5,546
Heat pump connections - valves, fittings, and insulation	9	EACH	1,607.00	14,463
VVT zone dampers	9	EACH	741.00	6,669
Galvanized steel duct & insulation	17,635	SQFT	13.71	241,707
Registers, grilles and diffusers	150	EACH	113.20	16,980
Flexible duct, insulated	500	LNFT	23.55	11,775
Louvers, OA	2	EACH	2,482.00	4,964
			SUBTOTAL: Ventilation & Exhaust	\$454,010
23300 Central Hydronic & Steam Equipment & Specialties				
XXXX Heat pump, water-water, 5 ton	2	EACH	14,392.00	28,784
Geothermal circulating pump, inline	3	EACH	2,343.80	7,031
HW circulating pump, primary, inline	2	EACH	743.80	1,488

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
HW circulating pump, secondary, inline	2	EACH	743.80	1,488
Vibration isolation, pumps	7	EACH	1,818.80	12,732
Isolation valves, pumps, butterfly, geothermal	7	EACH	542.06	3,794
Flexible pump connections, geothermal pumps	14	EACH	184.90	2,589
Triple duty valve, geothermal pumps	7	EACH	909.40	6,366
Pump strainer, Y-type, geothermal pumps	7	EACH	257.35	1,801
HW buffer tank	1	EACH	9,462.80	9,463
Air separator, geothermal pumps	1	EACH	1,625.24	1,625
Pressure fill/makeup water system	1	EACH	9,975.20	9,975
SUBTOTAL: Central Hydronic & Steam Equipment & Specialties				\$87,136
23400 Heating & Ventilating Terminals				
Cabinet unit heaters, HW hydronic	4	EACH	3,287.60	13,150
Unit heaters, HW hydronic	2	EACH	1,787.60	3,575
Fintube radiators, HW	216	LNFT	130.95	28,285
HW connections - valves, fittings, and specialties	6	EACH	593.80	3,563
SUBTOTAL: Heating & Ventilating Terminals				\$48,574
23500 HVAC Piping				
Humidifier piping	50	LNFT	29.02	1,451
GTWS/R geothermal piping mains, std. wgt. blk. steel pipe, fittings, and supports	900	LNFT	114.92	103,431
GTWS/R geothermal condensing water runouts, type L copper, w/fittings, and supports	450	LNFT	28.08	12,635
HHWS/R runout piping to perimeter heaters, type L copper	1,000	LNFT	44.66	44,661
Pipe insulation, humidifier piping	50	LNFT	9.62	481
Pipe insulation, GTWS/R mains	900	LNFT	17.16	15,446
Pipe insulation, GTWS/R runouts to heat pumps	450	LNFT	10.07	4,534
Pipe insulation, HHWS/R runouts to perimeter heaters	1,000	LNFT	20.40	20,397
Pipe and valve tagging - interior bldg HVAC piping	2,400	LNFT	1.32	3,178
SUBTOTAL: HVAC Piping				\$206,213
23600 Temperature Controls				
DDC controls - DOAS AHU	1	EACH	5,000.00	5,000
DDC controls - AC split system - MDF room	1	EACH	2,500.00	2,500
DDC controls - heat pumps, water source, water-air	7	EACH	4,000.00	28,000
DDC controls - humidifier unit	1	EACH	2,000.00	2,000
DDC controls - exhaust fans	4	EACH	2,500.00	10,000
DDC controls - VVTdampers	9	EACH	1,500.00	13,500
DDC controls - heat pumps, water source, water-water	2	EACH	4,000.00	8,000
DDC controls - hydronic pumps, variable speed	7	EACH	7,500.00	52,500
Thermostats/temperature sensors	10	EACH	500.00	5,000
CO2 sensors	9	EACH	500.00	4,500
Miscellaneous points & devices	1	LSUM	15,000.00	15,000
Utility meter interfaces	1	LSUM	15,000.00	15,000
Headend/central controls	1	LSUM	15,000.00	15,000
Interface with existing building BAS-DDC system	1	LSUM	7,500.00	7,500
Programming, testing, and training	1	LSUM	10,000.00	10,000

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
			SUBTOTAL: Temperature Controls	\$193,500
23700 Testing, Balancing, & Commissioning				
Air testing and balancing	1	LSUM	18,000.00	18,000
Pipe system testing and balancing	1	LSUM	11,000.00	11,000
HVAC system commissioning assistance	1	LSUM	12,000.00	12,000
			SUBTOTAL: Testing, Balancing, & Commissioning	\$41,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$1,030,432
26000 ELECTRICAL				
26700 Mechanical Equipment Connections & Feeders				
Motors connection, disconnect switches and associated feeders - DOAS AHU, 5 tons/2,000 cfm	1	EACH	3,500.00	3,500
Motors connection, disconnect switches and associated feeders - AC split system, MDF room, 1-1/2 tons	1	EACH	2,700.00	2,700
Motors connection, disconnect switches and associated feeders - HW circulating pump, primary, inline	2	EACH	2,600.00	5,200
Motors connection, disconnect switches and associated feeders - Exhaust fan, rooftop	4	EACH	2,500.00	10,000
Motors connection, disconnect switches and associated feeders - HW system pump	2	EACH	2,200.00	4,400
Motors connection, disconnect switches and associated feeders - Geothermal circulating pump, inline	3	EACH	1,800.00	5,400
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 1.5 ton	1	EACH	2,500.00	2,500
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 2 ton	1	EACH	2,750.00	2,750
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 4 ton	2	EACH	3,200.00	6,400
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 5 ton	1	EACH	3,600.00	3,600
Motors connection, disconnect switches and associated feeders - Heat pump, water-air, 2-stage, 6 ton	2	EACH	3,600.00	7,200
Motors connection, disconnect switches and associated feeders - Heat pump, water-water, 2-stage, 5 ton	2	EACH	3,600.00	7,200
Motors connection, disconnect switches and associated feeders - Humidifier, electric,	1	EACH	1,200.00	1,200
Motors connection, disconnect switches and associated feeders - HW circulating pump, secondary, inline	2	EACH	2,600.00	5,200
			SUBTOTAL: Mechanical Equipment Connections & Feeders	\$67,250
TOTAL: ELECTRICAL				\$67,250
33000 UTILITIES				
33500 Site HVAC				
Geothermal wellfield, including bores, vaults, and field piping - per vertical lft	14,000	VLFT	25.00	350,000
			SUBTOTAL: Site HVAC	\$350,000
TOTAL: UTILITIES				\$350,000

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
TOTAL: HVAC OPTION #1: DISTRIBUTED GEOTHERMAL HEAT PUMPS				\$1,447,682
HVAC OPTION #2A: 4-PIPE SYSTEM FANCOILS W/ GEOTHERMAL				
23000 HEATING VENTILATION & AIR CONDITIONING				
23200 Ventilation & Exhaust				
DOAS AHU, 5 tons/2,000 cfm, w/energy recovery	1	EACH	35,784.00	35,784
Humidifier, electric, 12 lbs/hr	1	EACH	3,164.00	3,164
AC split system, MDF room, 1-1/2 tons	1	EACH	5,528.00	5,528
Refrigeration tubing, AC split system	60	LNFT	21.53	1,292
Pipe insulation, refrigeration piping, AC split system	60	LNFT	11.10	666
Condensate drain piping - AC split system	30	LNFT	27.87	836
Pipe insulation, condensate drain piping - AC split system	30	LNFT	10.07	302
Condensate drain piping - 4-pipe fancoils	400	LNFT	55.42	22,169
Pipe insulation, condensate drain piping - 4-pipe fancoils	400	LNFT	12.80	5,121
Exhaust fan, rooftop, w/curb, backdraft damper	4	EACH	1,664.00	6,656
Fancoil units, 4-pipe hydronic, 6 tons	2	EACH	7,602.50	15,205
Fancoil units, 4-pipe hydronic, 4 tons	1	EACH	5,602.50	5,603
Fancoil units, 4-pipe hydronic, 1.5 tons	1	EACH	3,502.50	3,503
Fancoil units, 4-pipe hydronic, 1 tons	7	EACH	3,302.50	23,118
FCU coil connections - valves, fittings, and insulation	22	EACH	1,607.00	35,354
VVT zone dampers	11	EACH	741.00	8,151
Galvanized steel duct & insulation	17,635	SQFT	13.71	241,707
Registers, grilles and diffusers	150	EACH	113.20	16,980
Flexible duct, insulated	500	LNFT	23.55	11,775
Louvers, OA	2	EACH	2,482.00	4,964
SUBTOTAL: Ventilation & Exhaust				\$447,876
23300 Central Hydronic & Steam Equipment & Specialties				
Heat pump plant, 45-tons skid-mounted, (4) 15-ton modular units w/6-pipe header	1	EACH	97,801.60	97,802
CHW, HW pumps, inline	4	EACH	4,460.24	17,841
Geothermal circulating pump, inline	3	EACH	2,343.80	7,031
Variable frequency drive, pumps, (MC supply, EC install)	4	EACH	2,654.66	10,619
Vibration isolation, pumps	7	EACH	1,818.80	12,732
Isolation valves, pumps, butterfly, HW, CHW pumps	4	EACH	1,190.15	4,761
Isolation valves, pumps, butterfly, geothermal	3	EACH	542.06	1,626
Flexible pump connections, HW, CHW pumps	8	EACH	411.80	3,294
Flexible pump connections, geothermal pumps	6	EACH	184.90	1,109
Triple duty valve, CHW, HW pumps	4	EACH	3,759.50	15,038
Triple duty valve, geothermal pumps	3	EACH	909.40	2,728
Pump strainer, Y-type, CHW, HW pumps	4	EACH	1,215.35	4,861
Pump strainer, Y-type, geothermal pumps	3	EACH	257.35	772
Expansion tank	2	EACH	6,225.20	12,450
Air separator, CHW, HW pumps	2	EACH	4,198.23	8,396

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Air separator, geothermal pumps	1	EACH	1,625.24	1,625
Chemical pot feeder	2	EACH	2,275.20	4,550
Sidestream filters	2	EACH	2,975.20	5,950
Pressure fill/makeup water system	1	EACH	9,975.20	9,975
SUBTOTAL: Central Hydronic & Steam Equipment & Specialties				\$223,163
23400 Heating & Ventilating Terminals				
Cabinet unit heaters, HW hydronic	4	EACH	3,287.60	13,150
Unit heaters, HW hydronic	2	EACH	1,787.60	3,575
Fintube radiators, HW	216	LNFT	130.95	28,285
HW connections - valves, fittings, and specialties	6	EACH	593.80	3,563
SUBTOTAL: Heating & Ventilating Terminals				\$48,574
23500 HVAC Piping				
Humidifier piping	50	LNFT	29.02	1,451
CHWS/R, HWS/R piping mains, std. wgt. blk. steel pipe, fittings, and supports	1,000	LNFT	114.92	114,923
CHWS/R, HWS/R runouts, type L copper, w/fittings, and supports	550	LNFT	28.08	15,443
HHWS/R runout piping to perimeter heaters, type L copper	1,000	LNFT	44.66	44,661
Pipe insulation, humidifier piping	50	LNFT	9.62	481
Pipe insulation, CHWS/R, HWS/R mains	1,000	LNFT	17.16	17,162
Pipe insulation, CHWS/R, HWS/R runouts to heat pumps	550	LNFT	10.07	5,541
Pipe insulation, HHWS/R runouts to perimeter heaters	1,000	LNFT	20.40	20,397
Pipe and valve tagging - interior bldg HVAC piping	2,600	LNFT	1.32	3,442
SUBTOTAL: HVAC Piping				\$223,501
23600 Temperature Controls				
DDC controls - DOAS AHU	1	EACH	5,000.00	5,000
DDC controls - AC split system - MDF room	1	EACH	2,500.00	2,500
DDC controls - fancoil units	11	EACH	2,500.00	27,500
DDC controls - humidifier unit	1	EACH	2,000.00	2,000
DDC controls - exhaust fans	4	EACH	2,500.00	10,000
DDC controls - VVT dampers	11	EACH	1,500.00	16,500
DDC controls - hydronic pumps, variable speed	7	EACH	7,500.00	52,500
Thermostats/temperature sensors	12	EACH	500.00	6,000
CO2 sensors	12	EACH	500.00	6,000
Miscellaneous points & devices	1	LSUM	15,000.00	15,000
Utility meter interfaces	1	LSUM	15,000.00	15,000
Headend/central controls	1	LSUM	15,000.00	15,000
Interface with existing building BAS-DDC system	1	LSUM	7,500.00	7,500
Programming, testing, and training	1	LSUM	10,000.00	10,000
SUBTOTAL: Temperature Controls				\$190,500
23700 Testing, Balancing, & Commissioning				
Air testing and balancing	1	LSUM	18,000.00	18,000
Pipe system testing and balancing	1	LSUM	15,000.00	15,000
HVAC system commissioning assistance	1	LSUM	15,000.00	15,000
SUBTOTAL: Testing, Balancing, & Commissioning				\$48,000

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$1,181,613
26000 ELECTRICAL				
26700 Mechanical Equipment Connections & Feeders				
Motors connection, disconnect switches and associated feeders - Heat pump plant, 45-tons	1	EACH	10,166.94	10,167
Motors connection, disconnect switches and associated feeders - AC split system, MDF room, 1-1/2 tons	1	EACH	2,700.00	2,700
Motors connection, disconnect switches and associated feeders - CHW, HW pumps, inline	2	EACH	2,600.00	5,200
Motors connection, disconnect switches and associated feeders - DOAS AHU, 5 tons/2,000 cfm	1	EACH	3,500.00	3,500
Motors connection, disconnect switches and associated feeders - Exhaust fan, rooftop	4	EACH	2,500.00	10,000
Motors connection, disconnect switches and associated feeders - HW system pump	2	EACH	2,200.00	4,400
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 1 tons	7	EACH	1,500.00	10,500
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 4 tons	1	EACH	2,750.00	2,750
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 1.5 tons	1	EACH	1,500.00	1,500
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 6 tons	2	EACH	3,200.00	6,400
Motors connection, disconnect switches and associated feeders - Humidifier, electric,	1	EACH	1,200.00	1,200
Motors connection, disconnect switches and associated feeders - Geothermal circulating pump, inline	3	EACH	1,800.00	5,400
Install VFD	4	EACH	850.00	3,400
SUBTOTAL: Mechanical Equipment Connections & Feeders				\$67,117
TOTAL: ELECTRICAL				\$67,117
33000 UTILITIES				
33500 Site HVAC				
Geothermal wellfield, including bores, vaults, and field piping - per vertical lft	14,000	VLFT	25.00	350,000
SUBTOTAL: Site HVAC				\$350,000
TOTAL: UTILITIES				\$350,000
TOTAL: HVAC OPTION #2A: 4-PIPE SYSTEM FANCOILS W/ GEOTHERMAL				\$1,598,730
HVAC OPTION #2B: 4-PIPE SYSTEM FANCOILS W/ BOILER/CHILLER PLANT				
23000 HEATING VENTILATION & AIR CONDITIONING				
23200 Ventilation & Exhaust				
DOAS AHU, 5 tons/2,000 cfm, w/energy recovery	1	EACH	35,784.00	35,784
Humidifier, electric, 12 lbs/hr	1	EACH	3,164.00	3,164
AC split system, MDF room, 1-1/2 tons	1	EACH	5,528.00	5,528

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Refrigeration tubing, AC split system	60	LNFT	21.53	1,292
Pipe insulation, refrigeration piping, AC split system	60	LNFT	11.10	666
Condensate drain piping - AC split system	30	LNFT	27.87	836
Pipe insulation, condensate drain piping - AC split system	30	LNFT	10.07	302
Condensate drain piping - 4-pipe fancoils	400	LNFT	55.42	22,169
Pipe insulation, condensate drain piping - 4-pipe fancoils	400	LNFT	12.80	5,121
Exhaust fan, rooftop, w/curb, backdraft damper	4	EACH	1,664.00	6,656
Fancoil units, 4-pipe hydronic, 6 tons	2	EACH	7,602.50	15,205
Fancoil units, 4-pipe hydronic, 4 tons	1	EACH	5,602.50	5,603
Fancoil units, 4-pipe hydronic, 1.5 tons	1	EACH	3,502.50	3,503
Fancoil units, 4-pipe hydronic, 1 tons	7	EACH	3,302.50	23,118
FCU coil connections - valves, fittings, and insulation	22	EACH	1,607.00	35,354
VVT zone dampers	11	EACH	741.00	8,151
Galvanized steel duct & insulation	17,635	SQFT	13.71	241,707
Registers, grilles and diffusers	150	EACH	113.20	16,980
Flexible duct, insulated	500	LNFT	23.55	11,775
Louvers, OA	2	EACH	2,482.00	4,964
SUBTOTAL: Ventilation & Exhaust				\$447,876
23300 Central Hydronic & Steam Equipment & Specialties				
HW boilers, condensing, based on 400 mbh	2	EACH	29,876.00	59,752
CA duct, HW boilers	100	LNFT	22.43	2,243
Boiler flue/vent	100	LNFT	170.61	17,061
Chiller, 45 tons air-cooled	1	EACH	54,876.00	54,876
CHW, HW pumps, inline	4	EACH	4,460.24	17,841
Variable frequency drive, pumps, (MC supply, EC install)	4	EACH	2,654.66	10,619
Vibration isolation, pumps	4	EACH	1,818.80	7,275
Isolation valves, pumps, butterfly, HW, CHW pumps	4	EACH	1,190.15	4,761
Flexible pump connections, HW, CHW pumps	8	EACH	411.80	3,294
Triple duty valve, CHW, HW pumps	4	EACH	3,759.50	15,038
Pump strainer, Y-type, CHW, HW pumps	4	EACH	1,215.35	4,861
Expansion tank	2	EACH	6,225.20	12,450
Air separator, CHW, HW pumps	2	EACH	4,198.23	8,396
Chemical pot feeder	2	EACH	2,275.20	4,550
Sidestream filters	2	EACH	2,975.20	5,950
Pressure fill/makeup water system	1	EACH	9,975.20	9,975
SUBTOTAL: Central Hydronic & Steam Equipment & Specialties				\$238,944
23400 Heating & Ventilating Terminals				
Cabinet unit heaters, HW hydronic	4	EACH	3,287.60	13,150
Unit heaters, HW hydronic	2	EACH	1,787.60	3,575
Fintube radiators, HW	216	LNFT	130.95	28,285
HW connections - valves, fittings, and specialties	6	EACH	593.80	3,563
SUBTOTAL: Heating & Ventilating Terminals				\$48,574
23500 HVAC Piping				

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Humidifier piping	50	LNFT	29.02	1,451
CHWS/R mech. room piping, std. wgt. blk. steel pipe, fittings, and supports, welded/flanged	300	LNFT	188.83	56,650
CHWS/R, HWS/R piping mains, std. wgt. blk. steel pipe, fittings, and supports	1,000	LNFT	114.92	114,923
CHWS/R, HWS/R runouts, type L copper, w/fittings, and supports	550	LNFT	28.08	15,443
HHWS/R mech. room piping, std. wgt. blk. steel pipe, fittings, and supports, welded/flanged	300	LNFT	188.83	56,650
HHWS/R runout piping to perimeter heaters, type L copper	1,000	LNFT	44.66	44,661
Natural gas piping, std. wgt. blk. steel pipe, fittings, and supports, threaded	100	LNFT	41.29	4,129
Pipe insulation, humidifier piping	50	LNFT	9.62	481
Pipe insulation, CHWS/R mains	300	LNFT	21.54	6,462
Pipe insulation, CHWS/R, HWS/R mains	1,000	LNFT	17.16	17,162
Pipe insulation, CHWS/R, HWS/R runouts to heat pumps	550	LNFT	10.07	5,541
Pipe insulation, HHWS/R runouts to perimeter heaters	1,000	LNFT	20.40	20,397
Pipe insulation, HHWS/R mains	300	LNFT	21.54	6,462
Pipe and valve tagging - interior bldg HVAC piping	3,300	LNFT	1.32	4,369
SUBTOTAL: HVAC Piping				\$354,782
23600 Temperature Controls				
DDC controls - DOAS AHU	1	EACH	5,000.00	5,000
DDC controls - AC split system - MDF room	1	EACH	2,500.00	2,500
DDC controls - fancoil units	11	EACH	2,500.00	27,500
DDC controls - humidifier unit	1	EACH	2,000.00	2,000
DDC controls - exhaust fans	4	EACH	2,500.00	10,000
DDC controls - VVTdampers	11	EACH	1,500.00	16,500
DDC controls - HW boilers	2	EACH	3,000.00	6,000
DDC controls - chiller, air-cooled	1	EACH	4,000.00	4,000
DDC controls - hydronic pumps, variable speed	4	EACH	7,500.00	30,000
Thermostats/temperature sensors	12	EACH	500.00	6,000
CO2 sensors	12	EACH	500.00	6,000
Miscellaneous points & devices	1	LSUM	15,000.00	15,000
Utility meter interfaces	1	LSUM	15,000.00	15,000
Headend/central controls	1	LSUM	15,000.00	15,000
Interface with existing building BAS-DDC system	1	LSUM	7,500.00	7,500
Programming, testing, and training	1	LSUM	10,000.00	10,000
SUBTOTAL: Temperature Controls				\$178,000
23700 Testing, Balancing, & Commissioning				
Air testing and balancing	1	LSUM	18,000.00	18,000
Pipe system testing and balancing	1	LSUM	15,000.00	15,000
HVAC system commissioning assistance	1	LSUM	15,000.00	15,000
SUBTOTAL: Testing, Balancing, & Commissioning				\$48,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$1,316,175

26000 ELECTRICAL

26700 Mechanical Equipment Connections & Feeders

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Motors connection, disconnect switches and associated feeders - AC split system, MDF room, 1-1/2 tons	1	EACH	2,700.00	2,700
Motors connection, disconnect switches and associated feeders - CHW, HW pumps, inline	4	EACH	2,600.00	10,400
Motors connection, disconnect switches and associated feeders - DOAS AHU, 5 tons/2,000 cfm	1	EACH	3,500.00	3,500
Motors connection, disconnect switches and associated feeders - Exhaust fan, rooftop	4	EACH	2,500.00	10,000
Motors connection, disconnect switches and associated feeders - Humidifier, electric,	1	EACH	1,200.00	1,200
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 6 tons	2	EACH	3,200.00	6,400
Motors connection, disconnect switches and associated feeders - Chillers, air-cooled, 45 tons	1	EACH	7,800.00	7,800
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 4 tons	1	EACH	2,750.00	2,750
Motors connection, disconnect switches and associated feeders - HW boilers, condensing, 400 mbh	2	EACH	2,600.00	5,200
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 1.5 tons	1	EACH	1,500.00	1,500
Motors connection, disconnect switches and associated feeders - Fancoil units, 4-pipe hydronic, 1 tons	7	EACH	1,500.00	10,500
Install VFD	4	EACH	850.00	3,400
SUBTOTAL: Mechanical Equipment Connections & Feeders				\$65,350

TOTAL: ELECTRICAL **\$65,350**

TOTAL: HVAC OPTION #2B: 4-PIPE SYSTEM FANCOILS W/ BOILER/CHILLER PLANT **\$1,381,525**

HVAC OPTION #3A: 4-PIPE SYSTEM W/AHU & VAV W/ GEOTHERMAL

23000 HEATING VENTILATION & AIR CONDITIONING

23200 Ventilation & Exhaust

Air handling unit, based on 25,000 cfm, CHW, HW coils, humidifiers, fans, filters	1	EACH	190,670.59	190,671
CHW coil connections, AHU - valves, fittings, specialties, and pipe insulation	1	EACH	7,371.05	7,371
HW coil connections, AHU - valves, fittings, specialties, and pipe insulation	1	EACH	6,286.36	6,286
Energy recovery unit, 4500 cfm, energy wheel	1	EACH	65,415.38	65,415
Humidifier, electric, 24 lbs/hr	1	EACH	3,564.00	3,564
Return air fan	1	EACH	22,670.59	22,671
AC split system, MDF room, 1-1/2 tons	1	EACH	5,528.00	5,528
Refrigeration tubing, AC split system	60	LNFT	21.53	1,292
Pipe insulation, refrigeration piping, AC split system	60	LNFT	11.10	666
Condensate drain piping - AC split system	30	LNFT	27.87	836
Pipe insulation, condensate drain piping - AC split system	30	LNFT	10.07	302
Exhaust fan, rooftop, w/curb, backdraft damper	4	EACH	1,664.00	6,656
Variable air volume terminals w/ HW reheat coil	15	EACH	1,302.00	19,530
Reheat coil connections, VAV - valves, fittings, and insulation	15	EACH	1,082.00	16,230

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Galvanized steel duct & insulation	17,635	SQFT	13.71	241,707
Registers, grilles and diffusers	150	EACH	113.20	16,980
Flexible duct, insulated	500	LNFT	23.55	11,775
Louvers, OA	2	EACH	2,482.00	4,964
SUBTOTAL: Ventilation & Exhaust				\$622,444
23300 Central Hydronic & Steam Equipment & Specialties				
Heat pump plant, 45-tons skid-mounted, (4) 15-ton modular units w/6-pipe header	1	EACH	97,801.60	97,802
CHW, HW pumps, inline	4	EACH	4,460.24	17,841
Geothermal circulating pump, inline	3	EACH	2,343.80	7,031
Variable frequency drive, pumps, (MC supply, EC install)	7	EACH	2,654.66	18,583
Vibration isolation, pumps	7	EACH	1,818.80	12,732
Isolation valves, pumps, butterfly, HW, CHW pumps	4	EACH	1,190.15	4,761
Isolation valves, pumps, butterfly, geothermal	3	EACH	542.06	1,626
Flexible pump connections, HW, CHW pumps	8	EACH	411.80	3,294
Flexible pump connections, geothermal pumps	6	EACH	184.90	1,109
Triple duty valve, CHW, HW pumps	4	EACH	3,759.50	15,038
Triple duty valve, geothermal pumps	3	EACH	909.40	2,728
Pump strainer, Y-type, CHW, HW pumps	4	EACH	1,215.35	4,861
Pump strainer, Y-type, geothermal pumps	3	EACH	257.35	772
Expansion tank	2	EACH	6,225.20	12,450
Air separator, CHW, HW pumps	2	EACH	4,198.23	8,396
Air separator, geothermal pumps	1	EACH	1,625.24	1,625
Chemical pot feeder	2	EACH	2,275.20	4,550
Sidestream filters	2	EACH	2,975.20	5,950
Pressure fill/makeup water system	1	EACH	9,975.20	9,975
SUBTOTAL: Central Hydronic & Steam Equipment & Specialties				\$231,127
23400 Heating & Ventilating Terminals				
Cabinet unit heaters, HW hydronic	4	EACH	3,287.60	13,150
Unit heaters, HW hydronic	2	EACH	1,787.60	3,575
Fintube radiators, HW	216	LNFT	130.95	28,285
HW connections - valves, fittings, and specialties	6	EACH	593.80	3,563
SUBTOTAL: Heating & Ventilating Terminals				\$48,574
23500 HVAC Piping				
Humidifier piping	50	LNFT	29.02	1,451
CHWS/R, HWS/R piping mains, std. wgt. blk. steel pipe, fittings, and supports	1,000	LNFT	114.92	114,923
HWS/R runouts to VAV's, type L copper, w/fittings, and supports	500	LNFT	28.08	14,039
HHWS/R runout piping to perimeter heaters, type L copper	1,000	LNFT	44.66	44,661
Pipe insulation, humidifier piping	50	LNFT	9.62	481
Pipe insulation, CHWS/R, HWS/R mains	1,000	LNFT	17.16	17,162
Pipe insulation, HHWS/R runouts to VAV's	500	LNFT	10.07	5,037
Pipe insulation, HHWS/R runouts to perimeter heaters	1,000	LNFT	20.40	20,397
Pipe and valve tagging - interior bldg HVAC piping	2,550	LNFT	1.32	3,376

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
			SUBTOTAL: HVAC Piping	\$221,527
23600 Temperature Controls				
DDC controls - air handling units	1	EACH	35,000.00	35,000
DDC controls - energy recovery units	1	EACH	5,000.00	5,000
DDC controls - return air fans	1	EACH	5,000.00	5,000
DDC controls - AC split system - MDF room	1	EACH	2,500.00	2,500
DDC controls - humidifier unit	1	EACH	2,000.00	2,000
DDC controls - exhaust fans	4	EACH	2,500.00	10,000
DDC controls - VAV terminals w/reheat coil	15	EACH	1,800.00	27,000
DDC controls - hydronic pumps, variable speed	7	EACH	7,500.00	52,500
Thermostats/temperature sensors	16	EACH	500.00	8,000
CO2 sensors	15	EACH	500.00	7,500
Miscellaneous points & devices	1	LSUM	15,000.00	15,000
Utility meter interfaces	1	LSUM	15,000.00	15,000
Headend/central controls	1	LSUM	15,000.00	15,000
Interface with existing building BAS-DDC system	1	LSUM	7,500.00	7,500
Programming, testing, and training	1	LSUM	10,000.00	10,000
			SUBTOTAL: Temperature Controls	\$217,000
23700 Testing, Balancing, & Commissioning				
Air testing and balancing	1	LSUM	18,000.00	18,000
Pipe system testing and balancing	1	LSUM	15,000.00	15,000
HVAC system commissioning assistance	1	LSUM	15,000.00	15,000
			SUBTOTAL: Testing, Balancing, & Commissioning	\$48,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$1,388,672
26000 ELECTRICAL				
26700 Mechanical Equipment Connections & Feeders				
Motors connection, disconnect switches and associated feeders - Heat pump plant, 45-tons	1	EACH	10,166.94	10,167
Motors connection, disconnect switches and associated feeders - AC split system, MDF room, 1-1/2 tons	1	EACH	2,700.00	2,700
Motors connection, disconnect switches and associated feeders - CHW, HW pumps, inline	4	EACH	2,600.00	10,400
Motors connection, disconnect switches and associated feeders - Exhaust fan, rooftop	4	EACH	2,500.00	10,000
Motors connection, disconnect switches and associated feeders - Energy recovery unit, 4500 cfm	1	EACH	3,000.00	3,000
Motors connection, disconnect switches and associated feeders - Air handling unit, based on 25,000 cfm	1	EACH	6,200.00	6,200
Motors connection, disconnect switches and associated feeders - Geothermal circulating pump, inline	3	EACH	1,800.00	5,400
Motors connection, disconnect switches and associated feeders - Humidifier, electric,	1	EACH	1,200.00	1,200
Motors connection, disconnect switches and associated feeders - Return air fan	1	EACH	3,200.00	3,200
Install VFD	7	EACH	850.00	5,950

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
SUBTOTAL: Mechanical Equipment Connections & Feeders				\$58,217
TOTAL: ELECTRICAL				\$58,217
33000 UTILITIES				
33500 Site HVAC				
Geothermal wellfield, including bores, vaults, and field piping - per vertical lft	14,000	VLFT	25.00	350,000
SUBTOTAL: Site HVAC				\$350,000
TOTAL: UTILITIES				\$350,000
TOTAL: HVAC OPTION #3A: 4-PIPE SYSTEM W/AHU & VAV W/ GEOTHERMAL				\$1,796,889
HVAC OPTION #3B: 4-PIPE SYSTEM W/AHU & VAV W/ BOILER/CHILLER PLANT				
23000 HEATING VENTILATION & AIR CONDITIONING				
23200 Ventilation & Exhaust				
Air handling unit, based on 25,000 cfm, CHW, HW coils, humidifiers, fans, filters	1	EACH	190,670.59	190,671
CHW coil connections, AHU - valves, fittings, specialties, and pipe insulation	1	EACH	7,371.05	7,371
HW coil connections, AHU - valves, fittings, specialties, and pipe insulation	1	EACH	6,286.36	6,286
Energy recovery unit, 4500 cfm, energy wheel	1	EACH	65,415.38	65,415
Humidifier, electric, 24 lbs/hr	1	EACH	3,564.00	3,564
Return air fan	1	EACH	22,670.59	22,671
AC split system, MDF room, 1-1/2 tons	1	EACH	5,528.00	5,528
Refrigeration tubing, AC split system	60	LNFT	21.53	1,292
Pipe insulation, refrigeration piping, AC split system	60	LNFT	11.10	666
Condensate drain piping - AC split system	30	LNFT	27.87	836
Pipe insulation, condensate drain piping - AC split system	30	LNFT	10.07	302
Exhaust fan, rooftop, w/curb, backdraft damper	4	EACH	1,664.00	6,656
Variable air volume terminals w/ HW reheat coil	15	EACH	1,302.00	19,530
Reheat coil connections, VAV - valves, fittings, and insulation	15	EACH	1,082.00	16,230
Galvanized steel duct & insulation	17,635	SQFT	13.71	241,707
Registers, grilles and diffusers	150	EACH	113.20	16,980
Flexible duct, insulated	500	LNFT	23.55	11,775
Louvers, OA	2	EACH	2,482.00	4,964
SUBTOTAL: Ventilation & Exhaust				\$622,444
23300 Central Hydronic & Steam Equipment & Specialties				
HW boilers, condensing, based on 400 mbh	2	EACH	29,876.00	59,752
CA duct, HW boilers	100	LNFT	22.43	2,243
Boiler flue/vent	100	LNFT	170.61	17,061
Chiller, 45 tons air-cooled	1	EACH	54,876.00	54,876
CHW, HW pumps, inline	4	EACH	4,460.24	17,841
Variable frequency drive, pumps, (MC supply, EC install)	4	EACH	2,654.66	10,619
Vibration isolation, pumps	4	EACH	1,843.80	7,375
Isolation valves, pumps, butterfly, HW, CHW pumps	4	EACH	1,190.15	4,761
Flexible pump connections, HW, CHW pumps	8	EACH	411.80	3,294

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Triple duty valve, CHW, HW pumps	4	EACH	3,759.50	15,038
Pump strainer, Y-type, CHW, HW pumps	4	EACH	1,215.35	4,861
Expansion tank	2	EACH	6,225.20	12,450
Air separator, CHW, HW pumps	2	EACH	4,198.23	8,396
Chemical pot feeder	2	EACH	2,275.20	4,550
Sidestream filters	2	EACH	2,975.20	5,950
Pressure fill/makeup water system	1	EACH	9,487.60	9,488
SUBTOTAL: Central Hydronic & Steam Equipment & Specialties				\$238,556
23400 Heating & Ventilating Terminals				
Cabinet unit heaters, HW hydronic	4	EACH	3,287.60	13,150
Unit heaters, HW hydronic	2	EACH	1,787.60	3,575
Fintube radiators, HW	216	LNFT	130.95	28,285
HW connections - valves, fittings, and specialties	6	EACH	593.80	3,563
SUBTOTAL: Heating & Ventilating Terminals				\$48,574
23500 HVAC Piping				
Humidifier piping	50	LNFT	29.02	1,451
CHWS/R mech. room piping, std. wgt. blk. steel pipe, fittings, and supports, welded/flanged	300	LNFT	188.83	56,650
CHWS/R, HWS/R piping mains, std. wgt. blk. steel pipe, fittings, and supports	1,000	LNFT	114.92	114,923
HWS/R runouts to VAV's, type L copper, w/fittings, and supports	500	LNFT	28.08	14,039
HHWS/R mech. room piping, std. wgt. blk. steel pipe, fittings, and supports, welded/flanged	300	LNFT	188.83	56,650
HHWS/R runout piping to perimeter heaters, type L copper	1,000	LNFT	44.66	44,661
Natural gas piping, std. wgt. blk. steel pipe, fittings, and supports, threaded	100	LNFT	41.29	4,129
Pipe insulation, humidifier piping	50	LNFT	9.62	481
Pipe insulation, CHWS/R mains	300	LNFT	21.54	6,462
Pipe insulation, CHWS/R, HWS/R mains	1,000	LNFT	17.16	17,162
Pipe insulation, HHWS/R runouts to VAV's	500	LNFT	10.07	5,037
Pipe insulation, HHWS/R runouts to perimeter heaters	1,000	LNFT	20.40	20,397
Pipe insulation, HHWS/R mains	300	LNFT	21.54	6,462
Pipe and valve tagging - interior bldg HVAC piping	3,250	LNFT	1.32	4,303
SUBTOTAL: HVAC Piping				\$352,808
23600 Temperature Controls				
DDC controls - air handling units	1	EACH	35,000.00	35,000
DDC controls - energy recovery units	1	EACH	5,000.00	5,000
DDC controls - return air fans	1	EACH	5,000.00	5,000
DDC controls - AC split system - MDF room	1	EACH	2,500.00	2,500
DDC controls - humidifier unit	1	EACH	2,000.00	2,000
DDC controls - exhaust fans	4	EACH	2,500.00	10,000
DDC controls - VAV terminals w/reheat coil	15	EACH	1,800.00	27,000
DDC controls - HW boilers	2	EACH	3,000.00	6,000
DDC controls - chiller, air-cooled	1	EACH	4,000.00	4,000
DDC controls - hydronic pumps, variable speed	4	EACH	7,500.00	30,000
Thermostats/temperature sensors	16	EACH	500.00	8,000

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
CO2 sensors	15	EACH	500.00	7,500
Miscellaneous points & devices	1	LSUM	15,000.00	15,000
Utility meter interfaces	1	LSUM	15,000.00	15,000
Headend/central controls	1	LSUM	15,000.00	15,000
Interface with existing building BAS-DDC system	1	LSUM	7,500.00	7,500
Programming, testing, and training	1	LSUM	10,000.00	10,000
SUBTOTAL: Temperature Controls				\$204,500
23700 Testing, Balancing, & Commissioning				
Air testing and balancing	1	LSUM	18,000.00	18,000
Pipe system testing and balancing	1	LSUM	15,000.00	15,000
HVAC system commissioning assistance	1	LSUM	15,000.00	15,000
SUBTOTAL: Testing, Balancing, & Commissioning				\$48,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$1,514,882
26000 ELECTRICAL				
26700 Mechanical Equipment Connections & Feeders				
Motors connection, disconnect switches and associated feeders - AC split system, MDF room, 1-1/2 tons	1	EACH	2,700.00	2,700
Motors connection, disconnect switches and associated feeders - Air handling unit, based on 25,000 cfm	1	EACH	6,200.00	6,200
Motors connection, disconnect switches and associated feeders - CHW, HW pumps, inline	4	EACH	2,600.00	10,400
Motors connection, disconnect switches and associated feeders - Energy recovery unit, 4500 cfm	1	EACH	3,000.00	3,000
Motors connection, disconnect switches and associated feeders - Exhaust fan, rooftop	4	EACH	2,500.00	10,000
Motors connection, disconnect switches and associated feeders - Chillers, air-cooled, 45 tons	1	EACH	7,800.00	7,800
Motors connection, disconnect switches and associated feeders - Humidifier, electric,	1	EACH	1,200.00	1,200
Motors connection, disconnect switches and associated feeders - HW boilers, condensing, 400 mbh	2	EACH	2,600.00	5,200
Motors connection, disconnect switches and associated feeders - Return air fan	1	EACH	3,200.00	3,200
Install VFD	4	EACH	850.00	3,400
SUBTOTAL: Mechanical Equipment Connections & Feeders				\$53,100
TOTAL: ELECTRICAL				\$53,100
TOTAL: HVAC OPTION #3B: 4-PIPE SYSTEM W/AHU & VAV W/ BOILER/CHILLER PLANT				\$1,567,982