

**FAC 7601 MUSEUM**

FY24 SUC: \$4.04 / SF  
Source: Calculated using R.S. Means CostWorks 2023 Qtr 4 component prices

FAC 7601 MUSEUM

SUC \$4.04

Release 2023 Qtr 4  
Zip Code Prefix 222  
Type MR

UM SF  
Design Life 55  
Average Size 16567.793909

Adjusted Occurences are the occurrences remaining after subtracting Repair/Replacement Overlaps. Overlap reduction removes a repair when it occurs the same year as a replacement.

Description	Frequency	Qty Unit	Total In-House	Total Incl OP	Design Life/Frequency	Occurrences in Design Life	Adjusted Occurrences	Life Cost	Adjusted Cost
Repair concrete stairs	30	60.00 S.F.	\$1,964.73	\$2,271.81	1.8333	1	1	\$2,271.81	\$2,271.81
Replace concrete stairs	75	60.00 S.F.	\$5,098.36	\$6,272.74	0.7333	0	0	\$0.00	\$0.00
Waterproof clay brick wall, 1st floor	10	47.00 C.S.F.	\$12,148.39	\$14,410.74	5.5000	5	5	\$72,053.71	\$72,053.71
Repair painted clay brick wall, 1st floor	25	114.00 S.F.	\$5,262.89	\$6,465.26	2.2000	2	2	\$12,930.52	\$12,930.52
Replace glass - 1st floor (1% of glass) - alum. window fixed	1	0.40 S.F.	\$5.26	\$6.18	55.0000	55	55	\$339.69	\$339.69
Repair 2'-0" x 3'-0" aluminum window - 1st floor	20	42.00 Ea.	\$6,565.16	\$7,823.40	2.7500	2	2	\$15,646.80	\$15,646.80
Replace 2'-0" x 3'-0" aluminum window - 1st floor	50	42.00 Ea.	\$28,456.69	\$33,402.73	1.1000	1	1	\$33,402.73	\$33,402.73
Replace glass - 2nd floor (1% of glass) - alum. window fixed	1	0.40 S.F.	\$45.32	\$55.95	55.0000	55	55	\$3,077.32	\$3,077.32
Repair aluminum storefront door	12	2.00 Ea.	\$1,020.45	\$1,219.37	4.5833	4	4	\$4,877.48	\$4,877.48
Replace 3'-0" x 7'-0" aluminum storefront doors	50	2.00 Ea.	\$4,818.39	\$5,676.62	1.1000	1	1	\$5,676.62	\$5,676.62
Replace insulating glass - (3% of glass) aluminum storefront door	1	1.30 S.F.	\$72.26	\$84.50	55.0000	55	55	\$4,647.75	\$4,647.75
Repair steel, painted, door	14	3.00 Ea.	\$2,107.00	\$2,502.58	3.9286	3	3	\$7,507.73	\$7,507.73
Refinish 3'-0" x 7'-0" steel, painted, door	4	3.00 Ea.	\$138.16	\$169.19	13.7500	13	13	\$2,199.45	\$2,199.45
Replace 3'-0" x 7'-0" steel, painted, door	45	3.00 Ea.	\$2,751.33	\$3,185.78	1.2222	1	1	\$3,185.78	\$3,185.78
Replace tempered glass - (3% of glass) steel painted door	1	1.90 S.F.	\$60.30	\$71.18	55.0000	55	55	\$3,914.95	\$3,914.95
Repair 12' x 12' steel roll-up door	10	1.00 Ea.	\$701.12	\$833.22	5.5000	5	5	\$4,166.12	\$4,166.12
Replace 12' x 12' steel roll-up door	35	1.00 Ea.	\$2,804.46	\$3,332.89	1.5714	1	1	\$3,332.89	\$3,332.89
Minor metal roof finish repairs, 2% of roof area, metal panel roofing	5	232.00 S.F.	\$1,072.32	\$1,274.37	11.0000	11	11	\$14,018.03	\$14,018.03
Metal roof flashing replacement, 2 SF/sq repaired, metal panel roofing	1	6.00 S.F.	\$151.84	\$181.48	55.0000	55	55	\$9,981.28	\$9,981.28
Minor metal roof panel replacement, 2.5% of roof area	20	164.00 S.F.	\$2,111.99	\$2,503.65	2.7500	2	2	\$5,007.31	\$5,007.31
Total metal roof panel replacement	30	168.00 Sq.	\$148,669.59	\$176,245.80	1.8333	1	1	\$176,245.80	\$176,245.80
Repair solid core wood door, interior	11	10.00 Ea.	\$2,789.88	\$3,256.82	5.0000	5	5	\$16,284.11	\$16,284.11
Refinish 3'-0" x 7'-0" solid core wood door, interior	4	10.00 Ea.	\$440.15	\$542.38	13.7500	13	12	\$7,050.91	\$6,508.53
Replace 3'-0" x 7'-0" solid core wood door, interior	40	10.00 Ea.	\$5,665.50	\$6,540.98	1.3750	1	1	\$6,540.98	\$6,540.98
Replace chiller, water cooled 50 ton, reciprocating	20	2.00 Ea.	\$112,343.46	\$130,891.74	2.7500	2	2	\$261,783.48	\$261,783.48
Repair circulator pump, 1/12 - 3/4 H.P.	5	2.00 Ea.	\$206.95	\$244.10	11.0000	11	8	\$2,685.14	\$1,952.83
Replace circulator pump, 1/12 - 3/4 H.P.	15	2.00 Ea.	\$7,592.09	\$8,752.06	3.6667	3	3	\$26,256.19	\$26,256.19
Maintenance and repair infrared heater suspended, commercial	1	2.00 Ea.	\$88.73	\$111.17	55.0000	55	55	\$6,114.32	\$6,114.32

Description	Frequency	Qty Unit	Total In-House	Total Incl OP	Design Life/Frequency	Occurrences in Design Life	Adjusted Occurrences	Life Cost	Adjusted Cost
Repair terminal reheat, 12" x 24" coil	10	8.00 Ea.	\$747.11	\$935.25	5.5000	5	4	\$4,676.26	\$3,741.01
Replace terminal reheat, 12" x 24" coil	15	8.00 Ea.	\$15,914.29	\$18,251.00	3.6667	3	3	\$54,753.01	\$54,753.01
Repair central station A.H.U., 8000 CFM	10	2.00 Ea.	\$3,604.77	\$4,171.94	5.5000	5	4	\$20,859.69	\$16,687.75
Replace central station A.H.U., 8000 CFM	15	2.00 Ea.	\$80,788.39	\$93,112.58	3.6667	3	3	\$279,337.75	\$279,337.75
Inspect sprinkler system	1	1.00 Ea.	\$36.17	\$45.28	55.0000	55	55	\$2,490.64	\$2,490.64
Replace sprinkler head	20	36.00 Ea.	\$3,155.32	\$3,893.47	2.7500	2	2	\$7,786.94	\$7,786.94
Rebuild double check 3" backflow preventer sprinkler system	1	1.00 Ea.	\$748.17	\$896.73	55.0000	55	55	\$49,320.09	\$49,320.09
Maintenance and repair motor starter, up to 600 V	5	2.00 Ea.	\$525.64	\$638.99	11.0000	11	11	\$7,028.87	\$7,028.87
Replace starter motor starter, up to 600 V	18	2.00 Ea.	\$1,682.04	\$2,001.49	3.0556	3	3	\$6,004.48	\$6,004.48
Maintenance and inspection lighting panel, indoor	3	6.00 Ea.	\$254.07	\$318.31	18.3333	18	18	\$5,729.52	\$5,729.52
Replace load center, 100 A	20	6.00 Ea.	\$7,086.18	\$8,643.21	2.7500	2	2	\$17,286.42	\$17,286.42
Maintenance and repair breaker, molded case, 480 V, 1 pole	20	21.00 Ea.	\$1,592.65	\$1,995.36	2.7500	2	2	\$3,990.71	\$3,990.71
Maintenance and repair breaker, molded case, 480 V, 2 pole	20	5.00 Ea.	\$379.20	\$475.08	2.7500	2	2	\$950.17	\$950.17
Replace circuit breaker molded case, 480 V, 2 pole circuit breaker	50	5.00 Ea.	\$5,510.09	\$6,374.02	1.1000	1	1	\$6,374.02	\$6,374.02
Replace fluorescent light fixture ballast, 80 W	10	38.00 Ea.	\$3,975.03	\$4,901.65	5.5000	5	5	\$24,508.25	\$24,508.25
Replace lamps (2 lamps), 4', 34 W energy saver	10	38.00 Ea.	\$1,006.46	\$1,260.42	5.5000	5	5	\$6,302.10	\$6,302.10
Replace metal halide ballast, 175 W	10	12.00 Ea.	\$2,002.64	\$2,397.17	5.5000	5	5	\$11,985.87	\$11,985.87
Replace metal halide fixture lamp, 175 W	5	12.00 Ea.	\$685.16	\$833.90	11.0000	11	11	\$9,172.89	\$9,172.89
Repair smoke detector	10	24.00 Ea.	\$1,392.24	\$1,723.98	5.5000	5	4	\$8,619.91	\$6,895.93
Check operation smoke detector	1	24.00 Ea.	\$408.02	\$511.19	55.0000	55	55	\$28,115.52	\$28,115.52
Replace smoke detector	15	24.00 Ea.	\$7,261.26	\$8,669.24	3.6667	3	3	\$26,007.73	\$26,007.73
Minor repairs to fire alarm control panel	5	1.00 Ea.	\$149.42	\$182.60	11.0000	11	11	\$2,008.55	\$2,008.55
Maintenance and inspection fire alarm control panel	0.5	1.00 Ea.	\$45.50	\$57.01	110.0000	110	110	\$6,271.12	\$6,271.12
Replace fire alarm control panel	15	1.00 Ea.	\$2,196.12	\$2,675.47	3.6667	3	3	\$8,026.42	\$8,026.42
Replace fire alarm bell, 6"	20	3.00 Ea.	\$541.82	\$659.31	2.7500	2	2	\$1,318.63	\$1,318.63
Replace EMS, Three Phase, 5 Meters	15	1.00 Ea.	\$14,235.56	\$16,617.08	3.6667	3	3	\$49,851.25	\$49,851.25
Replace EMS, Mech, BTU, 3 Meters, 3 Duct Sensors, 3 Space Sensors	20	1.00 Ea.	\$15,519.60	\$18,189.23	2.7500	2	2	\$36,378.45	\$36,378.45
Maintenance and repair building structure ground	7	2.00 M.L.F.	\$184.57	\$230.64	7.8571	7	7	\$1,614.50	\$1,614.50
Maintenance and repair of general wiring lightning protection system	1	2.00 M.L.F.	\$219.00	\$269.77	55.0000	55	55	\$14,837.54	\$14,837.54
Maintenance and repair lightning ground rod	1	4.00 Ea.	\$369.13	\$461.29	55.0000	55	55	\$25,370.74	\$25,370.74
Replace lamp emergency lighting fixture	2	15.00 Ea.	\$817.39	\$987.83	27.5000	27	27	\$26,671.29	\$26,671.29
Replace emergency lighting fixture	20	15.00 Ea.	\$8,622.09	\$10,198.11	2.7500	2	2	\$20,396.21	\$20,396.21
Maintenance and repair exit light	20	15.00 Ea.	\$577.36	\$715.06	2.7500	2	2	\$1,430.12	\$1,430.12

Description	Frequency	Qty Unit	Total In-House	Total Incl OP	Design Life/Frequency	Occurrences in Design Life	Adjusted Occurrences	Life Cost	Adjusted Cost
Replace lamp exit light	5	15.00 Ea.	\$245.20	\$291.58	11.0000	11	11	\$3,207.37	\$3,207.37
Replace lighting fixture exit light	20	15.00 Ea.	\$2,640.97	\$3,202.61	2.7500	2	2	\$6,405.21	\$6,405.21
Repair fabric wall finish fabric interior	9	155.00 S.Y.	\$4,881.79	\$5,868.61	6.1111	6	6	\$35,211.65	\$35,211.65
Repair 5/8" drywall - (2% of walls)	20	324.80 S.F.	\$542.72	\$663.24	2.7500	2	2	\$1,326.48	\$1,326.48
Refinish drywall	4	8.00 S.F.	\$5.42	\$6.66	13.7500	13	13	\$86.58	\$86.58
Refinish concrete floor finished	25	28.00 C.S.F.	\$11,664.16	\$14,073.32	2.2000	2	2	\$28,146.64	\$28,146.64
Replace vinyl sheet flooring	18	260.00 S.Y.	\$22,519.59	\$27,126.16	3.0556	3	3	\$81,378.48	\$81,378.48
Quarry tile floor repairs - (2% of floors)	15	47.30 S.F.	\$318.81	\$397.53	3.6667	3	3	\$1,192.60	\$1,192.60
Replace quarry tile floor	50	200.00 S.F.	\$2,671.10	\$3,219.57	1.1000	1	1	\$3,219.57	\$3,219.57
Replace carpet	8	220.00 S.Y.	\$11,879.24	\$13,737.34	6.8750	6	6	\$82,424.07	\$82,424.07
Replace flush valve diaphragm tankless water closet	10	9.00 Ea.	\$245.38	\$304.70	5.5000	5	5	\$1,523.52	\$1,523.52
Rebuild flush valve tankless water closet	20	9.00 Ea.	\$1,726.93	\$2,081.42	2.7500	2	2	\$4,162.84	\$4,162.84
Unplug clogged line tankless water closet	5	9.00 Ea.	\$2,069.36	\$2,590.49	11.0000	11	11	\$28,495.34	\$28,495.34
Replace tankless flush valve	25	9.00 Ea.	\$2,432.18	\$2,854.96	2.2000	2	2	\$5,709.92	\$5,709.92
Replace wax ring gasket for tankless water closet	5	9.00 Ea.	\$1,342.48	\$1,678.98	11.0000	11	11	\$18,468.80	\$18,468.80
Replace flush valve diaphragm for a urinal	7	4.00 Ea.	\$109.06	\$135.42	7.8571	7	7	\$947.97	\$947.97
Rebuild flush valve for a urinal	20	4.00 Ea.	\$767.52	\$925.08	2.7500	2	2	\$1,850.15	\$1,850.15
Replace 3'-0" x 7'-0" solid core, w/ safety glass, door, interior	40	11.00 Ea.	\$8,344.71	\$9,595.83	1.3750	1	1	\$9,595.83	\$9,595.83
Unplug line urinal	5	4.00 Ea.	\$610.57	\$764.33	11.0000	11	11	\$8,407.59	\$8,407.59
Replace washer in spud connection lavatory, vitreous china	7	4.00 Ea.	\$69.29	\$84.56	7.8571	7	7	\$591.94	\$591.94
Replace washer in faucet lavatory, vitreous china	2	9.00 Ea.	\$122.11	\$152.25	27.5000	27	27	\$4,110.88	\$4,110.88
Replace faucets lavatory, vitreous china	10	9.00 Ea.	\$1,759.25	\$2,116.09	5.5000	5	5	\$10,580.47	\$10,580.47
Clean out strainer and P trap lavatory, vitreous china	2	9.00 Ea.	\$331.37	\$414.82	27.5000	27	27	\$11,200.04	\$11,200.04
Replace faucet washer sink, service/utility	2	1.00 Ea.	\$13.45	\$16.77	27.5000	27	27	\$452.77	\$452.77
Clean trap	3	1.00 Ea.	\$9.01	\$11.27	18.3333	18	18	\$202.93	\$202.93
Replace faucets sink, service/utility	10	1.00 Ea.	\$195.47	\$235.12	5.5000	5	5	\$1,175.61	\$1,175.61
Unstop sink	2	1.00 Ea.	\$44.01	\$55.09	27.5000	27	27	\$1,487.53	\$1,487.53
Replace sink, P.E.C.I. service/utility	35	1.00 Ea.	\$1,674.37	\$1,957.84	1.5714	1	1	\$1,957.84	\$1,957.84
Check / minor repairs drinking fountain	1	3.00 Ea.	\$154.57	\$193.50	55.0000	55	55	\$10,642.52	\$10,642.52
Repair internal leaks drinking fountain	4	3.00 Ea.	\$143.30	\$179.39	13.7500	13	13	\$2,332.08	\$2,332.08
Replace refrigerant drinking fountain	2	3.00 Ea.	\$106.22	\$124.29	27.5000	27	27	\$3,355.81	\$3,355.81
Repair drain leak drinking fountain	4	3.00 Ea.	\$87.29	\$105.57	13.7500	13	11	\$1,372.38	\$1,161.25
Replace fountain drinking fountain	10	3.00 Ea.	\$4,862.44	\$5,712.90	5.5000	5	5	\$28,564.52	\$28,564.52
Unclog floor drain, PVC	20	1.00 Ea.	\$50.45	\$63.16	2.7500	2	2	\$126.31	\$126.31
Unclog 4" - 12" diameter PVC main drain per L.F.	10	0.20 L.F.	\$0.80	\$1.00	5.5000	5	5	\$5.00	\$5.00

Description	Frequency	Qty Unit	Total In-House	Total Incl OP	Design Life/Frequency	Occurrences in Design Life	Adjusted Occurrences	Life Cost	Adjusted Cost
General maintenance & repair drain: roof, scupper, area	1	2.00 Ea.	\$78.36	\$98.09	55.0000	55	55	\$5,395.16	\$5,395.16
Replace drain: roof, scupper, area	40	2.00 Ea.	\$2,260.75	\$2,607.70	1.3750	1	1	\$2,607.70	\$2,607.70
Repair boiler, gas, 250 MBH	7	2.00 Ea.	\$5,517.76	\$6,444.82	7.8571	7	7	\$45,113.72	\$45,113.72
Replace boiler, gas, 250 MBH	30	2.00 Ea.	\$19,232.42	\$22,976.71	1.8333	1	1	\$22,976.71	\$22,976.71
Repair cooling tower, 50 ton	10	2.00 Ea.	\$3,015.07	\$3,569.25	5.5000	5	4	\$17,846.25	\$14,277.00
Replace cooling tower, 50 ton	15	2.00 Ea.	\$35,131.35	\$40,446.27	3.6667	3	3	\$121,338.81	\$121,338.81
Repair water cooled chiller, 50 ton, reciprocating	10	2.00 Ea.	\$103,455.71	\$119,480.46	5.5000	5	5	\$597,402.28	\$597,402.28
			\$790,717.29	\$928,187.11				MR Subtotal	\$2,687,388.18
								MR Per Year	\$48,744.42
								PM Total	\$18,258.10
								Subtotal	\$67,002.52
								Total Per Unit	\$4.04

FAC 7601 MUSEUM

SUC \$4.04

Release 2023 Qtr 4

UM SF

Zip Code Prefix 222

Design Life 55

Type PM

Average Size 16567.793909

Description	Qty	Labor Hours	Bare Mat	Bare Labor	Bare Equip	Bare Total	Total In-House	Total Incl OP
Door, emergency egress, swinging, annualized	4.00	1.04	\$67.05	\$45.93	\$0.00	\$112.99	\$133.47	\$157.31
Door, overhead, electric, roll up, to 24' high x 25' wide, annualized	1.00	4.07	\$43.08	\$179.97	\$0.00	\$223.04	\$281.34	\$341.79
Drink fountain, annualized	4.00	2.48	\$149.78	\$132.54	\$0.00	\$282.32	\$337.06	\$399.29
Boiler, hot water, oil, gas, or comb. fired, 120 - 500 MBH, annualized	2.00	31.76	\$177.10	\$2,005.60	\$0.00	\$2,182.70	\$2,802.09	\$3,430.34
Water cooling tower, up to 50 tons, annualized	2.00	9.10	\$42.50	\$575.52	\$0.00	\$618.02	\$794.93	\$973.96
Chiller, recip., water cooled, up to 50 tons, annualized	2.00	15.89	\$58.70	\$1,002.80	\$0.00	\$1,061.50	\$1,368.21	\$1,677.85
Air handling unit, 3 thru 24 tons, annualized	2.00	4.12	\$319.79	\$219.74	\$0.00	\$539.54	\$637.44	\$751.33
VAV Boxes, annualized	6.00	5.60	\$65.27	\$353.16	\$0.00	\$418.43	\$530.91	\$646.65
Forced air heater, oil or gas fired, over 120 MBH, annualized	2.00	14.82	\$358.25	\$941.76	\$0.00	\$1,300.01	\$1,618.36	\$1,954.63
Controls, central system, electro/pneumatic, annually	1.00	1.92	\$169.00	\$121.21	\$0.00	\$290.21	\$343.47	\$405.19
Steam humidification system, annually	2.00	2.54	\$54.65	\$160.45	\$0.00	\$215.10	\$268.70	\$325.03
Backflow prevention device, up to 4", annualized	1.00	0.33	\$14.02	\$20.93	\$0.00	\$34.94	\$42.62	\$51.01
Extinguishing system, wet pipe, annualized	1.00	11.34	\$49.59	\$710.68	\$0.00	\$760.27	\$978.43	\$1,199.07
Fire pump, electric motor driven, annualized	1.00	47.75	\$37.44	\$2,986.60	\$0.00	\$3,024.04	\$3,923.77	\$4,825.37
Security, intrusion alarm system, annualized	1.00	3.83	\$149.07	\$241.25	\$0.00	\$390.32	\$477.61	\$572.34
Light, emergency, hardwired system, annualized	15.00	3.75	\$134.70	\$236.61	\$0.00	\$371.31	\$455.77	\$546.96
						\$11,824.75	\$14,994.18	\$18,258.10



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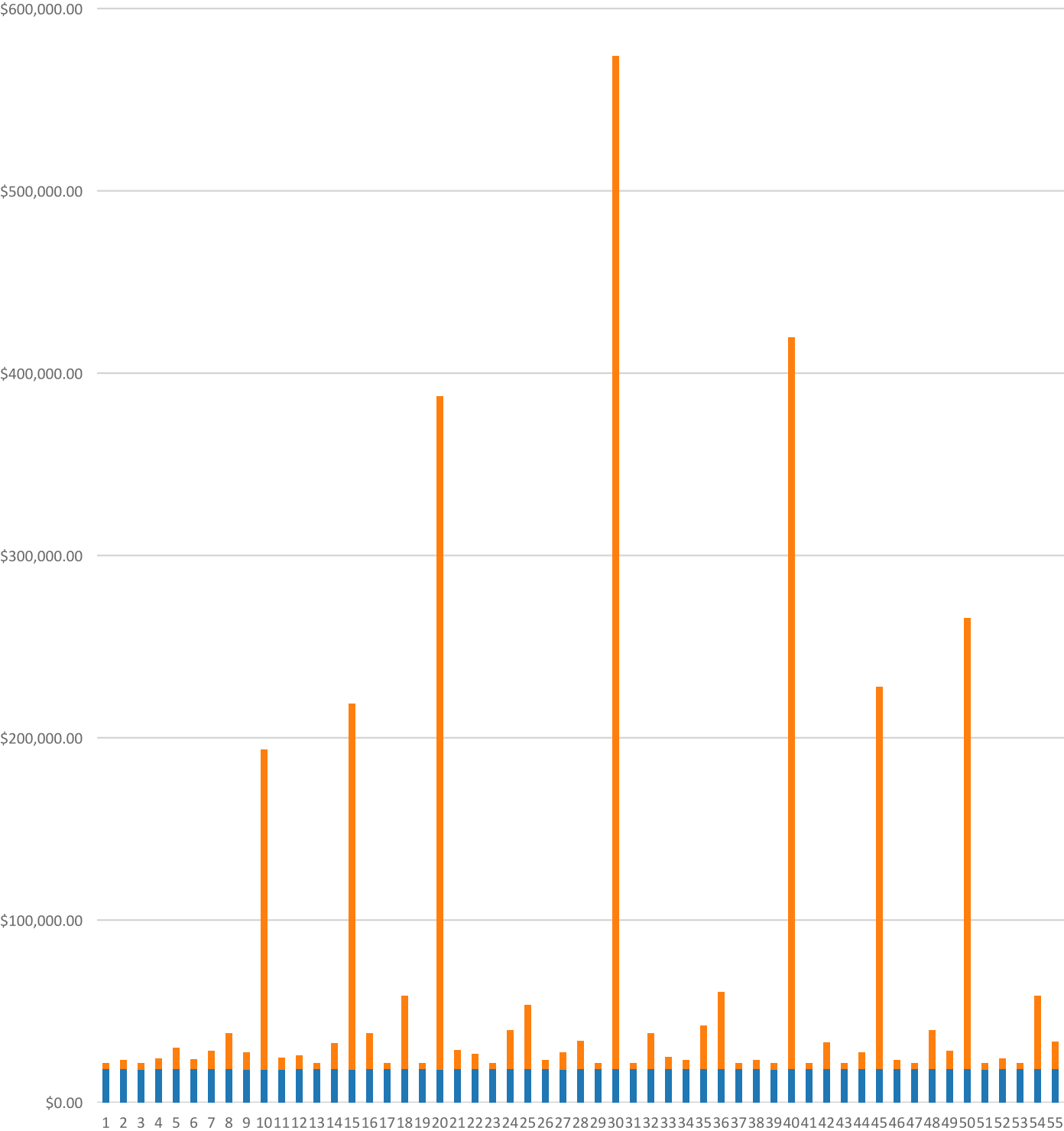
## Modeled Component List

### CostWorks Release 2023 Qtr 4

B10 Superstructure	
Concrete Stairs	60.0 S.F.
B20 Exterior Enclosure	
Clay Brick, 1st floor	47.0 C.S.F.
Aluminum Window, Fixed, 1st floor	42.0 Ea.
Glazed Aluminum	2.0 Ea.
Steel, Painted	3.0 Ea.
Steel Single, Roll-Up	1.0 Ea.
B30 Roofing	
Metal Steep Roofing	168.0 Sq.
C10 Interior Construction	
Solid Core Interior Doors	10.0 Ea.
Solid Core Interior Doors, w/ safety glass	11.0 Ea.
D30 HVAC	
Chiller, Water Cooled, Reciprocating, 50 ton	2.0 Ea.
Circulator Pump, 1/12 - 3/4 H.P.	2.0 Ea.
Terminal Reheat Coil, 12" x 24"	8.0 Ea.
Central Station Air Conditioning Air Handling Unit, 8000 CFM	2.0 Ea.
Boiler, Gas, 250 MBH	2.0 Ea.
Cooling Tower, 50 ton	2.0 Ea.
VAV Box	6.0 Each
D40 Fire Protection	
Sprinkler System, Fire Supression, sprinkler head	36.0 Ea.
Sprinkler System, Fire Supression , 3" backflow preventer	1.0 Ea.
Fire Pump, Electric, annualized	1.0 Each
D50 Electrical	
Motor Starter, Up To 600 V	2.0 Ea.
Load Center, 100 A, maintenance & inspection	6.0 Ea.
Load Center, 100 A, replacement	6.0 Ea.
Smoke Detector	24.0 Ea.
Fire Alarm Control Panel	1.0 Ea.
Fire Alarm Bell	3.0 Ea.
Emergency Lighting Fixture	15.0 Ea.
Exit Light	15.0 Ea.
C30 Interior Finishes	
Concrete, Finished	28.0 C.S.F.
Vinyl Sheet	260.0 S.Y.
Quarry Tile	200.0 S.F.
Carpet	220.0 S.Y.
D20 Plumbing	
Service/Utility Sink	1.0 Ea.
Drinking Fountain	3.0 Ea.
Drain: Roof, Scupper, Area	2.0 Ea.



FAC 7601 MUSEUM  
Sustainment by Year  
CostWorks Release 2023 Qtr 4



PM Cost  
MR Cost