

FAC 1715 Physical Education Building

RUC: \$203.00 SF

Source: Tri-Service FAC 1715 from *Tri-Service Facility Unit Costs for Military Construction* version prepared November 13, 2009

SUC: \$3.26 SF

Source: Cost Works model, inflated to FY-09 using Green Book Table 5-6 (O&M less DHP)
In V12, values were inflated only.

Model follows:

Chart: A chart showing relative annual sustainment requirements follows:

FAC 1715-Physical Education Building
CostWorks 2008 Quarter 2

Design Life= 45
Average S.F= 12,714

C.S.F=100 S.F; MSF=1000 S.F
Sq=100 S.F; M.L.F=1000 L.F

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CostWorks

Terminal Cutoff is the removal of a single task occurrence if that task occurs
within 10% of the end of the design life and if the frequency of the task exceeds
20% of the design life. This prevents scheduling major work near the end of the
design life

Description	Frequency	Crew	Qty	Unit	Total In-House	Total Incl. O&P	Release	Occurrences in Design Life	Adjusted Occurrences	Terminal Cutoff
Repair painted brick wall - 1st floor	25	1 Bric	309.000	S.F.	11,559.69	14,044.05	2008 Qtr 2	1	1	\$ 14,044.05
Replace brick wall - 2nd floor	75	1 Bric	30.900	C.S.F.	64,471.61	77,329.41	2008 Qtr 2	0	0	\$ -
Repair 2'-0" x 3'-0" aluminum window - 1st floor	20	1 Carp	90.000	Ea.	10,346.40	12,258.00	2008 Qtr 2	2	2	\$ 24,516.00
Replace 2'-0" x 3'-0" aluminum window - 1st floor	50	1 Carp	90.000	Ea.	39,474.00	46,169.10	2008 Qtr 2	0	0	\$ -
Repair 2'-0" x 3'-0" aluminum window - 2nd floor	20	1 Carp	94.000	Ea.	14,447.80	17,335.48	2008 Qtr 2	2	2	\$ 34,670.96
Replace 2'-0" x 3'-0" aluminum window - 2nd floor	50	1 Carp	94.000	Ea.	44,870.90	52,753.74	2008 Qtr 2	0	0	\$ -
Replace glass - 1st floor (1% of glass)	1	1 Carp	5.400	S.F.	48.87	57.35	2008 Qtr 2	45	45	\$ 2,580.66
Replace glass - 2nd floor (1% of glass)	1	1 Carp	5.640	S.F.	492.94	603.76	2008 Qtr 2	45	45	\$ 27,169.29
Repair aluminum storefront door	12	1 Carp	2.000	Ea.	827.88	981.36	2008 Qtr 2	3	3	\$ 2,944.08
Replace 3'-0" x 7'-0" aluminum storefront doors	50	1 Carp	2.000	Ea.	3,362.52	3,948.16	2008 Qtr 2	0	0	\$ -
Replace insulating glass - (3% of glass)	1	1 Carp	1.260	S.F.	45.95	53.84	2008 Qtr 2	45	45	\$ 2,422.79
Repair steel, painted, door	14	1 Carp	8.000	Ea.	4,659.52	5,490.88	2008 Qtr 2	3	2	\$ 10,981.76
Refinish 3'-0" x 7'-0" steel, painted, door	4	1 Pord	8.000	Ea.	263.28	322.48	2008 Qtr 2	11	11	\$ 3,547.28
Replace 3'-0" x 7'-0" steel, painted, door	45	1 Carp	8.000	Ea.	4,256.64	4,960.32	2008 Qtr 2	1	0	\$ -
Replace tempered glass - (3% of glass)	1	1 Carp	5.040	S.F.	97.27	115.72	2008 Qtr 2	45	45	\$ 5,207.33
Debris removal and visual inspection built-up roofing	1	2 Rofc	12.715	M.S.F.	373.06	449.48	2008 Qtr 2	45	45	\$ 20,226.39
Non-destructive moisture inspection built-up roofing	5	2 Rofc	12.715	M.S.F.	1,154.27	1,396.11	2008 Qtr 2	9	9	\$ 12,564.96
Total roof replacement built-up roofing	28	G1	127.150	Sq.	72,574.68	85,947.04	2008 Qtr 2	1	1	\$ 85,947.04
Place new membrane over existing built-up roofing	20	G5	127.150	Sq.	43,786.65	51,755.14	2008 Qtr 2	2	2	\$ 103,510.27
Minor membrane repairs - (2% of roof area) built-up roofing	5	G5	2.543	Sq.	876.11	1,035.10	2008 Qtr 2	9	9	\$ 9,315.92
Minor membrane replacement - (25% of roof area) built-up roofing	20	G5	31.790	Sq.	18,896.93	22,541.65	2008 Qtr 2	2	2	\$ 45,083.31
Flashing repairs - (2 S.F. per sq. repaired) built-up roofing	5	2 Rofc	5.086	S.F.	17.09	20.34	2008 Qtr 2	9	9	\$ 183.10
Repair aluminum interior door	12	1 Carp	7.000	Ea.	1,174.25	1,386.98	2008 Qtr 2	3	3	\$ 4,160.94
Replace 3'-0" x 7'-0" aluminum door & frame aluminum interior	50	1 Carp	7.000	Ea.	15,328.46	17,651.48	2008 Qtr 2	0	0	\$ -
Replace safety glass (3% of glass) aluminum interior door	1	1 Carp	4.410	S.F.	74.66	88.77	2008 Qtr 2	45	45	\$ 3,994.80
Repair steel painted interior door	14	1 Carp	17.000	Ea.	2,851.75	3,368.38	2008 Qtr 2	3	2	\$ 6,736.76
Refinish 3'-0" x 7'-0" steel painted interior door	4	1 Pord	17.000	Ea.	839.80	1,033.94	2008 Qtr 2	11	11	\$ 11,373.34
Replace 3'-0" x 7'-0" steel painted interior door	60	1 Carp	17.000	Ea.	15,938.18	18,529.32	2008 Qtr 2	0	0	\$ -
Refinish drywall	8	1 Pord	15,700.000	S.F.	9,420.00	11,618.00	2008 Qtr 2	5	5	\$ 58,090.00
Replace 5/8" drywall	75	2 Carp	15,700.000	S.F.	35,011.00	42,233.00	2008 Qtr 2	0	0	\$ -
Repair 5/8" drywall - (2% of walls)	20	1 Carp	314.000	S.F.	499.26	599.74	2008 Qtr 2	2	2	\$ 1,199.48
Replace carpet	8	2 Tilf	353.200	S.Y.	15,939.92	18,415.85	2008 Qtr 2	5	5	\$ 92,079.24
Replace 2" x 2" thin set ceramic tile floor	50	1 Tilf	19.000	C.S.F.	25,533.91	30,734.02	2008 Qtr 2	0	0	\$ -
Ceramic tile floor repairs - (2% of floors)	15	1 Tilf	0.380	C.S.F.	234.84	292.56	2008 Qtr 2	3	2	\$ 585.12
Refinish concrete floor finished	25	2 Cefi	6.360	C.S.F.	2,222.44	2,675.59	2008 Qtr 2	1	1	\$ 2,675.59
Sand and refinish maple strip floor	10	1 Carp	3,180.000	S.F.	14,310.00	16,917.60	2008 Qtr 2	4	4	\$ 67,670.40

FAC 1715-Physical Education Building
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Description	Frequency	Crew	Qty	Unit	Total In-House	Total Incl. O&P	Release	Occurrences in Design Life	Adjusted Occurrences	Terminal Cutoff
Replace maple floor	40	2 Carp	3,180.000	S.F.	36,983.40	43,343.40	2008 Qtr 2	1	1	\$ 43,343.40
Replace rubber tile floor	18	1 Tilf	422.200	S.Y.	74,822.28	88,011.81	2008 Qtr 2	2	2	\$ 176,023.62
Refinish sheetrock ceiling	20	1 Pord	47.700	C.S.F.	5,994.46	7,407.33	2008 Qtr 2	2	2	\$ 14,814.67
Replace sheetrock ceiling	40	2 Carp	47.700	C.S.F.	17,092.34	20,869.23	2008 Qtr 2	1	1	\$ 20,869.23
Repair sheetrock ceiling - (2% of ceilings)	20	1 Carp	0.954	C.S.F.	333.18	406.66	2008 Qtr 2	2	2	\$ 813.32
Check / minor repairs drinking fountain	1	1 Plum	3.000	Ea.	112.74	142.02	2008 Qtr 2	45	45	\$ 6,390.90
Repair internal leaks drinking fountain	4	1 Plum	3.000	Ea.	105.42	130.29	2008 Qtr 2	11	11	\$ 1,433.19
Correct water pressure drinking fountain	2	1 Plum	3.000	Ea.	96.63	121.50	2008 Qtr 2	22	22	\$ 2,673.00
Replace refrigerant drinking fountain	2	1 Plum	3.000	Ea.	47.52	56.58	2008 Qtr 2	22	22	\$ 1,244.76
Repair drain leak drinking fountain	4	1 Plum	3.000	Ea.	67.89	81.09	2008 Qtr 2	11	11	\$ 891.99
Replace fountain drinking fountain	10	2 Plum	3.000	Ea.	3,017.52	3,580.71	2008 Qtr 2	4	4	\$ 14,322.84
Replace washer in spud connection lavatory, vitreous china	7	1 Plum	7.000	Ea.	168.07	198.31	2008 Qtr 2	6	6	\$ 1,189.86
Replace washer in faucet lavatory, vitreous china	2	1 Plum	7.000	Ea.	68.95	86.03	2008 Qtr 2	22	22	\$ 1,892.66
Replace faucets lavatory, vitreous china	10	1 Plum	7.000	Ea.	864.43	1,043.42	2008 Qtr 2	4	4	\$ 4,173.68
Clean out strainer and P trap lavatory, vitreous china	2	1 Plum	7.000	Ea.	189.28	234.99	2008 Qtr 2	22	22	\$ 5,169.78
Replace lavatory, vitreous china	35	2 Plum	7.000	Ea.	3,711.33	4,449.90	2008 Qtr 2	1	1	\$ 4,449.90
Replace faucet washer sink, iron enamel	2	1 Plum	2.000	Ea.	19.58	24.38	2008 Qtr 2	22	22	\$ 536.36
Clean trap sink, iron enamel	3	1 Plum	2.000	Ea.	13.20	16.50	2008 Qtr 2	15	15	\$ 247.50
Replace faucets sink, iron enamel	10	1 Plum	2.000	Ea.	246.98	298.12	2008 Qtr 2	4	4	\$ 1,192.48
Unstop sink sink, iron enamel	2	1 Plum	2.000	Ea.	64.42	81.00	2008 Qtr 2	22	22	\$ 1,782.00
Replace sink, P.E.C.I. sink, iron enamel	35	2 Plum	2.000	Ea.	1,105.44	1,315.38	2008 Qtr 2	1	1	\$ 1,315.38
Inspect / clean shower head	3	1 Plum	15.000	Ea.	567.00	711.60	2008 Qtr 2	15	15	\$ 10,674.00
Replace mixing valve barrel shower, misc.	2	1 Plum	15.000	Ea.	2,222.25	2,644.80	2008 Qtr 2	22	22	\$ 58,185.60
Replace mixing valve shower, misc.	10	1 Plum	15.000	Ea.	4,120.20	4,935.00	2008 Qtr 2	4	4	\$ 19,740.00
Replace shower surface, ceramic tile	30	D7	15.000	Ea.	12,809.70	15,387.00	2008 Qtr 2	1	1	\$ 15,387.00
Replace flush valve diaphragm tankless water closet	10	1 Plum	6.000	Ea.	424.44	498.36	2008 Qtr 2	4	4	\$ 1,993.44
Rebuild flush valve tankless water closet	20	1 Plum	6.000	Ea.	791.88	960.06	2008 Qtr 2	2	2	\$ 1,920.12
Unplug clogged line tankless water closet	5	1 Plum	6.000	Ea.	1,009.56	1,261.08	2008 Qtr 2	9	9	\$ 11,349.72
Replace tankless water closet	35	2 Plum	6.000	Ea.	3,288.00	3,890.16	2008 Qtr 2	1	1	\$ 3,890.16
Replace tankless flush valve	25	1 Plum	6.000	Ea.	1,257.00	1,472.22	2008 Qtr 2	1	1	\$ 1,472.22
Replace wax ring gasket tankless water closet	5	1 Plum	6.000	Ea.	657.42	823.20	2008 Qtr 2	9	9	\$ 7,408.80
Inspect / check pump / motor operation, lub. circulation pump, 1/6 HP	1	1 Plum	1.000	Ea.	6.19	7.72	2008 Qtr 2	45	45	\$ 347.40
Replace pump / motor assembly circulation pump, 1/6 HP	20	2 Plum	1.000	Ea.	1,506.30	1,737.08	2008 Qtr 2	2	2	\$ 3,474.16
Insp./chk. pump/mtr. oper., lub., chk. align. circulation pump, 1/2 HP	1	1 Plum	1.000	Ea.	9.21	11.50	2008 Qtr 2	45	45	\$ 517.50
Replace pump / motor assembly, partial circulation pump, 1/2 HP	20	2 Plum	1.000	Ea.	2,331.44	2,692.17	2008 Qtr 2	2	2	\$ 5,384.34
Resolder joint pipe & fittings, copper	10	1 Plum	2.000	Ea.	65.70	80.90	2008 Qtr 2	4	4	\$ 323.60

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Replace pipe and fittings, copper 3/4"	20	2 Plum	16.000	L.F.	283.52	343.68	2008 Qtr 2	2	2	\$ 687.36
Replace pipe and fittings, copper 2"	25	2 Plum	16.000	L.F.	652.96	785.76	2008 Qtr 2	1	1	\$ 785.76
Remove old insulation & replace with new, pipe 3/4", wall 1"	15	1 Plum	16.000	L.F.	112.16	136.64	2008 Qtr 2	3	2	\$ 273.28
Remove old insulation & replace with new, pipe 1-1/2", wall 1"	15	1 Plum	16.000	L.F.	123.36	150.08	2008 Qtr 2	3	2	\$ 300.16
Minor repairs, adjustments water heater, gas / oil, 1150 GPH	2	2 Plum	1.000	Ea.	75.64	94.18	2008 Qtr 2	22	22	\$ 2,071.96
Clean & service water heater, gas / oil, 1150 GPH	2	2 Plum	1.000	Ea.	453.84	566.08	2008 Qtr 2	22	22	\$ 12,453.76
Replace water heater, gas / oil, 1150 GPH	20	2 Plum	1.000	Ea.	26,100.80	30,172.40	2008 Qtr 2	2	2	\$ 60,344.80
Replace 1000 gallon solar storage tank	20	Q9	1.000	Ea.	6,244.32	7,247.32	2008 Qtr 2	2	2	\$ 14,494.64
Unclog main drain pipe & fittings, cast iron	10	1 Plum	1.000	Ea.	35.62	44.41	2008 Qtr 2	4	4	\$ 177.64
Replace pipe & fittings, cast iron	40	2 Plum	16.000	L.F.	670.40	811.20	2008 Qtr 2	1	1	\$ 811.20
General maintenance & repair drain: roof, scupper, area	1	1 Plum	4.000	Ea.	113.40	142.68	2008 Qtr 2	45	45	\$ 6,420.60
Replace drain: roof, scupper, area	40	1 Plum	4.000	Ea.	1,593.36	1,872.56	2008 Qtr 2	1	1	\$ 1,872.56
Install new 4" gasket, 1 per M.L.F. natural gas, steel/iron	30	1 Stpi	1.000	Ea.	157.52	195.63	2008 Qtr 2	1	1	\$ 195.63
Replace 10' of buried 4" diam steel pipe/M.L.F. natural gas	12	B35	1.000	Ea.	796.82	957.19	2008 Qtr 2	3	3	\$ 2,871.57
Replace roof mounted exhaust fan, 8500 CFM exhaust fan	20	Q20	1.000	Ea.	2,619.48	3,050.64	2008 Qtr 2	2	2	\$ 6,101.28
Repair single zone rooftop unit, 60 ton	10	Q6	1.000	Ea.	39,670.17	46,952.35	2008 Qtr 2	4	4	\$ 187,809.40
Replace single zone rooftop unit, 60 ton	15	Q7	1.000	Ea.	70,810.00	82,892.60	2008 Qtr 2	3	2	\$ 165,785.20
Repair fan coil unit, 1 ton	10	1 Stpi	1.000	Ea.	369.22	441.02	2008 Qtr 2	4	4	\$ 1,764.08
Replace fan coil unit, 1 ton	15	Q5	1.000	Ea.	1,098.30	1,295.56	2008 Qtr 2	3	2	\$ 2,591.12
Minor repairs to fire alarm control panel	5	1 Elec	1.000	Ea.	107.84	130.97	2008 Qtr 2	9	9	\$ 1,178.73
Maintenance and inspection fire alarm control panel	0.5	1 Elec	1.000	Ea.	30.54	38.17	2008 Qtr 2	90	90	\$ 3,435.30
Replace fire alarm control panel	15	1 Elec	1.000	Ea.	2,615.62	3,107.84	2008 Qtr 2	3	2	\$ 6,215.68
Replace sprinkler head	20	1 Plum	62.000	Ea.	3,948.16	4,864.52	2008 Qtr 2	2	2	\$ 9,729.04
Inspect sprinkler system	1	1 Plum	1.000	Ea.	26.55	32.89	2008 Qtr 2	45	45	\$ 1,480.05
Rebuild double check 3" backflow preventer sprinkler system	1	1 Plum	1.000	Ea.	598.06	715.83	2008 Qtr 2	45	45	\$ 32,212.35
Replace fire alarm bell, 6"	20	1 Elec	2.000	Ea.	284.56	343.02	2008 Qtr 2	2	2	\$ 686.04
Replace lamp emergency lighting fixture	2	1 Elec	6.000	Ea.	324.00	384.84	2008 Qtr 2	22	22	\$ 8,466.48
Maintenance and repair exit light	20	1 Elec	6.000	Ea.	196.98	239.22	2008 Qtr 2	2	2	\$ 478.44
Replace lamp exit light	5	1 Elec	6.000	Ea.	74.10	87.72	2008 Qtr 2	9	9	\$ 789.48
Replace fluor. ballast for fluorescent lighting fixture, 80 W	10	1 Elec	48.000	Ea.	4,779.84	5,763.84	2008 Qtr 2	4	4	\$ 23,055.36
Replace lamps (2 lamps) fluorescent lighting fixture, 80 W	10	1 Elec	48.000	Ea.	1,221.12	1,496.64	2008 Qtr 2	4	4	\$ 5,986.56
Replace M.H. ballast mercury halide fixture, 175 W	10	1 Elec	6.000	Ea.	1,146.00	1,343.34	2008 Qtr 2	4	4	\$ 5,373.36
Replace lamp mercury halide fixture, 175 W	5	1 Elec	6.000	Ea.	443.94	524.82	2008 Qtr 2	9	9	\$ 4,723.38
Maintenance and repair receptacles and plugs	20	1 Elec	90.000	Ea.	2,798.10	3,485.70	2008 Qtr 2	2	2	\$ 6,971.40
Replace receptacle/plug receptacles and plugs	20	1 Elec	90.000	Ea.	4,748.40	5,797.80	2008 Qtr 2	2	2	\$ 11,595.60
Maintenance and repair wiring devices, switches	10	1 Elec	23.000	Ea.	715.07	890.79	2008 Qtr 2	4	4	\$ 3,563.16

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Replace switch wiring devices, switches	15	1 Elec	23.000	Ea.	1,177.83	1,434.05	2008 Qtr 2	3	2	\$ 2,868.10
Minor repairs to annunciation panel	5	1 Elec	1.000	Ea.	107.84	130.97	2008 Qtr 2	9	9	\$ 1,178.73
Maintenance and inspection annunciation panel	0.5	1 Elec	1.000	Ea.	30.54	38.17	2008 Qtr 2	90	90	\$ 3,435.30
Replace annunciation panel	15	1 Elec	1.000	Ea.	844.71	1,008.28	2008 Qtr 2	3	2	\$ 2,016.56
Check and repair manual pull station	10	1 Elec	4.000	Ea.	276.84	339.48	2008 Qtr 2	4	4	\$ 1,357.92
Replace manual pull station	15	1 Elec	4.000	Ea.	502.96	607.56	2008 Qtr 2	3	2	\$ 1,215.12
Repair smoke detector	10	1 Elec	25.000	Ea.	954.75	1,175.00	2008 Qtr 2	4	4	\$ 4,700.00
Check operation smoke detector	1	1 Elec	25.000	Ea.	285.00	357.50	2008 Qtr 2	45	45	\$ 16,087.50
Replace smoke detector	15	1 Elec	25.000	Ea.	4,738.75	5,674.75	2008 Qtr 2	3	2	\$ 11,349.50
					\$837,432.87	\$992,290.93				
									MR Subtotal	\$ 1,738,280.57
									MR Per Year	\$ 38,628.46
									PM Per Year	\$ 4,191.00
									Subtotal	\$ 42,819.46
									Total Per Unit	\$ 3.37

CostWorks 2009 Quarter 1 - FAC 1715-Physical Education Building

Qty	Assembly Number	Description	Total In-House	Total Incl. O&P	Zip Code Prefix	Type	Release
10.000	B2035 225 1950	Door, emergency egress, swinging, annualized	495.10	575.10	200	FMR	2008 Qtr 2
24.000	C1025 110 1950	Fire doors, swinging, annualized	597.36	716.64	200	FMR	2008 Qtr 2
3.000	D2015 800 1950	Drink fountain, annualized	148.50	178.08	200	FMR	2008 Qtr 2
7.000	D2015 100 4950	Lavatories, annualized	172.76	210.56	200	FMR	2008 Qtr 2
6.000	D2015 100 2950	Toilet (vacuum breaker type), annualized	77.58	96.90	200	FMR	2008 Qtr 2
15.000	D2015 100 5950	Showers, annualized	297.75	357.00	200	FMR	2008 Qtr 2
1.000	D2025 260 3950	Water heater, steam 2500 gal., annualized	117.29	143.80	200	FMR	2008 Qtr 2
1.000	D3045 120 1950	Fan coil unit, annualized	215.71	266.60	200	FMR	2008 Qtr 2
4.000	D3045 160 1950	VAV Boxes, annualized	245.24	304.00	200	FMR	2008 Qtr 2
1.000	D3055 210 2950	Package unit, air cooled, 25 thru 50 ton, annualized	284.94	341.10	200	FMR	2008 Qtr 2
1.000	D4015 150 1950	Extinguishing system, wet pipe, annualized	806.79	983.35	200	FMR	2008 Qtr 2
1.000	D5095 250 1950	Light, emergency, hardwired system, annualized	14.25	17.87	200	FMR	2008 Qtr 2
			\$3,473.27	\$4,191.00			

FAC 1715 Sustainment by Year - Terminal Cutoff Applied

