

**FAC 1718     Indoor Firing Range and Supporting Facility**

RUC:                \$221.93 SF

Source:            USACE PAX Newsletter 3.2.2 dated 20 Mar 09  
CC 17121  
Deflated to FY-09 using Appendix C of newsletter  
In V12, Tri-Service and USACE PAX Newsletter values were updated while  
all other values were inflated only.

SUC:                \$3.88 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 1718-Indoor Firing Range and Supporting Facility  
CostWorks 2008 Quarter 2**

Design Life= 45  
Average S.F= 2,827

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

This spreadsheet was  
exported from R.S Means  
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 8" concrete block wall - 1st floor	25	1 Bric	2,553.000	S.F.	51,213.18	62,293.20	2008 Qtr 2	1	1	\$ 62,293.20
Replace 8" concrete block wall - 1st floor	60	2 Bric	25.530	C.S.F.	25,399.03	30,573.96	2008 Qtr 2	0	0	\$ -
Replace 8" concrete block wall - 2nd floor	60	2 Bric	23.650	C.S.F.	25,096.67	30,236.53	2008 Qtr 2	0	0	\$ -
Repair 2'-0" x 3'-0" aluminum window - 1st floor	20	1 Carp	4.000	Ea.	459.84	544.80	2008 Qtr 2	2	2	\$ 1,089.60
Replace 2'-0" x 3'-0" aluminum window - 1st floor	50	1 Carp	4.000	Ea.	1,754.40	2,051.96	2008 Qtr 2	0	0	\$ -
Replace glass - 1st floor (1% of glass)	1	1 Carp	0.240	S.F.	2.17	2.55	2008 Qtr 2	45	45	\$ 114.70
Repair 12' x 12' steel roll-up door	10	1 Carp	1.000	Ea.	832.61	964.54	2008 Qtr 2	4	4	\$ 3,858.16
Refinish 12' x 12' steel roll-up door	5	1 Pord	1.000	Ea.	168.83	205.54	2008 Qtr 2	9	9	\$ 1,849.86
Replace 12' x 12' steel roll-up door	35	2 Carp	1.000	Ea.	3,325.27	3,849.55	2008 Qtr 2	1	1	\$ 3,849.55
Repair steel, painted, door	14	1 Carp	1.000	Ea.	582.44	686.36	2008 Qtr 2	3	2	\$ 1,372.72
Refinish 3'-0" x 7'-0" steel, painted, door	4	1 Pord	1.000	Ea.	32.91	40.31	2008 Qtr 2	11	11	\$ 443.41
Replace 3'-0" x 7'-0" steel, painted, door	45	1 Carp	1.000	Ea.	532.08	620.04	2008 Qtr 2	1	0	\$ -
Debris removal and visual inspection built-up roofing	0.5	2 Rofc	2.827	M.S.F.	82.94	99.93	2008 Qtr 2	90	90	\$ 8,994.10
Non-destructive moisture inspection built-up roofing	5	2 Rofc	2.827	M.S.F.	256.64	310.40	2008 Qtr 2	9	9	\$ 2,793.64
Minor membrane repairs - (2% of roof area) built-up roofing	1	G5	0.565	Sq.	194.65	229.98	2008 Qtr 2	45	45	\$ 10,348.99
Flashing repairs - (2 S.F. per sq. repaired) built-up roofing	1	2 Rofc	1.131	S.F.	3.80	4.52	2008 Qtr 2	45	45	\$ 203.58
Minor membrane replacement - (25% of roof area) built-up roofing	15	G5	1.131	Sq.	672.30	801.97	2008 Qtr 2	3	2	\$ 1,603.94
Total roof replacement built-up roofing	28	G1	28.270	Sq.	16,135.95	19,109.11	2008 Qtr 2	1	1	\$ 19,109.11
Repair steel painted interior door	14	1 Carp	2.000	Ea.	335.50	396.28	2008 Qtr 2	3	2	\$ 792.56
Refinish 3'-0" x 7'-0" steel painted interior door	4	1 Pord	2.000	Ea.	98.80	121.64	2008 Qtr 2	11	11	\$ 1,338.04
Replace 3'-0" x 7'-0" steel painted interior door	60	1 Carp	2.000	Ea.	1,875.08	2,179.92	2008 Qtr 2	0	0	\$ -
Repair solid core wood door interior	11	1 Carp	4.000	Ea.	671.00	792.56	2008 Qtr 2	4	3	\$ 2,377.68
Refinish 3'-0" x 7'-0" solid core wood door interior	4	1 Pord	4.000	Ea.	168.88	207.92	2008 Qtr 2	11	11	\$ 2,287.12
Replace 3'-0" x 7'-0" solid core wood door interior	40	1 Carp	4.000	Ea.	1,466.80	1,700.48	2008 Qtr 2	1	1	\$ 1,700.48
Refinish drywall	4	1 Pord	1,203.000	S.F.	721.80	890.22	2008 Qtr 2	11	11	\$ 9,792.42
Replace 5/8" drywall	75	2 Carp	1,203.000	S.F.	2,682.69	3,236.07	2008 Qtr 2	0	0	\$ -
Repair 5/8" drywall - (2% of walls)	20	1 Carp	24.060	S.F.	38.26	45.95	2008 Qtr 2	2	2	\$ 91.91
Replace carpet	8	2 Tilf	25.110	S.Y.	1,133.21	1,309.24	2008 Qtr 2	5	5	\$ 6,546.18
Refinish concrete floor finished	25	2 Cefi	24.950	C.S.F.	8,718.53	10,496.22	2008 Qtr 2	1	1	\$ 10,496.22
Replace vinyl floor	18	1 Tilf	11.780	S.Y.	562.50	686.77	2008 Qtr 2	2	2	\$ 1,373.55
Replace acoustic tile ceiling, fire-rated	20	1 Carp	2.260	C.S.F.	911.12	1,082.54	2008 Qtr 2	2	2	\$ 2,165.08
Refinish sheetrock ceiling	20	1 Pord	1.060	C.S.F.	133.21	164.61	2008 Qtr 2	2	2	\$ 329.21
Replace sheetrock ceiling	40	2 Carp	1.060	C.S.F.	379.83	463.76	2008 Qtr 2	1	1	\$ 463.76
Repair sheetrock ceiling - (2% of ceilings)	20	1 Carp	0.020	C.S.F.	6.99	8.53	2008 Qtr 2	2	2	\$ 17.05
Replace flush valve diaphragm tankless water closet	10	1 Plum	2.000	Ea.	141.48	166.12	2008 Qtr 2	4	4	\$ 664.48
Rebuild flush valve tankless water closet	20	1 Plum	2.000	Ea.	263.96	320.02	2008 Qtr 2	2	2	\$ 640.04

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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
Unplug clogged line tankless water closet	5	1 Plum	2.000	Ea.	336.52	420.36	2008 Qtr 2	9	9	\$ 3,783.24
Replace tankless water closet	35	2 Plum	2.000	Ea.	1,096.00	1,296.72	2008 Qtr 2	1	1	\$ 1,296.72
Replace tankless flush valve	25	1 Plum	2.000	Ea.	419.00	490.74	2008 Qtr 2	1	1	\$ 490.74
Replace wax ring gasket tankless water closet	5	1 Plum	2.000	Ea.	219.14	274.40	2008 Qtr 2	9	9	\$ 2,469.60
Replace flush valve diaphragm urinal	7	1 Plum	1.000	Ea.	70.74	83.06	2008 Qtr 2	6	6	\$ 498.36
Rebuild flush valve urinal	20	1 Plum	1.000	Ea.	131.98	160.01	2008 Qtr 2	2	2	\$ 320.02
Unplug line urinal	5	1 Plum	1.000	Ea.	112.14	139.91	2008 Qtr 2	9	9	\$ 1,259.19
Replace wall-hung urinal	35	2 Plum	1.000	Ea.	841.63	1,006.57	2008 Qtr 2	1	1	\$ 1,006.57
Replace washer in spud connection lavatory, vitreous china	7	1 Plum	2.000	Ea.	48.02	56.66	2008 Qtr 2	6	6	\$ 339.96
Replace washer in faucet lavatory, vitreous china	2	1 Plum	2.000	Ea.	19.70	24.58	2008 Qtr 2	22	22	\$ 540.76
Replace faucets lavatory, vitreous china	10	1 Plum	2.000	Ea.	246.98	298.12	2008 Qtr 2	4	4	\$ 1,192.48
Clean out strainer and P trap lavatory, vitreous china	2	1 Plum	2.000	Ea.	54.08	67.14	2008 Qtr 2	22	22	\$ 1,477.08
Replace lavatory, vitreous china	35	2 Plum	2.000	Ea.	1,060.38	1,271.40	2008 Qtr 2	1	1	\$ 1,271.40
Replace faucet washer sink, iron enamel	2	1 Plum	1.000	Ea.	9.79	12.19	2008 Qtr 2	22	22	\$ 268.18
Clean trap sink, iron enamel	3	1 Plum	1.000	Ea.	6.60	8.25	2008 Qtr 2	15	15	\$ 123.75
Replace faucets sink, iron enamel	10	1 Plum	1.000	Ea.	123.49	149.06	2008 Qtr 2	4	4	\$ 596.24
Unstop sink sink, iron enamel	2	1 Plum	1.000	Ea.	32.21	40.50	2008 Qtr 2	22	22	\$ 891.00
Replace sink, P.E.C.I. sink, iron enamel	35	2 Plum	1.000	Ea.	552.72	657.69	2008 Qtr 2	1	1	\$ 657.69
Resolder joint pipe & fittings, copper	10	1 Plum	2.000	Ea.	65.70	80.90	2008 Qtr 2	4	4	\$ 323.60
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
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
Drain and flush water heater, electric, 120 gallon	7	1 Plum	1.000	Ea.	226.43	283.04	2008 Qtr 2	6	6	\$ 1,698.24
Check operation water heater, electric, 120 gallon	3	1 Plum	1.000	Ea.	1.98	2.48	2008 Qtr 2	15	15	\$ 37.20
Replace water heater, electric, 120 gallon	15	2 Plum	1.000	Ea.	9,192.45	10,543.79	2008 Qtr 2	3	2	\$ 21,087.58
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
Unclog floor drain, PVC	20	1 Plum	1.000	Ea.	37.09	45.87	2008 Qtr 2	2	2	\$ 91.74
Repair joint pipe and fittings, PVC	10	1 Plum	1.000	Ea.	115.94	144.14	2008 Qtr 2	4	4	\$ 576.56
Replace pipe, 4" pipe and fittings, PVC	30	2 Plum	16.000	L.F.	947.20	1,171.04	2008 Qtr 2	1	1	\$ 1,171.04
General maintenance & repair drain: roof, scupper, area	1	1 Plum	1.000	Ea.	28.35	35.67	2008 Qtr 2	45	45	\$ 1,605.15
Replace drain: roof, scupper, area	40	1 Plum	1.000	Ea.	398.34	468.14	2008 Qtr 2	1	1	\$ 468.14
Replace fan & motor, propeller exh., 4700 CFM exhaust fan	15	Q20	3.000	Ea.	4,180.89	4,879.05	2008 Qtr 2	3	2	\$ 9,758.10
Repair single zone rt. unit, 5 ton	10	2 Stpi	2.000	Ea.	3,859.42	4,629.12	2008 Qtr 2	4	4	\$ 18,516.48
Replace single zone rt. unit, 5 ton	15	Q5	2.000	Ea.	14,553.76	17,177.20	2008 Qtr 2	3	2	\$ 34,354.40
Replace sprinkler head	20	1 Plum	30.000	Ea.	1,910.40	2,353.80	2008 Qtr 2	2	2	\$ 4,707.60
Inspect sprinkler system	1	1 Plum	1.000	Ea.	26.55	32.89	2008 Qtr 2	45	45	\$ 1,480.05

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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	1.000	Ea.	142.28	171.51	2008 Qtr 2	2	2	\$ 343.02
Maintenance and inspection lighting panel, indoor	3	1 Elec	1.000	Ea.	28.50	35.63	2008 Qtr 2	15	15	\$ 534.45
Maintenance and repair motor starter, up to 600 V	5	1 Elec	3.000	Ea.	512.25	622.50	2008 Qtr 2	9	9	\$ 5,602.50
Maintenance and inspection motor starter, up to 600 V	0.5	1 Elec	3.000	Ea.	114.51	143.55	2008 Qtr 2	90	90	\$ 12,919.50
Replace starter motor starter, up to 600 V	18	1 Elec	3.000	Ea.	1,584.54	1,891.23	2008 Qtr 2	2	2	\$ 3,782.46
Replace lamp emergency lighting fixture	2	1 Elec	4.000	Ea.	216.00	256.56	2008 Qtr 2	22	22	\$ 5,644.32
Replace emergency lighting fixture	20	1 Elec	4.000	Ea.	3,373.00	3,886.40	2008 Qtr 2	2	2	\$ 7,772.80
Replace fluor. ballast for fluorescent lighting fixture, 80 W	10	1 Elec	21.000	Ea.	2,091.18	2,521.68	2008 Qtr 2	4	4	\$ 10,086.72
Replace lamps (2 lamps) fluorescent lighting fixture, 80 W	10	1 Elec	21.000	Ea.	534.24	654.78	2008 Qtr 2	4	4	\$ 2,619.12
Maintenance and repair incandescent lighting fixtures	10	1 Elec	4.000	Ea.	189.12	225.56	2008 Qtr 2	4	4	\$ 902.24
Replace lamp incandescent lighting fixtures	5	1 Elec	4.000	Ea.	27.92	34.08	2008 Qtr 2	9	9	\$ 306.72
Maintenance and repair receptacles and plugs	20	1 Elec	47.000	Ea.	1,461.23	1,820.31	2008 Qtr 2	2	2	\$ 3,640.62
Replace receptacle/plug receptacles and plugs	20	1 Elec	47.000	Ea.	2,479.72	3,027.74	2008 Qtr 2	2	2	\$ 6,055.48
Maintenance and repair wiring devices, switches	10	1 Elec	12.000	Ea.	373.08	464.76	2008 Qtr 2	4	4	\$ 1,859.04
Replace switch wiring devices, switches	15	1 Elec	12.000	Ea.	614.52	748.20	2008 Qtr 2	3	2	\$ 1,496.40
Check and repair manual pull station	10	1 Elec	2.000	Ea.	138.42	169.74	2008 Qtr 2	4	4	\$ 678.96
Replace manual pull station	15	1 Elec	2.000	Ea.	251.48	303.78	2008 Qtr 2	3	2	\$ 607.56
Repair smoke detector	10	1 Elec	6.000	Ea.	229.14	282.00	2008 Qtr 2	4	4	\$ 1,128.00
Check operation smoke detector	1	1 Elec	6.000	Ea.	68.40	85.80	2008 Qtr 2	45	45	\$ 3,861.00
Replace smoke detector	15	1 Elec	6.000	Ea.	1,137.30	1,361.94	2008 Qtr 2	3	2	\$ 2,723.88
					<b>\$205,247.55</b>	<b>\$245,958.10</b>				
									MR Subtotal	\$ 380,085.81
									MR Per Year	\$ 8,446.35
									PM Per Year	\$ 2,874.52
									Subtotal	\$ 11,320.87
									Total Per Unit	\$ 4.00

**CostWorks 2009 Quarter 1 - FAC 1718-Indoor Firing Range and Supporting Facility**

Qty	Assembly Number	Description	Total In-House	Total Incl. O&P	Zip Code Prefix	Type	Release
1.000	B2035 410 1950	Door, overhead, electric, roll up, to 24' high x 25' w	240.16	290.12	200	FMR	2008 Qtr 2
5.000	B2035 225 1950	Door, emergency egress, swinging, annualized	247.55	287.55	200	FMR	2008 Qtr 2
2.000	C1025 110 1950	Fire doors, swinging, annualized	49.78	59.72	200	FMR	2008 Qtr 2
1.000	D2015 100 1950	Urinals, annualized	12.93	16.15	200	FMR	2008 Qtr 2
2.000	D2015 100 2950	Toilet (vacuum breaker type), annualized	25.86	32.30	200	FMR	2008 Qtr 2
2.000	D2015 100 4950	Lavatories, annualized	49.36	60.16	200	FMR	2008 Qtr 2
1.000	D2015 800 1950	Drink fountain, annualized	49.50	59.36	200	FMR	2008 Qtr 2
2.000	D3045 160 1950	VAV Boxes, annualized	122.62	152.00	200	FMR	2008 Qtr 2
3.000	D3045 210 1950	Fan, axial, up to 5,000 CFM, annualized	211.65	258.60	200	FMR	2008 Qtr 2
2.000	D3055 210 1950	Package unit, air cooled, 3 thru 24 ton, annualized	415.42	502.06	200	FMR	2008 Qtr 2
1.000	D4015 100 1950	Backflow prevention device, up to 4", annualized	18.89	23.42	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	D5015 260 1950	Panelboard, 225 A and above, annualized	56.96	67.71	200	FMR	2008 Qtr 2
1.000	D5015 280 1950	Motor control center, over 400 A, annualized	53.91	64.15	200	FMR	2008 Qtr 2
1.000	D5095 250 1950	Light, emergency, hardwired system, annualized	14.25	17.87	200	FMR	2008 Qtr 2
			<b>\$2,375.63</b>	<b>\$2,874.52</b>			

FAC 1718 Sustainment by Year - Terminal Cutoff Applied

