

FAC 7418 Indoor Skating Rink

RUC: \$117.73 SF

Source: Marshall and Swift
Section 16, Page 20
Inflated to current year and adjusted for pricing using SPBI
Inflated to FY-09 using Green Book Table 5-6, MCOM
In V12, Tri-Service and USACE PAX Newsletter values were updated while all other values were inflated only.

SUC: \$2.21 SF

Source: Cost Works model in \$FY-08, 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 requirement follows:

FAC 7418-Indoor Skating Rink
CostWorks 2008 Quarter 2

Design Life= 45
Average S.F= 16,694

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
Replace aluminum siding - 1st floor	35	1 Carp	55.810	C.S.F.	25,347.23	30,425.38	2008 Qtr 2	1	1	\$ 30,425.38
Refinish aluminum siding - 1st floor	20	1 Pord	55.810	C.S.F.	8,434.01	10,399.64	2008 Qtr 2	2	2	\$ 20,799.27
Replace aluminum siding - 2nd floor	35	1 Carp	52.150	C.S.F.	29,409.99	35,434.88	2008 Qtr 2	1	1	\$ 35,434.88
Refinish aluminum siding - 2nd floor	20	1 Pord	52.150	C.S.F.	12,258.90	15,038.50	2008 Qtr 2	2	2	\$ 30,076.99
Repair 2'-0" x 3'-0" aluminum window - 1st floor	20	1 Carp	42.000	Ea.	4,828.32	5,720.40	2008 Qtr 2	2	2	\$ 11,440.80
Replace 2'-0" x 3'-0" aluminum window - 1st floor	50	1 Carp	42.000	Ea.	18,421.20	21,545.58	2008 Qtr 2	0	0	\$ -
Repair 2'-0" x 3'-0" aluminum window - 2nd floor	20	1 Carp	42.000	Ea.	6,455.40	7,745.64	2008 Qtr 2	2	2	\$ 15,491.28
Replace 2'-0" x 3'-0" aluminum window - 2nd floor	50	1 Carp	42.000	Ea.	20,048.70	23,570.82	2008 Qtr 2	0	0	\$ -
Replace glass - 1st floor (1% of glass)	1	1 Carp	2.520	S.F.	22.81	26.76	2008 Qtr 2	45	45	\$ 1,204.31
Replace glass - 2nd floor (1% of glass)	1	1 Carp	2.520	S.F.	220.25	269.77	2008 Qtr 2	45	45	\$ 12,139.47
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
Prepare and refinish 3'-0" x 7'-0" steel ptd. door	4	1 Pord	1.000	Ea.	65.21	80.74	2008 Qtr 2	11	11	\$ 888.14
Replace 3'-0" x 7'-0" steel, w/ wire glass, ptd. door	45	1 Carp	1.000	Ea.	939.96	1,095.60	2008 Qtr 2	1	0	\$ -
Repair steel sliding painted door	14	1 Carp	1.000	Ea.	339.63	405.89	2008 Qtr 2	3	2	\$ 811.78
Replace tempered glass - (3% of glass)	1	1 Carp	0.630	S.F.	12.16	14.46	2008 Qtr 2	45	45	\$ 650.92
Repair steel, painted, door	14	1 Carp	2.000	Ea.	1,164.88	1,372.72	2008 Qtr 2	3	2	\$ 2,745.44
Refinish 3'-0" x 7'-0" steel, painted, door	4	1 Pord	2.000	Ea.	65.82	80.62	2008 Qtr 2	11	11	\$ 886.82
Replace 3'-0" x 7'-0" steel, painted, door	45	1 Carp	2.000	Ea.	1,064.16	1,240.08	2008 Qtr 2	1	0	\$ -
Debris removal by hand & visual inspection,modified bitum/thermoplastc	1	2 Rofc	15.024	M.S.F.	440.80	531.10	2008 Qtr 2	45	45	\$ 23,899.43
Non-destructive moisture inspection,modified bitum/thermoplastic	5	2 Rofc	15.024	M.S.F.	1,363.88	1,649.64	2008 Qtr 2	9	9	\$ 14,846.72
Total roof replacement,modified bituminous / thermoplastic	25	G1	150.240	Sq.	73,142.84	86,464.62	2008 Qtr 2	1	1	\$ 86,464.62
Minor membrane repairs-(2% of roof area),modified bitum/thermoplastic	5	G5	3.005	Sq.	801.70	945.79	2008 Qtr 2	9	9	\$ 8,512.14
Flashing repairs-(2 S.F. per sq. repaired),modified bitum/thermoplastc	5	2 Rofc	6.010	S.F.	19.95	23.50	2008 Qtr 2	9	9	\$ 211.49
Membrane replacement-(25% of roof area),modified bitum/thermoplastic	20	G5	37.560	Sq.	23,916.33	28,354.04	2008 Qtr 2	2	2	\$ 56,708.09
Repair steel painted interior door	14	1 Carp	4.000	Ea.	671.00	792.56	2008 Qtr 2	3	2	\$ 1,585.12
Refinish 3'-0" x 7'-0" steel painted interior door	4	1 Pord	4.000	Ea.	197.60	243.28	2008 Qtr 2	11	11	\$ 2,676.08
Replace 3'-0" x 7'-0" steel painted interior door	60	1 Carp	4.000	Ea.	3,750.16	4,359.84	2008 Qtr 2	0	0	\$ -
Repair solid core wood door interior	11	1 Carp	8.000	Ea.	1,342.00	1,585.12	2008 Qtr 2	4	3	\$ 4,755.36
Refinish 3'-0" x 7'-0" solid core wood door interior	4	1 Pord	8.000	Ea.	337.76	415.84	2008 Qtr 2	11	11	\$ 4,574.24
Replace 3'-0" x 7'-0" solid core wood door interior	40	1 Carp	8.000	Ea.	2,933.60	3,400.96	2008 Qtr 2	1	1	\$ 3,400.96
Refinish drywall	8	1 Pord	1,000.000	S.F.	600.00	740.00	2008 Qtr 2	5	5	\$ 3,700.00
Replace 5/8" drywall	75	2 Carp	1,000.000	S.F.	2,230.00	2,690.00	2008 Qtr 2	0	0	\$ -
Repair 5/8" drywall - (2% of walls)	20	1 Carp	20.000	S.F.	31.80	38.20	2008 Qtr 2	2	2	\$ 76.40
Refinish concrete floor finished	25	2 Cefi	156.590	C.S.F.	54,718.81	65,875.85	2008 Qtr 2	1	1	\$ 65,875.85

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Terminal Cutoff is the removal of a single task occurrence if that task occurs
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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
Replace terrazzo floor	75	2 Mstz	4.510	C.S.F.	6,494.13	7,690.77	2008 Qtr 2	0	0	\$ -
Terrazzo floor repairs - (2% of floors)	15	1 Mstz	9.020	S.F.	135.48	161.82	2008 Qtr 2	3	2	\$ 323.64
Replace vinyl floor	18	1 Tlf	64.890	S.Y.	3,098.50	3,783.09	2008 Qtr 2	2	2	\$ 7,566.17
Replace acoustic tile ceiling, fire-rated	20	1 Carp	41.070	C.S.F.	16,557.37	19,672.53	2008 Qtr 2	2	2	\$ 39,345.06
Refinish sheetrock ceiling	20	1 Pord	8.010	C.S.F.	1,006.62	1,243.87	2008 Qtr 2	2	2	\$ 2,487.75
Replace sheetrock ceiling	40	2 Carp	8.010	C.S.F.	2,870.22	3,504.46	2008 Qtr 2	1	1	\$ 3,504.46
Repair sheetrock ceiling - (2% of ceilings)	20	1 Carp	0.160	C.S.F.	55.88	68.20	2008 Qtr 2	2	2	\$ 136.41
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	8.000	Ea.	192.08	226.64	2008 Qtr 2	6	6	\$ 1,359.84
Replace washer in faucet lavatory, vitreous china	2	1 Plum	8.000	Ea.	78.80	98.32	2008 Qtr 2	22	22	\$ 2,163.04
Replace faucets lavatory, vitreous china	10	1 Plum	8.000	Ea.	987.92	1,192.48	2008 Qtr 2	4	4	\$ 4,769.92
Clean out strainer and P trap lavatory, vitreous china	2	1 Plum	8.000	Ea.	216.32	268.56	2008 Qtr 2	22	22	\$ 5,908.32
Replace lavatory, vitreous china	35	2 Plum	8.000	Ea.	4,241.52	5,085.60	2008 Qtr 2	1	1	\$ 5,085.60
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
Replace flush valve diaphragm tankless water closet	10	1 Plum	8.000	Ea.	565.92	664.48	2008 Qtr 2	4	4	\$ 2,657.92
Rebuild flush valve tankless water closet	20	1 Plum	8.000	Ea.	1,055.84	1,280.08	2008 Qtr 2	2	2	\$ 2,560.16
Unplug clogged line tankless water closet	5	1 Plum	8.000	Ea.	1,346.08	1,681.44	2008 Qtr 2	9	9	\$ 15,132.96
Replace tankless water closet	35	2 Plum	8.000	Ea.	4,384.00	5,186.88	2008 Qtr 2	1	1	\$ 5,186.88
Replace tankless flush valve	25	1 Plum	8.000	Ea.	1,676.00	1,962.96	2008 Qtr 2	1	1	\$ 1,962.96
Replace wax ring gasket tankless water closet	5	1 Plum	8.000	Ea.	876.56	1,097.60	2008 Qtr 2	9	9	\$ 9,878.40
Replace flush valve diaphragm urinal	7	1 Plum	4.000	Ea.	282.96	332.24	2008 Qtr 2	6	6	\$ 1,993.44
Rebuild flush valve urinal	20	1 Plum	4.000	Ea.	527.92	640.04	2008 Qtr 2	2	2	\$ 1,280.08
Unplug line urinal	5	1 Plum	4.000	Ea.	448.56	559.64	2008 Qtr 2	9	9	\$ 5,036.76
Replace wall-hung urinal	35	2 Plum	4.000	Ea.	3,366.52	4,026.28	2008 Qtr 2	1	1	\$ 4,026.28
Inspect / check pump / motor operation, lub. circulation pump, 1/12 HP	0.5	1 Plum	1.000	Ea.	6.19	7.72	2008 Qtr 2	90	90	\$ 694.80
Replace pump / motor assembly circulation pump, 1/12 HP	10	2 Plum	1.000	Ea.	736.33	863.29	2008 Qtr 2	4	4	\$ 3,453.16
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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Description	Frequency	Crew	Qty	Unit	Total In-House	Total Incl. O&P	Release	Occurrences in Design Life	Adjusted Occurrences	Terminal Cutoff
Replace pipe and fittings, copper 3/4"	20	2 Plum	1,500.000	L.F.	26,580.00	32,220.00	2008 Qtr 2	2	2	\$ 64,440.00
Replace pipe and fittings, copper 2"	25	2 Plum	1,000.000	L.F.	40,810.00	49,110.00	2008 Qtr 2	1	1	\$ 49,110.00
Remove old insulation & replace with new, pipe 3/4", wall 1"	15	1 Plum	2,200.000	L.F.	15,422.00	18,788.00	2008 Qtr 2	3	2	\$ 37,576.00
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	1,000.000	L.F.	41,900.00	50,700.00	2008 Qtr 2	1	1	\$ 50,700.00
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	500.000	L.F.	29,600.00	36,595.00	2008 Qtr 2	1	1	\$ 36,595.00
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
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
Replace sprinkler head	20	1 Plum	157.000	Ea.	9,997.76	12,318.22	2008 Qtr 2	2	2	\$ 24,636.44
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	5	1 Plum	1.000	Ea.	598.06	715.83	2008 Qtr 2	9	9	\$ 6,442.47
Replace fire alarm bell, 6"	20	1 Elec	1.000	Ea.	142.28	171.51	2008 Qtr 2	2	2	\$ 343.02
Repair failed breaker, 3 pole circuit breaker	10	1 Elec	1.000	Ea.	342.23	400.69	2008 Qtr 2	4	4	\$ 1,602.76
Maintenance and inspection C.B., 3 pole circuit breaker	0.33	1 Elec	1.000	Ea.	22.91	28.50	2008 Qtr 2	136	136	\$ 3,876.00
Replace C.B. molded case, 600 V, 3 pole circuit breaker	50	1 Elec	1.000	Ea.	3,157.74	3,611.55	2008 Qtr 2	0	0	\$ -
Maintenance and inspection lighting panel, indoor	3	1 Elec	1.000	Ea.	28.50	35.63	2008 Qtr 2	15	15	\$ 534.45
Replace fluor. ballast for fluorescent lighting fixture, 80 W	10	1 Elec	47.000	Ea.	4,680.26	5,643.76	2008 Qtr 2	4	4	\$ 22,575.04
Replace lamps (2 lamps) fluorescent lighting fixture, 80 W	10	1 Elec	47.000	Ea.	1,195.68	1,465.46	2008 Qtr 2	4	4	\$ 5,861.84
Maintenance and repair incandescent lighting fixtures	10	1 Elec	5.000	Ea.	236.40	281.95	2008 Qtr 2	4	4	\$ 1,127.80
Replace lamp incandescent lighting fixtures	5	1 Elec	5.000	Ea.	34.90	42.60	2008 Qtr 2	9	9	\$ 383.40
Replace M.H. ballast mercury halide fixture, 175 W	10	1 Elec	50.000	Ea.	9,550.00	11,194.50	2008 Qtr 2	4	4	\$ 44,778.00
Replace lamp mercury halide fixture, 175 W	5	1 Elec	50.000	Ea.	3,699.50	4,373.50	2008 Qtr 2	9	9	\$ 39,361.50
Maintenance and repair receptacles and plugs	20	1 Elec	100.000	Ea.	3,109.00	3,873.00	2008 Qtr 2	2	2	\$ 7,746.00
Replace receptacle/plug receptacles and plugs	20	1 Elec	100.000	Ea.	5,276.00	6,442.00	2008 Qtr 2	2	2	\$ 12,884.00
Maintenance and repair wiring devices, switches	10	1 Elec	40.000	Ea.	1,243.60	1,549.20	2008 Qtr 2	4	4	\$ 6,196.80
Replace switch wiring devices, switches	15	1 Elec	40.000	Ea.	2,048.40	2,494.00	2008 Qtr 2	3	2	\$ 4,988.00
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	34.000	Ea.	1,298.46	1,598.00	2008 Qtr 2	4	4	\$ 6,392.00

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Check operation smoke detector	1	1 Elec	34.000	Ea.	387.60	486.20	2008 Qtr 2	45	45	\$ 21,879.00
Replace smoke detector	15	1 Elec	34.000	Ea.	6,444.70	7,717.66	2008 Qtr 2	3	2	\$ 15,435.32
Replace stainless steel wall interior finish	75	2 Sswk	133.210	C.S.F.	178,384.18	211,235.09	2008 Qtr 2	0	0	\$ -
Replace fixture fluorescent lighting fixture, 80 W	20	1 Elec	47.000	Ea.	8,369.76	10,110.17	2008 Qtr 2	2	2	\$ 20,220.34
Replace lighting fixture incandescent	20	1 Elec	5.000	Ea.	597.10	714.25	2008 Qtr 2	2	2	\$ 1,428.50
Replace mercury halide fixture, 175 W	20	1 Elec	50.000	Ea.	30,393.00	35,588.50	2008 Qtr 2	2	2	\$ 71,177.00
					\$903,132.43	\$1,076,892.31				
									MR Subtotal	\$ 1,552,784.65
									MR Per Year	\$ 34,506.33
									PM Per Year	\$ 3,559.86
									Subtotal	\$ 38,066.19
									Total Per Unit	\$ 2.28

CostWorks 2009 Quarter 1 - FAC 7418-Indoor Skating Rink

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
11.000	B2035 225 1950	Door, emergency egress, swinging, annualized	544.61	632.61	200		FMR	2008 Qtr 2
4.000	C1025 110 1950	Fire doors, swinging, annualized	99.56	119.44	200		FMR	2008 Qtr 2
4.000	D2015 100 1950	Urinals, annualized	51.72	64.60	200		FMR	2008 Qtr 2
8.000	D2015 100 2950	Toilet (vacuum breaker type), annualized	103.44	129.20	200		FMR	2008 Qtr 2
8.000	D2015 100 4950	Lavatories, annualized	197.44	240.64	200		FMR	2008 Qtr 2
3.000	D2015 800 1950	Drink fountain, annualized	148.50	178.08	200		FMR	2008 Qtr 2
6.000	D3045 160 1950	VAV Boxes, annualized	367.86	456.00	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 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 220 1950	Circuit breaker, high voltage air, annualized	26.98	33.59	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
			\$2,947.85	\$3,559.86				

FAC 7418 Sustainment by Year - Terminal Cutoff Applied

