

**FAC 2133 Marine Maintenance Shop**

RUC: \$158.66 SF

Source: USACE PAX Newsletter dated 20 Mar 09  
CatCode 21885  
Inflated to FY-08 using SPBI; projected to FY-09 using Green Book  
In V12, Tri-Service and USACE PAX Newsletter values were updated while all other values were inflated only.

SUC: \$1.67 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 requirements follows:

CostWorks 2008 - FAC 2133 Marine Maintenance Shop

Design Life = 50  
Area = 12,719.00

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

| Qty     | Assembly Number | Description                                                          | Frequency | Crew   | Unit   | Labor Hours | Total In-House | Total Incl. O&P | Zip Code Prefix | Type | Release | Adjusted Occurrences | lifecost     | Terminal Cutoff |
|---------|-----------------|----------------------------------------------------------------------|-----------|--------|--------|-------------|----------------|-----------------|-----------------|------|---------|----------------------|--------------|-----------------|
| 544.200 | B2013 119 1010  | Repair brick wall - 1st floor                                        | 25        | 1 Bric | S.F.   | 444.61      | 20,010.23      | 24,314.86       | 200             | FMR  | 2008    | 2                    | \$ 48,629.71 | \$ 24,314.86    |
| 388.300 | B2013 109 1010  | Repair 8" concrete block wall - 1st floor                            | 25        | 1 Bric | S.F.   | 166.58      | 7,742.70       | 9,416.28        | 200             | FMR  | 2008    | 2                    | \$ 18,832.55 | \$ 9,416.28     |
| 20.000  | B2013 109 1020  | Replace 8" concrete block wall - 1st floor                           | 60        | 2 Bric | C.S.F. | 348.84      | 19,767.20      | 23,795.60       | 200             | FMR  | 2008    | 0                    | \$ -         | \$ -            |
| 20.000  | B2013 141 2010  | Replace aluminum siding - 2nd floor                                  | 35        | 1 Carp | C.S.F. | 196.04      | 11,206.20      | 13,502.40       | 200             | FMR  | 2008    | 1                    | \$ 13,502.40 | \$ 13,502.40    |
| 20.000  | B2013 141 2020  | Refinish aluminum siding - 2nd floor                                 | 20        | 1 Pord | C.S.F. | 107.80      | 4,673.40       | 5,733.20        | 200             | FMR  | 2008    | 2                    | \$ 11,466.40 | \$ 11,466.40    |
| 3.700   | B2023 111 1010  | Replace glass - 1st floor (1% of glass)                              | 1         | 1 Carp | S.F.   | 0.35        | 33.23          | 39.00           | 200             | FMR  | 2008    | 50                   | \$ 1,949.90  | \$ 1,949.90     |
| 0.000   | B2023 111 1020  | Repair 2'-0" x 3'-0" aluminum window - 1st flr.                      | 20        | 1 Carp | Ea.    | 0.00        | 0.00           | 0.00            | 200             | FMR  | 2008    | 2                    | \$ -         | \$ -            |
| 0.000   | B2023 111 1030  | Replace 2'-0" x 3'-0" aluminum window - 1st floor                    | 50        | 1 Carp | Ea.    | 0.00        | 0.00           | 0.00            | 200             | FMR  | 2008    | 1                    | \$ -         | \$ -            |
| 8.600   | B2023 102 1020  | Repair 3'-9" x 5'-5" steel frame window - 1st flr.                   | 20        | 1 Carp | Ea.    | 17.52       | 2,245.20       | 2,622.66        | 200             | FMR  | 2008    | 2                    | \$ 5,245.31  | \$ 5,245.31     |
| 26.000  | B2023 102 1030  | Refinish 3'-9" x 5'-5" st. frame window - 1st flr.                   | 12        | 1 Pord | Ea.    | 45.21       | 1,739.40       | 2,147.08        | 200             | FMR  | 2008    | 4                    | \$ 8,588.32  | \$ 6,441.24     |
| 13.000  | B2023 102 1040  | Replace 3'-9" x 5'-5" st. frame window - 1st flr.                    | 45        | 1 Carp | Ea.    | 56.95       | 20,025.07      | 23,040.81       | 200             | FMR  | 2008    | 1                    | \$ 23,040.81 | \$ 23,040.81    |
| 13.000  | B2023 102 1050  | Finish new 3'-9" x 5'-5" st. fr. window - 1st flr.                   | 45        | 1 Pord | Ea.    | 19.54       | 755.69         | 931.71          | 200             | FMR  | 2008    | 1                    | \$ 931.71    | \$ 931.71       |
| 17.300  | B2023 102 1010  | Replace glass - 1st floor (1% of glass)                              | 1         | 1 Carp | S.F.   | 1.64        | 155.35         | 182.34          | 200             | FMR  | 2008    | 50                   | \$ 9,117.10  | \$ 9,117.10     |
| 2.000   | B2023 102 2010  | Replace glass - 2nd floor (1% of glass)                              | 1         | 1 Carp | S.F.   | 2.06        | 99.76          | 121.76          | 200             | FMR  | 2008    | 50                   | \$ 6,088.00  | \$ 6,088.00     |
| 1.000   | B2023 102 2020  | Repair 3'-9" x 5'-5" steel frame window - 2nd flr.                   | 20        | 1 Carp | Ea.    | 2.93        | 299.59         | 352.89          | 200             | FMR  | 2008    | 2                    | \$ 705.78    | \$ 705.78       |
| 26.000  | B2023 102 2030  | Refinish 3'-9" x 5'-5" steel frame window - 2nd flr.                 | 12        | 1 Pord | Ea.    | 84.53       | 3,216.20       | 3,963.18        | 200             | FMR  | 2008    | 4                    | \$ 15,852.72 | \$ 11,889.54    |
| 13.000  | B2023 102 2040  | Replace 3'-9" x 5'-5" steel frame window - 2nd flr.                  | 45        | 1 Carp | Ea.    | 68.51       | 20,453.55      | 23,574.98       | 200             | FMR  | 2008    | 1                    | \$ 23,574.98 | \$ 23,574.98    |
| 13.000  | B2023 102 2050  | Finish new 3'-9" x 5'-5" st. fr. window - 2nd flr.                   | 45        | 1 Pord | Ea.    | 39.18       | 1,493.96       | 1,839.76        | 200             | FMR  | 2008    | 1                    | \$ 1,839.76  | \$ 1,839.76     |
| 4.000   | B2033 412 1020  | Refinish 12' x 24' steel double roll-up door                         | 12        | 1 Pord | Ea.    | 30.08       | 1,345.72       | 1,637.92        | 200             | FMR  | 2008    | 4                    | \$ 6,551.68  | \$ 4,913.76     |
| 4.000   | B2033 412 1040  | Replace 12' x 24' steel double roll-up door                          | 35        | 2 Carp | Ea.    | 180.82      | 26,411.20      | 30,657.84       | 200             | FMR  | 2008    | 1                    | \$ 30,657.84 | \$ 30,657.84    |
| 0.200   | B2033 410 1010  | Repair 12' x 12' steel roll-up door                                  | 10        | 1 Carp | Ea.    | 1.13        | 165.31         | 191.50          | 200             | FMR  | 2008    | 5                    | \$ 957.52    | \$ 957.52       |
| 2.000   | B2033 410 1020  | Refinish 12' x 12' steel roll-up door                                | 5         | 1 Pord | Ea.    | 7.50        | 335.58         | 408.54          | 200             | FMR  | 2008    | 10                   | \$ 4,085.40  | \$ 4,085.40     |
| 2.000   | B2033 410 1030  | Replace 12' x 12' steel roll-up door                                 | 35        | 2 Carp | Ea.    | 45.21       | 6,601.94       | 7,643.06        | 200             | FMR  | 2008    | 1                    | \$ 7,643.06  | \$ 7,643.06     |
| 0.300   | B2033 220 1010  | Repair steel, painted, door                                          | 14        | 1 Carp | Ea.    | 1.81        | 173.49         | 204.46          | 200             | FMR  | 2008    | 3                    | \$ 613.37    | \$ 613.37       |
| 3.000   | B2033 220 1020  | Refinish 3'-0" x 7'-0" steel, painted, door                          | 12        | 1 Pord | Ea.    | 2.40        | 98.13          | 120.21          | 200             | FMR  | 2008    | 4                    | \$ 480.84    | \$ 360.63       |
| 3.000   | B2033 220 1030  | Replace 3'-0" x 7'-0" steel, painted, door                           | 45        | 1 Carp | Ea.    | 10.29       | 1,584.21       | 1,846.17        | 200             | FMR  | 2008    | 1                    | \$ 1,846.17  | \$ 1,846.17     |
| 6.400   | B3013 105 0100  | Debris removal and visual inspection built-up roofing                | 1         | 2 Rofc | M.S.F. | 4.51        | 186.18         | 224.38          | 200             | FMR  | 2008    | 50                   | \$ 11,219.20 | \$ 11,219.20    |
| 6.400   | B3013 105 0200  | Non-destructive moisture inspection built-up roofing                 | 5         | 2 Rofc | M.S.F. | 13.98       | 576.19         | 696.90          | 200             | FMR  | 2008    | 10                   | \$ 6,968.96  | \$ 6,968.96     |
| 1.300   | B3013 105 0300  | Minor membrane repairs - (2% of roof area) built-up roofing          | 5         | G5     | Sq.    | 7.76        | 444.81         | 525.49          | 200             | FMR  | 2008    | 10                   | \$ 5,254.86  | \$ 5,254.86     |
| 2.600   | B3013 105 0400  | Flashing repairs - (2 S.F. per sq. repaired) built-up roofing        | 5         | 2 Rofc | S.F.   | 0.16        | 8.66           | 10.32           | 200             | FMR  | 2008    | 10                   | \$ 103.22    | \$ 103.22       |
| 15.900  | B3013 105 0500  | Minor membrane replacement - (25% of roof area) built-up roofing     | 20        | G5     | Sq.    | 162.64      | 9,387.36       | 11,196.94       | 200             | FMR  | 2008    | 2                    | \$ 22,393.88 | \$ 22,393.88    |
| 64.8    | B3013 105 0700  | Total roof replacement built-up roofing                              | 28        | G1     | Sq.    | 585.79      | 36,739.66      | 43,506.07       | 200             | FMR  | 2008    | 1                    | \$ 43,506.07 | \$ 43,506.07    |
| 0.000   | B3013 130 0100  | Debris removal by hand & visual inspection metal steep roofing       | 1         | 2 Rofc | M.S.F. | 0.00        | 0.00           | 0.00            | 200             | FMR  | 2008    | 50                   | \$ -         | \$ -            |
| 0.000   | B3013 130 0300  | Minor finish repairs - (2% of roof area) metal steep roofing         | 5         | 2 Rofc | S.F.   | 0.00        | 0.00           | 0.00            | 200             | FMR  | 2008    | 10                   | \$ -         | \$ -            |
| 0.000   | B3013 130 0400  | Flashing replacement - (2 S.F. per sq. repaired) metal steep roofing | 5         | 2 Rofc | S.F.   | 0.00        | 0.00           | 0.00            | 200             | FMR  | 2008    | 10                   | \$ -         | \$ -            |
| 0.000   | B3013 130 0500  | Minor replacement - (2.5% of roof area) metal steep roofing          | 20        | 2 Rofc | S.F.   | 0.00        | 0.00           | 0.00            | 200             | FMR  | 2008    | 2                    | \$ -         | \$ -            |
| 0.000   | B3013 130 0600  | Total metal panel replacement metal steep roofing                    | 30        | 2 Rofc | Sq.    | 0.00        | 0.00           | 0.00            | 200             | FMR  | 2008    | 1                    | \$ -         | \$ -            |
| 1.400   | C1023 110 1010  | Repair steel painted interior door                                   | 14        | 1 Carp | Ea.    | 2.36        | 231.64         | 273.70          | 200             | FMR  | 2008    | 3                    | \$ 821.10    | \$ 821.10       |
| 14.000  | C1023 110 1020  | Refinish 3'-0" x 7'-0" steel painted interior door                   | 12        | 1 Pord | Ea.    | 17.26       | 687.82         | 846.72          | 200             | FMR  | 2008    | 4                    | \$ 3,386.88  | \$ 2,540.16     |
| 14.000  | C1023 110 1030  | Replace 3'-0" x 7'-0" steel painted interior door                    | 60        | 1 Carp | Ea.    | 83.24       | 12,909.54      | 15,012.20       | 200             | FMR  | 2008    | 0                    | \$ -         | \$ -            |
| 2.000   | C1023 108 1020  | Repair fully glazed wood door                                        | 10        | 1 Carp | Ea.    | 3.38        | 330.92         | 391.00          | 200             | FMR  | 2008    | 5                    | \$ 1,955.00  | \$ 1,955.00     |
| 2.000   | C1023 108 1030  | Refinish 3'-0" x 7'-0" fully glazed wood door                        | 12        | 1 Pord | Ea.    | 3.53        | 137.72         | 169.88          | 200             | FMR  | 2008    | 4                    | \$ 679.52    | \$ 509.64       |
| 2.000   | C1023 108 1040  | Replace 3'-0" x 7'-0" fully glazed wood door                         | 40        | 1 Carp | Ea.    | 12.64       | 1,929.80       | 2,257.60        | 200             | FMR  | 2008    | 1                    | \$ 2,257.60  | \$ 2,257.60     |
| 5.000   | C1023 121 1010  | Repair solid core wood door interior                                 | 11        | 1 Carp | Ea.    | 8.45        | 827.30         | 977.50          | 200             | FMR  | 2008    | 4                    | \$ 3,910.00  | \$ 3,910.00     |
| 5.000   | C1023 121 1020  | Refinish 3'-0" x 7'-0" solid core wood door interior                 | 12        | 1 Pord | Ea.    | 4.84        | 209.65         | 258.20          | 200             | FMR  | 2008    | 4                    | \$ 1,032.80  | \$ 774.60       |
| 5.000   | C1023 121 1030  | Replace 3'-0" x 7'-0" solid core wood door interior                  | 40        | 1 Carp | Ea.    | 9.85        | 1,801.75       | 2,089.30        | 200             | FMR  | 2008    | 1                    | \$ 2,089.30  | \$ 2,089.30     |
| 4.600   | C2013 110 0010  | Repair concrete steps                                                | 15        | 1 Cefi | S.F.   | 0.48        | 76.82          | 89.47           | 200             | FMR  | 2008    | 3                    | \$ 268.41    | \$ 268.41       |
| 46.000  | C2013 110 0020  | Replace concrete steps                                               | 100       | 2 Cefi | S.F.   | 47.84       | 2,263.66       | 2,747.12        | 200             | FMR  | 2008    | 0                    | \$ -         | \$ -            |
| 26.000  | C2013 435 0030  | Refinish metal stair railing interior                                | 12        | 1 Pord | S.F.   | 0.91        | 35.62          | 43.94           | 200             | FMR  | 2008    | 4                    | \$ 175.76    | \$ 131.82       |
| 26.000  | C2013 435 0040  | Replace metal stair railing interior                                 | 45        | 2 Sswk | L.F.   | 7.62        | 920.92         | 1,064.18        | 200             | FMR  | 2008    | 1                    | \$ 1,064.18  | \$ 1,064.18     |
| 84.100  | C3023 112 0020  | Refinish concrete floor finished                                     | 25        | 2 Cefi | C.S.F. | 583.07      | 29,197.00      | 35,152.12       | 200             | FMR  | 2008    | 2                    | \$ 70,304.24 | \$ 35,152.12    |
| 0.400   | C3033 108 0010  | Acoustic tile repairs - (2% of ceilings)                             | 9         | 1 Carp | C.S.F. | 2.04        | 176.33         | 209.96          | 200             | FMR  | 2008    | 5                    | \$ 1,049.82  | \$ 1,049.82     |
| 19.600  | C3033 109 0010  | Replace acoustic tile ceiling, fire-rated                            | 20        | 1 Carp | C.S.F. | 93.69       | 7,801.19       | 9,272.37        | 200             | FMR  | 2008    | 2                    | \$ 18,544.74 | \$ 18,544.74    |
| 1.000   | D2013 810 0010  | Check / minor repairs drinking fountain                              | 1         | 1 Plum | Ea.    | 0.67        | 35.92          | 45.25           | 200             | FMR  | 2008    | 50                   | \$ 2,262.50  | \$ 2,262.50     |
| 1.000   | D2013 810 0020  | Repair internal leaks drinking fountain                              | 4         | 1 Plum | Ea.    | 0.62        | 33.59          | 41.52           | 200             | FMR  | 2008    | 12                   | \$ 498.24    | \$ 498.24       |

CostWorks 2008 - FAC 2133 Marine Maintenance Shop

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Area = 12,719.00

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

| Qty     | Assembly Number | Description                                                       | Frequency | Crew   | Unit   | Labor Hours | Total In-House | Total Incl. O&P | Zip Code Prefix | Type | Release | Adjusted Occurrences | lifecost     | Terminal Cutoff |
|---------|-----------------|-------------------------------------------------------------------|-----------|--------|--------|-------------|----------------|-----------------|-----------------|------|---------|----------------------|--------------|-----------------|
| 1.000   | D2013 810 0030  | Correct water pressure drinking fountain                          | 2         | 1 Plum | Ea.    | 0.57        | 30.79          | 38.72           | 200             | FMR  | 2008    | 25                   | \$ 968.00    | \$ 968.00       |
| 1.000   | D2013 810 0040  | Replace refrigerant drinking fountain                             | 2         | 1 Plum | Ea.    | 0.13        | 15.39          | 18.31           | 200             | FMR  | 2008    | 25                   | \$ 457.75    | \$ 457.75       |
| 1.000   | D2013 810 0050  | Repair drain leak drinking fountain                               | 4         | 1 Plum | Ea.    | 0.24        | 21.91          | 26.15           | 200             | FMR  | 2008    | 12                   | \$ 313.80    | \$ 313.80       |
| 1.000   | D2013 810 0070  | Replace fountain drinking fountain                                | 10        | 2 Plum | Ea.    | 7.80        | 979.96         | 1,161.94        | 200             | FMR  | 2008    | 5                    | \$ 5,809.70  | \$ 5,809.70     |
| 1.000   | D2013 920 0020  | Inspect and clean spray heads, emergency eye wash                 | 3         | 1 Plum | Ea.    | 0.67        | 36.13          | 45.35           | 200             | FMR  | 2008    | 16                   | \$ 725.60    | \$ 725.60       |
| 1.000   | D2013 920 0030  | Replace eye wash station, emergency eye wash                      | 25        | 2 Plum | Ea.    | 7.80        | 553.91         | 671.22          | 200             | FMR  | 2008    | 2                    | \$ 1,342.44  | \$ 671.22       |
| 4.000   | D2013 330 0010  | Replace washer in spud connection lavatory, vitreous china        | 7         | 1 Plum | Ea.    | 0.65        | 93.60          | 110.36          | 200             | FMR  | 2008    | 7                    | \$ 772.52    | \$ 772.52       |
| 4.000   | D2013 330 0020  | Replace washer in faucet lavatory, vitreous china                 | 2         | 1 Plum | Ea.    | 0.67        | 37.72          | 47.08           | 200             | FMR  | 2008    | 25                   | \$ 1,177.00  | \$ 1,177.00     |
| 4.000   | D2013 330 0040  | Replace faucets lavatory, vitreous china                          | 10        | 1 Plum | Ea.    | 5.81        | 477.12         | 575.56          | 200             | FMR  | 2008    | 5                    | \$ 2,877.80  | \$ 2,877.80     |
| 4.000   | D2013 330 0050  | Clean out strainer and P trap lavatory, vitreous china            | 2         | 1 Plum | Ea.    | 1.91        | 103.36         | 128.36          | 200             | FMR  | 2008    | 25                   | \$ 3,209.00  | \$ 3,209.00     |
| 4.000   | D2013 330 0060  | Replace lavatory, vitreous china                                  | 35        | 2 Plum | Ea.    | 22.07       | 2,055.68       | 2,463.00        | 200             | FMR  | 2008    | 1                    | \$ 2,463.00  | \$ 2,463.00     |
| 1.000   | D2013 410 0010  | Replace faucet washer sink, iron enamel                           | 2         | 1 Plum | Ea.    | 0.17        | 9.37           | 11.66           | 200             | FMR  | 2008    | 25                   | \$ 291.50    | \$ 291.50       |
| 1.000   | D2013 410 0020  | Clean trap sink, iron enamel                                      | 3         | 1 Plum | Ea.    | 0.12        | 6.31           | 7.88            | 200             | FMR  | 2008    | 16                   | \$ 126.08    | \$ 126.08       |
| 1.000   | D2013 410 0030  | Replace faucets sink, iron enamel                                 | 10        | 1 Plum | Ea.    | 1.45        | 119.28         | 143.89          | 200             | FMR  | 2008    | 5                    | \$ 719.45    | \$ 719.45       |
| 1.000   | D2013 410 0040  | Unstop sink sink, iron enamel                                     | 2         | 1 Plum | Ea.    | 0.57        | 30.79          | 38.72           | 200             | FMR  | 2008    | 25                   | \$ 968.00    | \$ 968.00       |
| 1.000   | D2013 410 0060  | Replace sink, P.E.C.I. sink, iron enamel                          | 35        | 2 Plum | Ea.    | 5.34        | 536.87         | 638.36          | 200             | FMR  | 2008    | 1                    | \$ 638.36    | \$ 638.36       |
| 2.000   | D2013 750 0010  | Inspect / clean shower head fiberglass                            | 3         | 1 Plum | Ea.    | 1.34        | 72.26          | 90.70           | 200             | FMR  | 2008    | 16                   | \$ 1,451.20  | \$ 1,451.20     |
| 2.000   | D2013 750 0020  | Replace mixing valve barrel shower, fiberglass                    | 2         | 1 Plum | Ea.    | 2.66        | 287.60         | 342.06          | 200             | FMR  | 2008    | 25                   | \$ 8,551.50  | \$ 8,551.50     |
| 2.000   | D2013 750 0030  | Replace mixing valve shower, fiberglass                           | 10        | 1 Plum | Ea.    | 5.27        | 532.72         | 637.62          | 200             | FMR  | 2008    | 5                    | \$ 3,188.10  | \$ 3,188.10     |
| 2.000   | D2013 750 0060  | Replace shower and fittings, fiberglass                           | 20        | 2 Plum | Ea.    | 15.27       | 1,902.78       | 2,242.06        | 200             | FMR  | 2008    | 2                    | \$ 4,484.12  | \$ 4,484.12     |
| 4.000   | D2013 110 0010  | Replace flush valve diaphragm tankless water closet               | 10        | 1 Plum | Ea.    | 1.29        | 276.84         | 324.80          | 200             | FMR  | 2008    | 5                    | \$ 1,624.00  | \$ 1,624.00     |
| 4.000   | D2013 110 0015  | Rebuild flush valve tankless water closet                         | 20        | 1 Plum | Ea.    | 5.94        | 510.48         | 618.44          | 200             | FMR  | 2008    | 2                    | \$ 1,236.88  | \$ 1,236.88     |
| 4.000   | D2013 110 0020  | Unplug clogged line tankless water closet                         | 5         | 1 Plum | Ea.    | 11.86       | 643.40         | 803.68          | 200             | FMR  | 2008    | 10                   | \$ 8,036.80  | \$ 8,036.80     |
| 4.000   | D2013 110 0030  | Replace tankless water closet                                     | 35        | 2 Plum | Ea.    | 13.92       | 2,140.08       | 2,529.96        | 200             | FMR  | 2008    | 1                    | \$ 2,529.96  | \$ 2,529.96     |
| 4.000   | D2013 110 0040  | Replace tankless flush valve                                      | 25        | 1 Plum | Ea.    | 4.54        | 818.68         | 958.24          | 200             | FMR  | 2008    | 2                    | \$ 1,916.48  | \$ 958.24       |
| 4.000   | D2013 110 0050  | Replace wax ring gasket tankless water closet                     | 5         | 1 Plum | Ea.    | 7.64        | 419.16         | 524.84          | 200             | FMR  | 2008    | 10                   | \$ 5,248.40  | \$ 5,248.40     |
| 1.000   | D2013 210 0010  | Replace flush valve diaphragm urinal                              | 7         | 1 Plum | Ea.    | 0.32        | 69.21          | 81.20           | 200             | FMR  | 2008    | 7                    | \$ 568.40    | \$ 568.40       |
| 1.000   | D2013 210 0015  | Rebuild flush valve urinal                                        | 20        | 1 Plum | Ea.    | 1.48        | 127.62         | 154.61          | 200             | FMR  | 2008    | 2                    | \$ 309.22    | \$ 309.22       |
| 1.000   | D2013 210 0020  | Unplug line urinal                                                | 5         | 1 Plum | Ea.    | 1.98        | 107.20         | 133.75          | 200             | FMR  | 2008    | 10                   | \$ 1,337.50  | \$ 1,337.50     |
| 1.000   | D2013 210 0030  | Replace wall-hung urinal                                          | 35        | 2 Plum | Ea.    | 8.64        | 816.06         | 975.29          | 200             | FMR  | 2008    | 1                    | \$ 975.29    | \$ 975.29       |
| 16.000  | D2023 110 0060  | Replace pipe and fittings, copper 2"                              | 25        | 2 Plum | L.F.   | 6.24        | 633.28         | 761.44          | 200             | FMR  | 2008    | 2                    | \$ 1,522.88  | \$ 761.44       |
| 32.000  | D2023 110 0020  | Replace pipe and fittings, copper 3/4"                            | 20        | 2 Plum | L.F.   | 6.78        | 547.84         | 663.36          | 200             | FMR  | 2008    | 2                    | \$ 1,326.72  | \$ 1,326.72     |
| 2.000   | D3043 550 1110  | Repair damaged pipe insulation, fiberglass 3/4"                   | 5         | Q14    | Ea.    | 0.54        | 30.18          | 36.82           | 200             | FMR  | 2008    | 10                   | \$ 368.20    | \$ 368.20       |
| 2.000   | D3043 550 1150  | Repair damaged pipe insulation, fiberglass 2"                     | 5         | Q14    | Ea.    | 0.62        | 35.48          | 43.28           | 200             | FMR  | 2008    | 10                   | \$ 432.80    | \$ 432.80       |
| 0.010   | D3043 550 1230  | Replace pipe insulation, fiberglass 3/4"                          | 5         | Q14    | M.L.F. | 1.04        | 60.45          | 73.61           | 200             | FMR  | 2008    | 10                   | \$ 736.11    | \$ 736.11       |
| 0.010   | D3043 550 1270  | Replace pipe insulation, fiberglass 2"                            | 5         | Q14    | M.L.F. | 1.20        | 71.44          | 87.20           | 200             | FMR  | 2008    | 10                   | \$ 871.99    | \$ 871.99       |
| 1.000   | D2023 214 0010  | Minor repairs, adjustments water heater, gas / oil, 1150 GPH      | 2         | 2 Plum | Ea.    | 1.33        | 72.31          | 90.03           | 200             | FMR  | 2008    | 25                   | \$ 2,250.75  | \$ 2,250.75     |
| 1.000   | D2023 214 0020  | Clean & service water heater, gas / oil, 1150 GPH                 | 2         | 2 Plum | Ea.    | 8.00        | 433.85         | 541.14          | 200             | FMR  | 2008    | 25                   | \$ 13,528.50 | \$ 13,528.50    |
| 1.000   | D2023 214 0030  | Replace water heater, gas / oil, 1150 GPH                         | 20        | 2 Plum | Ea.    | 77.96       | 25,620.87      | 29,604.45       | 200             | FMR  | 2008    | 2                    | \$ 59,208.90 | \$ 59,208.90    |
| 1.000   | D2033 130 0010  | Unclog floor drain, PVC                                           | 20        | 1 Plum | Ea.    | 0.65        | 35.45          | 43.85           | 200             | FMR  | 2008    | 2                    | \$ 87.70     | \$ 87.70        |
| 2.000   | D2033 130 0040  | Repair joint pipe and fittings, PVC                               | 10        | 1 Plum | Ea.    | 4.23        | 222.10         | 276.08          | 200             | FMR  | 2008    | 5                    | \$ 1,380.40  | \$ 1,380.40     |
| 300.000 | D2033 130 0100  | Replace pipe, 4" pipe and fittings, PVC                           | 30        | 2 Plum | L.F.   | 293.10      | 17,043.00      | 21,069.00       | 200             | FMR  | 2008    | 1                    | \$ 21,069.00 | \$ 21,069.00    |
| 2.000   | D2043 210 1010  | General maintenance & repair drain: roof, scupper, area           | 1         | 1 Plum | Ea.    | 1.01        | 54.20          | 68.20           | 200             | FMR  | 2008    | 50                   | \$ 3,410.00  | \$ 3,410.00     |
| 2.000   | D2043 210 1020  | Replace drain: roof, scupper, area                                | 40        | 1 Plum | Ea.    | 4.80        | 778.30         | 914.02          | 200             | FMR  | 2008    | 1                    | \$ 914.02    | \$ 914.02       |
| 1.000   | D2043 310 1020  | Insp./chk. pump/mtr. oper., lub., chk. align. rainwater sump pump | 1         | 1 Plum | Ea.    | 0.16        | 8.81           | 10.99           | 200             | FMR  | 2008    | 50                   | \$ 549.50    | \$ 549.50       |
| 1.000   | D2043 310 1030  | Replace rainwater sump pump / motor assembly                      | 20        | 2 Plum | Ea.    | 3.38        | 417.98         | 498.57          | 200             | FMR  | 2008    | 2                    | \$ 997.14    | \$ 997.14       |
| 1.000   | D2093 946 3010  | Check and adjust 10 H.P. compressor                               | 1         | 1 Plum | Ea.    | 1.15        | 62.38          | 77.93           | 200             | FMR  | 2008    | 50                   | \$ 3,896.50  | \$ 3,896.50     |
| 1.000   | D2093 946 3030  | Replace 10 H.P. compressor                                        | 25        | 2 Plum | Ea.    | 51.97       | 8,216.86       | 9,608.76        | 200             | FMR  | 2008    | 2                    | \$ 19,217.52 | \$ 9,608.76     |
| 1.000   | D2093 946 5030  | Check operation compressed air systems                            | 1         | 1 Stpi | Ea.    | 0.32        | 17.49          | 21.93           | 200             | FMR  | 2008    | 50                   | \$ 1,096.50  | \$ 1,096.50     |
| 2.000   | D2093 930 1010  | Resolder joint pipe & fittings, oxygen                            | 12        | 1 Plum | Ea.    | 1.73        | 99.88          | 124.56          | 200             | FMR  | 2008    | 4                    | \$ 498.24    | \$ 373.68       |
| 100.000 | D2093 930 1030  | Replace pipe and fittings, oxygen                                 | 25        | 2 Plum | L.F.   | 21.00       | 1,702.00       | 2,064.00        | 200             | FMR  | 2008    | 2                    | \$ 4,128.00  | \$ 2,064.00     |
| 5.000   | D3043 220 2050  | Replace roof mounted exhaust fan, 8500 CFM exhaust fan            | 20        | Q20    | Ea.    | 64.99       | 12,816.45      | 14,917.65       | 200             | FMR  | 2008    | 2                    | \$ 29,835.30 | \$ 29,835.30    |
| 2.000   | D3053 280 1003  | Repair single zone rt. unit, 5 ton                                | 10        | 2 Stpi | Ea.    | 36.54       | 3,743.52       | 4,486.70        | 200             | FMR  | 2008    | 5                    | \$ 22,433.50 | \$ 22,433.50    |
| 1.000   | D3053 280 1004  | Replace single zone rt. unit, 5 ton                               | 15        | Q5     | Ea.    | 56.57       | 7,088.25       | 8,360.17        | 200             | FMR  | 2008    | 3                    | \$ 25,080.51 | \$ 25,080.51    |
| 3.000   | D3043 120 1010  | Repair fan coil unit, 1 ton                                       | 10        | 1 Stpi | Ea.    | 9.45        | 1,076.43       | 1,284.72        | 200             | FMR  | 2008    | 5                    | \$ 6,423.60  | \$ 6,423.60     |

CostWorks 2008 - FAC 2133 Marine Maintenance Shop

Design Life = 50  
Area = 12,719.00

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

| Qty    | Assembly Number | Description                                                            | Frequency | Crew   | Unit | Labor Hours | Total In-House | Total Incl. O&P | Zip Code Prefix | Type | Release | Adjusted Occurrences | lifecost      | Terminal Cutoff |
|--------|-----------------|------------------------------------------------------------------------|-----------|--------|------|-------------|----------------|-----------------|-----------------|------|---------|----------------------|---------------|-----------------|
| 3.000  | D3043 120 1030  | Replace fan coil unit, 1 ton                                           | 15        | Q5     | Ea.  | 15.60       | 3,225.90       | 3,801.99        | 200             | FMR  | 2008    | 3                    | \$ 11,405.97  | \$ 11,405.97    |
| 1.000  | D5033 760 0010  | Minor repairs to fire alarm control panel                              | 5         | 1 Elec | Ea.  | 1.29        | 103.84         | 126.02          | 200             | FMR  | 2008    | 10                   | \$ 1,260.20   | \$ 1,260.20     |
| 1.000  | D5033 760 0020  | Maintenance and inspection fire alarm control panel                    | 0.5       | 1 Elec | Ea.  | 0.53        | 29.10          | 36.38           | 200             | FMR  | 2008    | 100                  | \$ 3,638.00   | \$ 3,638.00     |
| 1.000  | D5033 760 0030  | Replace fire alarm control panel                                       | 15        | 1 Elec | Ea.  | 18.17       | 2,542.66       | 3,018.54        | 200             | FMR  | 2008    | 3                    | \$ 9,055.62   | \$ 9,055.62     |
| 1.000  | D4013 310 1020  | Inspect sprinkler system                                               | 1         | 1 Plum | Ea.  | 0.47        | 25.38          | 31.44           | 200             | FMR  | 2008    | 50                   | \$ 1,572.00   | \$ 1,572.00     |
| 27.000 | D4013 310 1030  | Replace sprinkler head                                                 | 20        | 1 Plum | Ea.  | 26.33       | 1,650.51       | 2,033.10        | 200             | FMR  | 2008    | 2                    | \$ 4,066.20   | \$ 4,066.20     |
| 2.000  | D5033 770 0010  | Replace fire alarm bell, 6"                                            | 20        | 1 Elec | Ea.  | 2.92        | 274.88         | 331.10          | 200             | FMR  | 2008    | 2                    | \$ 662.20     | \$ 662.20       |
| 3.000  | D5013 280 0020  | Maintenance and inspection lighting panel, indoor                      | 3         | 1 Elec | Ea.  | 1.50        | 81.48          | 101.85          | 200             | FMR  | 2008    | 16                   | \$ 1,629.60   | \$ 1,629.60     |
| 1.000  | D5023 132 0010  | Maintenance and repair safety switch, 3 pole safety switch, heavy duty | 8         | 1 Elec | Ea.  | 0.50        | 27.16          | 33.95           | 200             | FMR  | 2008    | 6                    | \$ 203.70     | \$ 203.70       |
| 1.000  | D5023 132 0020  | Maintenance and inspection safety switch, 3 pole, heavy duty           | 1         | 1 Elec | Ea.  | 0.50        | 27.16          | 33.95           | 200             | FMR  | 2008    | 50                   | \$ 1,697.50   | \$ 1,697.50     |
| 1.000  | D5023 132 0030  | Replace safety switch, heavy duty                                      | 25        | 2 Elec | Ea.  | 3.77        | 564.63         | 661.71          | 200             | FMR  | 2008    | 2                    | \$ 1,323.42   | \$ 661.71       |
| 6.000  | D5013 264 0010  | Maintenance and repair motor starter, up to 600 V                      | 5         | 1 Elec | Ea.  | 12.60       | 985.92         | 1,197.30        | 200             | FMR  | 2008    | 10                   | \$ 11,973.00  | \$ 11,973.00    |
| 6.000  | D5013 264 0020  | Maintenance and inspection motor starter, up to 600 V                  | 0.5       | 1 Elec | Ea.  | 4.00        | 218.28         | 273.54          | 200             | FMR  | 2008    | 100                  | \$ 27,354.00  | \$ 27,354.00    |
| 6.000  | D5013 264 0030  | Replace starter motor starter, up to 600 V                             | 18        | 1 Elec | Ea.  | 27.28       | 3,071.04       | 3,662.52        | 200             | FMR  | 2008    | 2                    | \$ 7,325.04   | \$ 7,325.04     |
| 40.000 | D5023 260 0010  | Replace fluor. ballast for fluorescent lighting fixture, 80 W          | 10        | 1 Elec | Ea.  | 40.72       | 3,848.00       | 4,636.40        | 200             | FMR  | 2008    | 5                    | \$ 23,182.00  | \$ 23,182.00    |
| 40.000 | D5023 260 0020  | Replace lamps (2 lamps) fluorescent lighting fixture, 80 W             | 10        | 1 Elec | Ea.  | 12.40       | 980.00         | 1,200.00        | 200             | FMR  | 2008    | 5                    | \$ 6,000.00   | \$ 6,000.00     |
| 10.000 | D5023 260 0030  | Replace fixture fluorescent lighting fixture, 80 W                     | 20        | 1 Elec | Ea.  | 20.13       | 1,716.80       | 2,072.30        | 200             | FMR  | 2008    | 2                    | \$ 4,144.60   | \$ 4,144.60     |
| 23.000 | D5023 270 2020  | Replace lamp mercury halide fixture, 175 W                             | 5         | 1 Elec | Ea.  | 10.67       | 1,656.23       | 1,956.38        | 200             | FMR  | 2008    | 10                   | \$ 19,563.80  | \$ 19,563.80    |
| 65.000 | D5023 150 0010  | Maintenance and repair receptacles and plugs                           | 20        | 1 Elec | Ea.  | 32.50       | 1,930.50       | 2,404.35        | 200             | FMR  | 2008    | 2                    | \$ 4,808.70   | \$ 4,808.70     |
| 65.000 | D5023 150 0020  | Replace receptacle/plug receptacles and plugs                          | 20        | 1 Elec | Ea.  | 47.58       | 3,290.30       | 4,015.70        | 200             | FMR  | 2008    | 2                    | \$ 8,031.40   | \$ 8,031.40     |
| 25.000 | D5023 220 0010  | Maintenance and repair wiring devices, switches                        | 10        | 1 Elec | Ea.  | 12.50       | 742.50         | 924.75          | 200             | FMR  | 2008    | 5                    | \$ 4,623.75   | \$ 4,623.75     |
| 25.000 | D5023 220 0020  | Replace switch wiring devices, switches                                | 15        | 1 Elec | Ea.  | 18.30       | 1,227.00       | 1,493.50        | 200             | FMR  | 2008    | 3                    | \$ 4,480.50   | \$ 4,480.50     |
| 5.000  | D5033 720 0010  | Check and repair manual pull station                                   | 10        | 1 Elec | Ea.  | 4.34        | 332.85         | 407.95          | 200             | FMR  | 2008    | 5                    | \$ 2,039.75   | \$ 2,039.75     |
| 5.000  | D5033 720 0020  | Replace manual pull station                                            | 15        | 1 Elec | Ea.  | 7.31        | 605.75         | 731.20          | 200             | FMR  | 2008    | 3                    | \$ 2,193.60   | \$ 2,193.60     |
|        |                 |                                                                        |           |        |      |             | \$381,461.30   | \$452,848.52    |                 |      |         |                      |               |                 |
|        |                 |                                                                        |           |        |      |             |                |                 |                 |      |         | M&R Subtotal         | \$ 889,764.28 | \$ 796,843.97   |
|        |                 |                                                                        |           |        |      |             |                |                 |                 |      |         | M&R Per Year         | \$ 17,795.29  | \$ 15,936.88    |
|        |                 |                                                                        |           |        |      |             |                |                 |                 |      |         | PM                   | \$6,061.09    | \$6,061.09      |
|        |                 |                                                                        |           |        |      |             |                |                 |                 |      |         | Total Per SF         | \$ 1.88       | \$ 1.73         |

**CostWorks 2008 - FAC 2133 Marine Maintenance Shop**

| Qty    | Assembly Number | Description                                                   | Labor Hours | Total In-House    | Total Incl. O&P   | Zip Code Prefix | Type | Release |
|--------|-----------------|---------------------------------------------------------------|-------------|-------------------|-------------------|-----------------|------|---------|
| 14.000 | D3045 160 1950  | VAV Boxes, annualized                                         | 13.08       | 823.90            | 1,020.88          | 200             | FMR  | 2008    |
| 1.000  | D3065 100 1950  | Controls, central system, electro/pneumatic, annualized       | 1.92        | 146.53            | 177.71            | 200             | FMR  | 2008    |
| 2.000  | E1095 122 2950  | Crane, electric bridge, 5 to 15 ton, annualized               | 15.93       | 746.64            | 921.12            | 200             | FMR  | 2008    |
| 3.000  | B2035 400 1950  | Door, overhead, manual, up to 24' high x 25' wide, annualized | 6.59        | 401.61            | 484.50            | 200             | FMR  | 2008    |
| 3.000  | B2035 225 1950  | Door, emergency egress, swinging, annualized                  | 0.78        | 147.39            | 171.21            | 200             | FMR  | 2008    |
| 21.000 | C1025 110 1950  | Fire doors, swinging, annualized                              | 8.23        | 517.86            | 621.39            | 200             | FMR  | 2008    |
| 1.000  | D2015 100 1950  | Urinals, annualized                                           | 0.23        | 12.36             | 15.44             | 200             | FMR  | 2008    |
| 4.000  | D2015 100 2950  | Toilet (vacuum breaker type), annualized                      | 0.91        | 49.44             | 61.76             | 200             | FMR  | 2008    |
| 2.000  | D2015 100 5950  | Showers, annualized                                           | 0.46        | 38.46             | 46.08             | 200             | FMR  | 2008    |
| 4.000  | D2015 100 4950  | Lavatories, annualized                                        | 1.39        | 95.20             | 116.00            | 200             | FMR  | 2008    |
| 1.000  | D2015 800 1950  | Drink fountain, annualized                                    | 0.62        | 47.86             | 57.36             | 200             | FMR  | 2008    |
| 1.000  | D2025 260 1950  | Water heater, gas, to 120 gal., annualized                    | 1.72        | 151.36            | 182.69            | 200             | FMR  | 2008    |
| 1.000  | D3095 110 1950  | Air compressor, gas engine powered, annualized                | 16.57       | 1,135.69          | 1,417.79          | 200             | FMR  | 2008    |
| 3.000  | D3045 120 1950  | Fan coil unit, annualized                                     | 10.01       | 620.91            | 767.16            | 200             | FMR  | 2008    |
|        |                 |                                                               |             | <b>\$4,935.21</b> | <b>\$6,061.09</b> |                 |      |         |

# FAC 2133 Sustainment by Year - Terminal Cutoff Applied

