FEDERAL FACILITY ASSESSMENT GUIDE

**Domestic Hot Water Assessment Guidance**

**DHW Assessment Guidance**

1. Identify DHW tanks and write down the following:
   * Fuel Source
   * Tank size (gallons)
   * Heat Input (Btu/hr or kW)
   * Efficiency (%)
   * Estimated usage (gallons/day)
2. Determine size, capacity, and fuel source of proposed on demand / heat pump DHW tank
3. Natural gas DHW water heaters typically cost less to operate than electric
   * Depends on electric and natural gas rates
4. Typical equipment costs are as follows:
   * On demand water heaters = $120 - $1,300
   * Heat Pump water heaters = $800 - $2,000
5. Federal gas water heater performance requirement
   * Energy factor of 0.67 or higher
   * For a 50 gallon tank – annual energy use of 242 therms / year or less
   * Tank-less energy factor of 0.82 or higher
6. Federal electric water heater performance requirement
   * Energy factor of 0.93 or higher
   * For =>60 gallon tank – annual energy use of 4,721 kWh/yr or less

|  |  |
| --- | --- |
| Building Type | Estimated Hot Water Use  Gallon/Person/Day |
| House | 15.8 |
| Hotel/Motel | 20.0 |
| Hospital | 52.0 |
| Office | 1.1 |
| Restaurant | 2.4 |
| School | 0.5 |
| School with Showers | 1.9 |

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**Domestic Hot Water Checklist**

**Replace Existing DHW System with On-Demand Heater**

Installing tank-less natural gas or electric water heaters typically results in energy savings on the order of 8% to 25%. Tank-less water heaters eliminate standby energy losses associated with hot water storage tanks.

**Lower the DHW Temperature Set Point**

Reducing DHW set-point temperature will reduce stand by energy losses and the total amount of energy supplied to the DHW system. A lower temperature limit should be set at 120 °F to ensure that all water born infections are killed.

**Replace Existing DHW System with Heat Pump Water Heaters**

Heat pump water heaters will reduce energy use by 40%-60% compared to a standard electric resistance heater, with payback periods typically less than three years. Heat pump water heaters need to be installed in applications where the cold air discharged from the evaporator can be exhausted from the space or used to cool the facility (well suited for hot climates)

**Install Additional Tank Insulation**

Blanket insulation can sometimes be applied to existing DHW tanks, reducing stand by energy losses.

**Insulate Hot Water Pipes**

Pipe insulation reduces heat loss through distribution pipes and increases overall system efficiency. Any heated pipe with exterior temperatures over 120 °F should be insulated. Energy savings can be calculated with 3E Plus [www.pipeinsulation.org](http://www.pipeinsulation.org/)