

---

## White Paper #4

# Typical Equipment Life Spans

**Nothing lasts forever.** When it comes to buildings and equipment, the best approach is to plan for it....stay ahead of the wave. Here are some typical life spans of energy consuming equipment to help you plan. Setting aside a few percent per year of the building cost is usually sufficient to sustain the building systems.

This information may also be helpful if you plan to purchase an existing building and don't want surprises.

Project justification for efficiency measures should focus on the cost of upgrading from basic equipment to high efficiency equipment. Asking energy savings to pay for work needed anyway just makes payback times look longer than they really are.

**Stay ahead of the wave**



Equipment	Normal Expected Replacement Life
Hot Water Boiler	<b>25 years</b>
Steam Boiler	<b>30 years</b>
Steam Traps	<b>7 years</b>
Conventional Direct Gas-Fired Tank-Type Domestic Water Heater	<b>8-12 years</b>
Centrifugal Chillers	<b>23 years</b>
Reciprocating Chiller	<b>10-14 years</b>
Screw Chiller	<b>20 years</b>
Galvanized Cooling Towers	<b>20 years</b>
Rooftop A/C Unit	<b>15 years</b>
Split System A/C	<b>15 years</b>
Fan Coil	<b>20 years</b>
VAV Boxes	<b>20 years</b>
Hot Water Unit Heaters	<b>20 years</b>
PTAC (Packaged Terminal Air Conditioner)	<b>10-15 years</b>
Computer Room Air Conditioner	<b>10-15 years</b>
Gas Furnace	<b>18 years</b>
Gas Fired Radiant Tube Heater	<b>10 years</b>
Water Source or Ground Source Heat Pump (closed loop)	<b>19 years</b>
Ground Source Heat Pump Bore Field (pipe life is 50 years. System life is limited by the grout and the heat transfer interface to the earth)	<b>30 years</b>
Indoor Air Handler	<b>20-25 years</b>
Air-Side Economizers	<b>10 years</b>
Electric Baseboard Heat	<b>10-15 years</b>
Hot Water Baseboard Heat	<b>25 years</b>
Base Mounted Pump	<b>20 years</b>
Utility Fans	<b>20 years</b>
Ductwork	<b>30 years</b>
Air Curtain	<b>10 years</b>
Kitchen Exhaust Hood Make-Up Air Tempering Unit	<b>10 years</b>
Shell and Tube Heat Exchanger	<b>24 years</b>
Heat Pipe Heat Recovery	<b>14 years</b>

Equipment	Normal Expected Replacement Life
Rotary Wheel Heat Recovery	<b>11 years</b>
Thermal Energy Storage System (TES) - Ice	<b>19 years</b>
Thermal Energy Storage System (TES) - Water	<b>20 years</b>
Direct Evaporative Cooling	<b>7-10 years</b>
Evaporative Pre-Cooling	<b>8-12 years</b>
Indirect-Direct Evaporative Cooling	<b>15-20 years</b>
Evaporative Cooling Cellulose Media	<b>5 years</b>
Evaporative Cooling Pads	<b>2 years</b>
Motors	<b>17 years</b>
VFD	<b>15 years</b>
Motor Starter	<b>17 years</b>
Lighting Fixture	<b>20 years</b>
Motion Sensor	<b>10 years</b>
Double Pane Windows	<b>12-20 years</b>
Solar Shade Film	<b>7-10 years</b>
Control Valves	<b>20 years</b>
Dampers	<b>20 years</b>
Valve/Damper Actuator - pneumatic	<b>20 years</b>
Valve/Damper Actuator – hydraulic	<b>15 years</b>
Valve/Damper Actuator – mini hydraulic (for terminal units)	<b>5 years</b>
Valve/Damper Actuator – electric – oil filled	<b>10-15 years</b>
Valve/Damper Actuator – electric – open air	<b>5-7 years</b>
Valve/Damper Actuator – self contained (system powered)	<b>10 years</b>
Valve/Damper Actuator – Residential style “clock motor” terminal valves	<b>5 years</b>
“Active” control sensors and transmitters (powered-type)	<b>5 years</b>
Pneumatic Controls – General	<b>20 years</b>
Analog Electronic Controls - General	<b>7-10 years</b>
DDC Controls (before made obsolete by technology advances)	<b>7-10 years</b>