

Savannah River

Establishing and Documenting Design Life

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Savannah River Site
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Agenda

- CAS Standard System Design Life Tables – Definition
- Examples of Design Life Table Data
- What Design Life Table Source Does Your Site Use?

Standard Design Life for System Assembly/Component

- Reference - DOE CAS Manual
 - Defined as the projected service design life measured from the date of installation to the date of replacement. These time periods are based on manufacturers' product specifications and tests that determine the average "outside" time parameter a given WBS System Assembly/Component will last.

Example Standard Design Life – DOE CAS Manual Volume 9: 0.09 Electrical

DOE CAS Manual

Volume 9: 0.09 Electrical

STANDARD SYSTEM DESIGN LIFE TABLES

ITEM DESCRIPTION	Replacement Life, Years	Percent Replaced
0.09.02 Lighting		
Fluorescent interior lighting fixtures, 2 each, 40W tubes (20,000 burning hours)	20	100
Incandescent interior lighting fixtures, 1 each, 200W (1000 burning hours)	20	100
High-intensity mercury vapor lighting fixtures, 250W (24,000 burning hours)	20	100
High-intensity metal-halide (multivapor) lighting fixtures, 250W (10,000 burning hours)	20	N/A
High-pressure sodium vapor lighting fixtures, 250W (20,000 burning hours)	20	100
Low-pressure sodium vapor lighting fixtures, 100W (18,000 burning hours)	20	100
0.09.03 Special Systems		
0.09.03.05 Emergency Power		
Generators, steam-turbine-driven, 1000kW (600 psi @ 750°F with 4" mercury back pressure)	25	100
Generators, gas-turbine driven, 1000kW	25	100
Generators, reciprocating diesel, 100kW	25	100



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ASHRAE Survey-based Service Lives

The American Society of Heating, Refrigerating and Air-Conditioning Engineers advances technology to serve humanity and promote a sustainable world.

Table 3 Estimates of Service Lives of Various System Components^a

Equipment Item	Median Years	Equipment Item	Median Years	Equipment Item	Median Years
Air conditioners		Air terminals		Air-cooled condensers	20
Window unit	10	Diffusers, grilles, and registers	27	Evaporative condensers	20
Residential single or split package	15	Induction and fan-coil units	20	Insulation	
Commercial through-the-wall	15	VAV and double-duct boxes	20	Molded	20
Water-cooled package	15	Air washers	17	Blanket	24
Heat pumps		Ductwork	30	Pumps	
Residential air-to-air	15 ^b	Dampers	20	Base-mounted	20
Commercial air-to-air	15	Fans		Pipe-mounted	10
Commercial water-to-air	19	Centrifugal	25	Sump and well	10
Roof-top air conditioners		Axial	20	Condensate	15
Single-zone	15	Propeller	15	Reciprocating engines	20
Multizone	15	Ventilating roof-mounted	20	Steam turbines	30
Boilers, hot water (steam)		Coils		Electric motors	18
Steel water-tube	24 (30)	DX, water, or steam	20	Motor starters	17
Steel fire-tube	25 (25)	Electric	15	Electric transformers	30
Cast iron	35 (30)	Heat exchangers		Controls	
Electric	15	Shell-and-tube	24	Pneumatic	20
Burners	21	Reciprocating compressors	20	Electric	16
Furnaces		Package chillers		Electronic	15
Gas- or oil-fired	18	Reciprocating	20	Valve actuators	
Unit heaters		Centrifugal	23	Hydraulic	15
Gas or electric	13	Absorption	23	Pneumatic	20
Hot water or steam	20	Cooling towers		Self-contained	10
Radiant heaters		Galvanized metal	20		
Electric	10	Wood	20		
Hot water or steam	25	Ceramic	34		

Note: 1. ASHRAE makes no claims as to the statistical validity of any of the data presented in this table.

2. Table lists base values that should be adjusted for local conditions (see the section on Service Life).

Source: Data obtained from a survey of the United States by ASHRAE Technical Committee TC 1.8 (Akalin 1978).

^a See Lovvorn and Hiller (1985) and Easton Consultants (1986) for further information.

^b Data updated by TC 1.8 in 1986.



Your Site Design Life Table Source

- What Design Life Table Source Does Your Site Use?
 - DOE CAS Design Table
 - Whitestone
 - Anything else?

Questions / Discussion

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