

The Mitigation of Financial Failure

The Meaning of "Life" reports on the development of a knowledge-based expert system, which uses degradation curves and actuarial tables to manage and sustain facilities in the United States.

This report details the results of a 20- year research and development effort that produced this expert system. We have designed the system to manage existing facilities and provide renewal strategies for the systems and components that make up a facility. This system is currently being used in the United States to manage components of a 50 billion-dollar inventory of building assets.

The care of the built environment has historically been under-funded, in a large part due to the vagueness of the term "life." How long will my roof last? What is its life expectancy? How long will a boiler last? What is its life expectancy?

The answers to these questions have previously been subjective. That subjectivity has added to the innate tendency of owners to fail to plan for the renewal of the building systems and components. The actuarial tables and the degradation curves contained in this expert system allow for the redefining of the term service life to an objective, measurable and an auditable statement. "That period of time, during which, it is more cost effective to maintain an asset than it is to fund the annualized replacement cost is called service life--or period of serviceability."

Owners, architects, engineers, and builders need to be aware of the various depletion rates produced because of system and component selection. They must manage these depletion rates if unnecessary costs in facility operations and maintenance and untimely capital expenditures are to be avoided.