

Incorporating Lifecycle Thinking in Green Building Design

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Green buildings, also known as sustainable buildings, include design features which may increase capital costs but reduce operating costs and environmental costs in the long term. Building project clients, who in most cases are strongly focused on limiting first costs, tend to need education about the use of lifecycle thinking for financial and environmental costs. Providing this education, often under the pressure of design meetings for specific projects, becomes a responsibility of engineers and cost consultants.

Based on experience with buildings designed and constructed in North America, the proposed presentation will describe methods which have proven successfully persuasive for integrating lifecycle thinking in actual building designs. Examples of green design processes involving lifecycle thinking include building energy modeling at an early project stage, choice of air delivery system, design of high-performance building façades, and decisions whether to rebuild or replace building components in major renovations.

The presenters, representing an engineering firm and a cost consultant, have seen repeatedly how the implementation of low-energy building designs depends not only on doing the design well, but also on communicating to decision-makers the long-term vision revealed by lifecycle thinking. The connection with sustainability will be explored and key factors in green building lifecycle thinking will be explained. The future possibilities and directions for better green building design decisions, using lifecycle thinking informed by increased performance data, will be projected.