Maintaining Elements that are Efficient by Design: What's Already Green about our Historic Buildings

Project # 09-456

Background:

What is already green about historic buildings? A variety of assumptions have been made in response to this question, with answers that range from "everything" to "nothing." Within preservation circles the claim has been made that all buildings constructed prior to 1920 are more energy efficient than any constructed after. It has been the perception within much of the construction industry that historic buildings cannot possibly be energy efficient. This study found that the truth lies somewhere in between.

Objective:

The report was designed to aid CRMs and Architects/ Engineers in understanding existing green features of historic buildings and using those features optimally in adaptive reuse projects that are aimed at increasing energy efficiency and reaching sustainability goals.

Summary of Approach:

Individual historic building features may be characterized today as "green" or sustainable; but overall, historic buildings were designed to behave differently than modern buildings. Before the technological advances of electricity and mechanical systems, and the development of modern architecture (structural systems that allowed curtain walls), it was necessary for buildings to respond to the environment in order to provide thermal comfort. Architectural design and features worked together to provide ventilation, lighting, and the best methods possible to take advantage of the environment for heating and cooling.

This study reviewed the broad inventory of DoD historic buildings, architectural and technological advancements that took place in the US since the late 1800s, and modern sustainability requirements. The architectural styles used by the DoD were categorized into architectural features that support sustainability principles. Typical features were discussed and rehabilitation tips were provided. The project concluded that there is a need to analyze historic buildings as systems in order to best take advantage of the elements that are sustainability features.

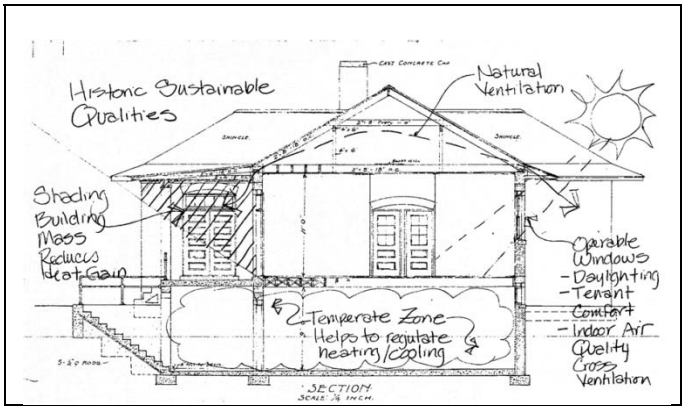
Benefit:

The ultimate goal of the technical report for this project is to educate DoD CRMs, planners, engineers, maintenance staff, and other facilities staff about the existing sustainability of historic buildings and the need for a thorough historic preservation and sustainability analysis prior to making energy efficiency or sustainability improvements.

Accomplishments:

The technical report, "Maintaining Elements that are Efficient by Design, or, What's Already Green About Our Historic Buildings," argues that historic buildings are better conceived of as being "shades" of green than as being green or not green. Several key points that emerged from this study are:

- Historic and contemporary notions of sustainability should not be directly compared;
- Historic buildings were designed as "systems";
- The systemic functions of historic buildings should be carefully studied and understood before energy efficiency and other sustainability improvement measures are taken; and
- When the historic functions and systems of buildings are understood and recognized, modern improvements *can* be made to improve the energy efficiency and sustainability of historic buildings, and resource managers *can* meet both the requirements set out in energy policies and historic preservation policies.



Contact Information:

Karen Van Citters, CSI, CDT
Van Citters: Historic Preservation, LLC
220 Adams Street SE, Suite A
Albuquerque, NM 87108
Ph: 505-268-1324
Fax: 505-268-1325
Karen@vcpreservation.com