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ASHRAE Guideline 34-2019
Energy Guideline for Historic Buildings

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NOTE

Approved addenda, errata, or interpretations for this guideline can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

ASHRAE Guideline 34 provides comprehensive and detailed descriptions of the processes and procedures for the retrofitting of historic buildings in order to achieve greater measured energy efficiency.

Historic buildings are physical reminders of our heritage for both current and future generations. These unique buildings often create an irreplaceable character in communities through their distinctive designs and materials. Also, their associations with notable events or individuals make them significant reminders of our history. In addition, historic buildings generally have a great amount of embedded energy in their construction materials that is retained when they are adapted to new viable uses. For all of these reasons, historic preservation is becoming more important in various cultures throughout the world.

The members of the project committee that developed this guideline were exceptionally knowledgeable about the particular issues of buildings constructed prior to the advent of air-conditioning. Communities throughout the world will find great benefit in the results of the many hours of effort the committee enthusiastically devoted to developing this important document.

Guideline 34 is directed to the entire Project Team and is not intended to address issues that are the responsibility of one discipline or trade. The studies and/or reports suggested in this document should be accounted for in the contract negotiations for the discipline most qualified to deal with that topic.

1. PURPOSE

The purpose of this guideline is to provide sound advice on the practices, processes, and workflows that should be followed when performing energy efficiency and energy conservation improvement projects and programs involving historic buildings, while minimizing disturbance to the historic character, characteristics, and materials (significance, value, and qualities) of the building.

2. SCOPE

2.1 This guideline applies to buildings that are listed as historic buildings or which are eligible to be so listed by applicable law in the jurisdiction where the building is located.

2.2 This guideline applies to projects that are intended to improve the following:

a. Energy efficiency of operation and maintenance
b. Efficiency of energy-using building systems and equipment
c. Energy performance of the building's envelope

2.3 This guideline applies to projects that include the following:

a. Envelope modifications and upgrades to control heat and moisture transfer and limit air infiltration
b. Adding new HVAC, service water heating, or lighting systems, or modifying existing systems, to improve energy efficiency while maintaining or improving human comfort and indoor environmental quality

3. DEFINITIONS AND ACRONYMS

3.1 Definitions

acceptable indoor air quality: air in which there are no known contaminants at harmful concentration as determined by cognizant authorities and with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction.

adaptive reuse: the process of reusing a historic site or building for a purpose other than that for which it was originally built or designed. Adaptive reuse is acceptable for a historic building only where it involves minimal impact on significance and minimal change to significant fabric. See also *rehabilitation*.

air conditioning: the process of treating air to meet the requirements of a conditioned space by controlling its temperature, humidity, cleanliness, pressurization, and distribution.

air leakage: see *infiltration* and *exfiltration*.

authenticity: a measure of the degree to which the attributes of cultural heritage (including form and design, materials and substance, use and function, traditions and techniques, location and setting, spirit and feeling, and other factors) credibly and accurately bear witness to their significance. See also *integrity*.

Basis of Design (BOD): a document that records the concepts, calculations, decisions, and product selections used to meet the Owner's project requirements and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

bobeches: cupped ring, often glass, used to catch candle drippings on a chandelier.

building: a structure wholly or partially enclosed within exterior walls, or within exterior and party walls, and a roof, affording shelter to persons, animals, or property.

character: all those visual aspects and physical features that make up the appearance of every historic building and convey the building's sense of time and place.

character defining feature: a prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character and uniqueness. Character defining features include the overall shape of the building; its materials, craftsmanship, decorative details, interior spaces and features; and the various aspects of its site and environment. Character defining features may also include intangibles such as thermal, daylighting, or acoustical qualities. Also referred to as "character defining element."