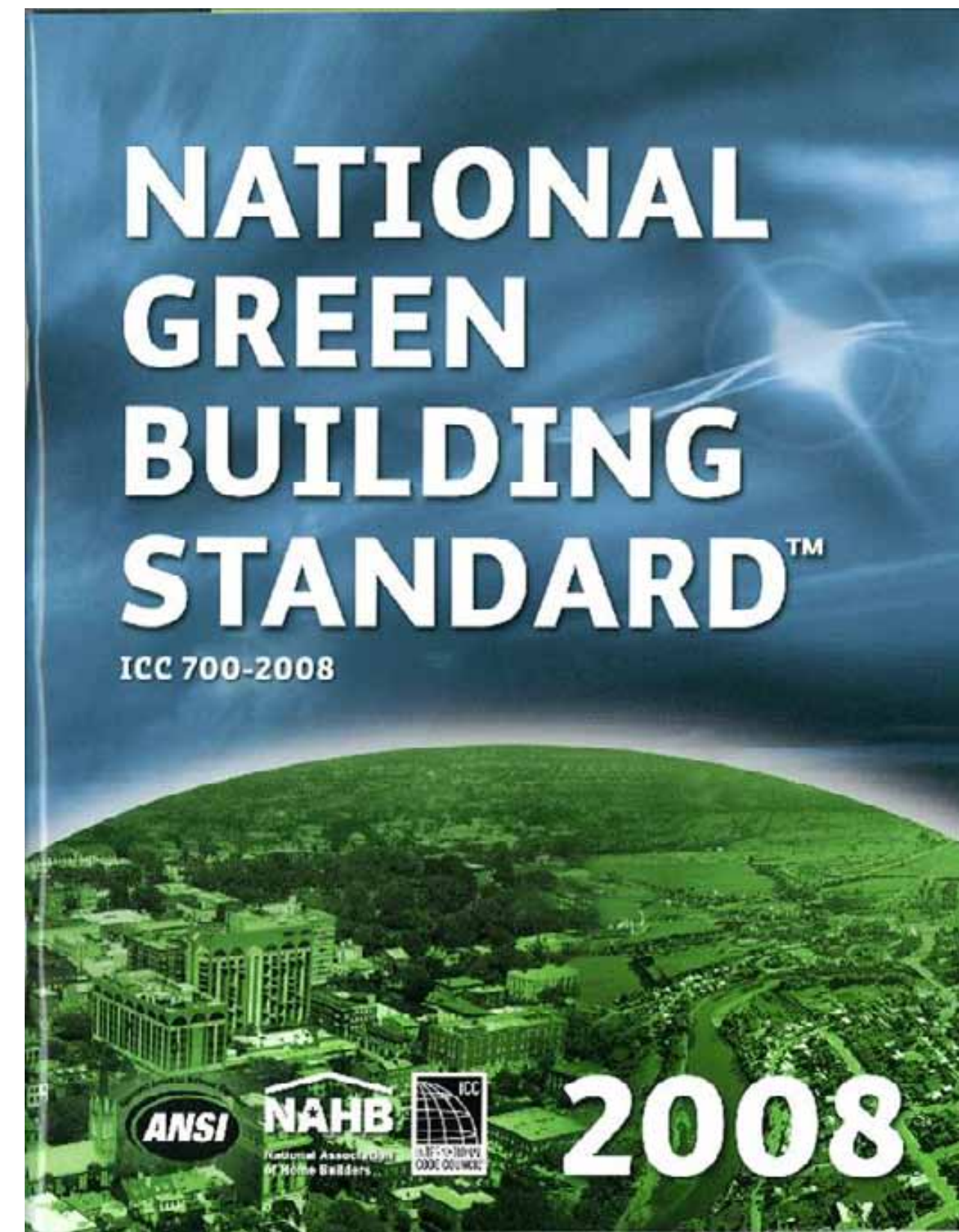




# Green Building Standards and HPBA

## What are Green building standards and why should HPBA care? What has HPBA done regarding Green building standards?



901.2 Fireplaces and fuel-burning appliances. Fireplaces and fuel-burning appliances (except cooking appliances, clothes dryers, water heaters, and furnaces) located in conditioned space are in accordance with the following:	Mandatory
[Section 901.2 (2)(a) is not mandatory.]	
901.2.1 Fireplaces and natural draft fuel-burning appliances are code compliant, vented to the outdoors, and have adequate combustion and ventilation air provided to minimize spillage or back-drafting, in accordance with the following, as applicable:	
(1) Natural gas and propane fireplaces that are power vented or direct vented, are equipped with permanently fixed glass fronts or gasketed doors, and comply with CSA Z21.38a/CSA 2.23a or CSA Z21.50/CSA 2.22.	7
(2) Solid fuel-burning appliances are in accordance with the following requirements:	
(a) Wood-burning fireplaces are equipped with gasketed doors designed to operate with the doors closed, outside combustion air, and a means is provided for sealing the flue to minimize interior air (heat) loss when not in operation.	4
(b) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.	6
(c) Wood stove and fireplace inserts, as defined in UL 1482 Section 3.8, are in accordance with the certification requirements of UL 1482 and are in accordance with the emission requirements of the EPA Certification and the State of Washington WAC 173-433-100(3).	6
(d) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.	6
(e) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.	6
<b>Renovation Note:</b> Removal of or rendering permanently unusable an existing fireplace and/or other fuel-burning appliances that are not in accordance with Section 901.2.1.	2 Additional Points
<b>Renovation Note:</b> Additional points are awarded for the replacement of each existing fireplace that is not in accordance with Section 901.2.1 with a fireplace that is in accordance with Section 901.2.1.	2 Additional Points
<b>Renovation Note:</b> Additional points are available for removing or rendering permanently unusable each existing wood-burning fireplace that is not in accordance with Section 901.2.1(2)(a) in areas other than the main renovation area.	2 Additional Points
901.2.2 Fireplaces, woodstoves, pellet stoves, or masonry heaters are not installed.	7



### ANSI 700 (NAHB GBS)

#### National Association of Home Builders Green Building Standard (NAHB GBS)

- The Green Building Subcommittee was established by NAHB in 1998.
- NAHB originally started with the Green Building Guidelines. HPBA worked with this group to allow hearth products in its GBG.
- In early 2004, NAHB convened a group of builders, researchers, environmental experts and designers to write the *NAHB Model Green Home Building Guidelines*. Published in 2005, the voluntary *Guidelines* cover seven areas, including lot preparation and design, resource efficiency, energy efficiency, water efficiency and conservation, occupancy comfort and indoor environmental quality, and operation, maintenance and homeowner education, and can be customized to reflect local geographic and climate conditions.

- Building upon the success of the *NAHB Model Green Home Building Guidelines*, the NAHB National Green Building Program (NAHB Green) was launched at the 2008 International Builders Show. The national initiative includes an online scoring tool and a wealth of educational tools and resources for home builders and home buyers. HPBA was part of this process.
- In 2007, the NAHB and the International Code Council (ICC) partnered to form a national consensus committee in accordance with the requirements of the American National Standards Institute (ANSI). The goal was to establish a much-needed nationally-recognizable standard definition of green building. The resulting ANSI-approved ICC-700-2008 National Green Building Standard (NGBS) includes single and multifamily homes, residential remodeling projects and site development projects while allowing for the flexibility required to select regionally-appropriate best green practices.
- HPBA was successful in having hearth products accepted in the Indoor Environmental Quality Section (see page reproduction).
- The GBS was approved in January, 2009, and became ANSI Standard 700.

### International Green Construction Code

SAFE & SUSTAINABLE BY THE BOOK



As part of its commitment to green and sustainable safety concepts, the Code Council is excited to develop a new set of green codes under the multi-year initiative called "IGCC: Safe and Sustainable by the Book." This initiative will include collaboration from the Council's closest allies and pre-eminent thought leaders in green building, as well as outreach and feedback from our members and the general public. We are committed to developing an effective and efficient code that will continue our long tradition of international code guidance.

**INTERNATIONAL CODE COUNCIL**

ICC, a membership association dedicated to building safety and fire prevention, develops the codes used to construct residential and commercial buildings, including homes and schools.

**AIA**

Local Leaders in Sustainability

American Institute of Architects is the leading professional membership association for licensed architects, emerging professionals, and allied partners since 1857.

**ASTM International**

ASTM International is one of the largest voluntary standards development organizations in the world—a trusted source for technical standards for materials, products, systems, and services.

properly sized, avoiding the inefficiencies (and higher pollution) that result from frequent on-off cycling of equipment.

**Potential Issues:** Occupant behavior has a huge impact on actual energy usage in any home. Clear communication and a homeowner's manual can go a long way toward ensuring that the house will be managed for the optimal energy performance designed and built into the project.

**Images: Retrofit Insulation Strategies**

- Interior Rigid Insulation (taped seams for air seal)
- on Walls
- Interior Rigid Insulation and Air Sealed (taped seams) on Ceiling
- Exterior Wall Air Sealed and Insulated with Spray Foam, Rigid
- Exterior Wall Spray Foam Insulation

**Related Strategies:** IDP2, IDP3, EAS1, EAG3

**References/Resources:** RESNET - [www.resnet.org/products/wall](http://www.resnet.org/products/wall)  
TREK - [www.hearthware.com/trek\\_intro.html](http://www.hearthware.com/trek_intro.html)  
Energy 10 - [www.structure.org/energy10.php](http://www.structure.org/energy10.php)

**46. Evaluate different heat distribution options**

**Strategy included in:** Major Addition, Deep Energy Retrofit

While some home additions necessitate expansion of the heat and air conditioning distribution system, building envelope improvements often allow the distribution system—as well as the heating and cooling equipment—to be downsized or reconfigured in more efficient, centralized and simplified systems. With very significant improvements to the envelope, in fact, it may be possible to totally eliminate central distribution systems and rely instead on single-space heating and space cooling equipment. A space heating system could be short sections of baseboard electric resistance heat (the lowest first-cost option), a through-the-wall central gas wall heater or visible-flame gas fireplace, or a wood stove or pellet stove. Room air conditioners or mini-split air conditioners can provide space cooling.

Along with sizing of heat loads and the potential to shrink or eliminate distribution systems, also consider how the same forced-air distribution system can be used for multiple needs in a highly energy-efficient home. Typically, larger ducting is required for air conditioning than for space heating, and both of these needs are greater than for ventilation. But by significantly shrinking the heating and cooling loads it is often possible to have one duct system serve all three needs like a knowledgeable mechanical engineer to address this issue. With both forced-air and low-voltage hydronic distribution systems, carefully plan where they will be installed and whether they should be insulated. Try to avoid running air distribution lines outside of the conditioned building envelope. If any distribution components are in unconditioned or partially-conditioned space, provide high-quality, durable insulation appropriate to the pipes or ducts. All ducting should be sealed with duct mastic to minimize losses, and ducts should be pressure tested as part of the commissioning process using a Duct Blaster or comparable equipment to test for leaks.

**Potential Issues:** The idea of eliminating distributed heat or air conditioning will feel natural resistance. If pursuing this strategy, see computer modeling or documentation that the space heating alternatives proposed will indeed do the job.

**Related Strategies:** IDP3, EAG6

**References/Resources:** RESNET - [www.resnet.org/products/wall](http://www.resnet.org/products/wall)  
TREK - [www.hearthware.com/trek\\_intro.html](http://www.hearthware.com/trek_intro.html)  
Energy 10 - [www.structure.org/energy10.php](http://www.structure.org/energy10.php)

**Foundation**

**47. Insulate floor slabs and foundation walls**

**Strategy included in:** Major Addition

In most climates, foundation walls should be insulated. The most common insulation for foundation walls is expanded polystyrene (EPS), though high-density extruded polystyrene (XPS) or polyisocyanurate (polyiso) can also be used, as can rigid mineral wool or rigid fiberglass. Computer modeling should be used to determine appropriate insulation levels. Foundation walls can also be insulated on the interior, as long as proper care is taken to deal with moisture management. On the interior, if basement space is to be finished, a wall system is built and insulated with sprayed polyurethane foam (SPF) or open-cell, or a fiber-reinforced concrete form (FCF) and insulated pre-cast concrete wall systems provide integral insulation. With slab-on-grade applications and basement floor slabs



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Residential Remodeling Guidelines

### LEED

#### Leadership in Energy and Environmental Design (LEED)

Developed by the US Green Building Council, LEED is a voluntary certification program, described on the USGBC website ([www.usgbc.org](http://www.usgbc.org)) as:

“... (A)n internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO<sub>2</sub> emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impact.... LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.”

The “whole building approach to sustainability” that LEED promotes can be applied to any building type at any phase of the building’s lifecycle. LEED specification construction is assured by third-party certification through the independent Green Building Certification Institute ([www.GBCI.org](http://www.GBCI.org)). LEED certification details provide information about the Green features of a building.

- Originally it was written as a Commercial Construction Standard
- Once the commercial standards were in place, the focus of LEED changed to residential standards.
- HPBA worked with LEED draft standards group to insure the acceptance of some hearth products
- LEED placed EPA Certified products in Indoor Air Quality Section of the LEED for Homes

### ICC/IgCC

#### International Code Council (ICC) International Green Construction Code (IgCC)

- This code is currently being created by several groups working together; the American Institute of Architects (AIA), ASTM International and the ICC.
- This code process was started in July 2009 and slated to be finalized in 2010. HPBA is involved in the writing of these codes.
- HPBA was able to get some hearth products accepted into this draft standard. These products are similar to those in ANSI 700. The draft document is shown in Section 804 Specific Indoor Air Quality & Pollutant Control Measures in the handouts on the table below.