

STRATEGIC & STANDARDIZATION
CMGT-564

U.S. GREEN BUILDING
&
STANDARDS 189

CATHOLIC UNIVERSITY OF
AMERICA
CUA

YESENIA SANCHEZ
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EXECUTIVE SUMMARY

This paper is about USA green building standards, *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings*. This paper provide an overview of the green building standards in USA and how has been adopted in others countries. Also focuses on the standards purpose and how will be used, in the development of new construction generation.

GREEN BUILDING

Green building is the practice of increasing the efficiency with which buildings use resources — [energy](#), [water](#), and [materials](#) — while reducing building impacts on human health and [the environment](#) during the building's lifecycle, through better siting, [design](#), [construction](#), operation, maintenance, and removal.^[1]

Green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water, and other resources
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and environmental degradation^[2]

What is Green Home Building?

Building green means incorporating environmental considerations and resource efficiency into every step of the home building and land development process to minimize environmental impact. That means that during the design, construction, and operation of a home, the home's overall impact on the environment is taken into account. ³

Most builders are using green building practices in their homes as part of their current standard practices; ENERGY STAR® windows and appliances, recycled content materials, and water-conserving fixtures are all important parts of a green built home. To move to the next step of sustainable building, the builder should consider a whole-house systems approach. The home is composed of several independent components which, when planned and fully considered, can work together to increase performance and efficiency. For example, making a home's building envelope tighter through air sealing and quality building techniques can affect the way the builder designs the home's

³ <http://www.nahbgreen.org/About/greenhomebuilding.aspx>

ventilation system. It is through such a forward-thinking process that builders can gain cost efficiencies.³

Green Building History in the U.S.

Some practices, such as using renewable materials or passive solar design, date back millennia - ancient Greeks built entire cities so that all the homes received solar heat in the winter. The contemporary green building movement arose out of the need and desire for more energy efficient and environmentally friendly building practices. The oil price increases of the 1970s spurred significant research and activity to improve energy efficiency and find renewable energy sources. This, combined with the environmental movement of the 1960s and 1970s, led to the earliest experiments with contemporary green building. ⁴

The green building field began to come together more formally in the 1990s. A few early milestones in the U.S. include:

- American Institute of Architects (AIA) formed the [Committee on the Environment](#) EXIT Disclaimer (1989)

⁴ <http://www.epa.gov/greenbuilding/pubs/about.htm#4>

- Environmental Resource Guide published by AIA, funded by EPA (1992)
- EPA and the U.S. Department of Energy launched the [ENERGY STAR program](#) (1992)
- First local green building program introduced in Austin, TX (1992)
- [U.S. Green Building Council \(USGBC\)](#) EXIT Disclaimer founded (1993)
- ["Greening of the White House"](#) initiative launched (1993)
- USGBC launched their [Leadership in Energy and Environmental Design \(LEED\)](#) EXIT Disclaimer version 1.0 pilot program (1998)

[The Federal Commitment to Green Building: Experiences and Expectations \(PDF\)](#) (89 pp, 3.8 MB, [About PDF](#)), a report of the Office of the Federal Environmental Executive, provides a history of federal involvement with green building. Some of the key federal milestones include:

- The Energy Policy Act of 2005 includes federal building sustainable performance standards (2005)
- Nineteen federal agencies sign [Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding \(PDF\)](#) EXIT Disclaimer (10 pp, 152 KB, [About PDF](#)) at a White House Summit (2006)

- The Office of Management and Budget unveils a new Environmental Scorecard for federal agencies which includes a Sustainable Building element. (2006)
- [Federal Green Construction Guide for Specifiers](#) EXIT Disclaimer is made available on the Whole Building Design Guide (2006)
- [President Bush signs Executive Order 13423 - Strengthening Federal Environmental, Energy, and Transportation Management \(PDF\)](#) (7 pp, 105 KB [About PDF](#)), which includes federal goals for sustainable design and high performance buildings (2007)
- The Energy Independence and Security Act of 2007 includes requirements for high performance green federal buildings (2007).⁴

Green Building Research

Green building research is being done by national laboratories, private companies, universities, and industry. According to a USGBC report published in 2006, over 70 percent of the green building research is focused on energy and atmosphere research. The next largest category of research is materials and resources. Indoor environmental quality, including issues pertaining to air, is also being studied. [5](#)

⁵ <http://www.epa.gov/greenbuilding/pubs/about.htm#5>

The built environment has a profound impact on our natural environment, economy, health, and productivity.

In the United States alone, buildings account for:

- 70% of electricity consumption,
- 39% of energy use,
- 39% of all carbon dioxide (CO₂) emissions,
- 40% of raw materials use,
- 30% of waste output (136 million tons annually), and
- 12% of potable water consumption.⁶

Environmental impact

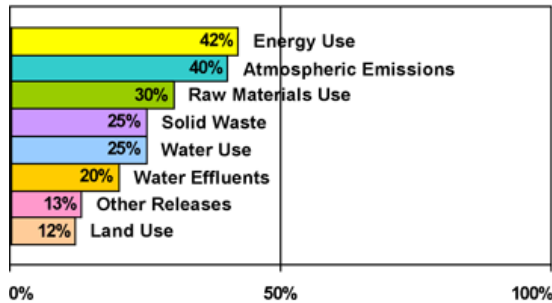
Building construction and operation have an enormous direct and indirect impact on the environment. As illustrated in the figure below, buildings not only use resources such as energy and raw materials, they also generate waste and potentially harmful atmospheric emissions. As economy and population continue to expand, designers and builders face a unique challenge to meet demands for new and

⁶ <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1718>

renovated facilities that are [accessible](#), [secure](#), [healthy](#), and [productive](#) while minimizing their impact on the environment.⁷

Environmental Impact of Buildings

Percentage of U.S., Annual Impact



Systematic Evaluation and Assessment of Building Environmental Performance (SEABEP), paper for presentation to "Buildings and Environment", Paris, 9-12 June, 1997.

Source: Levin, H. (1997)

Green building practices aim to reduce the environmental impact of buildings. Buildings account for a large amount of land use, energy and water consumption, and air and atmosphere alteration. In the United States, more than 2,000,000 acres (8,100 km²) of open space, wildlife habitat, and wetlands are developed each year.^[1]

Benefits of Green Building

Environmental benefits:

- Enhance and protect ecosystems and biodiversity
- Improve air and water quality
- Reduce solid waste
- Conserve natural resources ⁸

⁷ <http://www.wbdg.org/design/sustainable.php>

Economic benefits:

- Reduce operating costs
- Enhance asset value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance ⁸

Health and community benefits:

- Improve air, thermal, and acoustic environments
- Enhance occupant comfort and health
- Minimize strain on local infrastructure
- Contribute to overall quality of life ⁸

STANDARD 189

In early 2006, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE); the U.S. Green Building Council (USGBC); and the Illuminating Engineering Society of North America (IESNA) embarked on a project to develop a standard for high performance green buildings that would apply to all buildings except low-rise residential buildings (i.e., condominiums and apartment buildings three stories or less in height). This summer saw the fruits of this effort when ASHRAE/USGBC/IESNA Proposed Standard 189,

⁸ <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1718>

Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings, was made available for public review.⁹

The document is written in mandatory language, with Code Council staff acting as consultants to the Standard Project Committee, providing guidance on format and structure. The intent is for the increasing number of public and private organizations that use a green building rating system like LEED (Leadership in Energy and Environmental Design) to adopt Standard 189 as a baseline and, in the broader perspective, help project green building practices into mainstream consciousness.⁹

Standard 189P (Standard for the Design of High-Performance Green Buildings except Low-Rise Residential Buildings) will provide a baseline for sustainable design, construction, and operations in order to drive green building into mainstream building practices. It will apply to new commercial buildings and major renovation projects, and will address key areas of performance including energy efficiency, greenhouse gas emissions, sustainable site selection, water usage, materials and resources, and indoor environmental quality.¹⁰

⁹ <http://www.iccsafe.org/news/green/0807BSJ36.pdf>

¹⁰ http://www.lexisnexis.com.proxycu.wrlc.org/us/Inacademic/returnTo.do?returnToKey=20_T4323158301

"Standard 189P will become the benchmark for all sustainable green buildings in the United States because it is being developed for inclusion into building codes," said committee chair John Hogan, chair of the Standard 189P Project Committee. "This means that owners and designers will have a consensus-based document that will set the minimum criteria that a building must satisfy in order to be considered a green building. The real impact of Standard 189P is that ASHRAE, along with IESNA and USGBC, is taking advanced energy conservation guidance mainstream for the general public's benefit." ¹⁰

Scope

Standard 189 addresses the same five major topic areas as the LEED rating systems—sustainable site development, water savings, energy efficiency, the effect of materials selection on the atmosphere and natural resources, and indoor environmental quality—and is intended to apply to the same categories of buildings covered by the *International Energy Conservation Code* (IECC) and ASHRAE/IESNA 90.1—residential buildings more than three stories in height and all nonresidential buildings.⁹

The provisions of this standard do not apply to:

(a) Single-family houses, multi-family structures of three stories or fewer above grade, manufactured houses (mobile homes) and manufactured houses (modular).

(b) Buildings that use none of the following: electricity, fossil fuel, or water.

This standard shall not be used to circumvent any safety, health, or environmental requirements.¹¹

Goals for Standard 189.1

- Establish mandatory criteria in all topic areas
- Provide simple compliance options
- Complement green building rating programs [11](#)

Development Process for Standard 189.1

- **June 2006:** Preliminary meeting
- **August 2006:** Review of 150 recommendations *including all 7 mandatory provisions (prerequisites) and all 69 optional credits in USGBC's LEED-NC program*
- **October, December 2006, January, March, April 2007:** 2-day meetings to develop draft
- **May-July 2007:** First public review

¹¹ http://www.pugetsoundashrae.org/PDF_files/Std189powerpointforCSIPresentation.pdf

- **August, October, December 2007:** 2-day meetings to assess comments
- **Early 2008:** Second public review ¹¹

Standard 189 Subjects

- Site Sustainability
- Water Use Efficiency
- Energy Efficiency
- The Building's Impact on the Atmosphere, Materials and Resources
- Indoor Environmental Quality (IEQ)
- Construction and Operation¹¹

Sustainable Sites

- Construction to take place on appropriate sites.
 - Site development to provide means for managing and controlling storm water.
 - Projects to take steps to reduce heat islands to minimize the impact on the microclimate.
 - Projects to reduce light pollution through luminaries cutoff requirements and outdoor lighting trespass limits.⁹
-

Water Efficiency

- Site water use reduction through biodiverse plantings, hydro zoning and smart irrigation controllers. Prescriptive and performance options would limit the area of landscape to be irrigated with potable water.
- Building water use reduction (generally, 20-percent lower than the 1992 U.S. Energy Policy Act) through criteria for plumbing fixtures and fittings, appliances, and HVAC systems and equipment. Prescriptive and performance options address water use in commercial food service and laboratory facilities.
- Requirements for meters, meter data collection, and data storage and retrieval to allow for informed operation of water systems.⁹

Reduced Energy Use

Main articles: [Low-energy house](#) and [Zero-energy building](#)

Green buildings often include measures to reduce energy use. To increase the efficiency of the [building envelope](#), (the barrier between conditioned and unconditioned space), they may use high-efficiency windows and [insulation](#) in walls, ceilings, and floors. Another strategy, [passive solar building design](#), is often implemented in low-energy homes. Designers orient windows and walls and place awnings, porches, and trees^[11] to shade windows and roofs during the summer while maximizing solar gain in the winter. In addition, effective window

placement ([daylighting](#)) can provide more natural light and lessen the need for electric lighting during the day. [Solar water heating](#) further reduces energy loads. ^[11]

After heating and cooling loads are reduced, high efficiency cooling, heating, and water heating equipment, along with insulated hot water pipes and properly sealed and insulated ducts increase whole house efficiency. Higher efficiency [appliances](#) and [other electric devices](#) not only lowers direct energy use, but also lowers cooling loads in the summer by producing less waste heat. Similarly, [fluorescent lighting](#), which uses two-thirds to three-fourths less energy than conventional incandescent bulbs^[12] lowers direct electricity use and cooling loads. Other improvements include adding [thermal mass](#) to stabilize daily temperature variations, [absorption chillers](#), optimizing houses for natural ventilation, [cool roofs](#) in warm climates, [heat recovery ventilation](#) and [hot water heat recycling](#). ^[11]

Finally, onsite generation of [renewable energy](#) through [solar power](#), [wind power](#), [hydro power](#), or [biomass](#) can significantly reduce the environmental impact of the building. Power generation is generally the most expensive feature to add to a building.^[11]

Materials Selection

- Construction debris to be salvaged or diverted from landfill.
- Prescriptive option for reduced-impact materials to either have 10-percent recycled content, be 15-percent regionally processed or be 5-percent bio-based.
- Performance option for life cycle assessment.

Building materials typically considered to be 'green' include rapidly renewable plant materials like bamboo and straw, lumber from forests certified to be sustainably managed, [dimension stone](#), recycled stone, recycled metal, and other products that are non-toxic, reusable, renewable, and/or recyclable (eg [Trass](#), [Linoleum](#), sheep wool, panels made from paper flakes, baked earth, rammed earth, clay, vermiculite, flax linen, sisal, seagrass, cork, expanded clay grains, coconut, wood fibre plates, calcium sand stone... ^[10]). Building materials should be extracted and manufactured locally to the building site to minimize the energy embedded in their transportation. ^[11]

Indoor Environmental Quality

Mandatory Provisions

- Ventilation rates
 - per ASHRAE 62.1
 - 1.3 X ASHRAE 62.1 for offices and classrooms
- No smoking inside building

- Thermal Comfort

- Comply with ASHRAE Std 55

- Mat Systems at Building Entrances ¹¹

- Additional outside air for offices and schools in accordance with prevailing ventilation codes or standards.

- Carbon dioxide monitoring for both mechanically ventilated and naturally ventilated spaces.

- Projects to comply with the thermal comfort criteria of ASHRAE 55, *Thermal Environmental Conditions for Human Occupancy*.

- Minimum sound transmission class (STC) ratings to control sound transmission from the exterior in areas with loud noises and between certain spaces.

- Day lighting through the use of skylights.⁹

CONCLUSION

Green homes are less energy and resource intensive than their conventional counterparts, and result in less waste and an enhanced indoor living environment for occupants. Using environmentally sound building materials provides better air filtration, reduces stormwater run-off, increases resale value, and saves both homeowners and homebuilders valuable time and money. By facilitating residential green building projects, counties can experience a number of co-benefits, including a reduced impact on county infrastructure (such as water systems and landfills), higher property values, market growth for local green builders and supply companies, and a healthier populace.

There is a broad range of potential uses and users for ASHRAE/USGBC/IESNA 189. It could be used as the baseline for an individual project; by a corporation as the minimum standard for project development; by a university as the baseline for new campus facilities; or by a municipality, county or state as the baseline for expansion and infrastructure development. It could be adopted by local jurisdictions for use as an incentive in land use or zoning codes, and more progressive localities may even decide to use it as the baseline for all future development.

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APPENDIX

INTERNATIONAL CODE COUNCIL

ICC News Release

For Immediate Release
July 24, 2008

 [PRINT THIS](#)

Code Council Creates Sustainable Building Technology Committee for its Growing Portfolio of Green Initiatives

The International Code Council Board at its July 19 meeting approved the creation of a Sustainable Building Technology Committee (SBTC) to support its many ongoing efforts in green, sustainable and safe construction.

“I am proud that the Board continues to be proactive on green building matters and supported creating this new committee,” said Council Board President Steve Shapiro. “From the creation of the *International Energy Conservation Code*, the most widely used energy efficiency code, to the continual advancement of the *International Plumbing Code*, which requires the efficient use of water, the Code Council has embraced and committed itself to helping communities build safe and build green. Other examples include the ICC-700 National Green Building Standard for residential construction, a program to verify sustainable attributes of building products, a green clearinghouse for jurisdictions to share sustainable information, and green building certification and training programs.”

“The Board’s action is an important next step toward providing a valuable forum for the advancement of building science, as communities and industry look to the Council for guidance, technical standards and consensus in the increasingly important arena of green building,” said Code Council CEO Rick Weiland. “It reflects the Code Council’s commitment to confront both the challenge and opportunity to create energy-efficient and sustainable communities.”

The SBTC will provide an open forum for discussion of sustainability and ensure that Code Council members and stakeholders have a key voice in the critical debate. The SBTC will be charged with:

- Developing proposed code changes and analysis/response of related changes proposed for the Code Council family of codes and standards,
- Participating in the development of Council guidelines to assist members and jurisdictional authorities in implementing sustainable construction practices in their communities,
- Providing input on related Council programs such as green training and a green certification program for First Preventers, code officials who ensure buildings are safe and energy efficient,
- Serving in an advisory role to the Council’s Board of Directors regarding the development of new International Codes or Standards in support of sustainable construction practices.

To learn more about the Council’s proactive green initiatives, [click here](#).

The International Code Council, a membership association dedicated to building safety and fire prevention, develops the codes used to construct residential and commercial buildings, including homes and schools. Most U.S. cities, counties and states choose the International Codes, building safety codes developed by the International Code Council.

Contact:

[Steve Dagers](#)
1-888-ICC-SAFE (422-7233), ext. 4212
Cell: 708-351-8880

Media Contacts

1-888-ICC-SAFE
(422-7233)

[Steve Dagers](#)

x4212
708-351-8880 (cell)

[Jennifer Gibson](#)

x4224

[Gretchen Hesbacher](#)

x6240

ICC Fact Sheet, [click here](#)



2. The American Institute of Architects

convention 2007

TH65 Standard 189: High Performance Green Buildings

05/03/2007, 6:00 PM - 7:00 PM

Meets AIA/CES criteria for Health, Safety, and Welfare (HSW) issues 1 LU - Entry level

In 2006, the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, the U.S. Green Building Council, and the Illuminating Society of North America, with the assistance of the AIA, embarked on a project to develop a standard for high performance, green buildings that would apply to all buildings except low-rise residential buildings (Standard 189). The standard will address sustainable sites, water use efficiency, energy efficiency, the building's impact on the atmosphere, materials and resources, and indoor environmental quality. This presentation provides an update on the work to date of SPC 189.

Learning objectives:

- Review the draft criteria being considered in Standard 189 for a high performance, green building
- Discuss how the draft criteria being considered in Standard 189 for a high performance, green building compares with that in the LEED program
- Determine why certain criteria are not being considered in Standard 189 for a high performance, green building

Speakers

John Hogan, AIA, PE, LEED AP, Seattle Department of Planning and Development, Seattle

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convention 2007

In early 2006, the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), the U.S. Green Building Council (USGBC), and the Illuminating Society of North America (IESNA) embarked on a project to develop a standard for high-performance, green buildings that would apply to all buildings except low-rise residential buildings. The title, purpose, and scope were approved for work to be done by Standard Project Committee (SPC) 189. The standard will be written in mandatory language in ASHRAE format. The standard will not be a rating system, though it is hoped that organizations that have building rating systems will integrate this standard into their rating process.

Coordination with National Initiatives

There is a broad interest in high-performance green buildings. Key organizations are on record supporting major steps forward. The Standard 189 Project Committee (SPC 189) has been reviewing initiatives by national groups and seeks to incorporate criteria that will support high-performance, green building initiatives including but not limited to the following.

U.S. Federal Agencies

Through a memorandum of understanding, 16 U.S. Federal agencies have agreed to:

- “for new buildings, reduce the energy cost budget by 30 percent compared to...Standard 90.1-2004”;
- “use a minimum of 20 percent less [indoor] potable water than...the Energy Policy Act of 1992 fixture performance requirements...reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means”;
- “specify materials and products with low pollutant emissions including adhesives, sealants, paints, carpet systems, and furnishings”;
- “use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project”.i

American Institute of Architects

The AIA has adopted a position statement that buildings “achieve a minimum 50 percent reduction from the current level of consumption of fossil fuels used to construct and operate new and renovated buildings by the year 2010”.ii

U.S. Conference of Mayors

The U.S. Conference of Mayors passed a resolution adopting the “2030 Challenge” for City buildings:



2

Green Building Initiative

State of California Executive Order S-20-04

Committee overseeing this proceeding is:

Jackalyne Pfannenstiel,

Chair and Presiding Member

Arthur Rosenfeld

Commissioner and Associate Member

Governor Arnold Schwarzenegger signed [Executive Order S-20-04](#) regarding Green Buildings on December 14, 2004. It established the State of California's priority for energy and resource-efficient high performance buildings.

The Executive Order sets a goal of reducing energy use in state-owned buildings by 20 percent by 2015 (from a 2003 baseline) and encourages the private commercial sector to set the same goal. The order also directs compliance with the [Green Building Action Plan](#) (PDF file, 166 kb), which details the measures the state will take to meet these goals. More details about the project can be found on the [Documents and Reports page](#).

The Executive Order and Green Building Action Plan assign the California Energy Commission to:

- Develop and propose by July 2005, a simple building efficiency benchmarking system for all commercial buildings in the state. Please see: [Benchmarking Work Group](#) website and [Dept. of General Services Benchmarking](#) page.
 - Develop commissioning and retro-commissioning guidelines for commercial buildings. Please see: [Commissioning Guidelines](#) and [California Commissioning Collaborative](#)
 - Further develop and refine (Title 24) building energy efficiency standards applicable to commercial building sector to result in 20 percent savings by 2015 using standards adopted in 2003 as the baseline. Please see: [Title 24 building standards information](#)
 - Report to the Legislature on energy and peak demand savings opportunities for California's existing buildings, per Assembly Bill 549. Please see: [Options for Energy Efficiency in Existing Buildings](#) - AB 549 Report to the Legislature
 - Consult and collaborate with Department of General Services, Department of Finance and the California Public Utility Commission on a variety of other tasks. Please see: [Department of General Service's website on green buildings for the State of California](#)
-

For more information, please contact:

Lance Shaw
California Energy Commission
1516 Ninth Street, MS-42
Sacramento, CA 95814
Phone: 916-653-1227
E-mail: lshaw@energy.state.ca.us

ASHRAE, USGBC, IESNA Partner on Baseline Standard for Green Building

Contact: [Jodi Dunlop](#)
Phone: 678-539-1140

--New standard to drive high performance building practices to the mainstream

(Washington, DC) – The U.S. Green Building Council (USGBC); the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE); and the Illuminating Engineering Society of North America (IESNA) announced today that the three organizations have agreed to co-sponsor the development of a new ASHRAE/USGBC/IESNA minimum standard for high performance green building.

Proposed Standard 189, *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings*, will provide minimum requirements for the design of sustainable buildings to balance environmental responsibility, resource efficiency, occupant comfort and well-being, and community sensitivity. Using USGBC's LEED Green Building Rating System, which addresses the top 25% of building practice, as a key resource, Standard 189P will provide a baseline that will drive green building into mainstream building practices.

Scheduled for completion in 2007, the proposed standard will apply to new commercial buildings and major renovation projects,

addressing sustainable sites, water use efficiency, energy efficiency, a building's impact on the atmosphere, materials and resources, and indoor environmental quality.

Standard 189P will be an ANSI-accredited standard that can be incorporated into building code. It is intended that the standard will eventually become a prerequisite under LEED.

"This standard will establish a baseline for a high-performance, green building," ASHRAE president Lee Burgett, P.E., said. "It will allow us to provide for the needs of the present without detracting from the ability to fulfill the needs of the future. Our partnership with USGBC to develop the proposed standard draws on their extensive experience in the green building market and assures that the needs of those who create sustainable buildings are met. We also are pleased to partner again with IESNA, building on the earlier efforts of our two societies in creating design guidance for more energy efficient buildings."

"We are proud to work with ASHRAE and IESNA to bring high performance green building practices to the mainstream," said Rick Fedrizzi, President, CEO and Founding Chair, USGBC. "USGBC's mission is market transformation, and we've long recognized the need to reach beyond the market leaders served by LEED to accomplish it. Given ASHRAE's integrity and long history of leadership in energy efficiency and indoor environment, and IESNA's technical strength in lighting, they're the ideal partners in the effort. We're confident that the baseline standard we'll develop together will raise the entirety of the commercial building marketplace to a new level of resource efficiency."

Fedrizzi noted that concurrent with this initiative, USGBC will begin work on LEED v3.0, which will encompass major advancements in building science and technology, such as LifeCycle Assessment and bioregional weighting.

"Sustainability is the next natural progression in the evolution of standards for building design, allowing us to weigh system solutions against the impact on the environment, while ensuring that buildings meet the needs of those who must work or live in them" said Dr. Alan Lewis, president, IESNA. "Sustainable design is a collaborative approach to architecture and construction and IESNA is pleased to be in partnership with ASHRAE and USGBC."

ASHRAE's technical resources provide the engineering basis for sustainable buildings. Through the Society's *Roadmap for Sustainability*, ASHRAE advocates a sustainable built environment via the use of advanced technologies and develops and maintains productive relationships with other organizations in the sustainability field.

About ASHRAE

Founded in 1894, ASHRAE is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of HVAC&R to serve the evolving needs of the public.

About USGBC

USGBC is the nation's leading nonprofit organization working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. USGBC's membership includes 6,000 corporations, federal agencies, state and local governments, and nonprofits; and encompasses 65 local chapters and affiliates nationwide.

About IESNA

IESNA is the recognized technical authority on illumination. For over 100 years, its objective has been to communicate information on all aspects of good lighting practice to its members, to the lighting community, and to consumers, through a variety of programs, publications, and services.

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<http://www.ashrae.org/pressroom/detail/13571>

Standard 189 Released for Comment

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Allyson Wendt - This article was produced by BuildingGreen, Inc. - www.buildinggreen.com

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has released the first public comment draft of its "Proposed Standard 189, Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings."

This standard, being developed in conjunction with the Illuminating Engineering Society of North America (IESNA) and the U.S. Green Building Council (USGBC), is the first effort to create a code-enforceable green building requirement based on the LEED Rating System.

The draft runs to 215 pages, including a series of "informative appendices" on topics such as integrated design and creating a building durability plan. Comments will be accepted through July 9, 2007; the draft is available at www.ashrae.org/publicreviews

<http://greensource.construction.com/news/070619Standard189.asp>