

Existing Sustainable Construction Codes and Standards in the United States



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Agenda



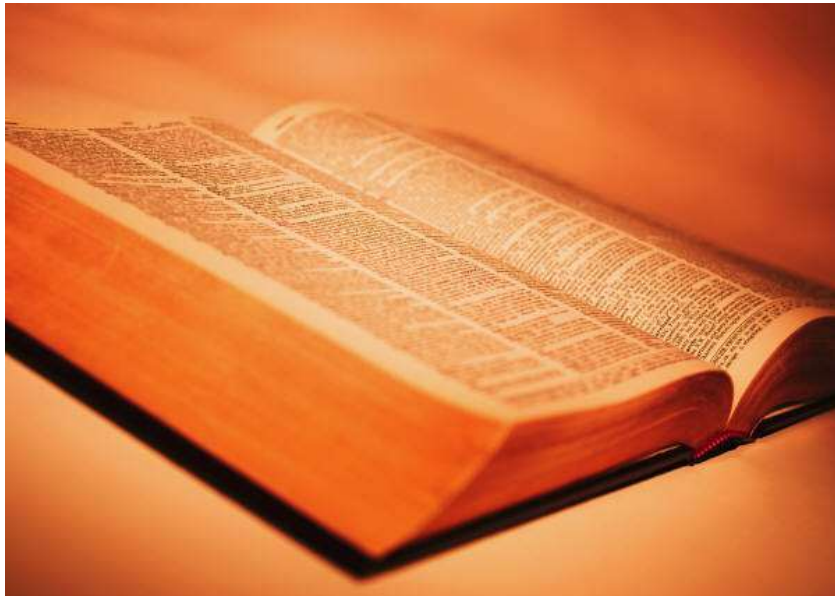
- A good foundation
 - State autonomy in the U.S.A.
 - A couple of definitions
- A quick review of *baseline* or *minimum* standards and *model* codes
- Sustainable construction
 - Standards
 - Codes
 - Programs and rating systems
 - Components and goals of “green” construction codes and standards

How codes are enforced in the U.S.A.

- Tenth Amendment of U.S. Constitution-
 - Gives states rights to legislate to protect public health, safety and welfare
- Enforcement resides at the state or local level
 - No two states are alike
 - Can be pre-empted by Federal law
- 50,000+ governmental subdivisions that enforce codes
- Enacted with various degrees of application, enforcement responsibility and update mechanisms

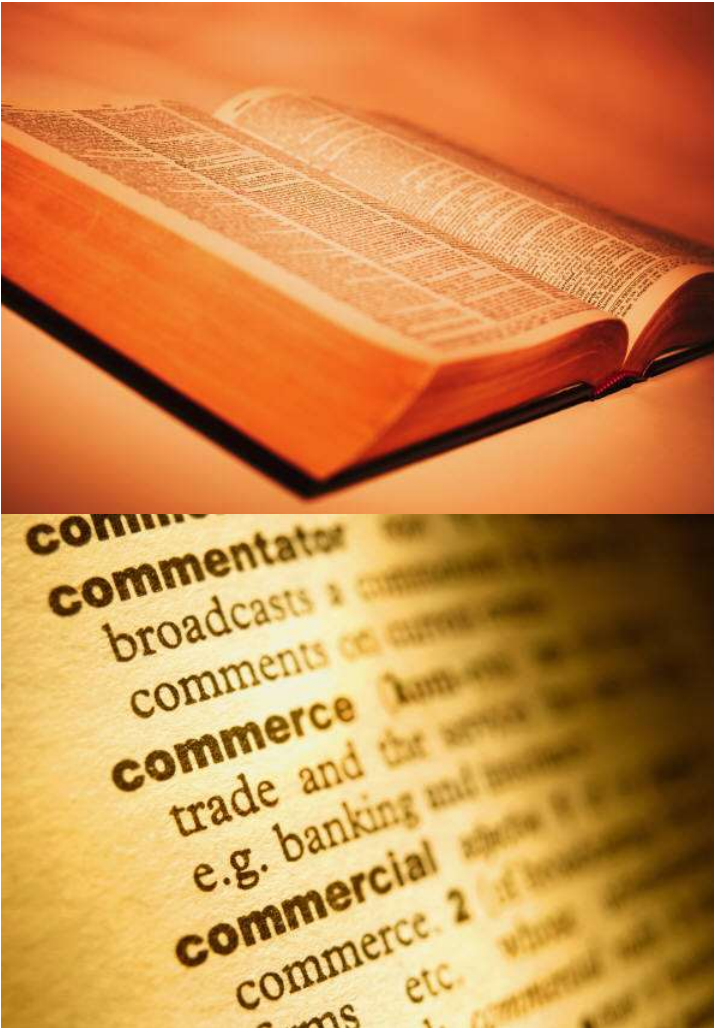


A good foundation! A few common terms



- Model code – a construction code that is developed and maintained by a code development organization independent of the jurisdiction responsible for enforcing the code. A local government can choose to adopt a model construction code as written or modify it to better suit their needs. This saves local governments the expense of developing their own codes. Most smaller governments lack the expertise to do so.

A good foundation! A few common terms



- “Baseline” or “Minimum Code” – a construction code that contains a minimum set of construction provisions for ensuring health, safety, energy and water efficiency and many other aspects of construction
- Although referred to as minimum codes, compliance to minimum codes in the U.S. ensures excellent levels of safety

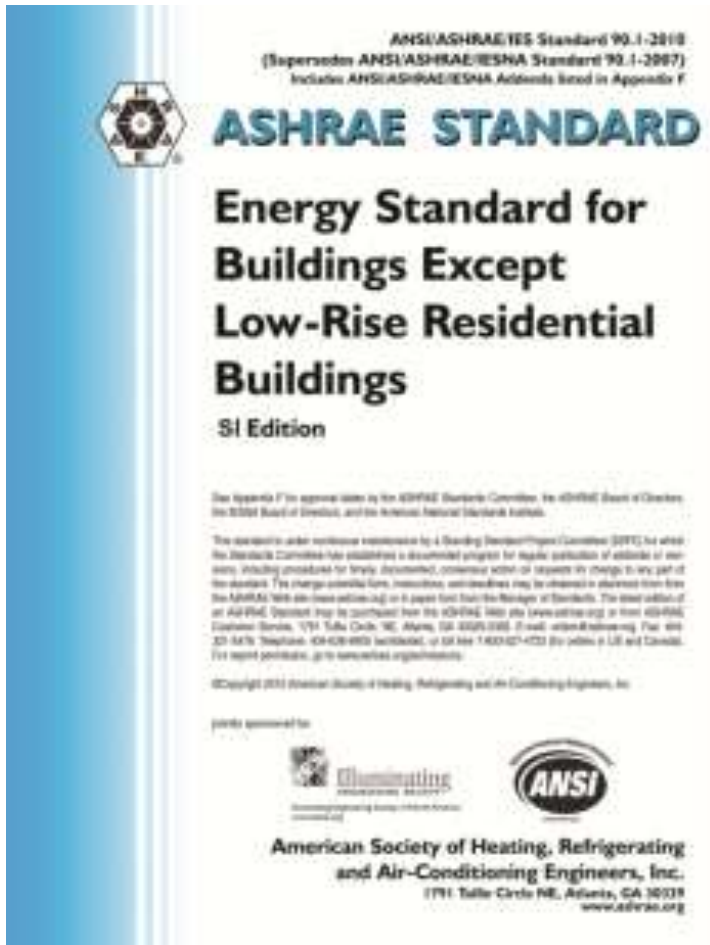
A good foundation! The major baseline construction standards and codes in the U.S.A.



- ASHRAE
 - Standard 90.1
- ICC
 - International Energy Conservation Code (IECC)
 - International Building Code (IBC)
 - International Plumbing Code (IPC)
 - International Mechanical Code (IMC)
- IAPMO
 - Uniform Plumbing Code (UPC)
 - Uniform Mechanical Code (UMC)
- These construction standards and codes contain hundreds of referenced standards from SDO's including ISO, ASTM, ASME, CSA, NSF, NFPA, UL and many others

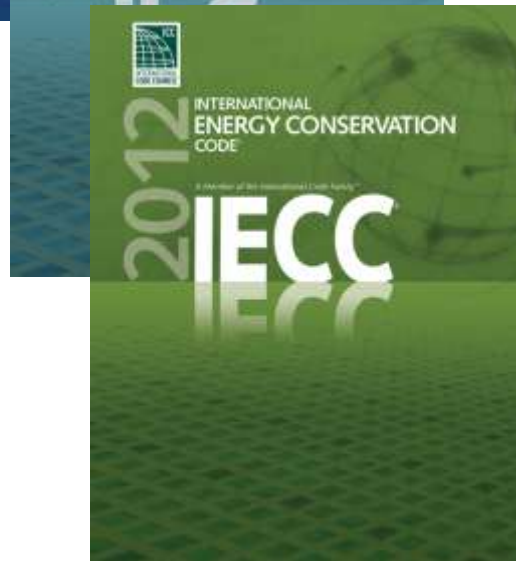
Baseline Model Standards

ASHRAE Standard 90.1



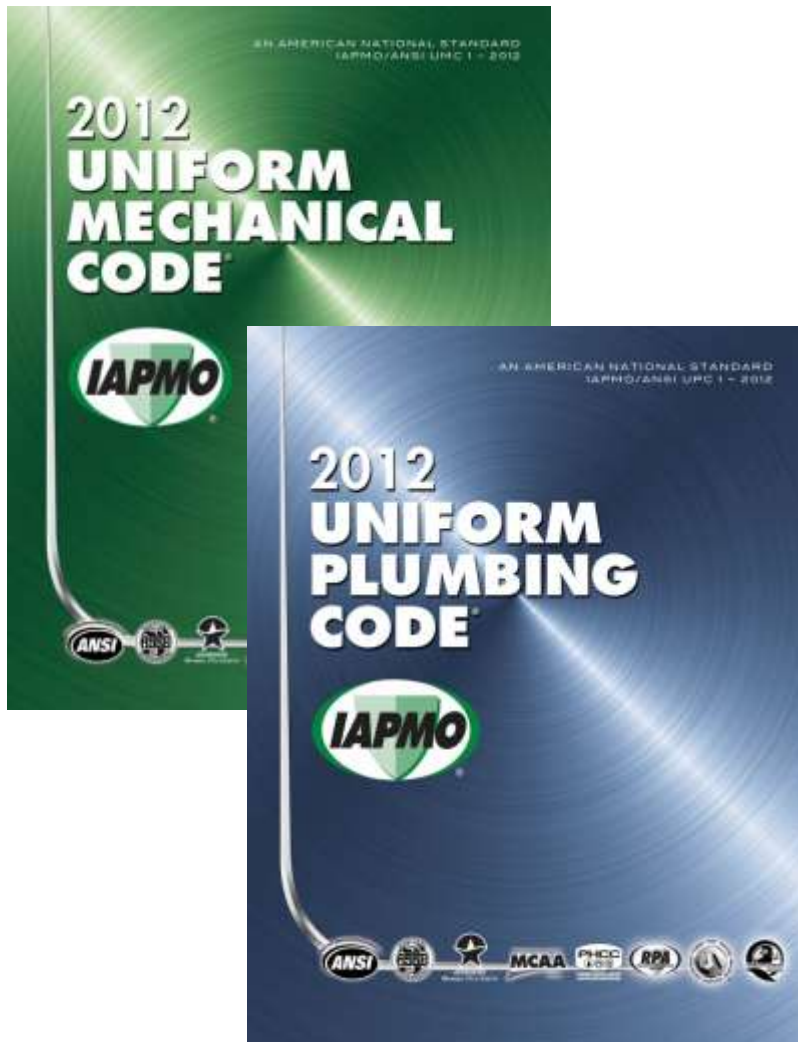
- Standard 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*
 - Referenced in Federal Legislation
 - ANSI accredited consensus development process
 - Recently celebrated 35th anniversary of Standard 90.1
 - 2010 version of the standard established by the U.S. Department of Energy (DOE) as the commercial building reference standard for state building energy codes under the federal Energy Policy Act

Baseline Model Codes – ICC International Building, Plumbing, Mechanical and Energy Conservation Codes



- IBC and IECC Referenced in Federal Legislation
- The IBC has been adopted at the state or local level in all 50 States plus Washington D.C.
- The IECC addresses energy efficiency on several fronts including cost savings, reduced energy usage, conservation of natural resources and the impact of energy usage on the environment

Baseline Model Codes - IAPMO Uniform Plumbing and Mechanical Codes



- Very similar in scope and technical content to the International Plumbing and Mechanical Codes
- ANSI accredited consensus development process
- Primarily adopted in the Western United States
- Addresses both energy and water efficiency in plumbing and mechanical applications

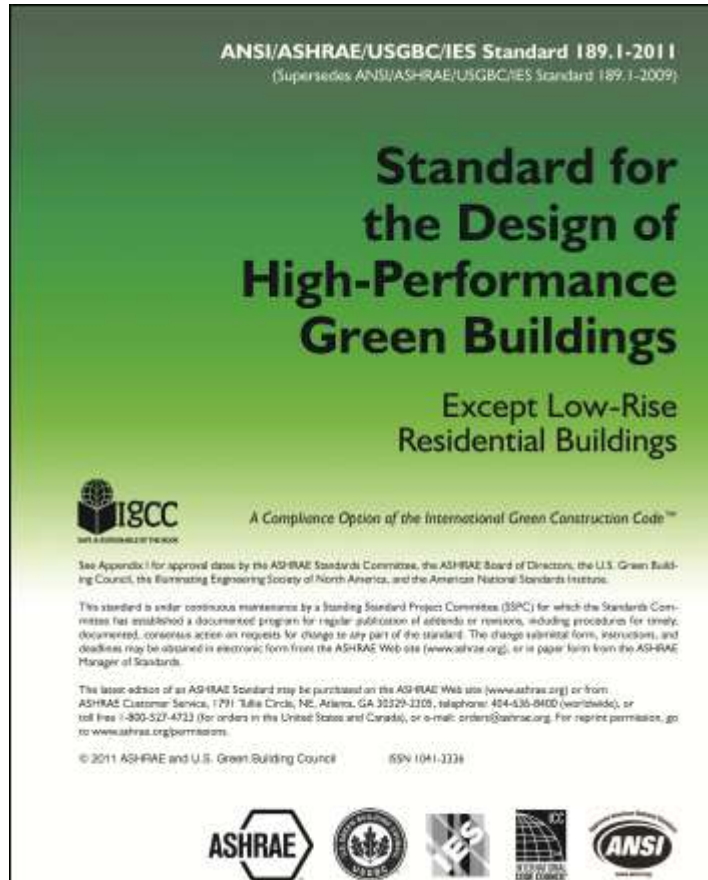
Major Sustainable Standards, Codes and Rating Systems in the U.S.A.



- ASHRAE
 - Standard 189.1
- ICC
 - The International Green Construction Code (IgCC)
- IAPMO
 - The Green Plumbing and Mechanical Code Supplement
- Rating systems
 - USGBC's LEED
 - Green Globe's Green Building Initiative

Sustainable Green Building Standards

ASHRAE 189.1

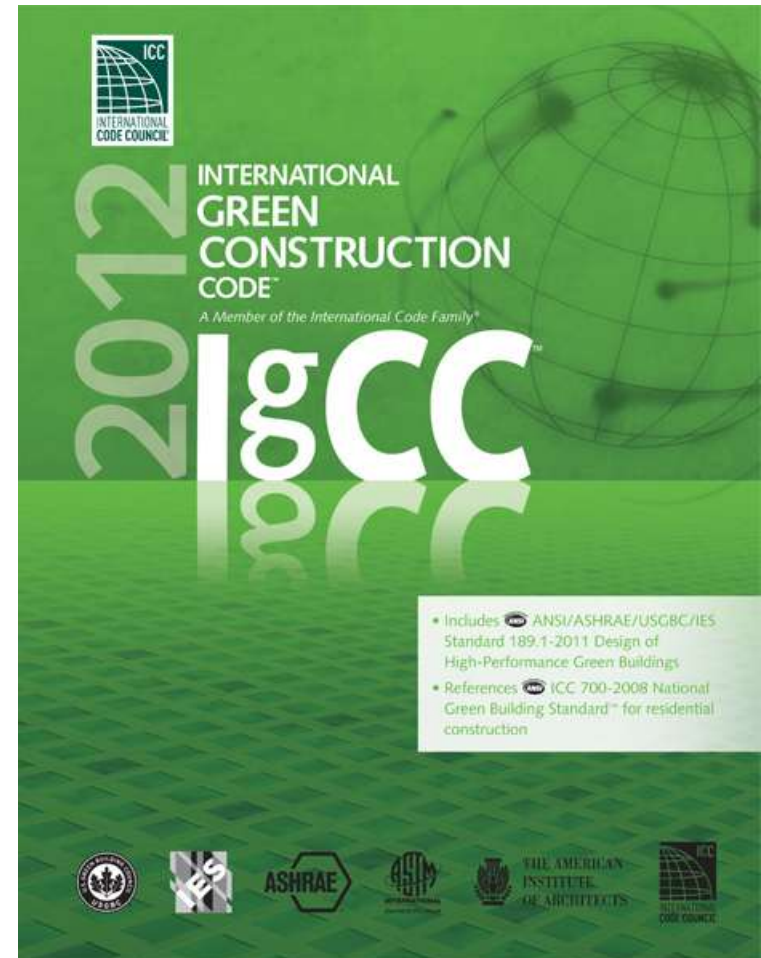


- Serves as benchmark for sustainable green buildings
 - Addresses energy, impact on the atmosphere, sustainable sites, water use, materials and resources and IEQ
 - ANSI accredited consensus development process
 - Alternate compliance path for International Green Construction Code

Sustainable Construction Codes

ICC's International Green Construction Code

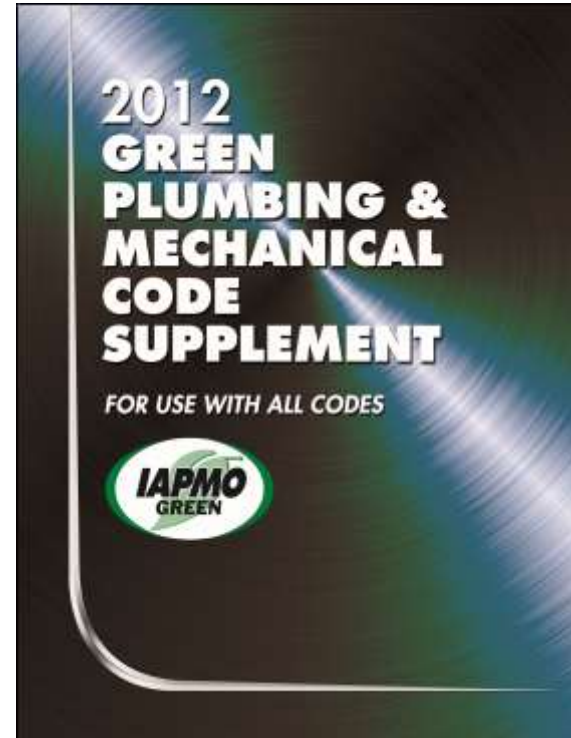
- Broad scope (structural and non-structural provisions)
- Overlay code designed to work with other ICC codes
- First published in March 2012
- Scheduled for revision starting in 2014 for publication in 2015 – 3 year revision cycle
- ASHRAE 189.1 is an alternate compliance path
- Contains energy and water efficiency provisions



Sustainable Construction Codes

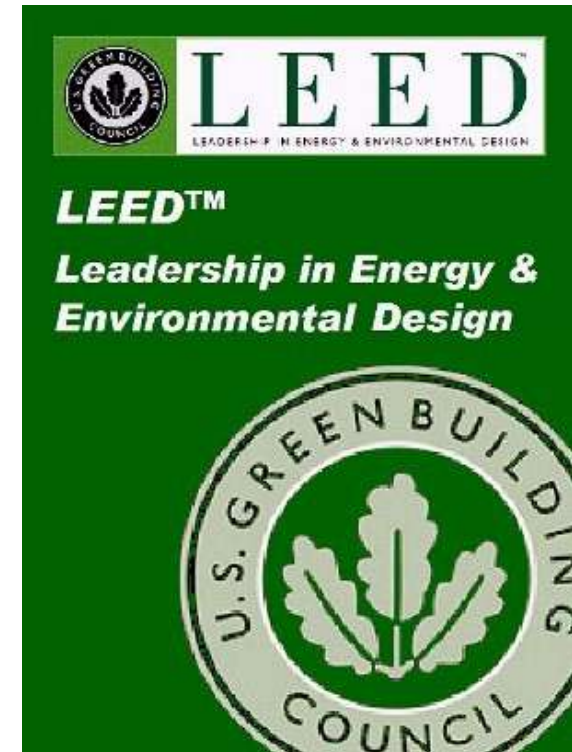
IAPMO's Green Plumbing & Mechanical Code Supplement

- Overlay code designed to work with any baseline plumbing and mechanical code, not just IAPMO codes
- First published in February, 2010
- Updated on continuous maintenance basis
- Repository for emerging technologies and code provisions – eventual incorporation into the baseline codes



Sustainable Construction Rating Systems - USGBC's LEED

- Voluntary program
- Most popular building rating system in USA
- Internationally recognized - established in 135 countries
- Employs an internal consensus process, but not ANSI accredited
- 77 local chapters; 13,000 member organizations; 194,000 LEED accredited professionals
- Points-based system - credit categories
 - Sustainable sites
 - Energy and atmosphere
 - Water efficiency
 - Material and resources
 - Indoor environmental quality
 - Bonus credits for design and operational innovation
 - Regional priority credits available
- Specifications for new and existing buildings, health care facilities, schools and retail buildings

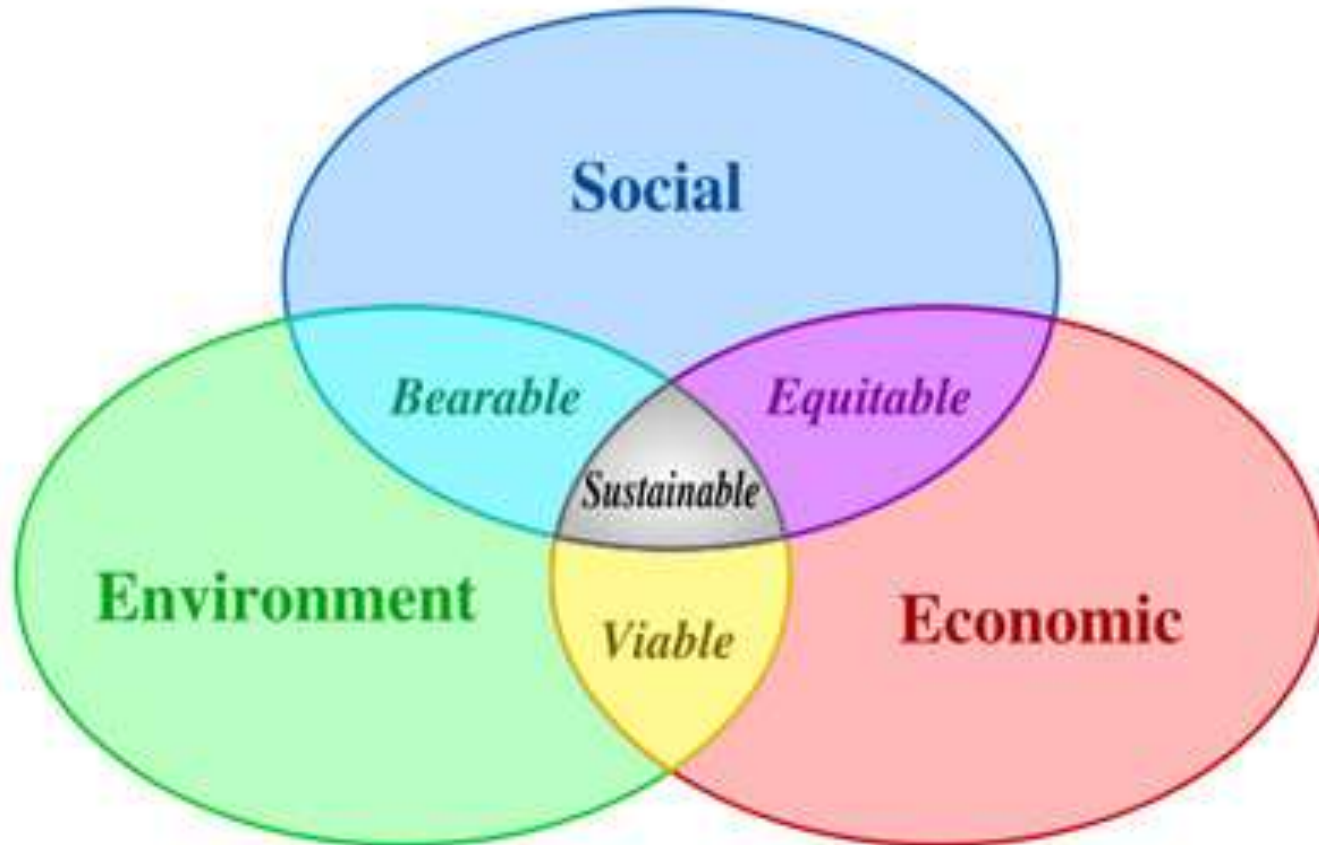


Sustainable Construction Rating Systems - Green Building Initiative (GBI)

- Originated from the Building Research Establishment's Environmental Assessment Method (BREEAM) developed by the Canadian Standards Association (CSA)
- Operated by Green Globes in Canada
- Operated by the Green Building Initiative (GBI) in the U.S.A.
- ANSI-Accredited development process
- An alternative to LEED, uses online software tools to simplify and accelerate evaluation.
- Third-party assessments are performed on site
- Commercial construction
- Point-based assessment system
- Commercial buildings - new construction, renovations and health care



Sustainability and Green Building



Thank you for your attention!



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Gracias!
Obrigado!
Merci!
Thank you!

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