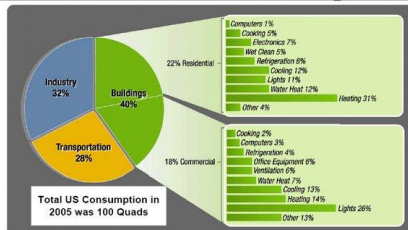


Designing to Thrive

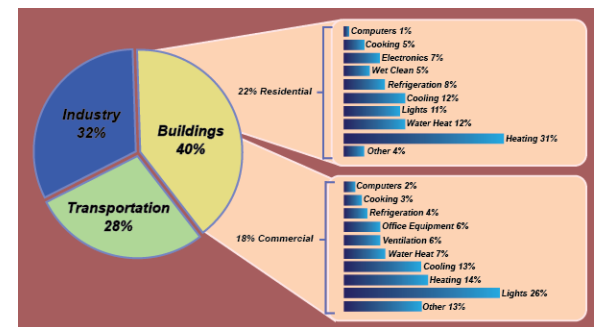
Incorporating Green Practices in Building Codes

Buildings Account for About 40% of US Energy, 72% of Electricity, 55% of Natural Gas, 39% of Carbon, 19% of NO_x, and 52% of SO₂ Emissions.

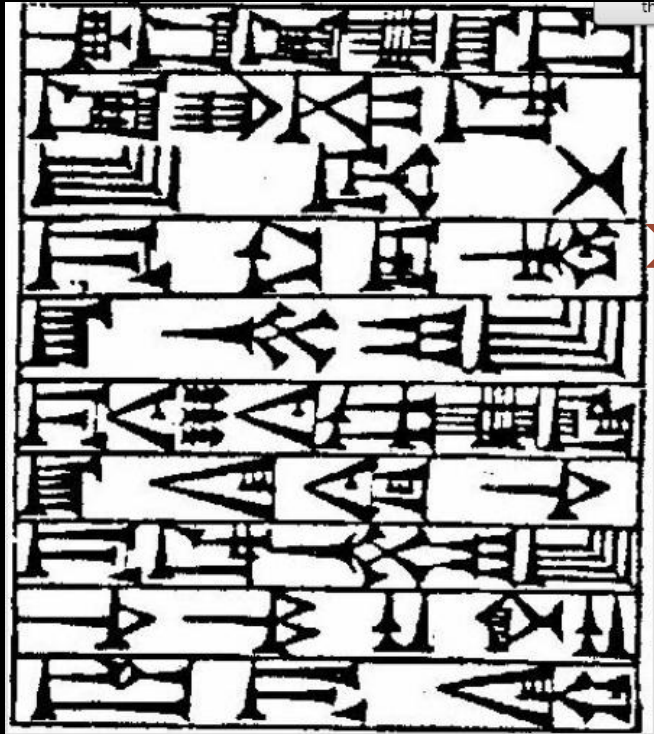


Building Sector construction and renovation accounts for 9% of GDP and employs 8 million people. Energy utility bills total \$370B each year.

Source: Buildings Energy Data Book, September 2007, Tables 1.1.3, 1.1.6, 3.1.1, 3.3.1, 4.1.5, 5.1.2, 5.3.1



HAMMURABI Building Code



Building Codes have a long history going back 4000 years. The "Code of Hammurabi", circa 1780 BC, contains what are generally considered the first written laws concerning building construction.

The "Code of Hammurabi" consisted of 282 laws. Laws 228 thru 233 dealt with building construction:

- 228. If a builder builds a house for someone and completes it, he shall give him a fee of two shekels in money for each sar of surface.
- 229. If a builder builds a house for someone, and does not construct it properly, and the house which he built falls in and kills its owner, then that builder shall be put to death.
- 230. If it kills the son of the owner the son of that builder shall be put to death.
- 231. If it kills a slave of the owner, then he shall pay slave for slave to the owner of the house.
- 232. If it ruins goods, he shall make compensation for all that has been ruined, and inasmuch as he did not construct properly this house which he built and it fell, he shall re-erect the house from his own means.
- 233. If a builder builds a house for someone, even though he has not yet completed it; if then the walls seem toppling, the builder must make the walls solid from his own means.

Brief history of Building Codes

SUPERIOR BUILDINGS REQUIRE SUPERIOR PLANNING

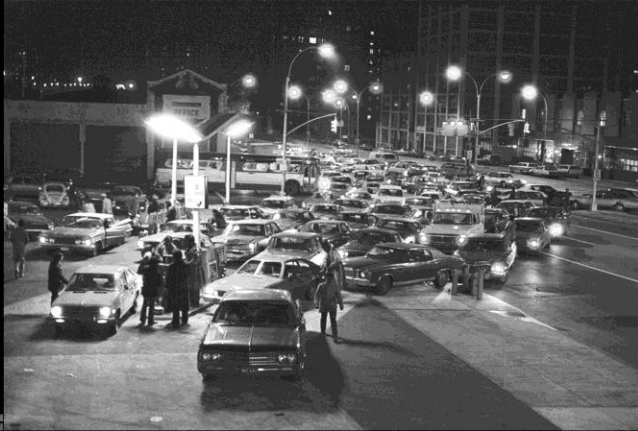


1631 - City of Boston fire prevention ordinance bans wood chimneys and thatch roof coverings.
1666 - The Great London Fire resulted in the London Building Act of 1667. This act set forth requirements for the construction of party walls and required the outside of all buildings to be made of brick and/or stone.
1678 - City of Boston building laws require slate or tile roofs and brick walls.
1788 - Old Salem (now Winston-Salem, NC) writes first known formal US Building Code
1844 - The London Building Act of 1844 required drainage improvements, sufficient street widths to ensure adequate ventilation, regulation of explosives, and required inspectors be appointed to supervise the act. The Metropolitan Building Office was established in 1845.
1859 - Baltimore passes its first building code.
1865 - New Orleans enacts a law requiring inspections of public places.
1867 - Due to the large influx of immigrants over the years and barely tolerable living conditions in tenement buildings, the City of New York enacts a "Tenement Housing Act". This act requires fire escapes and a window for every room.
1875 - As a result of the Chicago fire of 1871 the City of Chicago enacts ordinances regulating building construction and fire prevention.
1875 - London passes the Public Health act.

1879 - The City of New York enacts the "Second Tenement Housing Act" requiring the installation of toilets inside buildings and windows that face a source of fresh air and light.
1896 - NFPA (National Fire Protection Association) is formed.
1896 - Rules for the installation of "Automatic Fire Sprinklers are written.
1897 - NEC (National Electrical Code) is born.
1901 - The City of New York enacts a third "Tenement Housing Act" to address failures of the first two.
1904 - A Handbook of the Baltimore City Building Codes is published.
1908 - A formal building code is drafted and adopted by the City of Baltimore.
1909 - California enacts its first public building code by passing the State Tenement Housing Act.
1915 - BOCA (Building Officials and Code Administration) was established and developed the NBC (National Building Code). BOCA/NBC was mainly used in the Northeast and Mid-western US.
1922 - ICBO (International Conference of Building Officials) is formed by Building Officials from portions of the Mid-western and the Western US.
1927 - ICBO (International Conference of Building Officials) enacts the UBC (Uniform Building Code).
1940 - SBCCI (Southern Building Code Congress International) was formed and developed the SBC (Standard Building Code) which was used mainly in the Southern US.
1994 SBCCI, BOCA, and ICBO form the ICC (International Code Council) in an effort to develop a single set of comprehensive and coordinated national model building codes
1997 - ICC publishes the first edition of the IBC (International Building Code) but it was not widely accepted.
2000 - ICC publishes the first comprehensive and coordinated set of the IBC (International Building Code).

Unlike today's building codes, the laws in "The Code of Hammurabi" and most other ancient codes detail what the consequences of a building failure should be instead of specifying how a building is to be built. Modern building codes have shifted from specifying punishments for building failures and poor construction to mandating requirements that make a building structurally safe, energy efficient, and sanitary to occupy

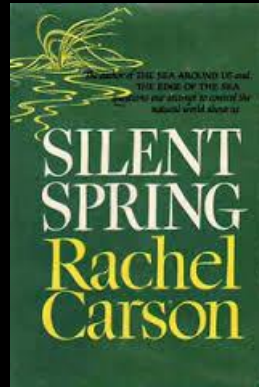
The oil shortage of the 1970s opened many eyes



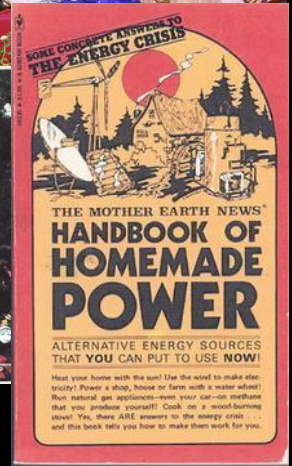
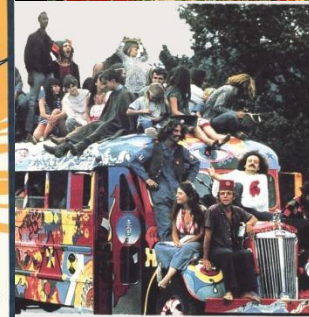
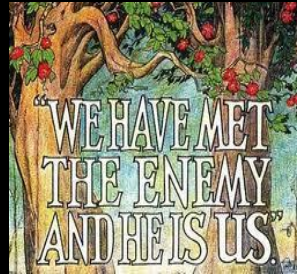
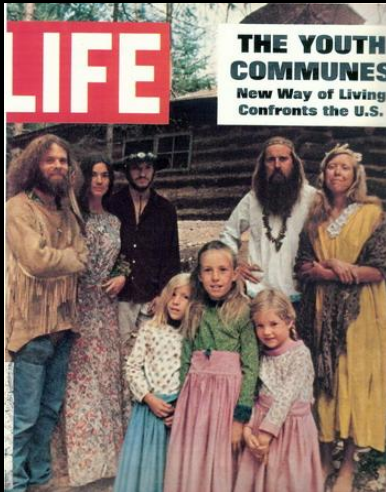
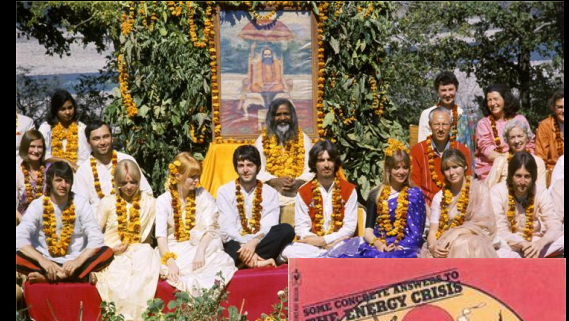
**Energy Conservation and Environmental Concerns
Come to America**



EPA



Earth Day 1970



The 1970s Ushered in Social and Environmental Awareness

Florida was one of the first to create and adopt an Energy Code

The bad news

- Solar hot water subsidies went away
- Photovoltaic subsidies went away
- Gas mileage and many of the concerns of the 70s went away

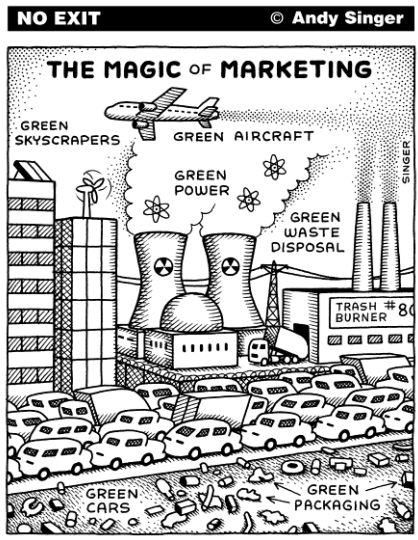
Some good news

- After 30 years, the concerns of the 70s are returning



Unfortunately the green washing is rampant
Everyone has a green product or eco friendly something or other

1980 Changes The Game



**As Demand for Green Grows
Green Washing is Rampant**

- **Code officials** want green and sustainable requirements that are coordinated with other codes that can be enforced.
- **Architects** want a green construction code that will guide their design activities similar to the other I-Codes.
- **Engineers, contractors, manufacturers and standards experts** want a code that reflects appropriate attention to consensus process, enforceability, science and metrics.

The First Decade of The 21s Century Introduces The International Green Construction Code (IGCC)

IGCC™ Fundamentals

Based on *International Green Construction Code™* (IGCC™), Public Version 1.0, March 2010



Consensus Code = Industry Buy In

Development Partners



Purpose of the IGCC

- The IGCC provides a comprehensive set of requirements intended to reduce the negative impact of buildings on the natural environment.



IGCC Framework

- The IGCC uses a new concept called **“Project Electives”**.
- Project electives encourage the voluntary implementation of more sustainable practices which may be more reasonable for some jurisdictions.

Developing A Consensus Code, Designed
Around Project Electives, Simplifies The
Acceptance And Creates A More
Harmonious Atmosphere

Local adoption

Mandatory adoption?

Industry Professionals Find It Easy To
Endorse

Municipalities Can Adopt Items
Specific And Applicable To There
Jurisdictions

The Restoration of a Florida Landmark



Shangri La Springs Holistic Healing Retreat Bonita Springs Florida

IS THIS HOTEL and its HISTORIC INTENTIONS WORTH SAVING?



The answer, according Addison Fischer and Heather Burch is, most definitely yes

The decision was made to restore the property as a
World Class Holistic Healing Retreat



Incorporating the most advanced sustainability and energy efficient technologies

THE PLAN

Special Emphasis

Health Preservation &
Restoration

Social and Spiritual
Awareness

Sustainability

Energy Conservation



Creative Approaches to Address Energy Efficiency, Sustainability, & Health Preservation in Existing Buildings



Starting at the exterior of the building, is the sun an asset or a liability?

Sun warms the exterior and tries to warm the interior

Color of the building and roof

Sun shining in windows

Sun drying planted areas



Reducing Energy Consumption

Energy Conservation

Energy costs, and utility costs will continue to go up

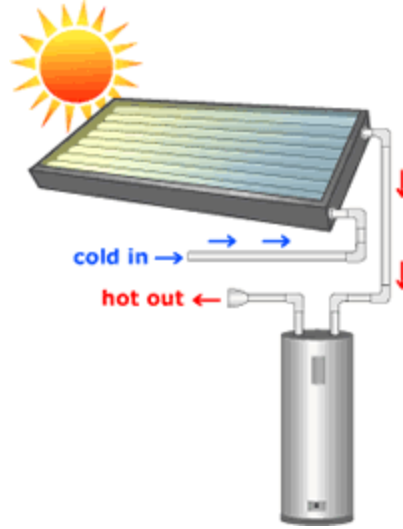
Reducing utility costs

Reduce consumption

Increase efficiency

Decrease need

Create alternative sources



Using The Sun as an Asset

Florida The Sunshine State

PV (photovoltaic) carports



Deciduous trees give shade in the summer and allow in sun in the winter



Using The Sun as an Asset



Light Bulbs
Insulation
Low flow faucets
Flow restrictors
Duel flush toilets
Clean under the
refrigerator
Thermal imaging
Blower door test

Decreasing Need

Do you really need to consume
all the resources you are
currently using?

Increase Efficiency



- Landscaping consumes enormous amounts of water
- Native Vegetation saves money reduces water use and improves sustainability
- Much of the landscaping will be edible



Water Consumption

The Shangri La property is Certified Organic Through Quality Certification Services



The original healing mineral spring for which Bonita was named, is located on the Shangri La property

Gardens
Grove



Kitchen and
Restaurant will
serve 100%
organic



Holistic Healing Retreat



Workshops, Conferences,
Retreats, Event Center, Spa
and Mineral Baths

Organic
No VOC
Chemical Free
Dedicated to Physical and
Spiritual Renewal, Expansion
of Consciousness and a
Sustainable Lifestyle



- **Ethics of planned obsolescence**

- As planned obsolescence is a short term maximization of profits for the producer at the expense of the consumer, and that it leads to overproduction of goods (and a coincident over-extraction of material resources) at the expense of the planet, the general ethics of planned obsolescence and its impact on humanity is negative.

- The excess-waste generated from planned obsolescence has an obvious impact on human life in multiple ways.
- A decline in environmental systems due to greater pollution caused by greater resource extraction.
- A decline in environmental systems due to greater waste generation.
- A decline in long-term per-capita production which translates to lower long-term standards of living.
- An increase in living costs as products must be bought multiple times.
- A general cultural cost from a greater percentage of time being spent in non-culturally fulfilling activities.
- Planned obsolescence is an artifact of the current global economic system which has goals that are opposed to long-term environmental health, human cultural expression, and stable wealth creation and retention.

PLANNED OBSOLESCENCE