Washington Energy Summit

Smart, Cost-Effective, Next-Generation Green Buildings

AIA Communities by Design

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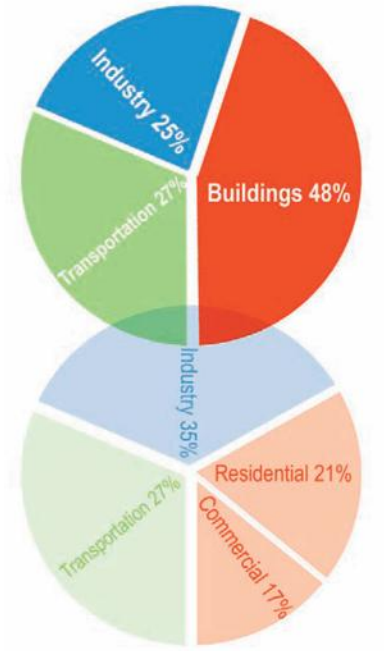
Russell A. Davidson, AIA

President KG&D Architects & Engineers PC

1979

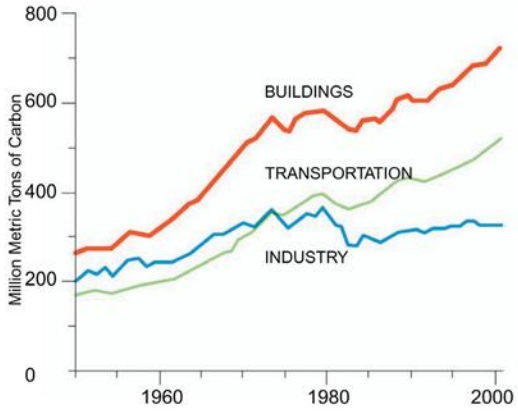
2009

AIA Architects and Climate Change



GRAPHIC 1: Combining the annual energy required to operate residential, commercial, and industrial buildings along with the embodied energy of industry-produced building materials like carpet, tile, glass, and concrete exposes buildings as the largest energy consuming and greenhouse gas emitting sector.

Buildings Account For Half Of All Greenhouse Gas Emissions



GRAPHIC 2: U.S. CO2 Emissions by Sector.

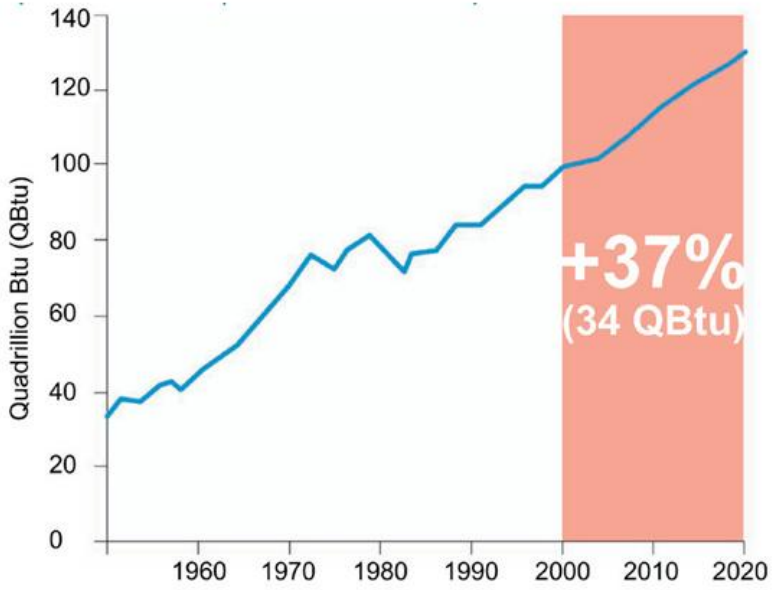
In our quest to dramatically cut greenhouse gas emissions and lessen our dependence on fossil fuels, we have overlooked the biggest source of emissions and energy consumption both in this country and around the globe: buildings and the energy they consume each year. Buildings and their construction account for nearly half of all the greenhouse gas emissions and energy consumed in this country each year. This includes energy used in the production and transportation of materials to building construction sites, as well as the energy used to operate buildings, Globally the percentage is even greater. The Building Sector is the key source of demand for energy and materials that produce by-product greenhouse gases.

U.S. annual energy consumption is projected to increase by 37% (34 quadrillion Btu) and greenhouse gas emissions by 36% over the next twenty years. Annual global energy consumption is projected to increase by 54% (230 quadrillion Btu) over this same period.

Building Sector Emissions Are Increasing Dramatically

Buildings have a lifespan that lasts for 50 to 100 years throughout which they consume energy and produce emissions. The Building Sector as the major U.S. and global greenhouse gas emitting sector, is poised to fuel the world's rush toward climate change. The U.S. alone is projected to need 1,300 to 1,900 new power plants over the next 20 years (about one power plant per week). Most of this new energy will be needed to operate buildings.

The United States will add 22 million buildings that will not only consume electricity produced at a central power plant, but also directly burn oil, natural gas and/or propane in boilers, furnaces and hot water heaters. In fact, 58% of end-use energy needed to operate a building is consumed by the burning of fuel onsite.



GRAPHIC 3: U.S. Energy Consumption Projections

1 quadrillion Btu is equal to annual energy output of 40 - 1,000MW power plants.

definitions

The ability of a community to “meet the needs of the present without compromising the ability of future generations to meet their own needs.”

-UN Commission on the Environment

Making decisions based on how they will affect not only our generation, but also seven generations from now.

-Iroquois Nation

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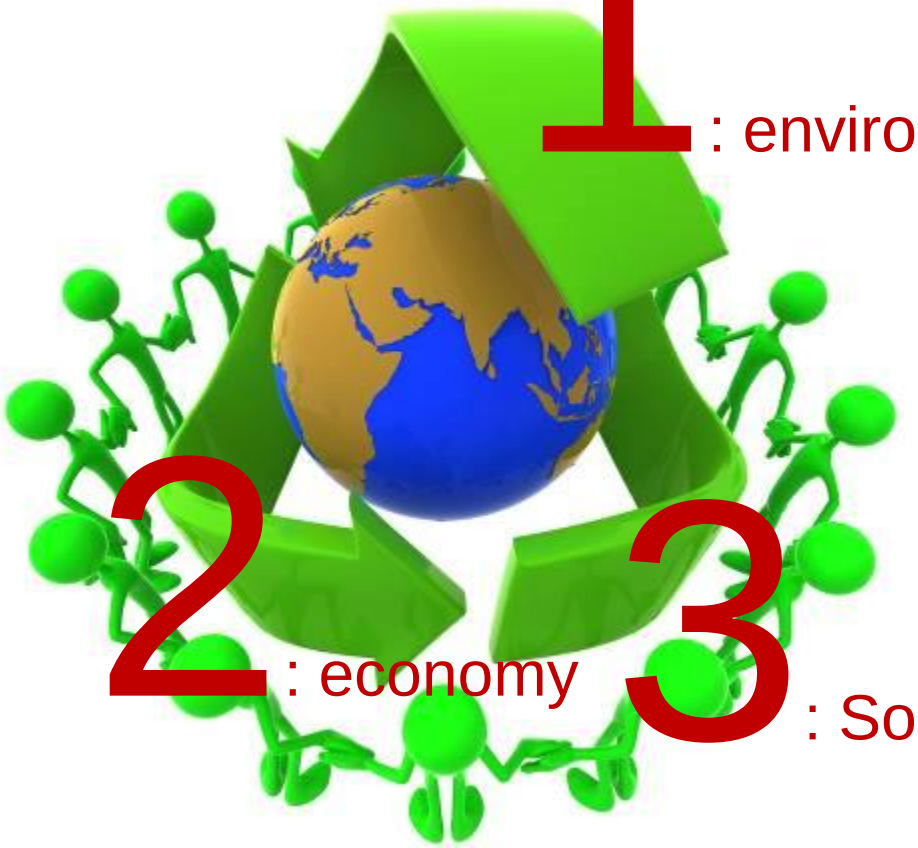
Designing the Connections



1 : environment

2 : economy

3 : Social equity

Sustainability is a three-dimensional opportunity for community improvement

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Why Do Buildings Matter?

- Nearly 70% of total U.S. electricity consumption
- 40% of total U.S. primary energy use
- 40% of total U.S. greenhouse gas emissions
- 136 million tons of construction and demolition waste in the U.S. (approx. 2.8 lbs/person/day)
- 12% of potable water in the U.S.
- 40% (3 billion tons annually) of raw materials use globally

U.S. ENERGY CONSUMPTION

INDUSTRY
27%

TRANSPORTATION
33%

BUILDINGS
40%

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Local Leaders in Sustainability

Green Building Policy
in a Changing Economic Environment

THE AMERICAN INSTITUTE OF ARCHITECTS

Local Leaders in Sustainability

A Study of
Green Building Programs
in Our Nation's Communities

The American Institute of Architects
AIA

Local Leaders in Sustainability

Green Incentives

The American Institute of Architects
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Green Counties

AIA Green Government NACo

www.aia.org/localleaders

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LOCAL LEADERS IN SUSTAINABILITY

SPECIAL REPORT FROM SUNDANCE

A National Action Plan for Greening America's Schools

The American Institute of Architects
The Redford Center
ICLEI USA - Local Governments for Sustainability
U.S. Green Building Council

AIA

- *The importance of green schools*
- *Local green schools policy case studies*
- *Green Schools project profiles*
- *Leadership profiles*
- *Action Plan for Greening America's Schools*

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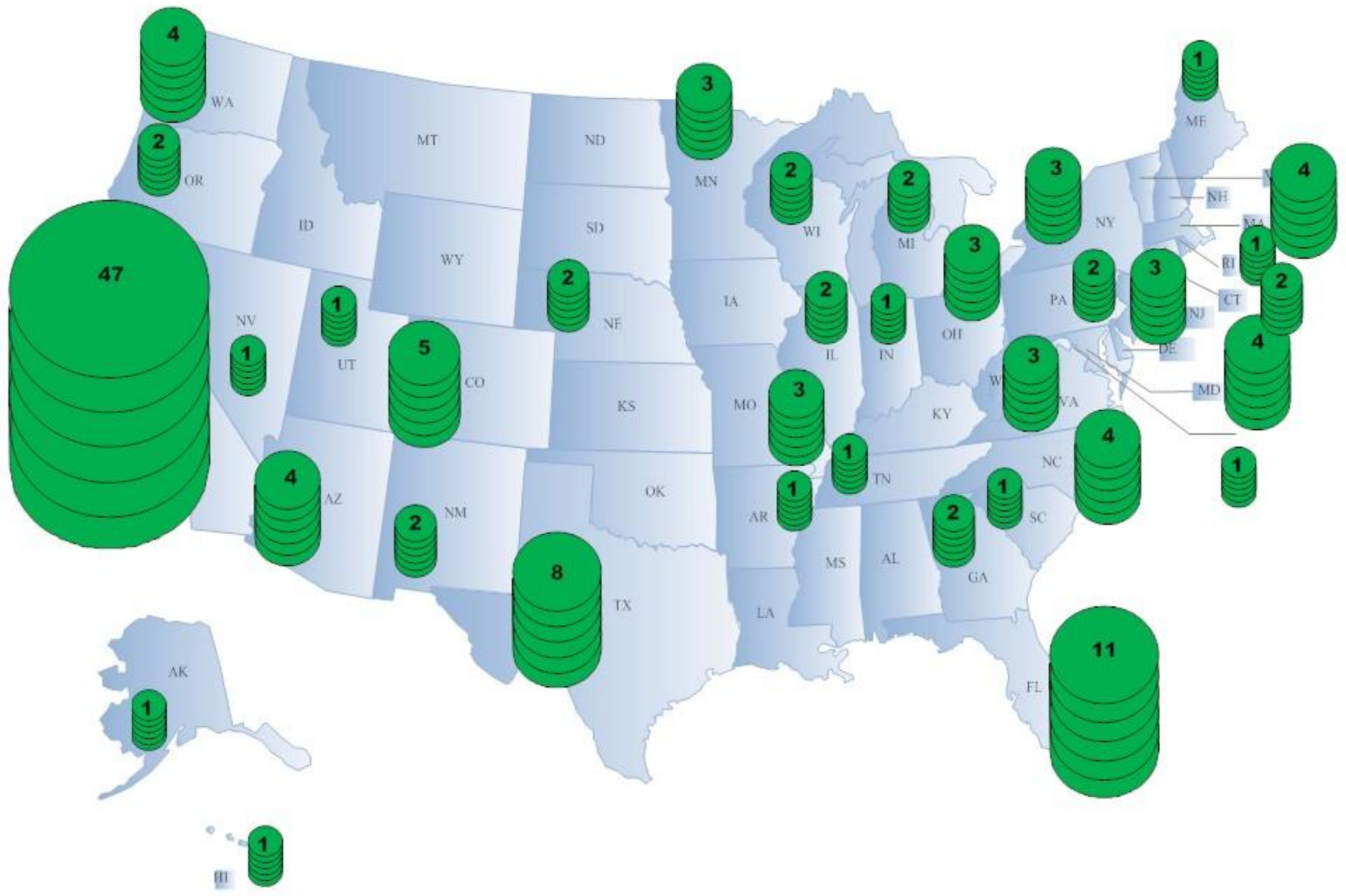
Green Building Policies

- Vast majority of policies mandate green construction (LEED Rating System) for public buildings
- Many policies incentivize sustainable building practices for private sector (commercial and residential)
- A growing number of cities are now mandating green building on the private sector
- Cities are focused on Green Jobs and Green Economic Development

Green Building Programs in Cities with a Population Over 50,000



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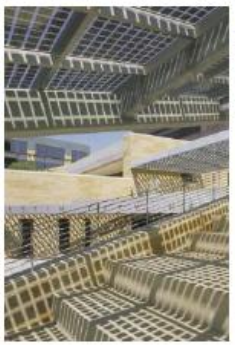
Local Leaders in Sustainability

Case Studies







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Los Angeles

- Earth Day 2008 Mandatory Green Building Policy
- GreenLA and greenhouse gas emissions reductions
- EnvironmentLA and green economic development

Rampart Community Police Station, Los Angeles; Architect: Nick Seierup/Perkins + Will; photo by Michael Urbanek/ArchitecturalShots.com

Boston

Macallen Building Condominiums, Boston; architect: Burt Hill, Office dA; photo by John Horner Photography 2008

- Mayor's Green Building Task Force
- Green Building Zoning Code
- Green Affordable Housing
- Green Tech Initiative and Economic Sustainability

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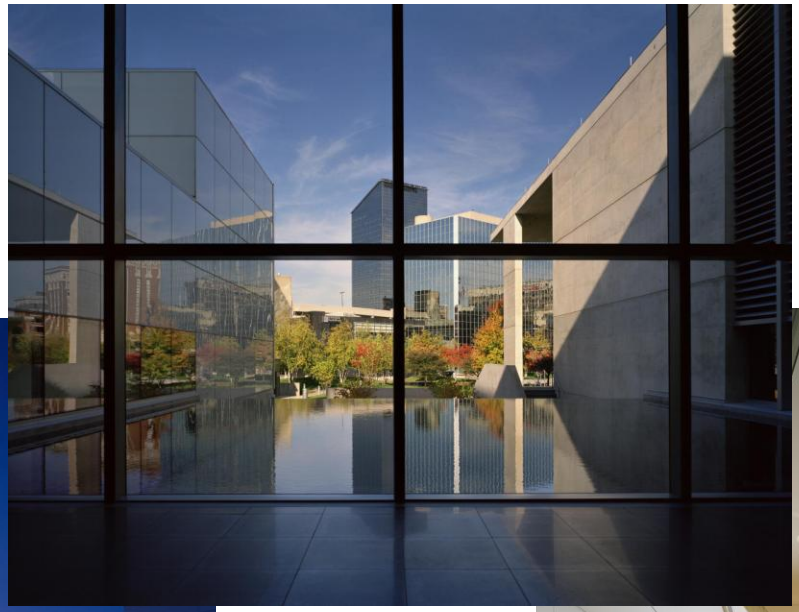
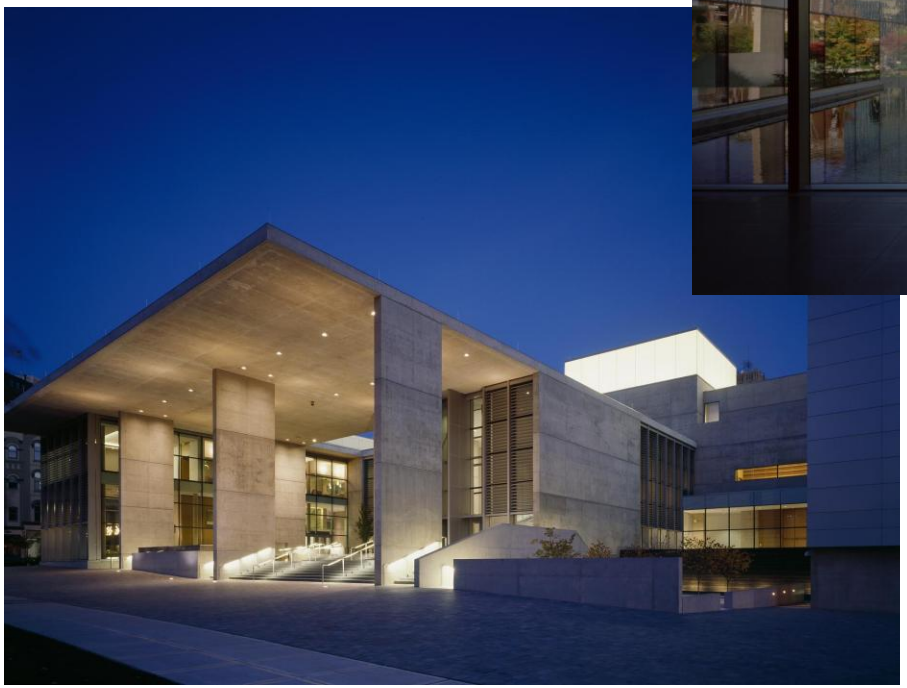
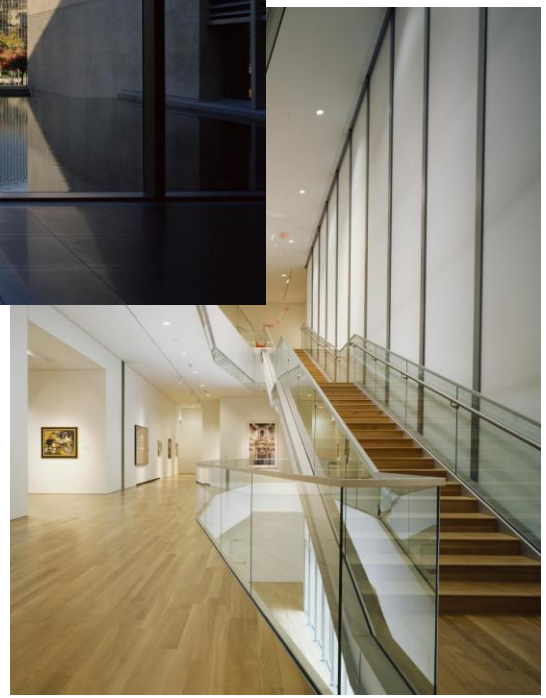
Grand Rapids

"We are so proud of our deep history with green building."
- Mayor George Heartwell







Mich.; architect: wHY Architecture; photo by Steve Hall@Hedrich Blessing

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Nashville

Mayor Karl Dean is seeking to make Nashville the "greenest city" in the south with innovative green building and sustainability initiatives

The Gulch, Nashville; architect: Looney Ricks Kiss Architects, Inc.; photo by MarketStreet Enterprises

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Alameda County

- Build it Green – GreenPoint
- Mini Grants Program
- Technical Assistance & Green Building Grants

Henry Siegel, FAIA, 2008 AIA COTE Chair, “Looking at projects from a sustainability perspective is quickly becoming, if it is not already, the standard approach to designing buildings in our community. Because of our strength in ecologically sensitive design, we like to think of ourselves as a partner in our community’s effort to create buildings that are cherished.”

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King County

- GreenTools
- LEED Grant Program
- Residential Built Green Standard

Norman Strong, FAIA, former AIA VP, “There has been an active engagement of the design profession in the development of policies, but architects could and should be called upon as a resource to the discussion because of our ability to directly impact climate change through responsible, sustainable designs.”

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Portland

Gerding Theater at the Armory, AIA/COTE 2007 Top Ten Green Projects honorable mention. GBD Architects Inc., Portland, Ore. Photo courtesy of GBD Architects Inc.

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Austin

Austin City Hall. Antoine Predock Architect PC. Photo by Timothy Hursley.

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10 Recommendations for Continued Greening

Recommendations

- Be inclusive
- Architects are here to help
- Hire a Director of Sustainability
- Train and accredit municipal employees
- Keep it simple
- Implement additional sustainability initiatives
- Pursue green economic development
- Make it regional
- Remove legal barriers
- Green buildings need green communities

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Livable Communities & Design Assistance Teams

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What is the Design Assistance Team Program?

- **Since 1967**……Collectively the DAT program, a public service of the AIA, represents over 500 professionals from 30 disciplines providing more than $3.5 million in professional pro bono services to more than 180 communities across the country

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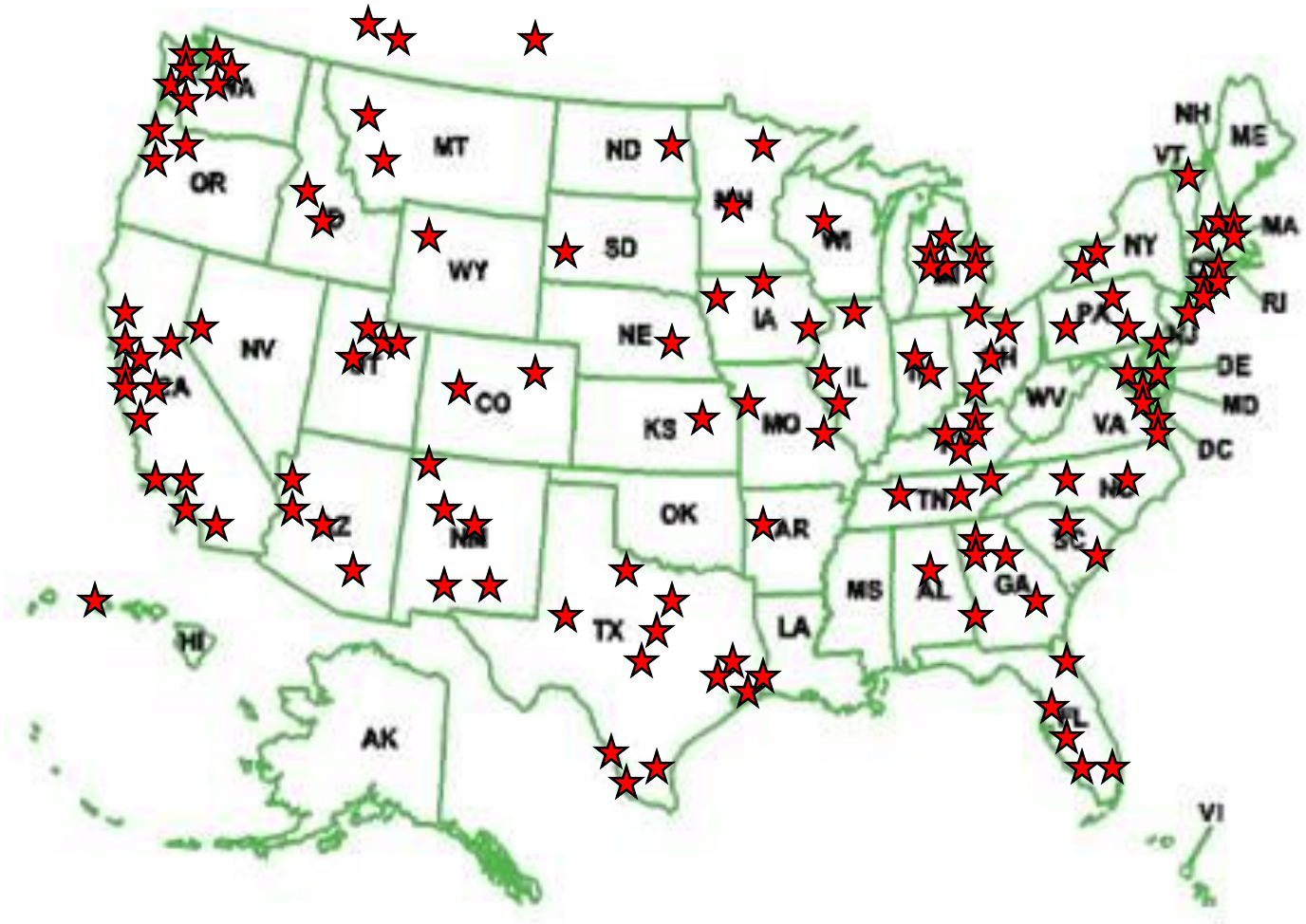
143 Regional/Urban Design Assistance Team Communities



41 Sustainable Design Assessment Team Communities

2010 SDAT Communities

Allegheny County, PA

Allentown, PA

Bridgeport, CT

Coos County, OR

Ithaca, NY

Oxford, MS

Portland, ME

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SDAT Principles

- Unique Community Solutions
- Multi-Disciplinary Team
- Objective Outsiders
- Community Participation

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Design of a Livable & Sustainable Community

Green building **Transit oriented** **Livable** **Walkable**

Chronicle / Michael Macor


FRAMEWORKS
ART ON FILM


MANVILLE RD

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The AIA is your Resource
Contact Us!

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