SUSTAIANABILITY2030

Architects and Climate Change

Libby Dannenberg
Director, State and Local Affairs

AIA

the state of things today

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Viktor Koen

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Energy
And the Built Environment

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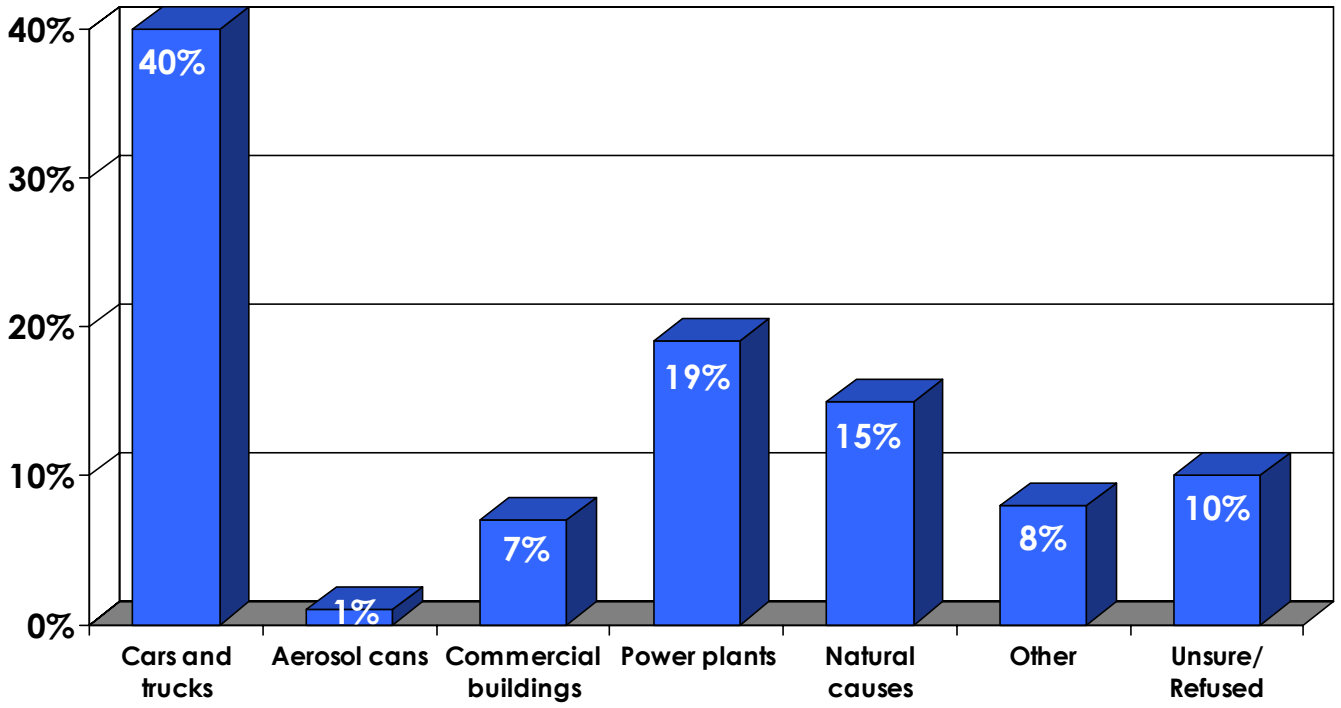
THE TARRANCE GROUP

Lake Research Partners
Lake Snell Perry Mermin Meadow Gotoff

January 21-24, 2007 / N=1,000 Registered Voters / ±3.1% M.O.E.

When asked what they THOUGHT was the top cause of greenhouse gas emissions today, voters responded:



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But the reality is…

INDUSTRY
25%

TRANSPORTATION
32%

BUILDINGS
43%

U.S. ENERGY CONSUMPTION

Source: Energy Information Administration Statistics and Pew Climate Report

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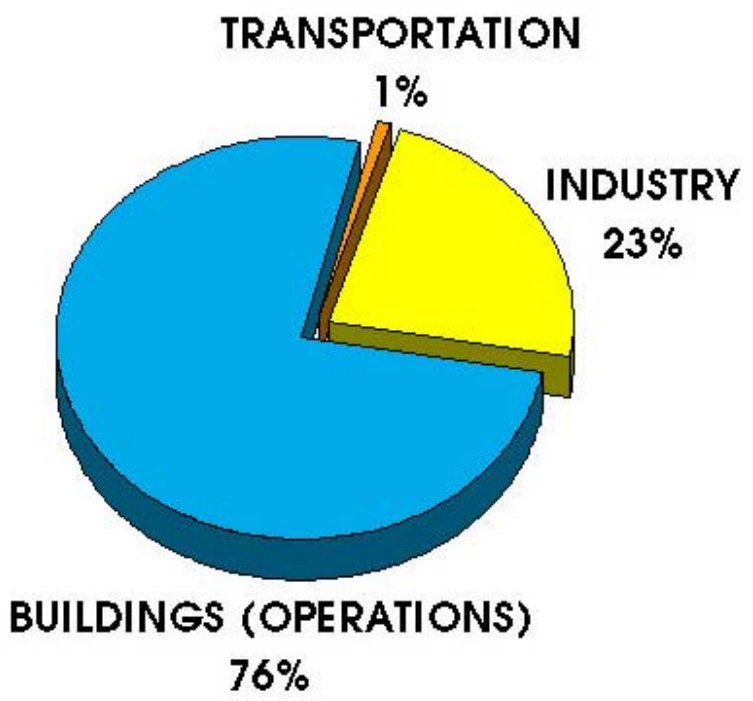
U.S. Electricity Consumption



Source: Energy Information Administration Statistics

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why does the AIA care?

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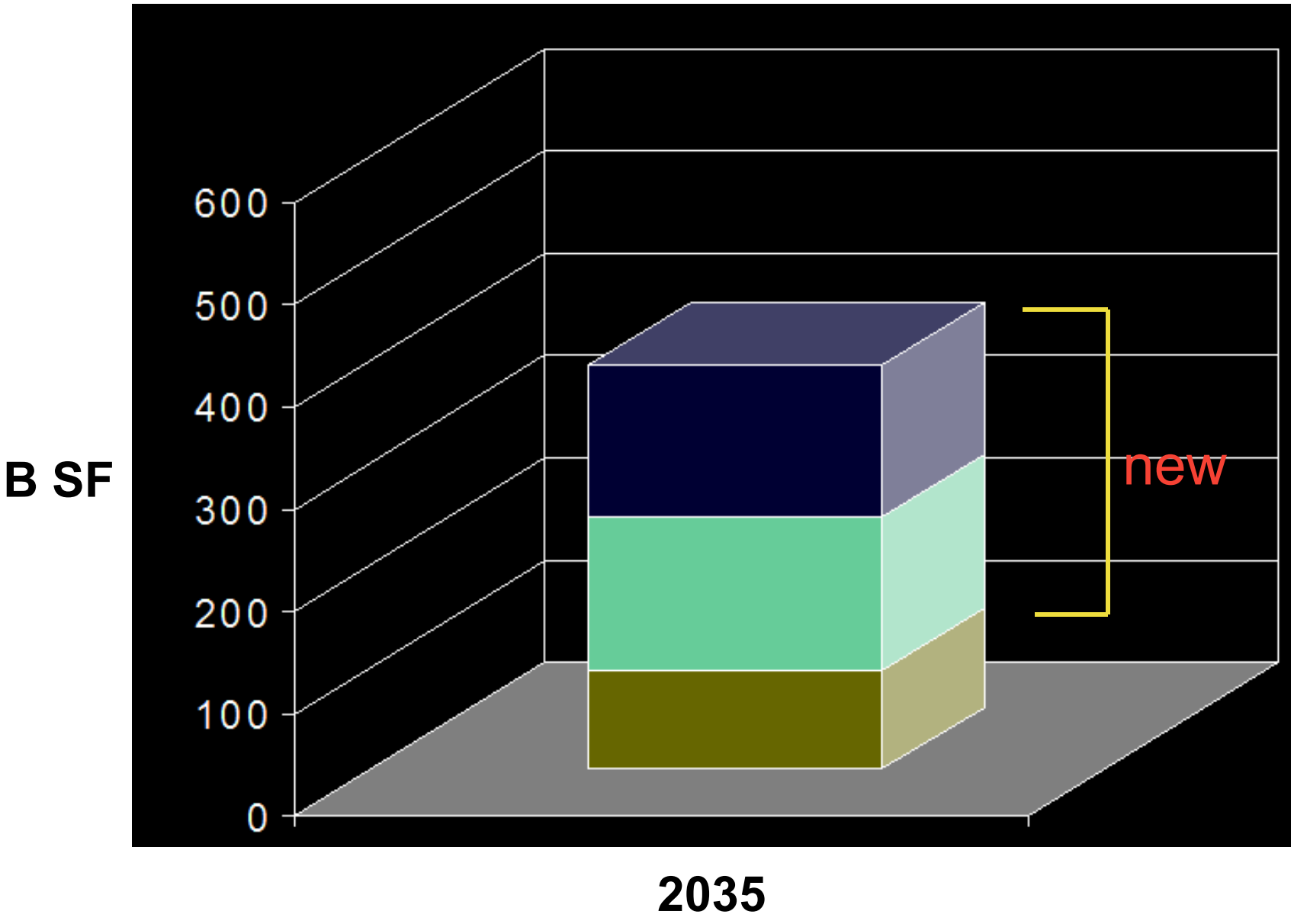

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Architects are key to the Solution!

By 2035, 3/4 of the U.S. building stock will be either new or renovated

source: architecture 2030

AIA acting through:

Collaborations

Tools

Regulations

Incentives

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what is the AIA doing?

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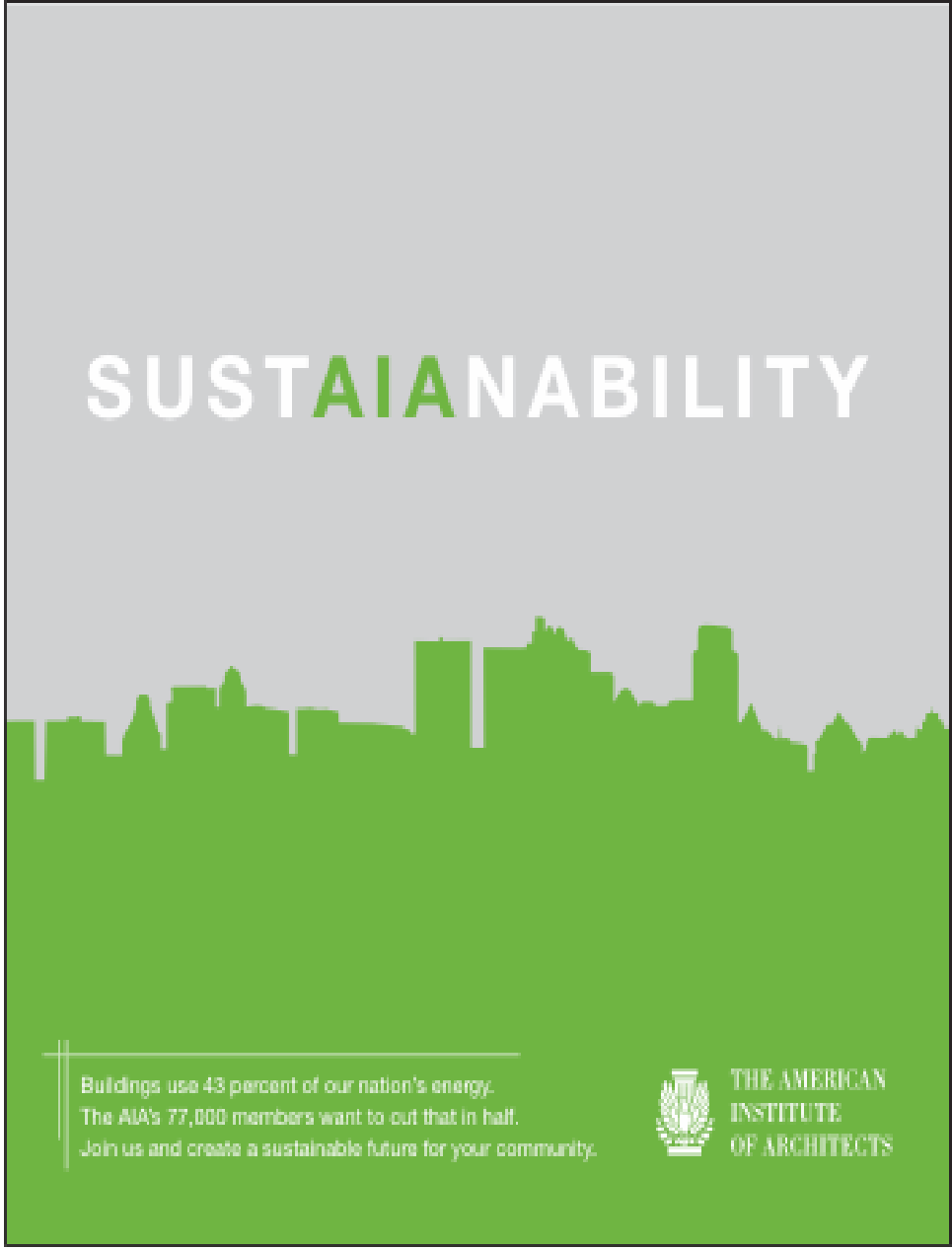
December 2005:
AIA Board adopts “green” policy position



AIA's carbon emission reduction targets

By 2010 …….
New & Renovated Buildings
50% Reduction

2010 – 60%
2015 – 70%
2020 – 80%
2025 – 90%

2030 - net zero carbon emissions

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Education + Resources

50to50
Clarify means and methods "principles and practices"

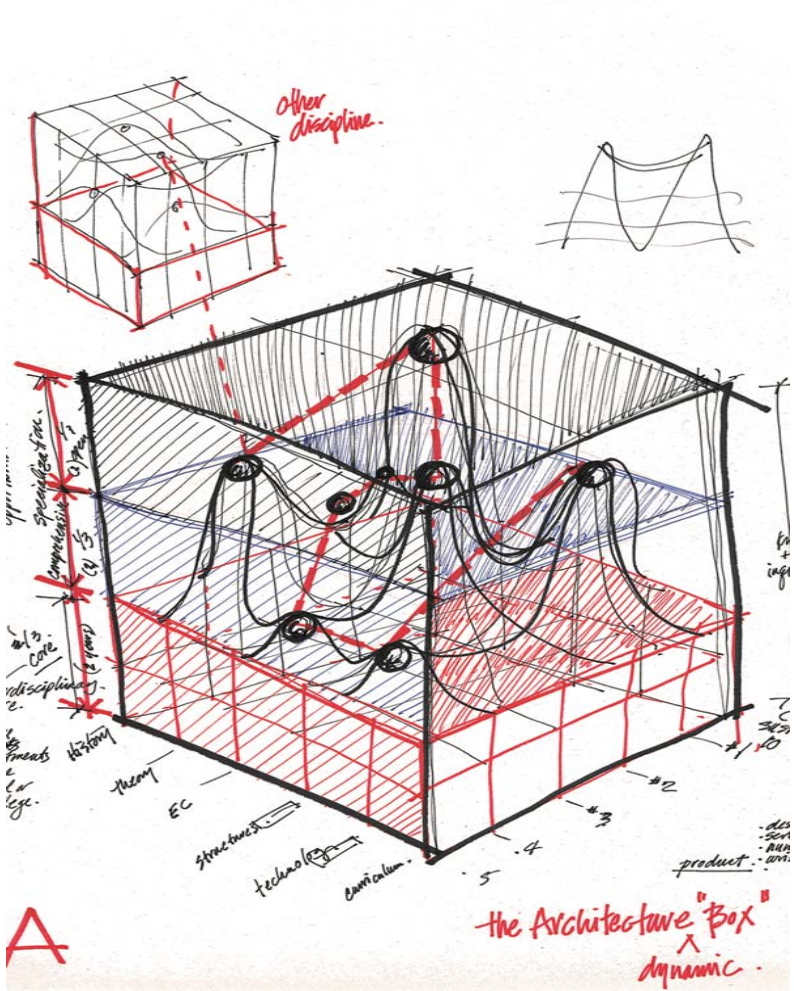
SustAIAnability2030 Toolkit
for mayors and city councils, architects and the public

SustAIAnability2030 Roadshow
to provide immediate introduction, principles and practices to members and sub-units devoted to Knowledge Communities.

Sustainable Education
Enhanced curriculum for the academy

Green the AIA travel venues.

50»50



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SustAIAnability2030 Toolkit

www.aia.org/static/state_local_resources/adv_sustainability/

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we are not alone!

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…And Others Quickly Followed:

US Conference of Mayors Adopts the "2030 Challenge"

By CHRISTINA ALMEIDA
Associated Press

LOS ANGELES - A call by the nation's architects to dramatically reduce the amount of fossil fuels used by buildings has won the endorsement of the U.S. Conference of Mayors.

The mayors' group, meeting in Las Vegas earlier this week, approved the ''2030 Challenge'' for city buildings, citing a similar sustainable design resolution passed by The American Institute of Architects in December.

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County adopts '2030 Challenge' to reduce fossil-fuel emissions

SARASOTA COUNTY (THURSDAY, JULY 20, 2006) - The Sarasota County Commission has approved a resolution to drastically reduce its fossil-fuel emissions over the next two decades. By adopting the "2030 Challenge," the county has committed to design all new construction and building renovations to use one-half the fossil fuel energy currently permitted

City pushing to make Santa Fe more 'green'

By HENRY M. LOPEZ | The New Mexican
June 8, 2006

During a news conference at City Hall on Wednesday, Mayor David Coss and members of environmental groups and the state government discussed the 2030 Challenge -- an effort to eliminate fossil-fuel power from all city buildings by 2030.

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State of New Mexico
Office of the Governor

Bill Richardson
Governor

EXECUTIVE ORDER 2006-001

STATE OF NEW MEXICO ENERGY EFFICIENT GREEN BUILDING STANDARDS FOR STATE BUILDINGS

New construction and renovation projects of public buildings shall achieve a minimum delivered energy performance standard of one half the U.S. energy consumption for that building type as defined by the U.S. Department of Energy.

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NEWS RELEASE

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USGBC UNVEILS 8 CLIMATE ACTIONS
Goal is to more closely align USGBC with Climate Initiatives

November 15, 2006 (Denver, CO) - USGBC's board and the LEED Steering Committee have this week put forth a series of proposals and recommendations that will bring further focus on green buildings and their impact on climate. Each of the eight specific actions will have an immediate and measurable impact on C02 reduction; when implemented in concert, they comprise a powerful leadership initiative that sets a high bar for the industry.

1. The 50% CO2 reduction goal

Beginning in 2007 all new commercial LEED projects will be required to reduce CO2 emissions by 50% when compared to current emission levels.

Because LEED drives performance through the synergistic integration of whole building systems, these results will be achieved by looking at all four of the categories that can lessen a building's carbon footprint – energy, water, transportation and materials. This important proposal will go to our membership for ballot in December, and it will become effective after the date of member approval of this goal. We will begin to develop a similar recommendation for residential and neighborhood markets.

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ASHRAE
Advancing HVAC&R to serve humanity and promote a sustainable world

Building Sector Unites to Confront Global Climate Change

For Release:
December 1, 2006

Contact: Jodi Dunlop
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ATLANTA - Recognizing that the building sector is responsible for almost half of all greenhouse gas (GHG) emissions annually, key leaders in this sector have banded together to confront the global-warming crisis.
Last week, the American Institute of Architects (AIA), U.S. Green Building Council (USGBC), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Architecture 2030 and about 20 other leaders attended a special meeting at the 2006 Greenbuild International Conference and Expo, a conference presented annually by the USGBC.

According to Rick Fedrizzi, president, CEO and founding chairman of USGBC, "Eliminating the built environment's negative contribution to climate change is not just a strategic priority, it's our collective responsibility to generations to come. Science tells us we have 3650 days to meet that goal, and urgent action is required."
During the meeting, the group reached a consensus on three critical issues facing the building sector as it works to bring energy consumption and GHG emissions under control: the need for a common goal, the definition of this goal and a baseline to measure progress against.

"The building industry is coming together around the common goal of Architecture 2030's targets for reductions in energy use. The organizations and individuals in this meeting need to reach out to the entire industry, encouraging them all to work together in achieving these targets," said R.K. Stewart, president-elect of AIA.
In a show of solidarity and commitment, these leaders have adopted 'The 2030 Challenge' targets. The 2030 Challenge, a global initiative officially launched by Architecture 2030 in January 2006, calls for all new buildings and major renovations to reduce their fossil-fuel GHG-emitting energy consumption by 50 percent immediately, increasing this reduction to 60% in 2010, 70% in 2015, 80% in 2020, 90% in 2025, and finally, that all new buildings would be carbon neutral by the year 2030.

Terry Townsend, president of ASHRAE, stated that, "ASHRAE is committed to developing the tools needed to accomplish the Architecture 2030 challenge."

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National Association of Counties Supports 2030 Challenge

Adopted July 17, 2007

RESOLUTION URGING COUNTIES TO ADOPT THE "2030 CHALLENGE" GOALS FOR PUBLIC BUILDINGS

Issue: Climate Change and Green Energy Efficiency Buildings.

Adopted policy: NACo supports the goals of the 2030 Challenge to encourage counties to set goals for renovated and all new public buildings to become carbon neutral by 2030. NACo supports federal efforts to promote high performance green building principles.

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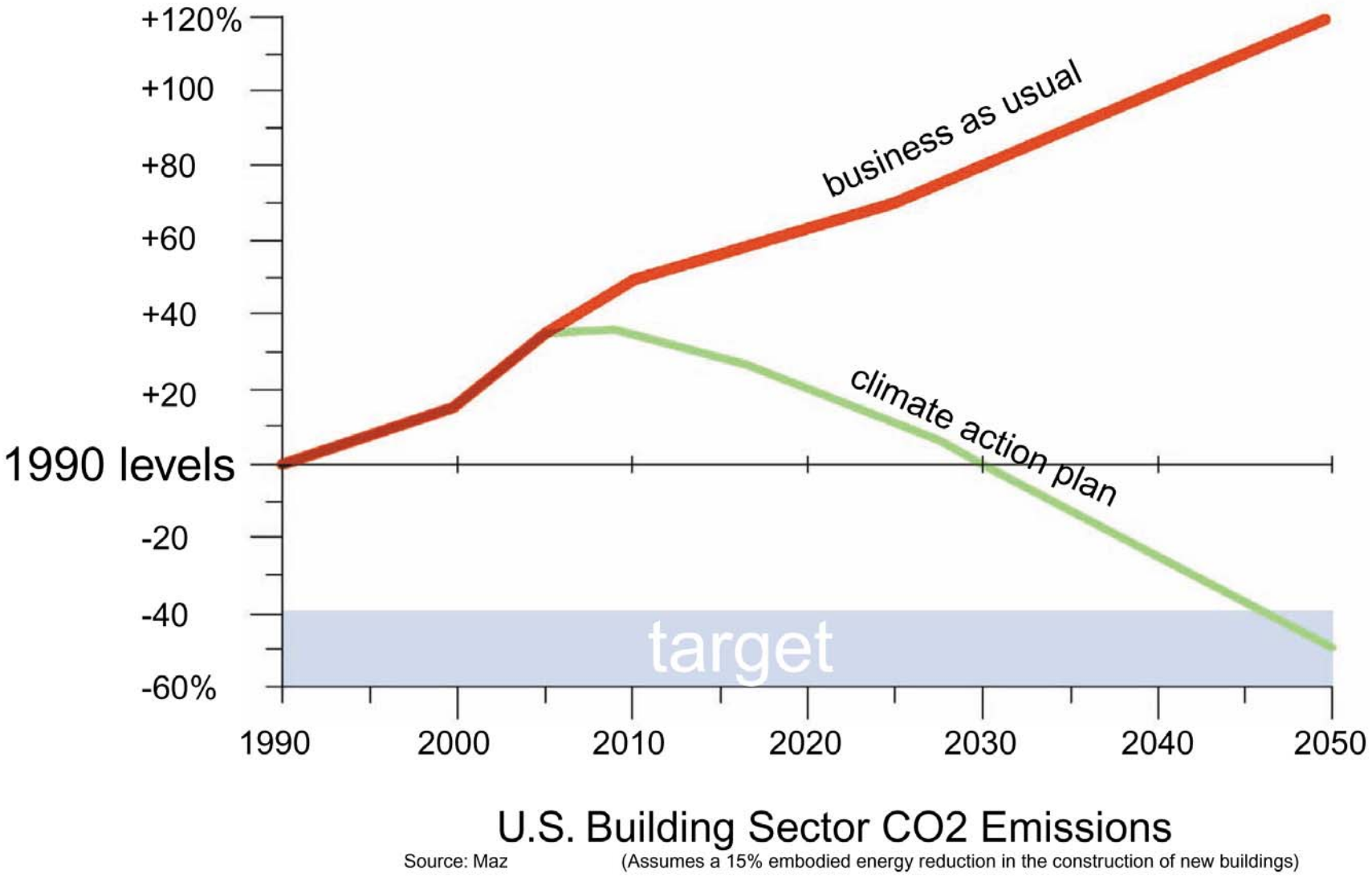

Source: Ed Mazria, Architecture2030

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how can I possibly get there?

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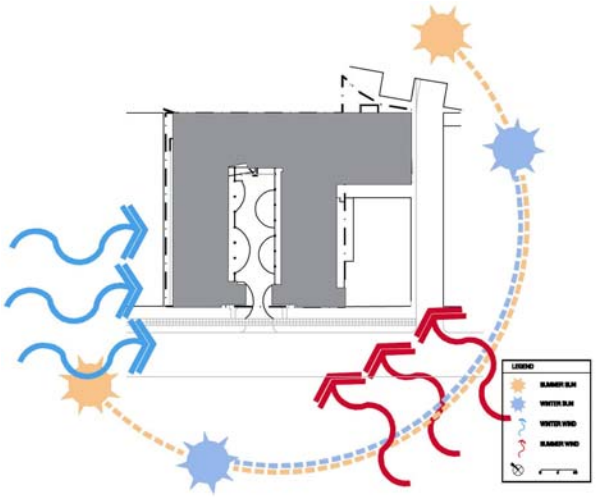
Simple Steps to Green Design

- Design spaces to be as **efficient** as possible
- Use an integrated team approach
- Take regional climate conditions into consideration and design accordingly
- Use **natural systems** to ventilate and light buildings
- Use materials that are appropriate for a given project type
  - Select materials that improve **energy efficiency**
  - Use **locally** manufactured **materials**
  - Use materials that improve indoor air quality



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What Are Some Benefits of “Green” Design?

Environmental Benefits

- Reduce the impacts of natural resource consumption

Economic Benefits

- Improve the bottom line

Health and Productivity Benefits

- Enhance occupant comfort and health

Community Benefits

- Minimize strain on local infrastructures and improve quality of life

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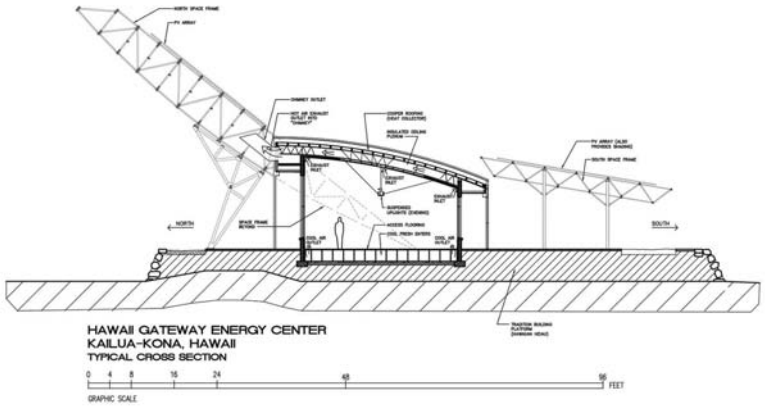
Hawaii Gateway Energy Center

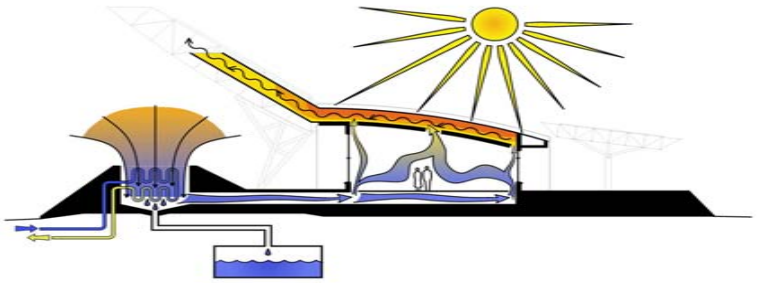
Ferraro Choi & Associates

Kailua-Kona, HI

’07 COTE Top Ten Winner



PV’s originally provided about 75 % of electricity. It is very worth noting that additional commissioning and tweaking of system has turned the building into a net energy producer.



Condensation from cold seawater pipes collected for flushing and irrigation. Coils in ground “sweat” onto adjacent plants.

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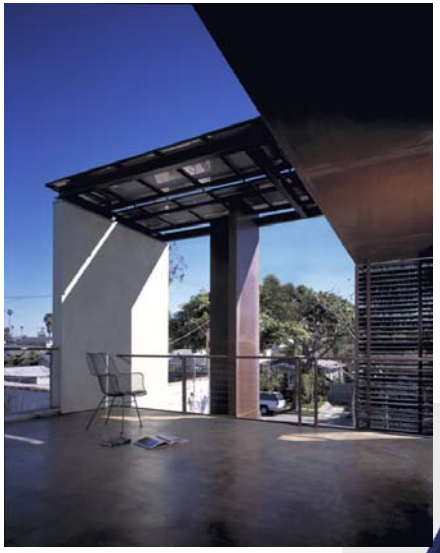
Solar Umbrella House

Pugh + Scarpa Architects

Venice, CA

’07 COTE Top Ten Winner



These panels provide 95% (soon to be 100%, they are adding more) of the house’s electricity and provide shading for indoor and outdoor spaces.

The photovoltaic panels on the top and side are used as an expressive and transformative part of the design.

The pool in the foreground is part of the house’s storm water retention system.

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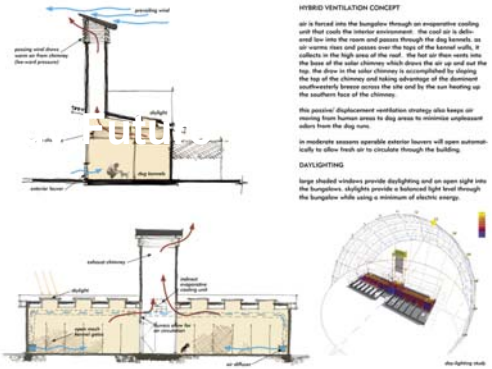
’07 COTE Top Ten Winner

Regional Animal Campus

Tate Snyder Kimsey Architects

Las Vegas, NV

Evaporative cooling is mixed with natural ventilation



The jury loved this unusual project

They achieved 81% energy reduction, 28% of needs provided by PVs, with a future wind farm planned

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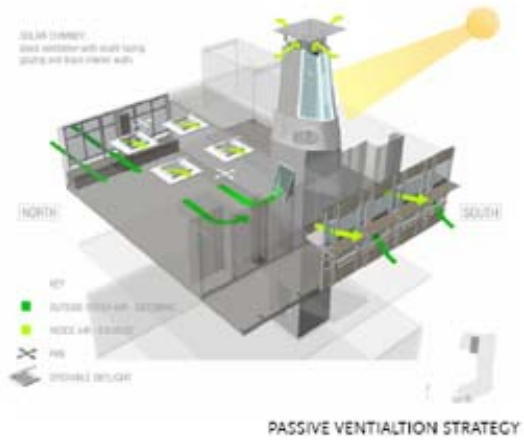
’07 COTE Top Ten Winner

Sidwell Friends School

Kieran Timberlake Architects

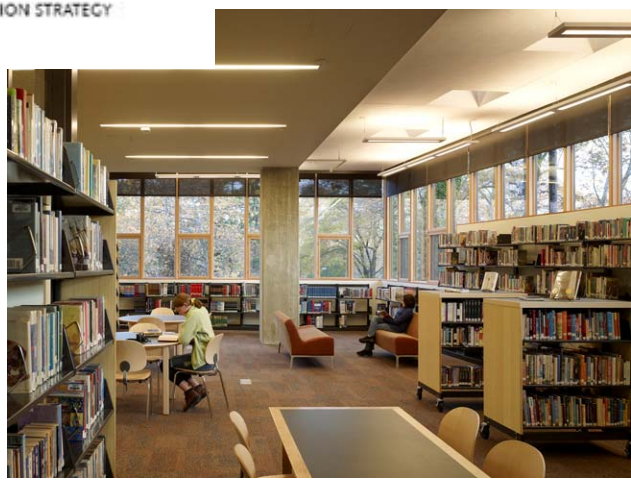
Washington, DC

Designed to demonstrate an “ethical relationship between the natural and the built environment”



PASSIVE VENTIALTION STRATEGY

Solar chimneys with south-facing glass are designed for passive ventilation, operating without additional energy



Vertical slats at an angle are calculated to balance daylight and heat gain & maximize times when building does not need to rely on systems

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COTE Top Ten Winner

Ballard Library

Bohlin Cywinski Jackson Architects

Seattle, WA

The jury believed that this small civic building will last because the community will treasure it; a great example of why design is an important element of sustainability

The big overhanging roof creates a public porch and helps shade this western exposure.

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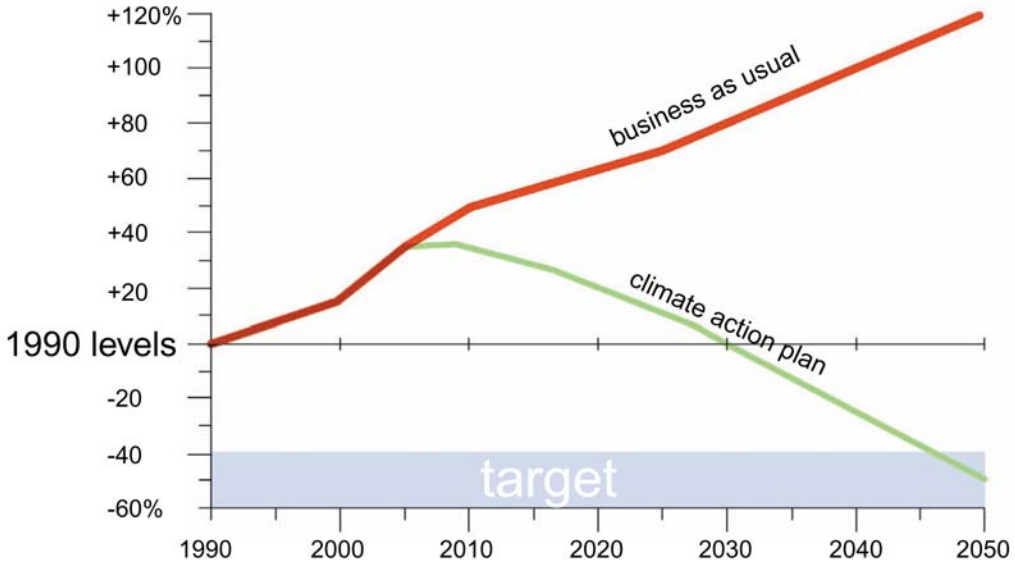
PV panels create a sundial as the sun moves across the windows

Climate Change Is Real. Architects Have A Solution!

An Ethical Responsibility, A Huge Opportunity, NOT Business As Usual



U.S. Building Sector CO2 Emissions

Source: Mazria Inc. 2005 (Assumes a 15% embodied energy reduction in the construction of new buildings)

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