BOMA Iowa
presents

Understanding the Green in "Going Green"

LEED and Existing Buildings

5.22.08

Kevin Nordmeyer, AIA, LEED AP

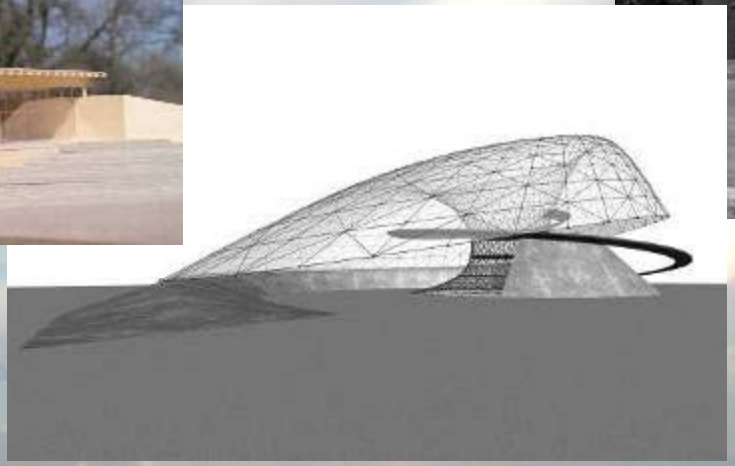
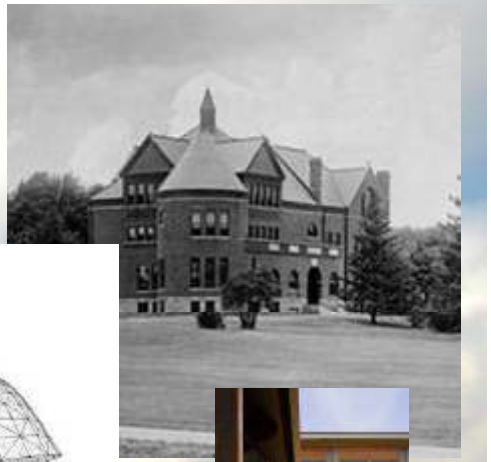
RDg...
PLANNING ● DESIGN

Kevin Nordmeyer, AIA, LEED AP

RDG PLANNING ● DESIGN

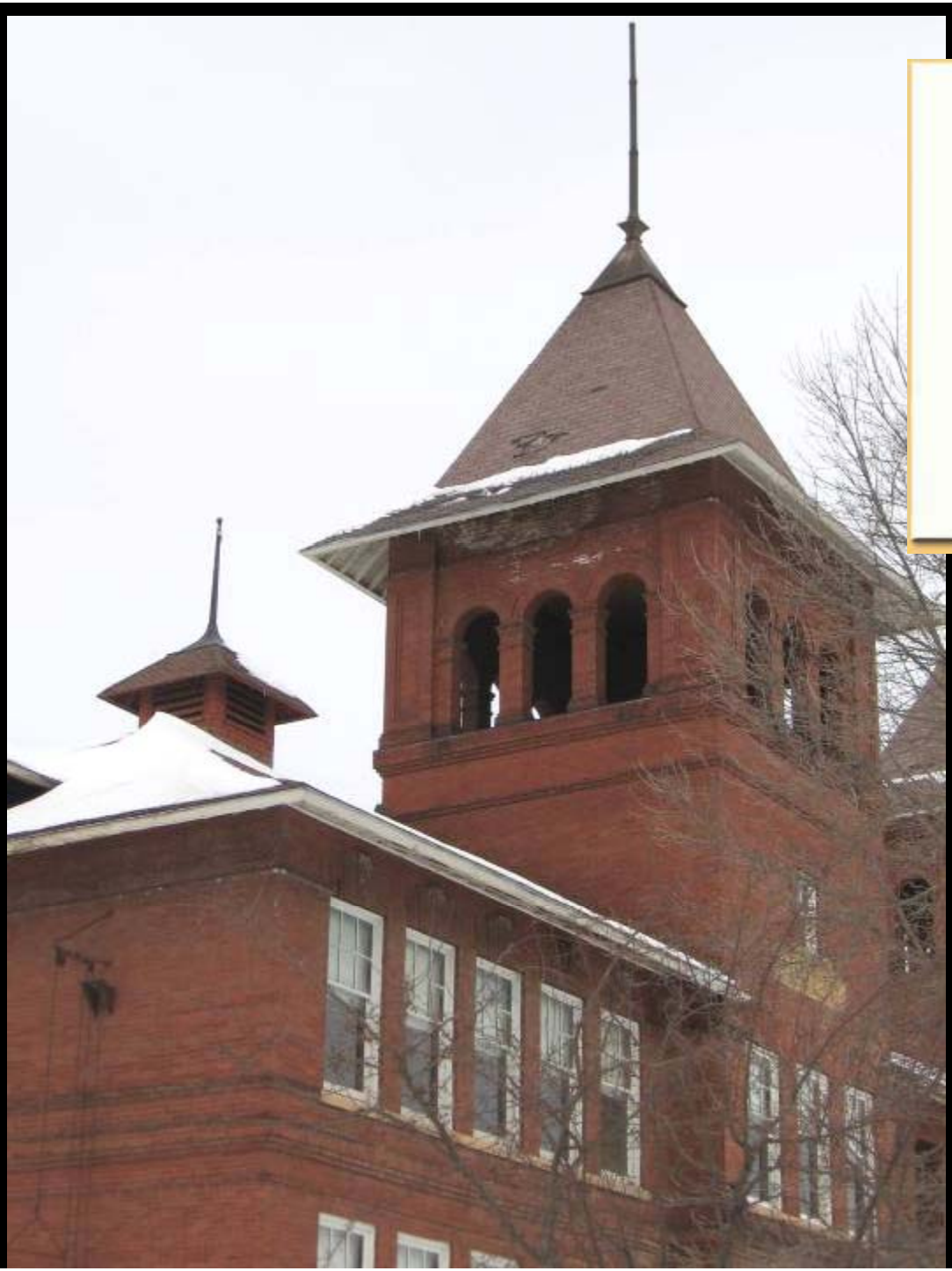
United States Green Building Council – Iowa Organizing Chapter – Founding Chair
Iowa Environmental Council – Board Member
Center on Sustainable Communities – Advisory Mem
Center for Excellence in the Arts and Humanities - IS
Teaching at ISU – Sustainable Design – 2003 – 200
Practicing Architect in Des Moines – RDG Plannin



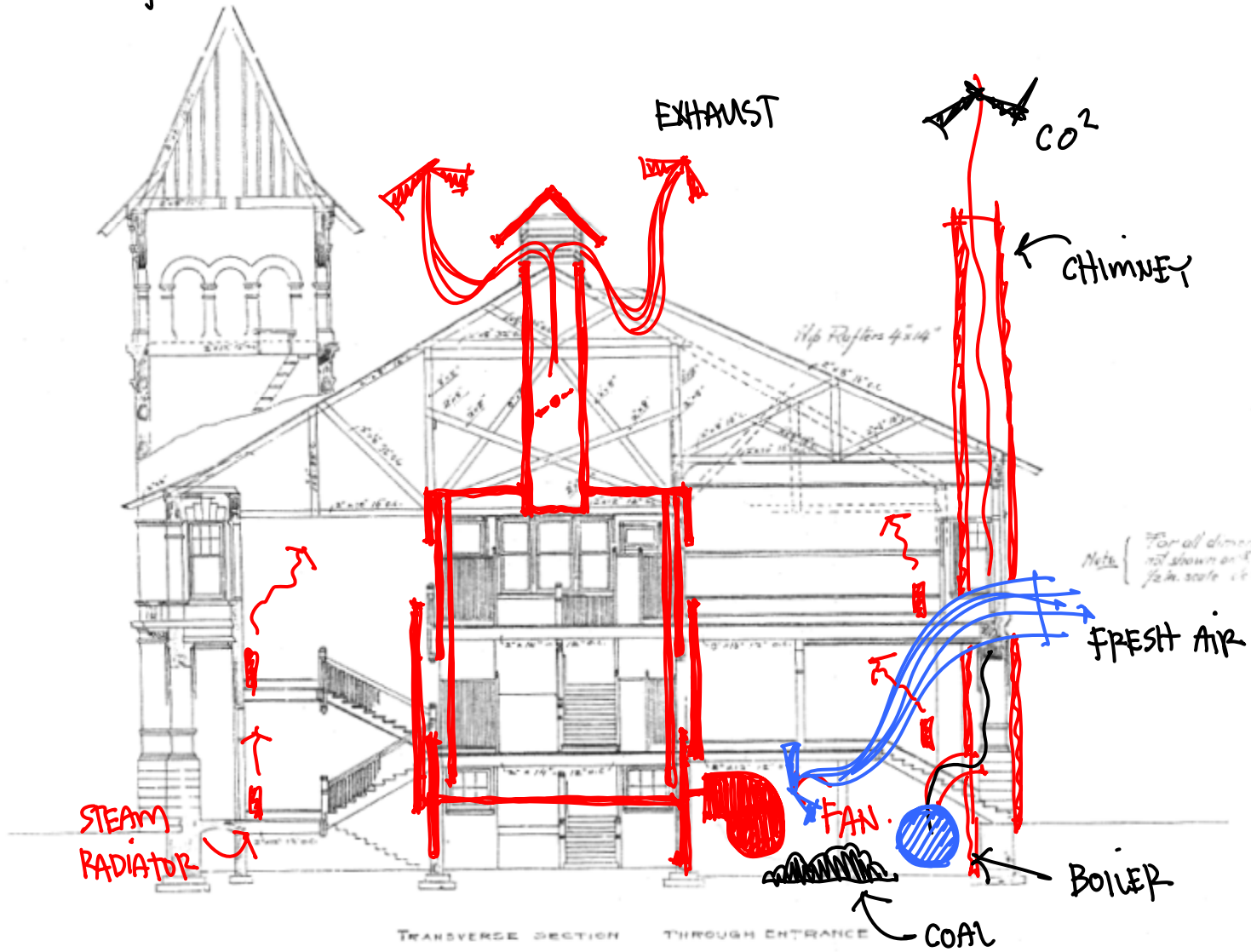

CHAPEL IN MORRILL HALL

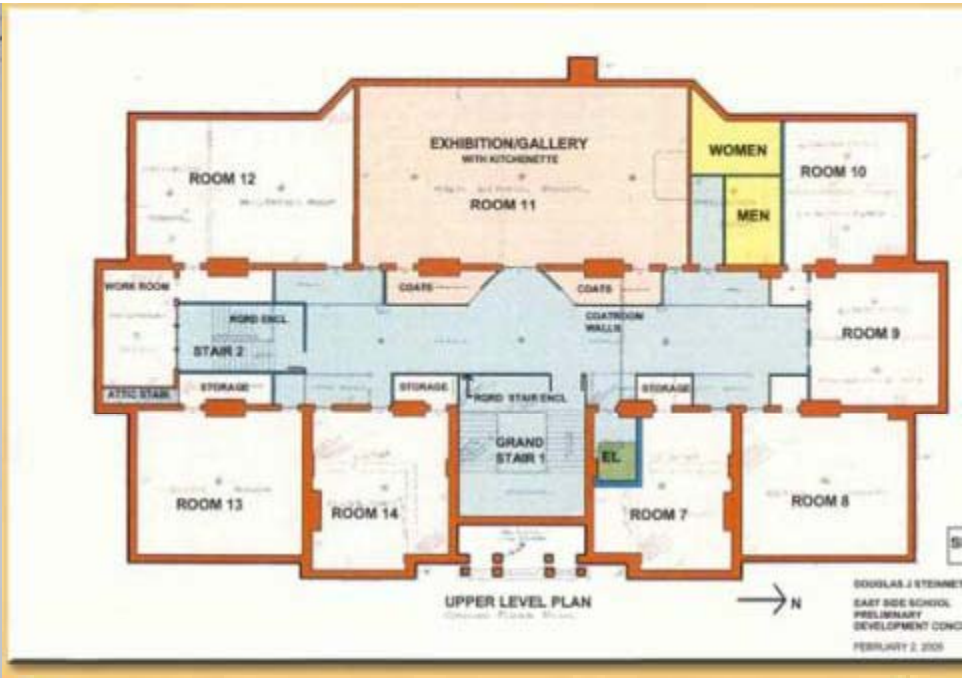

PUBLIC
SCHOOL




EXHIBITION/GALLERY
ROOM 11
ROOM 12
WOMEN
MEN
ROOM 10
ROOM 9
STAIR 2
GRAND STAIR 1
EL
ROOM 13
ROOM 14
ROOM 7
ROOM 8
SK-2
UPPER LEVEL PLAN
N

ORIGINAL VENTILATION / HEATING CONCEPT




EXHIBITION/GALLERY
WITH KITCHENETTE
ROOM 11
ROOM 12
WOMEN
MEN
ROOM 10
ROOM 9
WORK ROOM
COATS
COATS
COATROOM WALLS
STAIR 2
RGRD ENCL
STORAGE
STORAGE
RGRD STAIR ENCL
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GRAND STAIR 1
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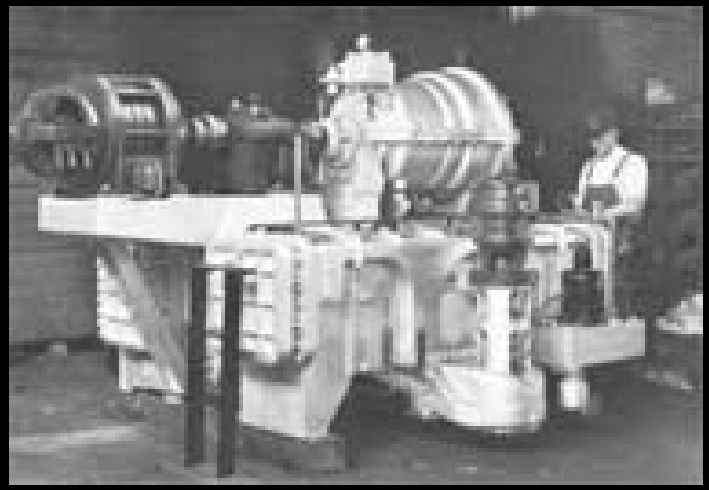
ROOM 13
ROOM 14
ROOM 7
ROOM 8
UPPER LEVEL PLAN
N

1906



From Commercial to Personal Use

As he worked with an ever-growing list of commercial clients, Carrier fine-tuned the technology behind his apparatus. He founded the Carrier Engineering Corporation in 1915. Slowly air conditioning made its way from factories into hotels, theaters, stores, and other public places. Soon after the Second World War, the nation experienced a construction and consumer boom that put home air conditioners on the must-have lists of many Americans.

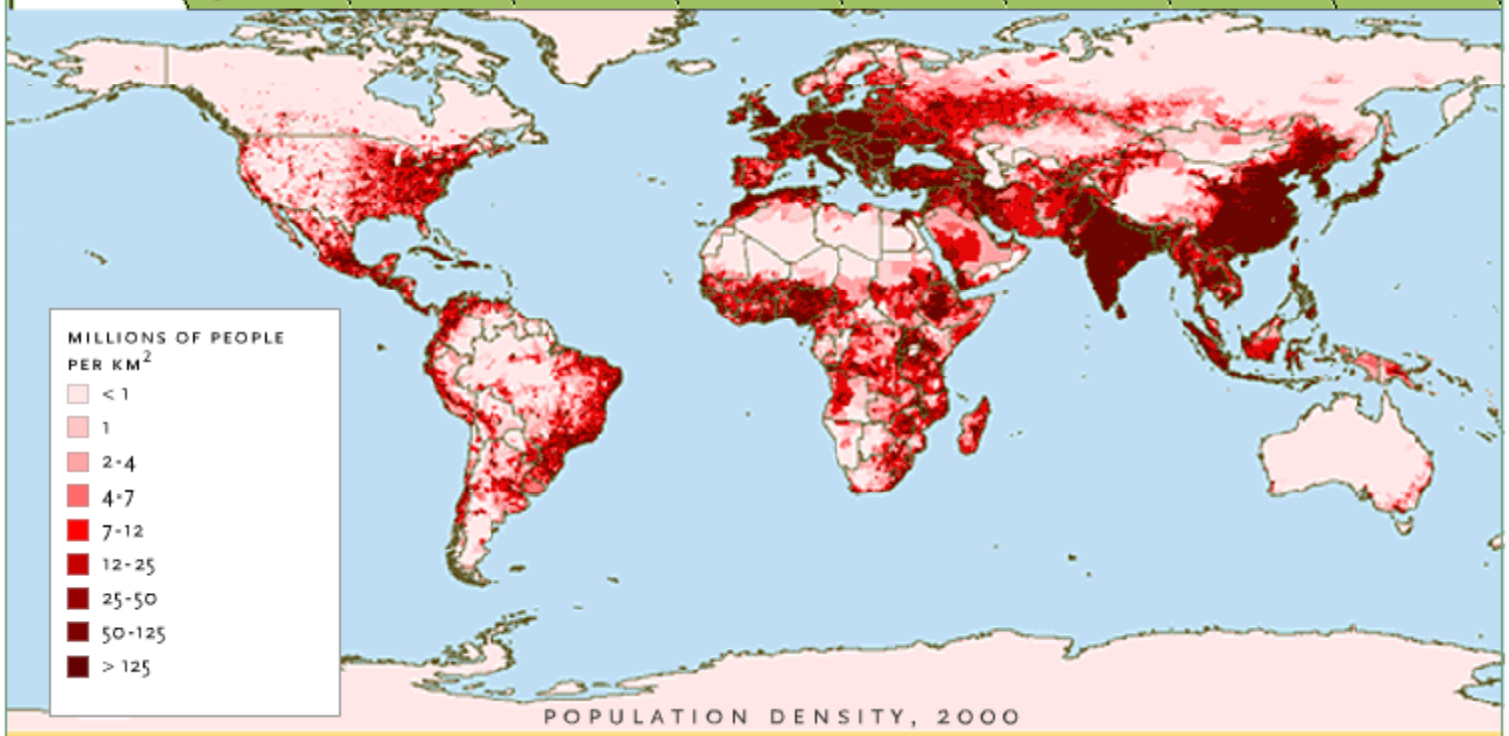
Artificial Climates

The spread of artificial climate control in the second half of the 20th century triggered major, long-term demographic and architectural trends. Sun Belt cities like Atlanta, Georgia, and Houston, Texas, boomed, attracting businesses and workers by the thousands. House design shifted from features that facilitated natural cooling -- porches, high ceilings, cross ventilation -- to spectacular additions like glass doors and large windows. And iconic, modern glass-walled skyscrapers rose

EARTH IN PERIL

NOVA

DENSITY | GROWTH | CITIES | WATER | AIR | CLIMATE | FORESTS | LAND | HABITATS



POPULATION DENSITY, 2000

It's not difficult to see where on Earth the human footprint is having the greatest impact. The world's population today is estimated at 6.3 billion—up from two billion in 1930—with the highest population densities in India, population 1.1 billion, China, population 1.3 billion, Indonesia, population 220 million, and central Europe, population 630 million. Click on the labeled tabs above to view another map.

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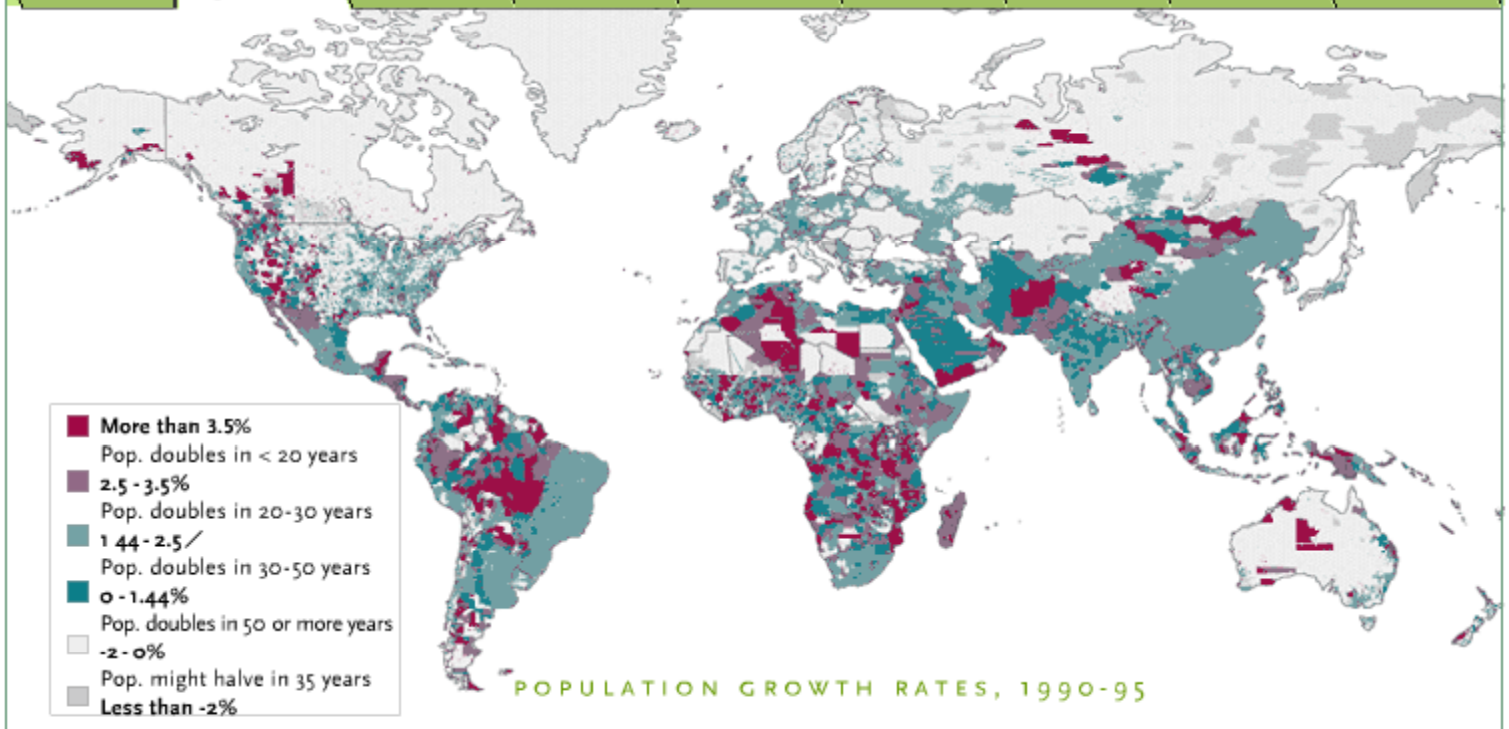

POPULATION GROWTH RATES, 1990-95

The total number of people on the planet is growing at a lightning pace and is expected to reach nine billion by 2050. Over the next half century, 98 percent of this growth will take place in the developing world, where resources are being consumed faster than they can be renewed. This map shows recent annual rates of population growth worldwide and the alarmingly short intervals at which some populations will double in size.

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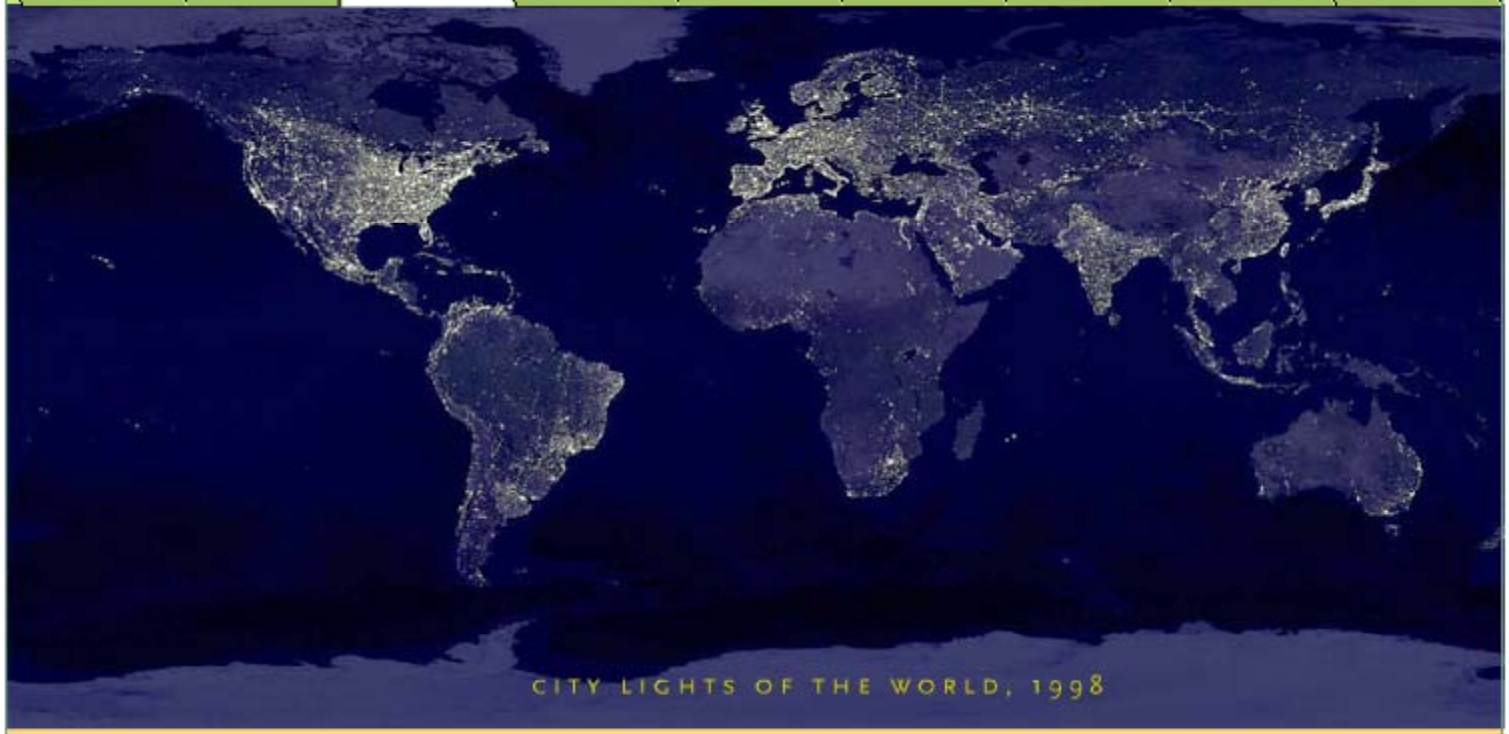

CITY LIGHTS OF THE WORLD, 1998

Populations are becoming increasingly urbanized. Thirty years ago, only 37 percent of all people lived in cities. Experts predict that by 2030, over 60 percent of the population—five billion people—will do so. The largest share of this escalation will occur in countries where the demand for clean water, sewage systems, and electricity already outstrips supplies. Greater urbanization may have a few environmental benefits, such as reduced pressure on forests, but the costs of the trend are great. City populations consume vast amounts of energy and create air and water pollution affecting human health, local natural habitats, and the global environment.

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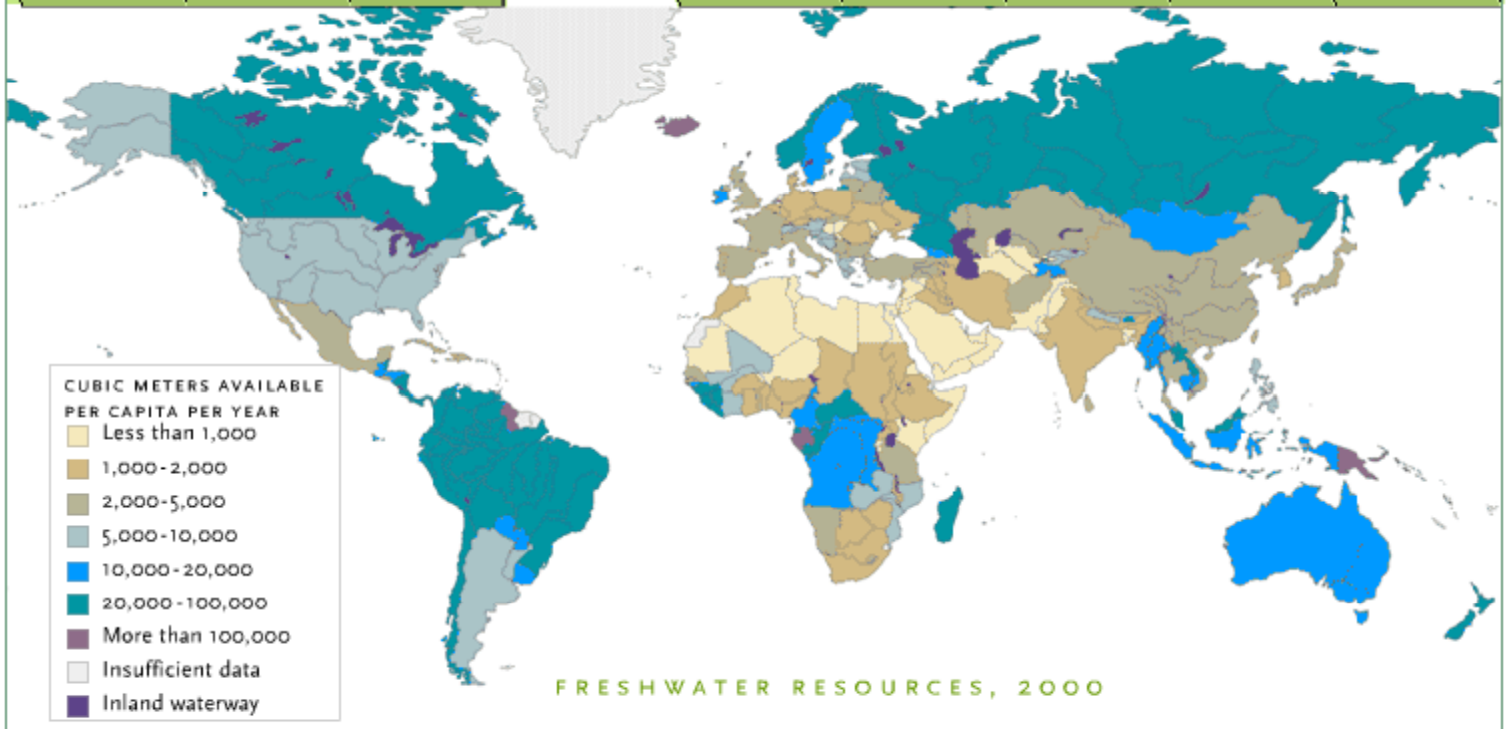

FRESHWATER RESOURCES, 2000

Water covers roughly 70 percent of Earth's surface, but only 2.5 percent of it is freshwater, which humans need for irrigation, drinking water, and other everyday uses. According to the United Nations, the scarcity of freshwater due to overuse and contamination will be the second most pressing global concern in the 21st century, after population growth. On the map above, countries with less than 5,000 cubic meters of freshwater per capita are considered short of water. Experts believe that people may be able to replenish water tables with new water-saving irrigation methods, bioengineered crops that require less water, rainwater harvesting, and public information campaigns, but it will be centuries, if ever, before freshwater is plentiful again worldwide.

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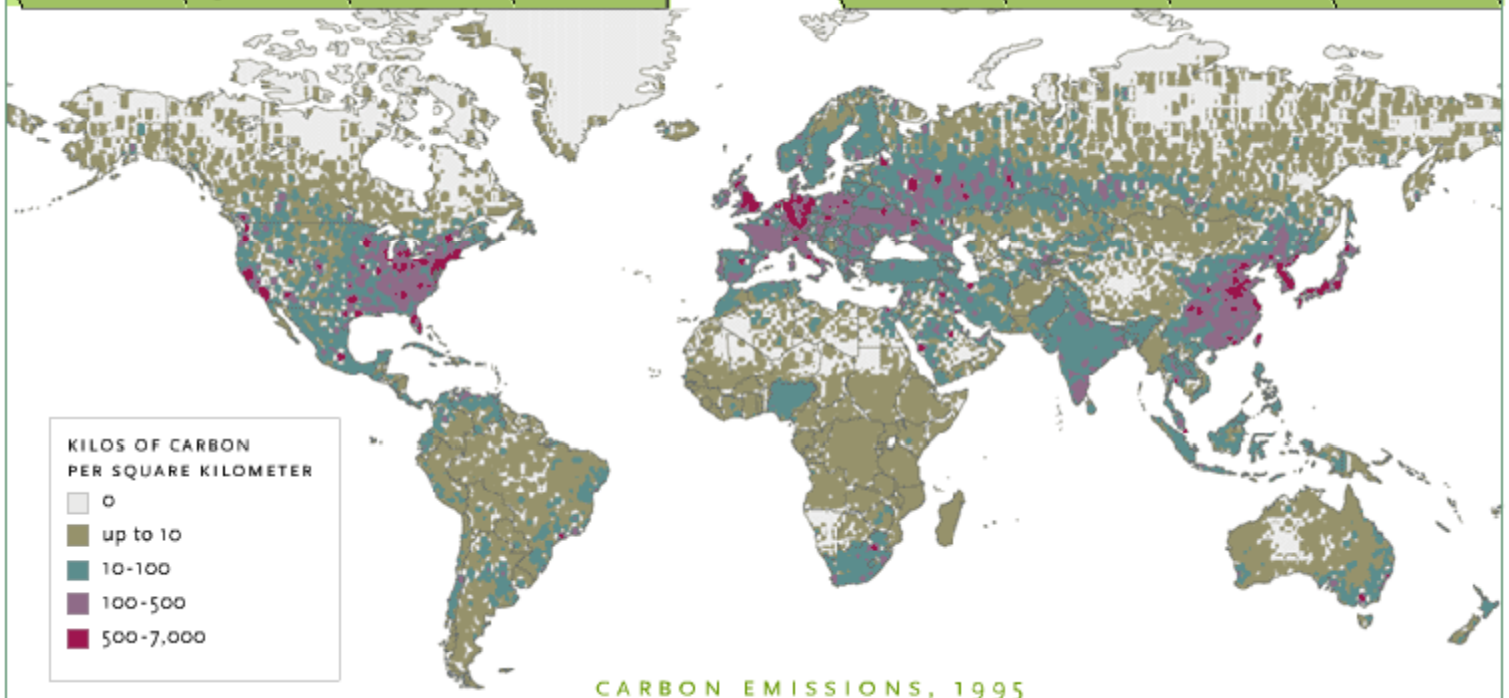
DENSITY | GROWTH | CITIES | WATER | AIR | CLIMATE | FORESTS | LAND | HABITATS



CARBON EMISSIONS, 1995

The amount of carbon dioxide polluting our atmosphere has risen 30 percent in the last 200 years as a result of increasing industrial and automobile emissions. Plants convert carbon dioxide back to oxygen, but human activities are now releasing more carbon dioxide than the world's plants can process.

This map shows in magenta today's greatest polluters—the United States, Europe, China, and Japan. In the next 50 years, as industrialization increases, many of the purple areas on this map will turn to magenta and the green areas to purple unless stricter emissions standards for factories and cars are put in place.

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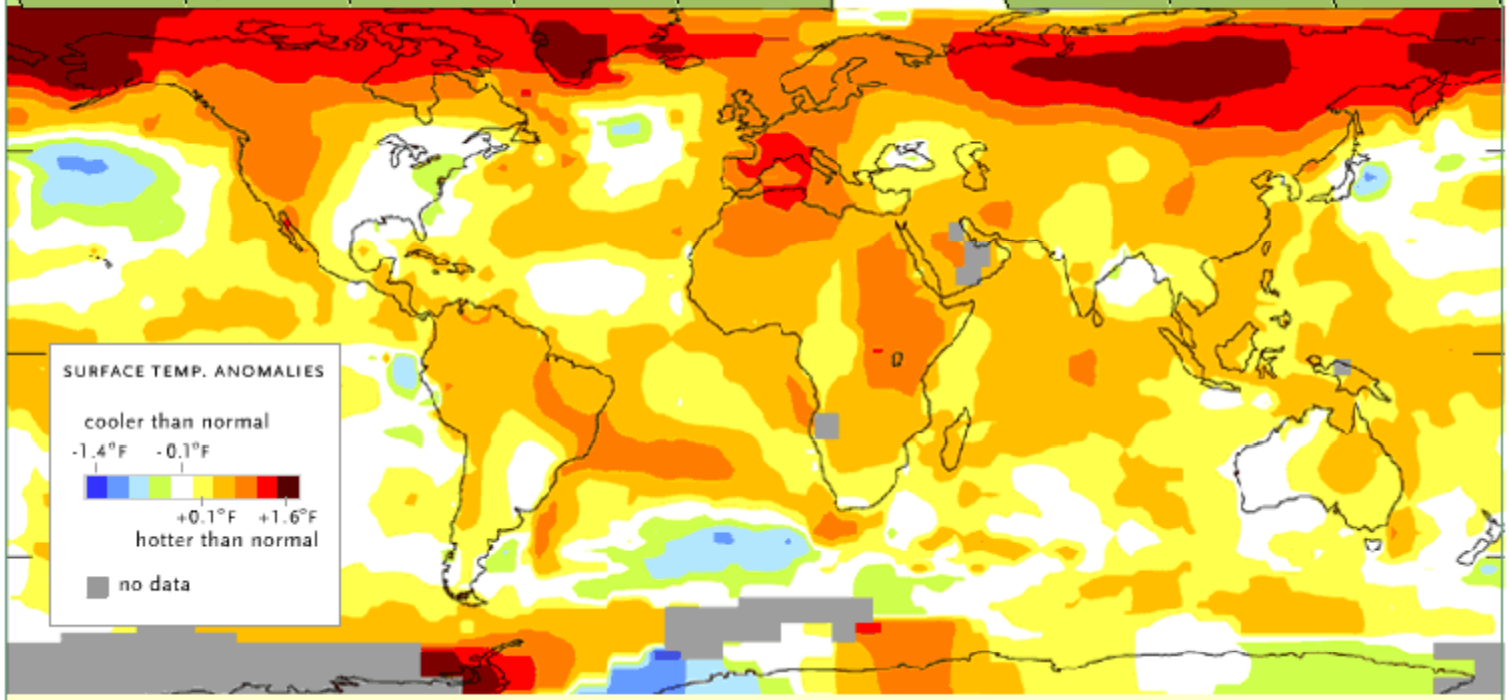

GLOBAL WARMING, 2003

Climatologists blame air pollution from carbon dioxide and other fossil fuel emissions for global warming, as the buildup of these gases in the air acts like a blanket, trapping heat close to Earth. They predict that over the next 100 years, surface temperatures will increase up to 11 degrees Fahrenheit worldwide. In arid regions, this could result in a sharp reduction in the amount of rivers and lake water. In cooler regions, intense thaws could cause severe flooding. Agricultural zones would shift radically, and hundreds of plant and animal species would face extinction. In 2003, as shown above, most places in the world were warmer than normal.

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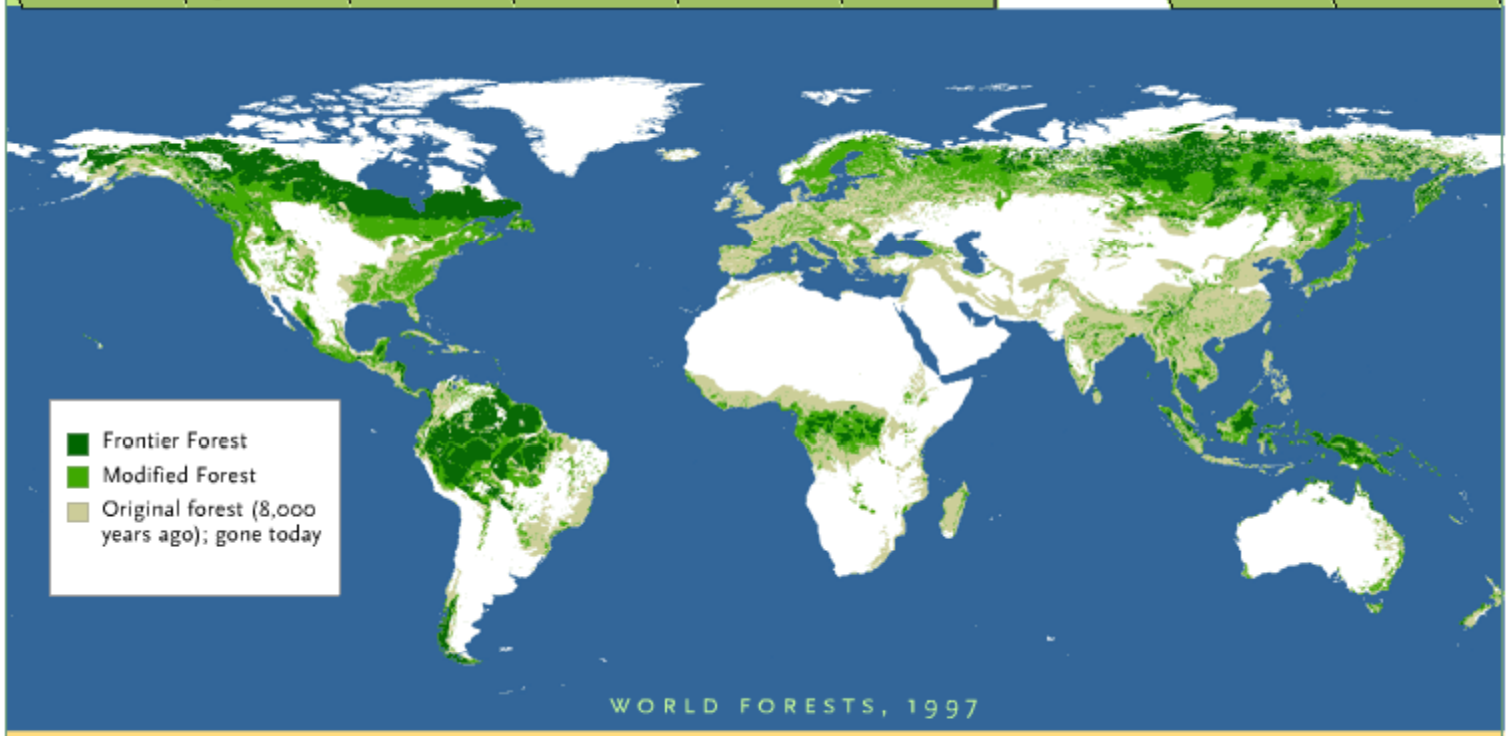

WORLD FORESTS, 1997

Experts estimate that almost half of the forests that once covered Earth have disappeared, along with many indigenous plant and animal species. A large portion of this forest loss has occurred over the past 30 years through aggressive logging and agricultural clearing. On this map, frontier forests are defined as the last of the remaining original forest ecosystems that existed before human intervention began about 8,000 years ago. Modified forests, on the other hand, include areas of significant human intervention. The researchers who produced this map estimate that nearly 40 percent of the world's remaining forests are endangered.

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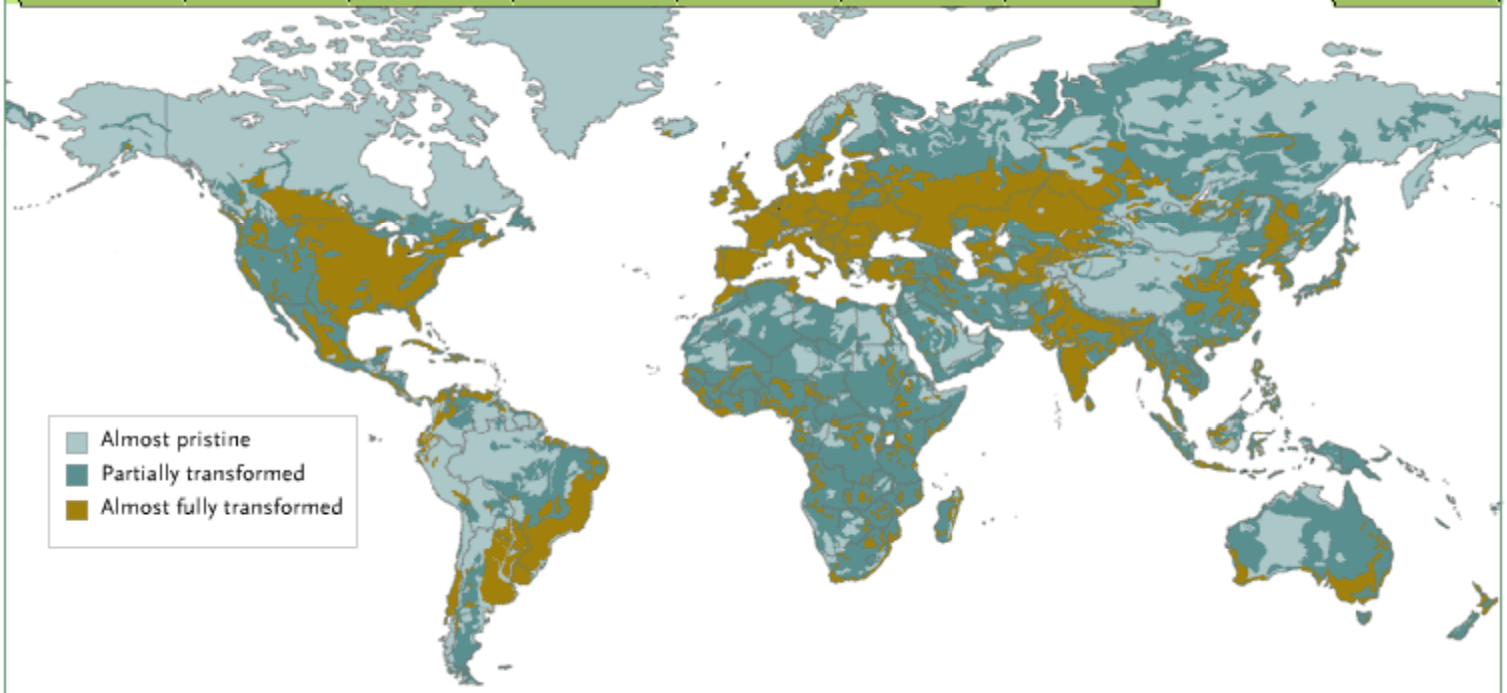

HUMAN TRANSFORMATION OF LAND, LATE 1990s

According to the U.N. Food and Agriculture Organization, humans have altered approximately half of all the land on Earth for our own uses—around 22 percent for farming and forestry combined, 26 percent for pasture areas, and 2 to 3 percent for housing, industry, and roads. Population growth will necessitate further conversion of land, which in some regions can interfere with natural defenses against flooding, landslides, and erosion. Furthermore, experts believe that the abundance of agricultural topsoil on which our food supply depends is sharply diminishing due to overuse, urbanization, and other human-induced factors.

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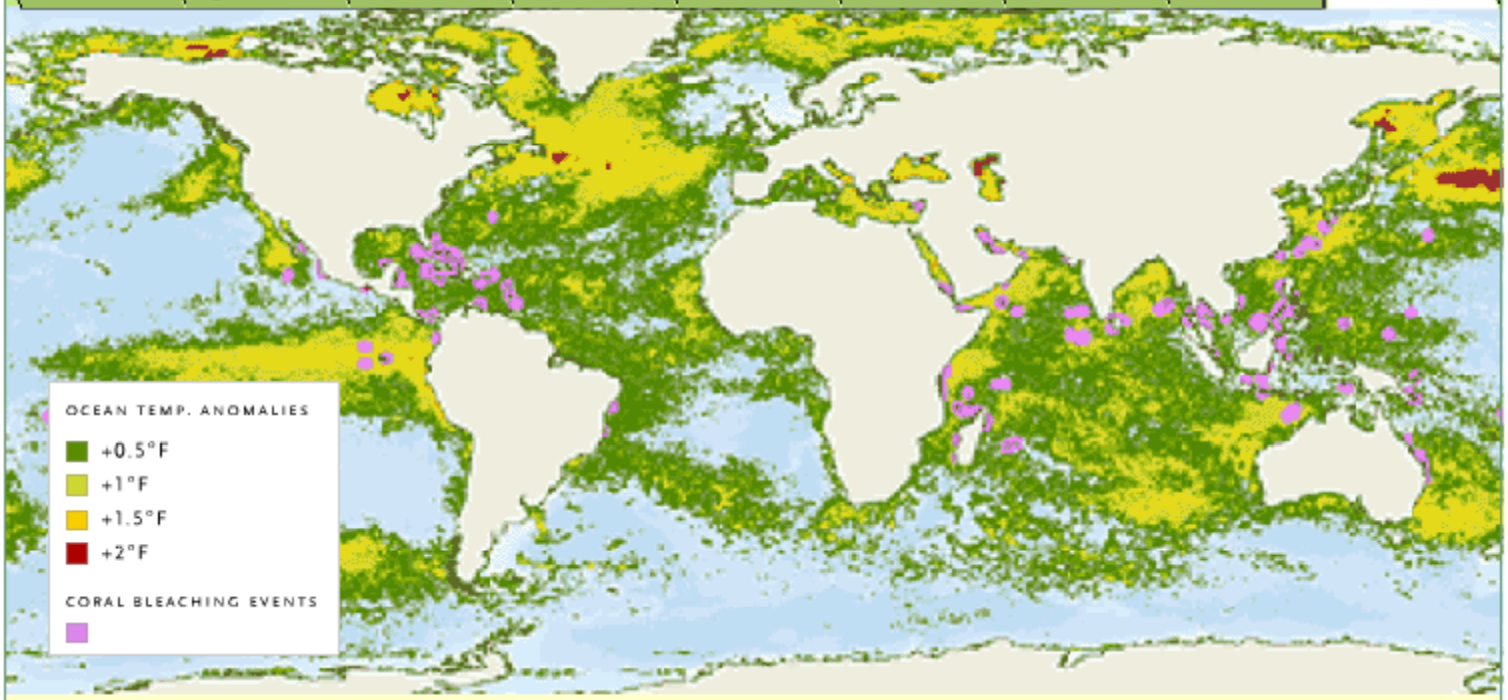
DENSITY | GROWTH | CITIES | WATER | AIR | CLIMATE | FORESTS | LAND | HABITATS



CORAL REEF BLEACHING AND OCEAN HOT SPOTS, 1997-98

The by-products of human population growth threaten animal species in nearly every habitat on Earth. In the oceans, for example, overfishing has already decimated numerous species, and rising temperatures from global warming, as indicated on the map above, threaten many more animals native to coral reefs, which are home to over 25 percent of all sea creatures. Scientists are alarmed by the recent increase in coral reef "bleaching," a sign of grave ill health, and some have predicted that more than half of the world's reefs may be gone by the year 2030. If that happens, thousands of animal species, and many islands whose shorelines are protected by reefs, will eventually disappear.

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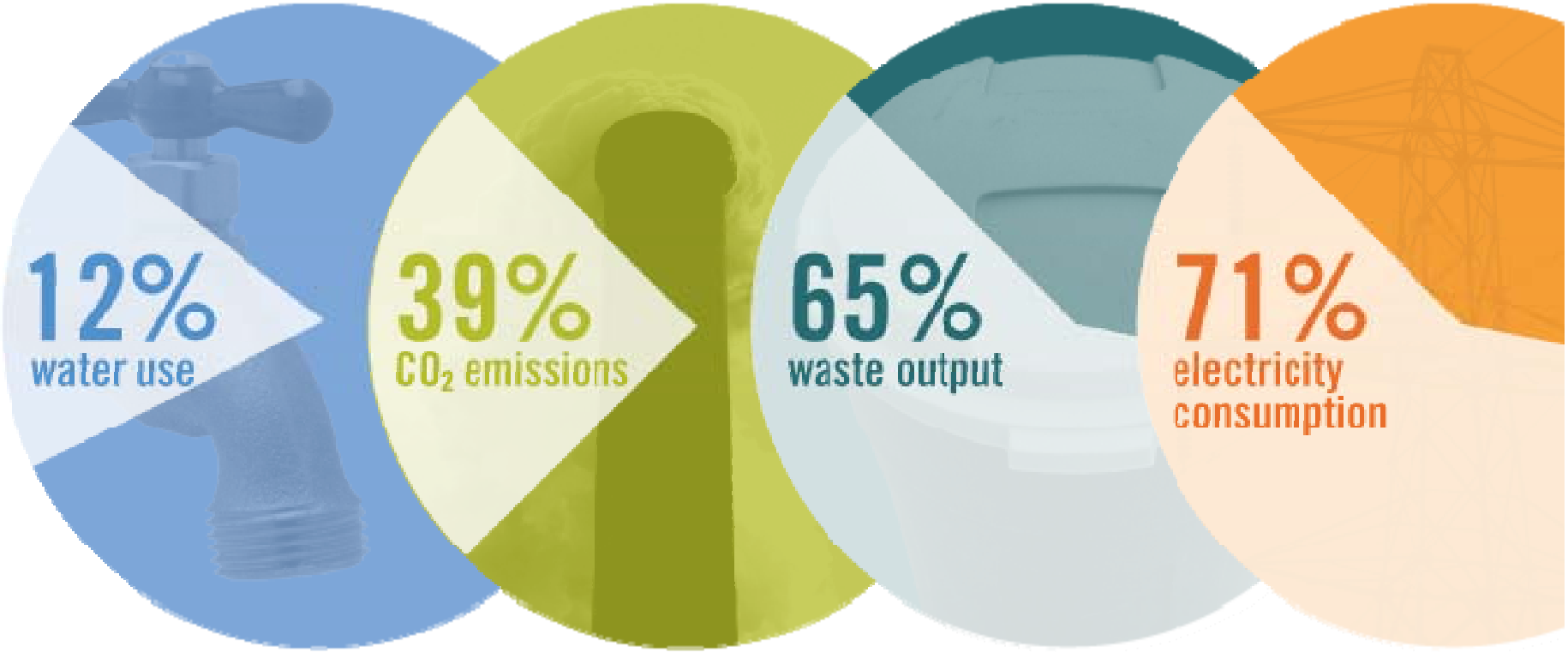
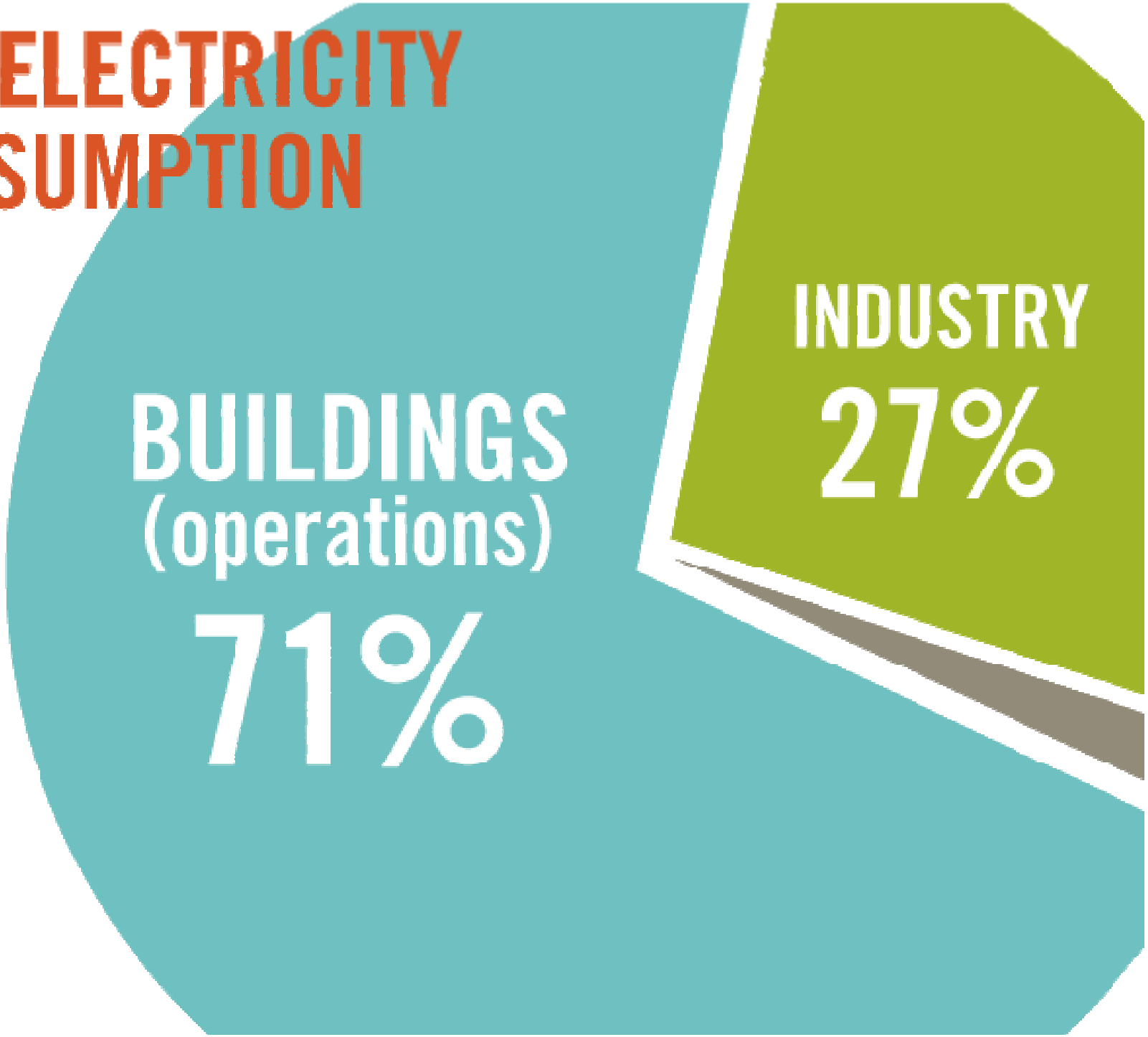
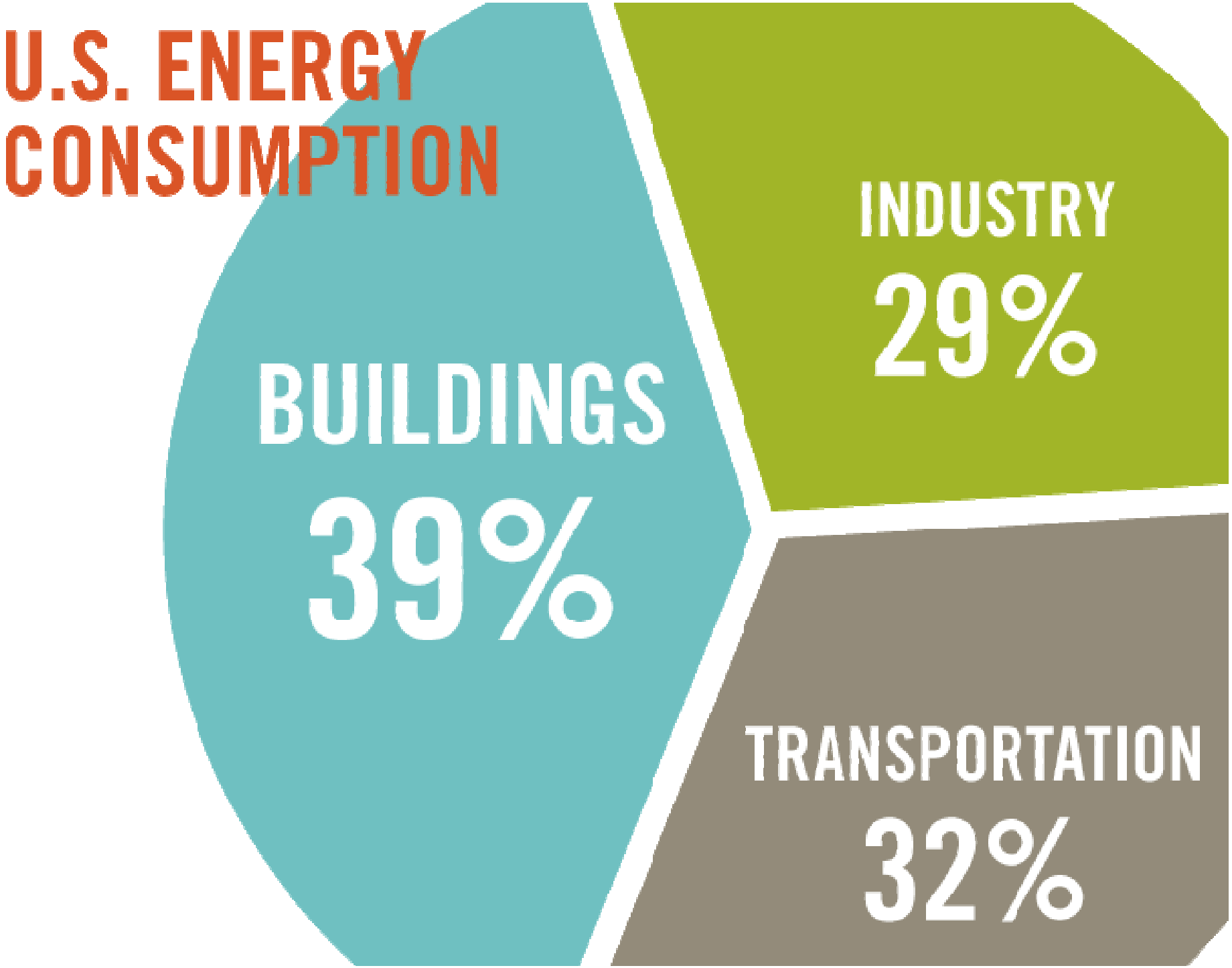
U.S. Building Impacts:



U.S. ELECTRICITY CONSUMPTION




U.S. ENERGY CONSUMPTION
BUILDINGS
39%
INDUSTRY
29%
TRANSPORTATION
32%

U.S. BUILDINGS IMPACTS ON RESOURCES

39% of total energy consumption

71% of electricity consumption

39% CO_2 emissions

30% of raw materials use

30% of waste output

12% of potable water consumption

WORLDWIDE, BUILDINGS ACCOUNT FOR...

17% fresh water withdrawals

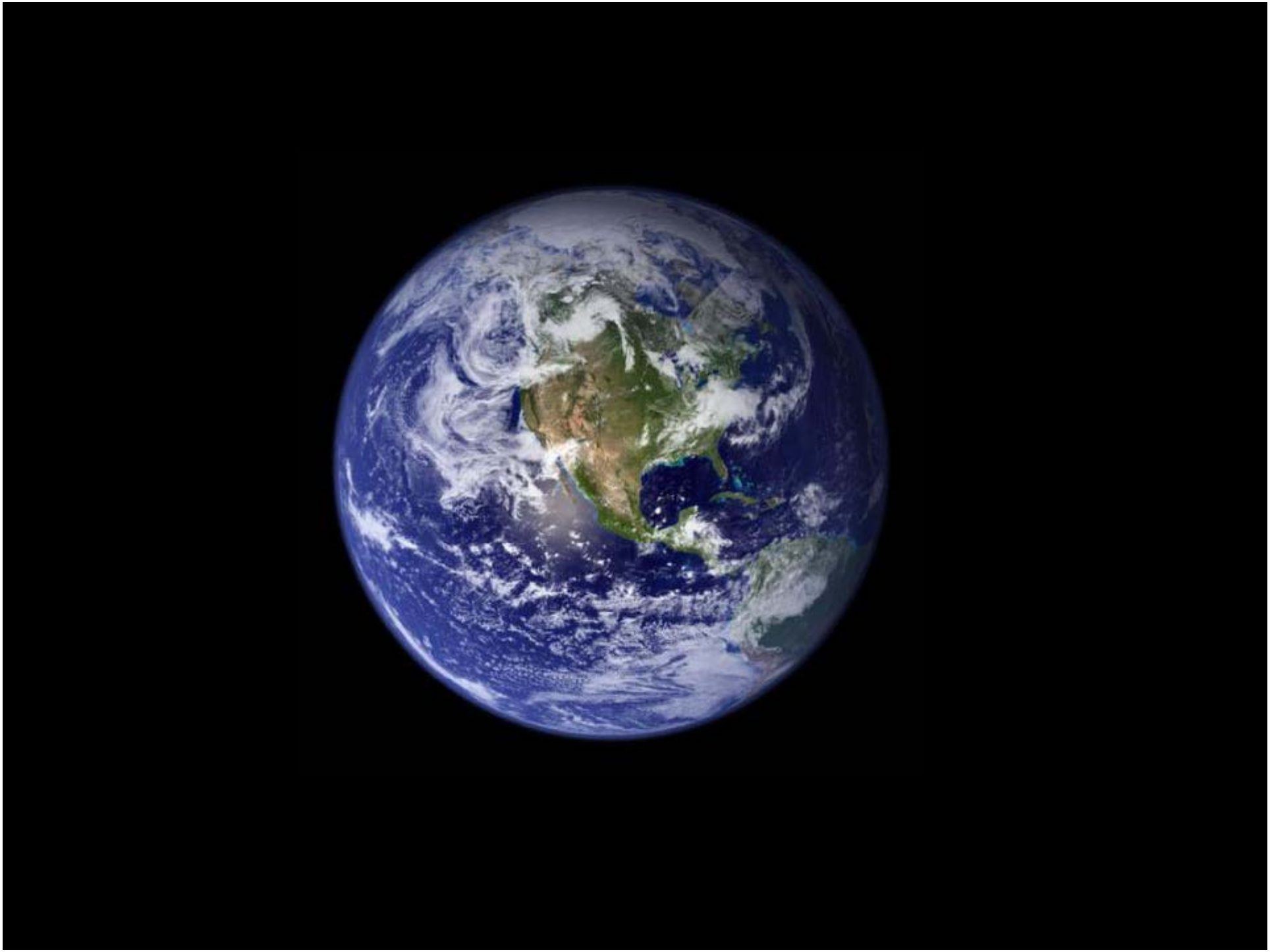
25% wood harvest

33% CO_2 emissions

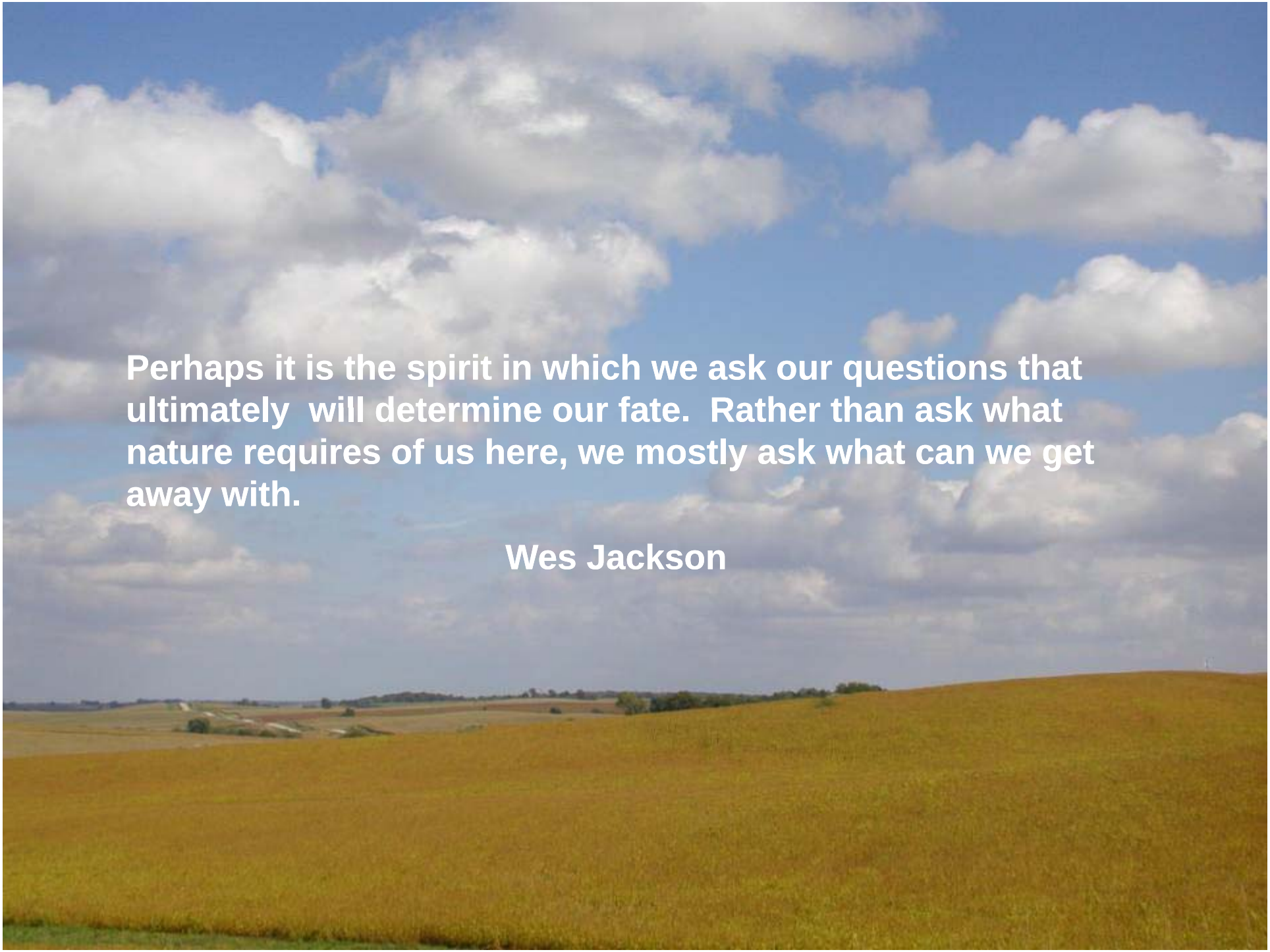
40% material and energy use

45% in china

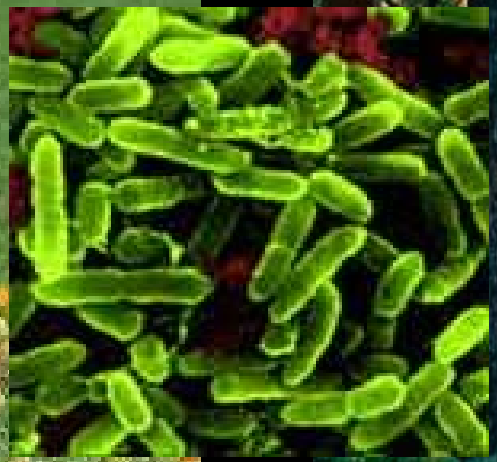

“……as we came across the continent, cutting the forests and plowing the prairies we never knew what we were undoing because we never knew what we were doing.”
Wendell Berry

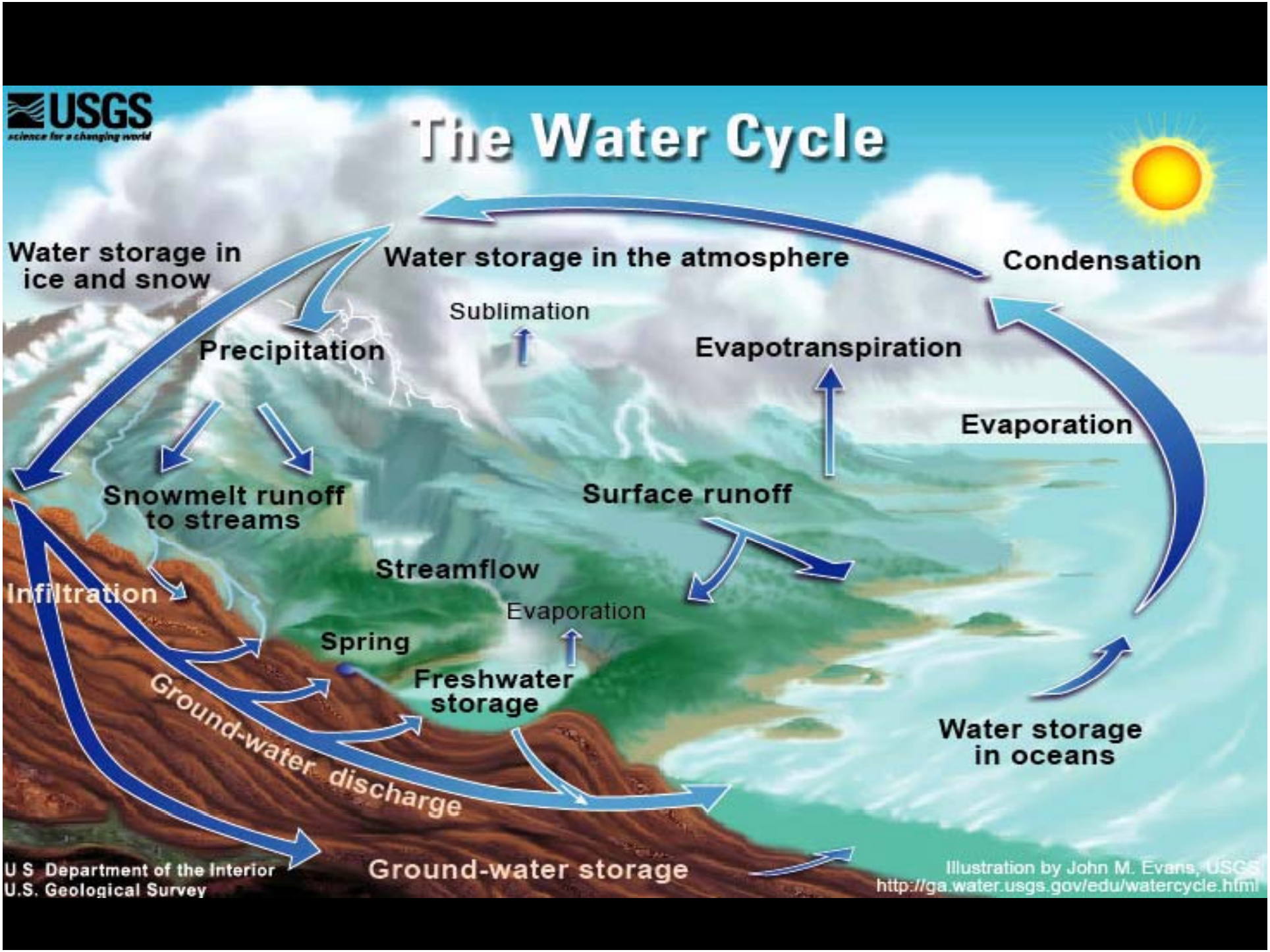


What is the Problem?


Perhaps it is the spirit in which we ask our questions that ultimately will determine our fate. Rather than ask what nature requires of us here, we mostly ask what can we get away with.
Wes Jackson

In nature… waste = food




USGS
science for a changing world
The Water Cycle
Water storage in ice and snow
Water storage in the atmosphere
Condensation
Sublimation
Precipitation
Evapotranspiration
Evaporation
Snowmelt runoff to streams
Surface runoff
Streamflow
Infiltration
Evaporation
Spring
Freshwater storage
Ground-water discharge
Water storage in oceans
U S Department of the Interior
U.S. Geological Survey
Ground-water storage
Illustration by John M. Evans, USGS
http://ga.water.usgs.gov/edu/watercycle.html

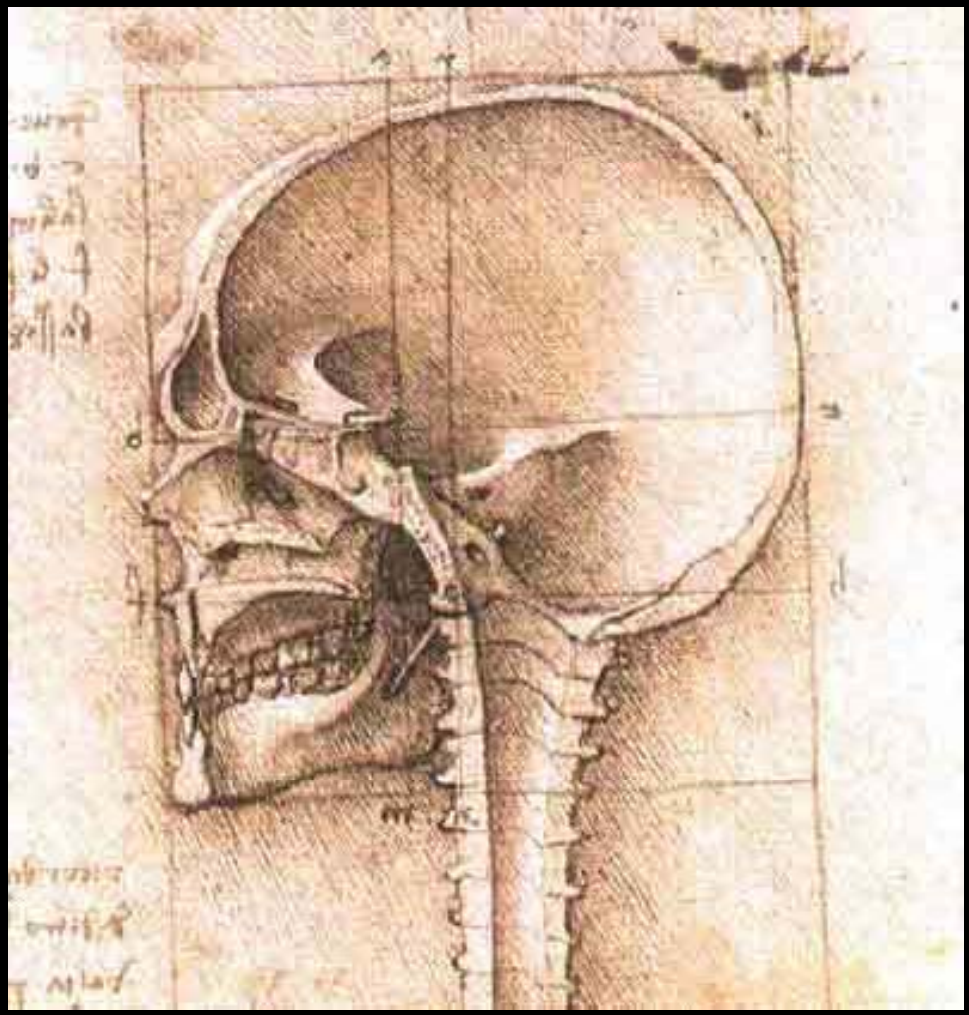
What is Sustainable Design?

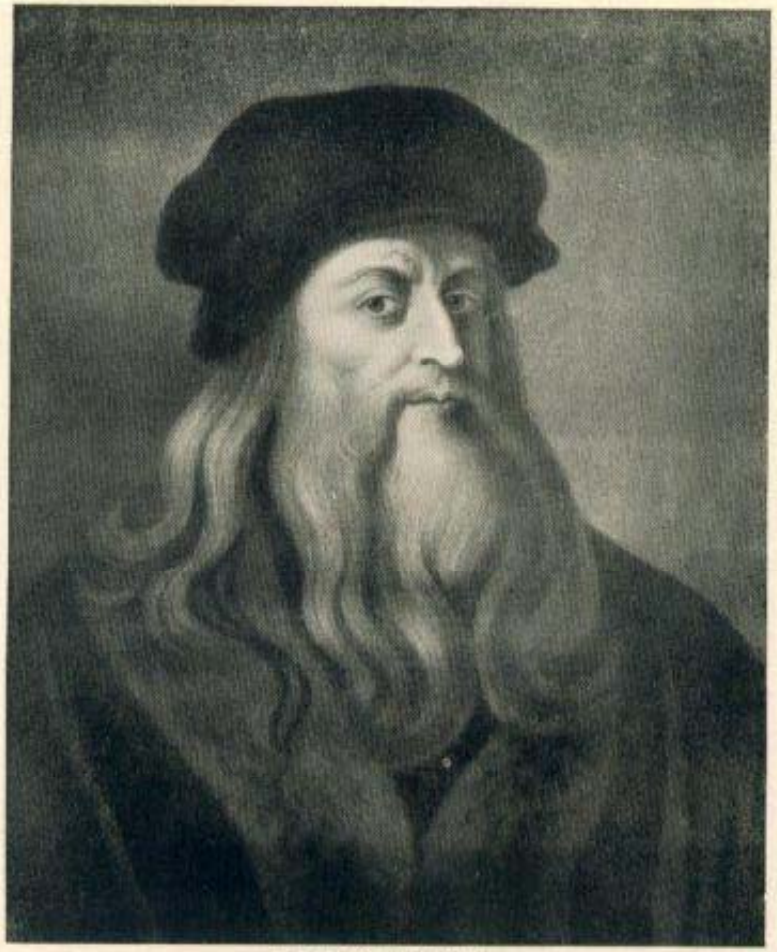
Our current architectural definition:

Minimize our impact on the environment.

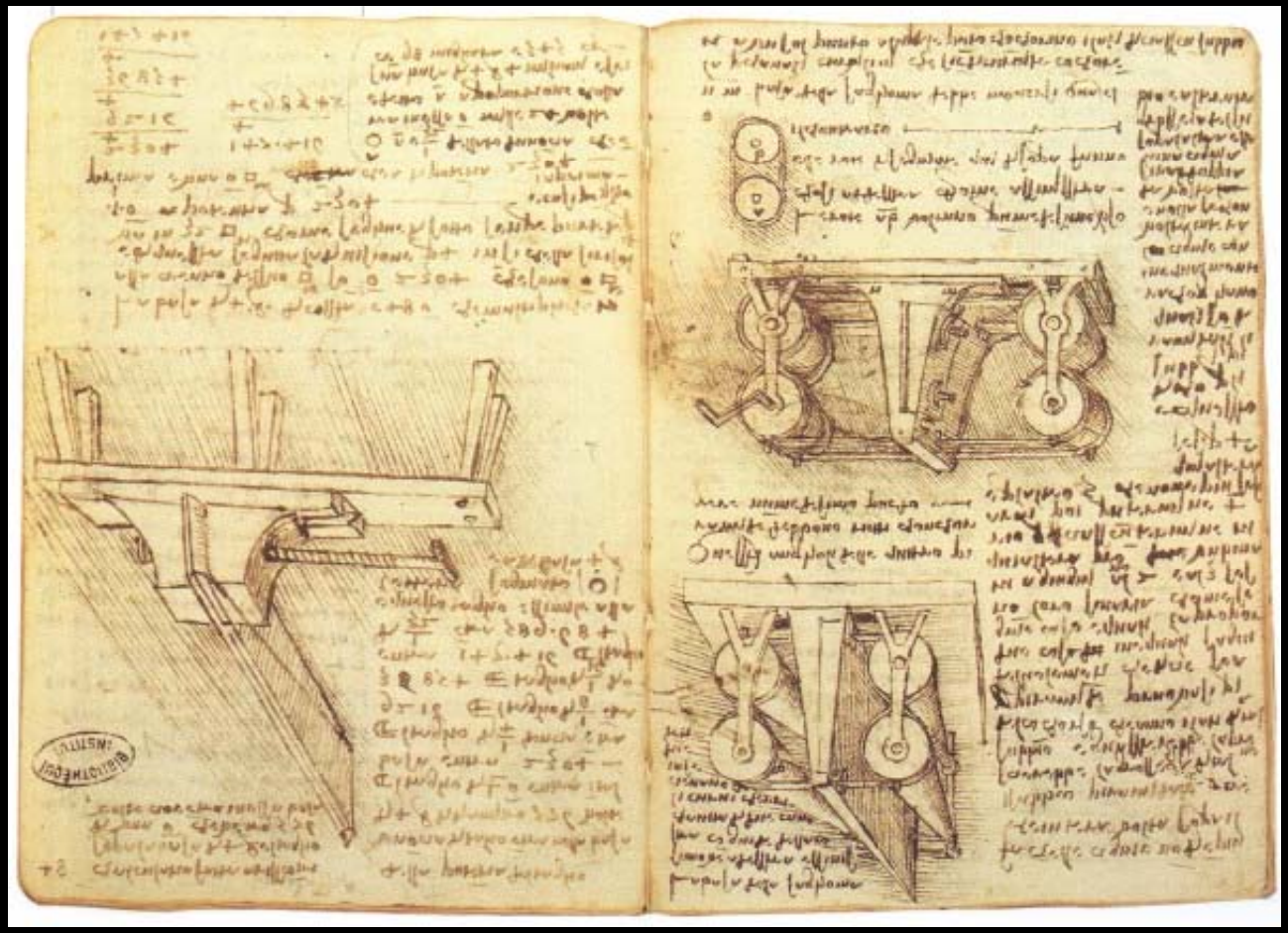
Inherent to this is the concept that we are BAD and we can only be less BAD.

Renaissance Man





LEONARDO DA VINCI
Painted by himself
Drawn and engraved by Charles Townley



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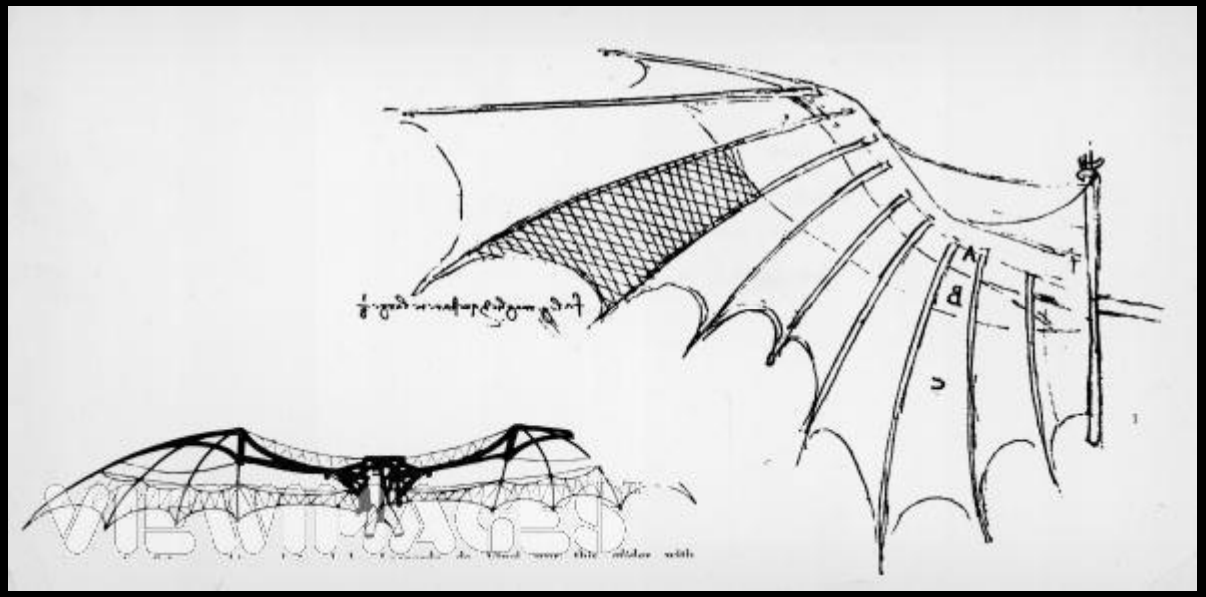
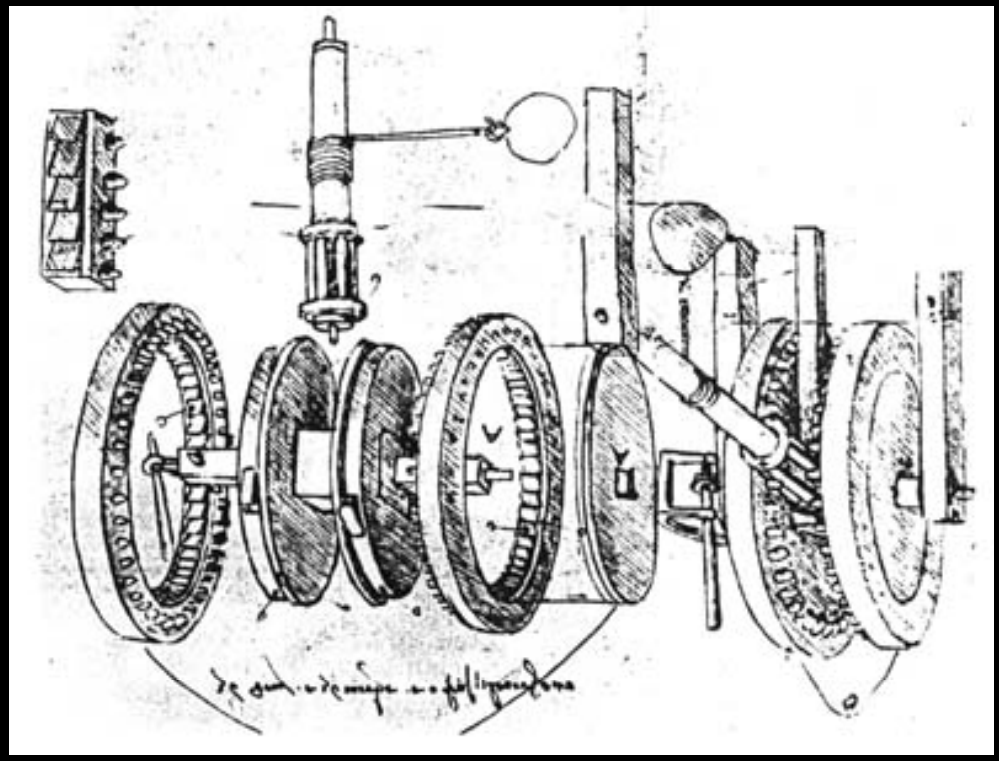
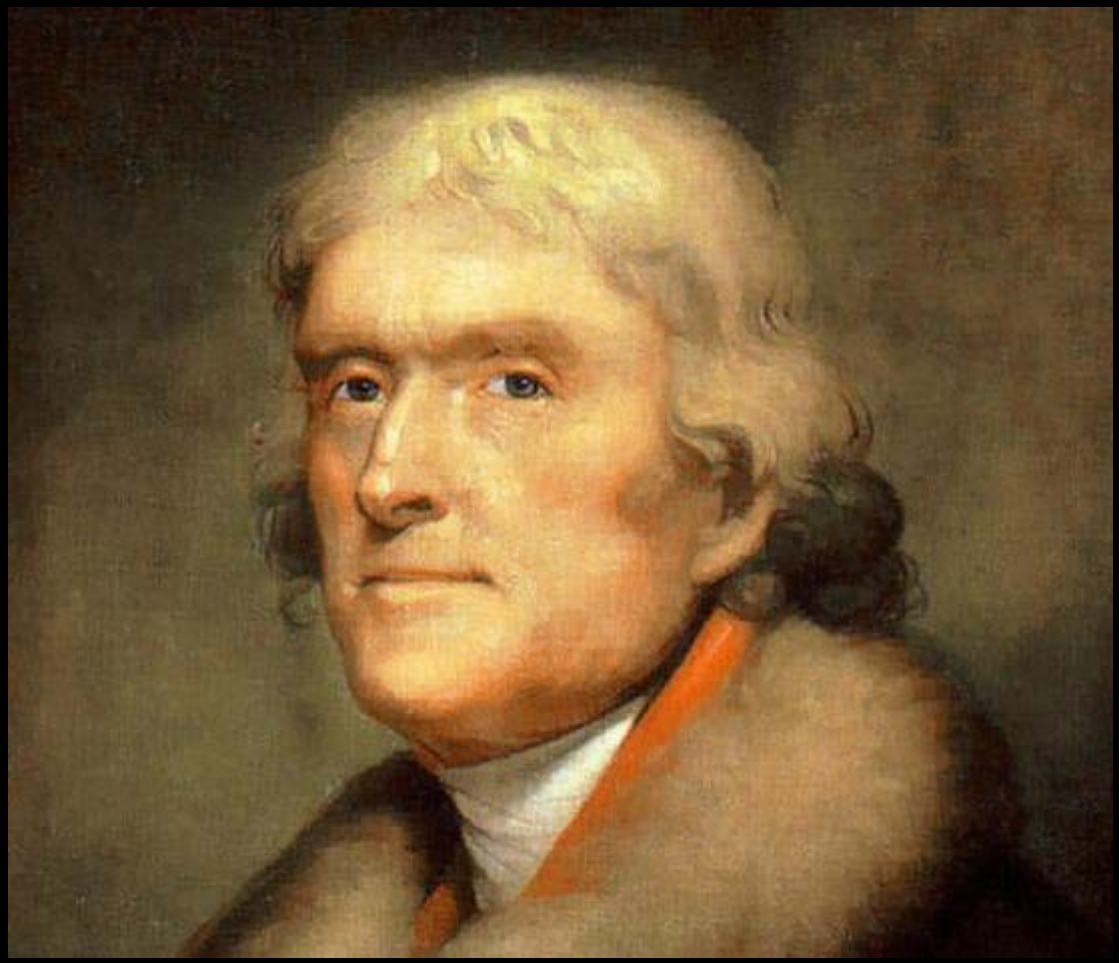
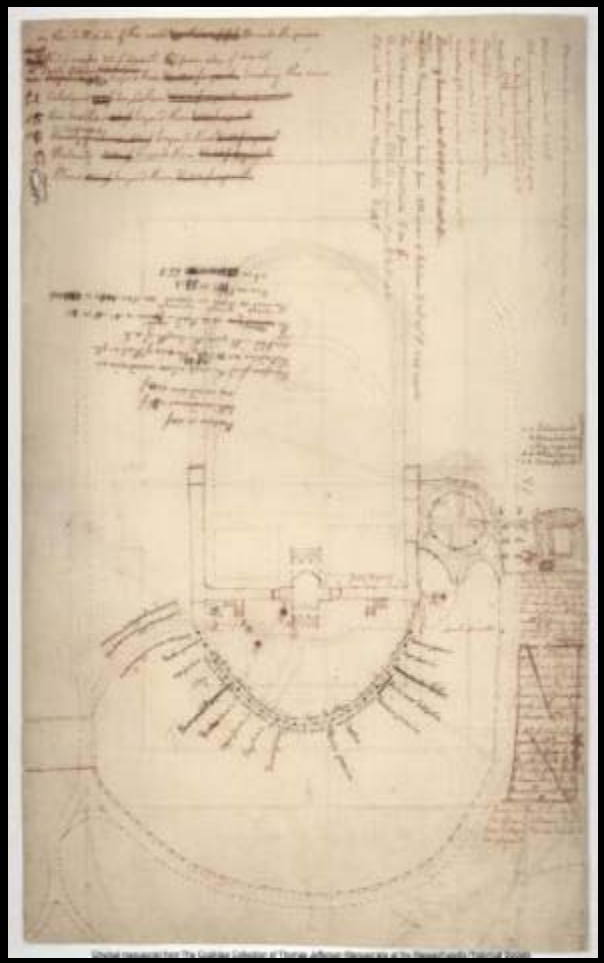
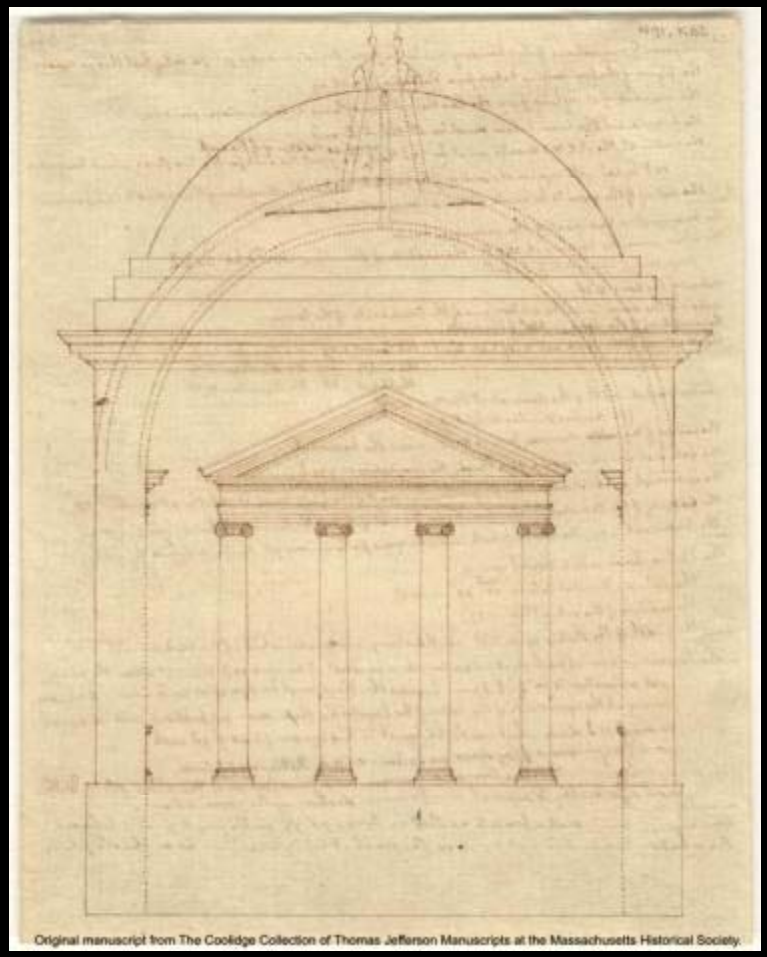


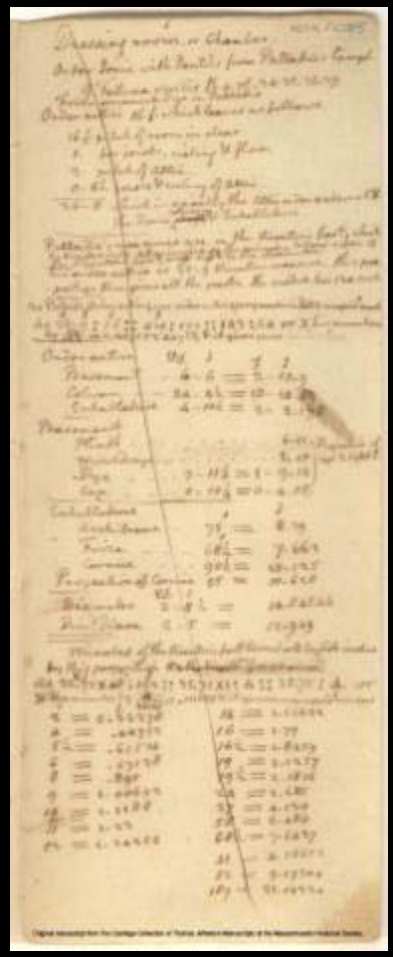


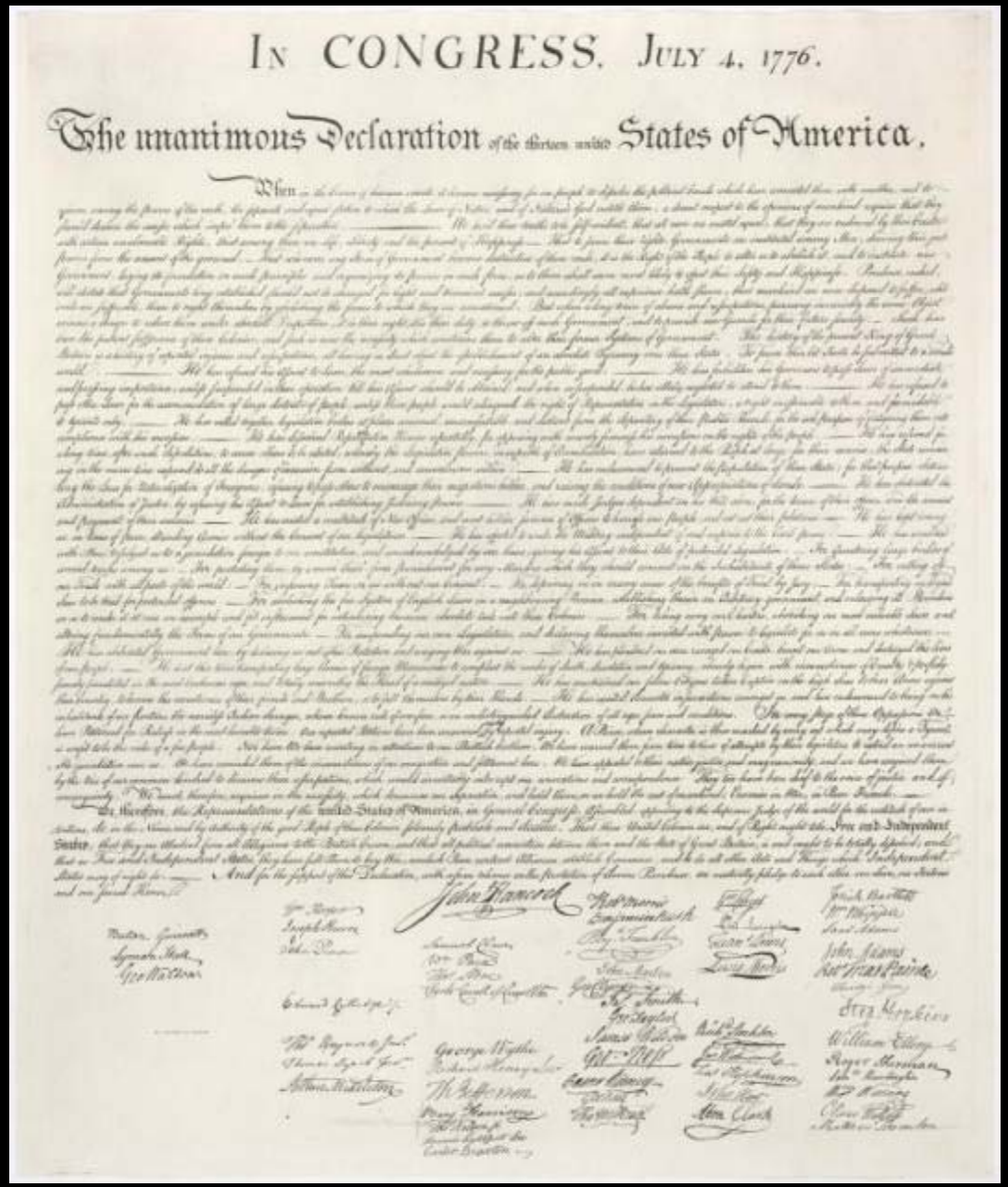






Original manuscript from The Coolidge Collection of Thomas Jefferson Manuscripts at the Massachusetts Historical Society.





IN CONGRESS. JULY 4. 1776.

The unanimous Declaration of the thirteen united States of America.

When in the Course of human events it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the laws of nature and of nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation. — We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. — That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, — That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light and transient causes; and accordingly all experience hath shewn, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same Object evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security. — Such has been the patient sufferance of these Colonies; and such is now the necessity which constrains them to alter their former Systems of Government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute Tyranny over these States. To prove this, let Facts be submitted to a candid world. —

He has refused his Assent to Laws, the most wholesome and necessary for the public good. — He has forbidden his Governors to pass Laws of immediate and pressing importance, unless suspended in their operation till his Assent should be obtained; and when so suspended, he has utterly neglected to attend to them. — He has refused to pass other Laws for the accommodation of large districts of people, unless those people would relinquish the right of Representation in the Legislature, a right inestimable to them and formidable to tyrants only. — He has called together Legislative Bodies at places unusual, uncomfortable, and distant from the depository of their Public Records, for the sole purpose of fatiguing them into compliance with his measures. — He has dissolved Representative Houses repeatedly, for opposing with manly firmness his invasions on the rights of the people. — He has refused for a long time after such Dissolutions, to cause others to be elected; whereby the Legislative powers, incapable of Annihilation, have returned to the People at large for their exercise; the State remaining in the mean time exposed to all the dangers of invasion from without, and convulsions within. — He has endeavored to prevent the population of these States; for that purpose obstructing the Laws for Naturalization of Foreigners; refusing to pass others to encourage their migrations hither, and raising the conditions of new Appropriations of Lands. — He has obstructed the Administration of Justice, by refusing his Assent to Laws for establishing Judiciary powers. — He has made Judges dependent on his Will alone, for the tenure of their offices, and the amount and payment of their salaries. — He has erected a multitude of New Offices, and sent hither swarms of Officers to harass our People, and eat out their substance. — He has kept among us, in times of peace, Standing Armies without the Consent of our Legislatures. — He has affected to render the Military independent of and superior to the Civil power. — He has combined with others to subject us to a jurisdiction foreign to our constitution, and unacknowledged by our laws; giving his Assent to their Acts of pretended Legislation: — For quartering large bodies of armed troops among us: — For protecting them, by a mock Trial, from punishment for any Murders which they should commit on the Inhabitants of these States: — For cutting off our Trade with all parts of the world: — For imposing Taxes on us without our Consent: — For depriving us in many cases, of the benefits of Trial by Jury: — For transporting us beyond Seas to be tried for pretended offences — For abolishing the free System of English Laws in a neighbouring Province, establishing therein an Arbitrary government, and enlarging its Boundaries so as to render it at once an example and fit instrument for introducing the same absolute rule into these Colonies: — For taking away our Charters, abolishing our most valuable Laws and altering fundamentally the Forms of our Governments: — For suspending our own Legislatures, and declaring themselves invested with Power to legislate for us in all cases whatsoever. —

He has abdicated Government here, by declaring us out of his Protection and waging War against us. — He has plundered our Seas, ravaged our Coasts, burnt our Towns, and destroyed the lives of our People. — He is at this time transporting large Armies of foreign Mercenaries to compleat the works of death, desolation and tyranny, already begun with circumstances of Cruelty & perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the Head of a civilized nation. — He has constrained our fellow Citizens taken Captive on the high Seas to bear Arms against their Country, to become the executioners of their friends and Brethren, or to fall themselves by their Hands. — He has excited domestic insurrections amongst us, and has endeavoured to bring on the inhabitants of our frontiers, the merciless Indian Savages, whose known rule of warfare, is an undistinguished destruction of all ages, sexes and conditions. — In every stage of these Oppressions We have Petitioned for Redress in the most humble terms: Our repeated Petitions have been answered only by repeated injury. A Prince whose character is thus marked by every act which may define a Tyrant, is unfit to be the ruler of a free people. — Nor have We been wanting in attention to our British brethren. We have warned them from time to time of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity, and we have conjured them by the ties of our common kindred to disavow these usurpations, which would inevitably interrupt our connections and correspondence. They too have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity, which denounces our Separation, and hold them, as we hold the rest of mankind, Enemies in War, in Peace Friends. —

We, therefore, the Representatives of the united States of America, in General Congress, Assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the Name, and by Authority of the good People of these Colonies, solemnly publish and declare, That these United Colonies are, and of Right ought to be Free and Independent States; that they are Absolved from all Allegiance to the British Crown, and that all political connection between them and the State of Great Britain, is and ought to be totally dissolved; and that as Free and Independent States, they have full Power to levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which Independent States may of right do. — And for the support of this Declaration, with a firm reliance on the protection of divine Providence, we mutually pledge to each other our Lives, our Fortunes and our sacred Honor.

John Hancock

New Hampshire
Josiah Bartlett
Wm Whipple
Matthew Thornton

Massachusetts Bay
Saml Adams
John Adams
Robt Treat Paine
Elbridge Gerry

Rhode Island
Step Hopkins
William Ellery

Connecticut
Roger Sherman
Sam'el Huntington
Wm Williams
Oliver Wolcott

New York
Wm Floyd
Phil. Livingston
Frans Lewis
Lewis Morris

New Jersey
Richd Stockton
Jno Witherspoon
Fras Hopkinson
John Hart
Abra Clark

Pennsylvania
Robt Morris
Benjamin Rush
Benja Franklin
John Morton
Geo Clymer
Jas Smith
Geo Taylor
James Wilson
Geo Ross

Delaware
Caesar Rodney
Geo Read
Tho M'Kean

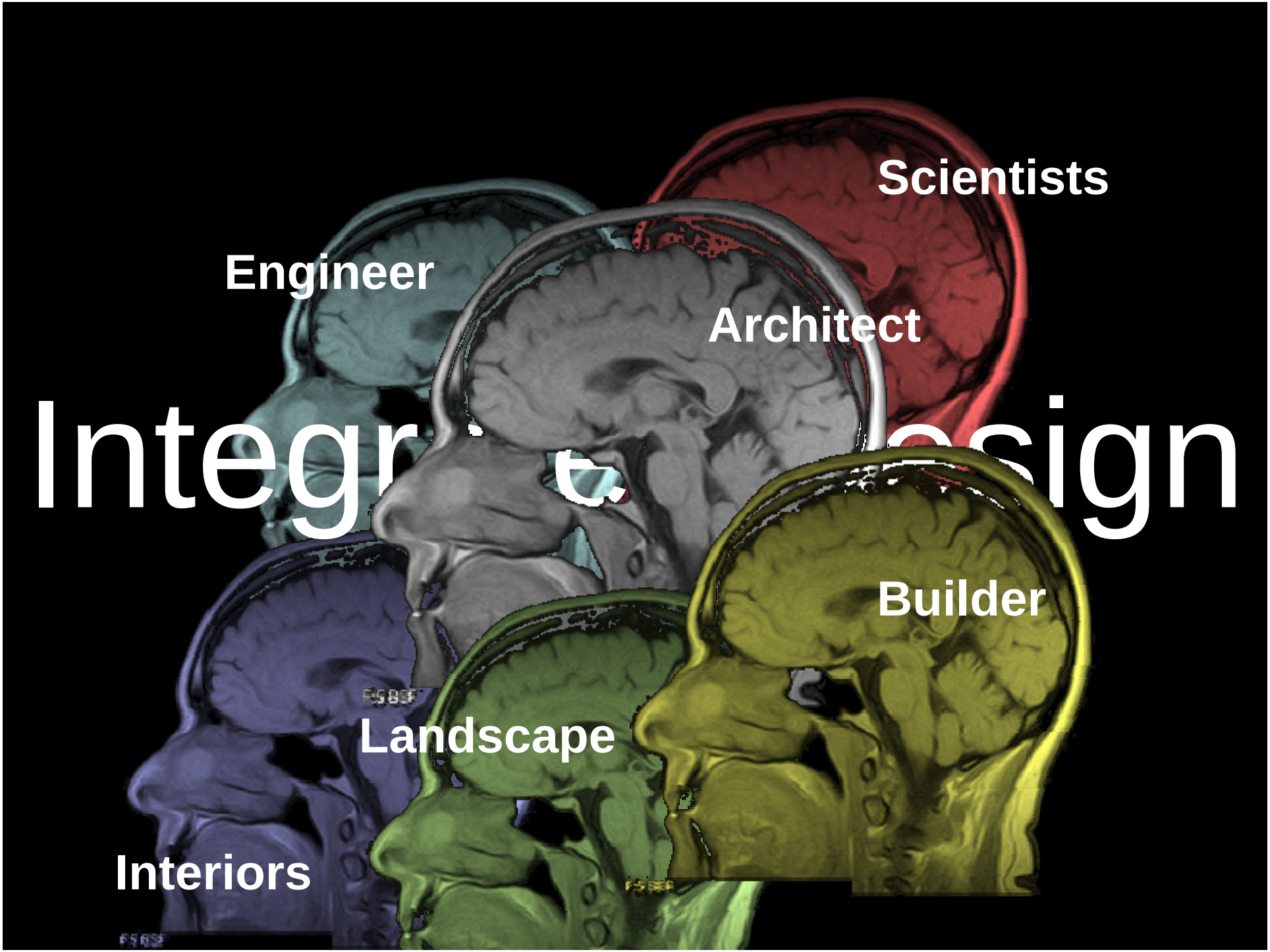
Maryland
Samuel Chase
Wm Paca
Thos Stone
Charles Carroll of Carrollton

Virginia
George Wythe
Richard Henry Lee
Th Jefferson
Benja Harrison
Thos Nelson jr.
Francis Lightfoot Lee
Carter Braxton

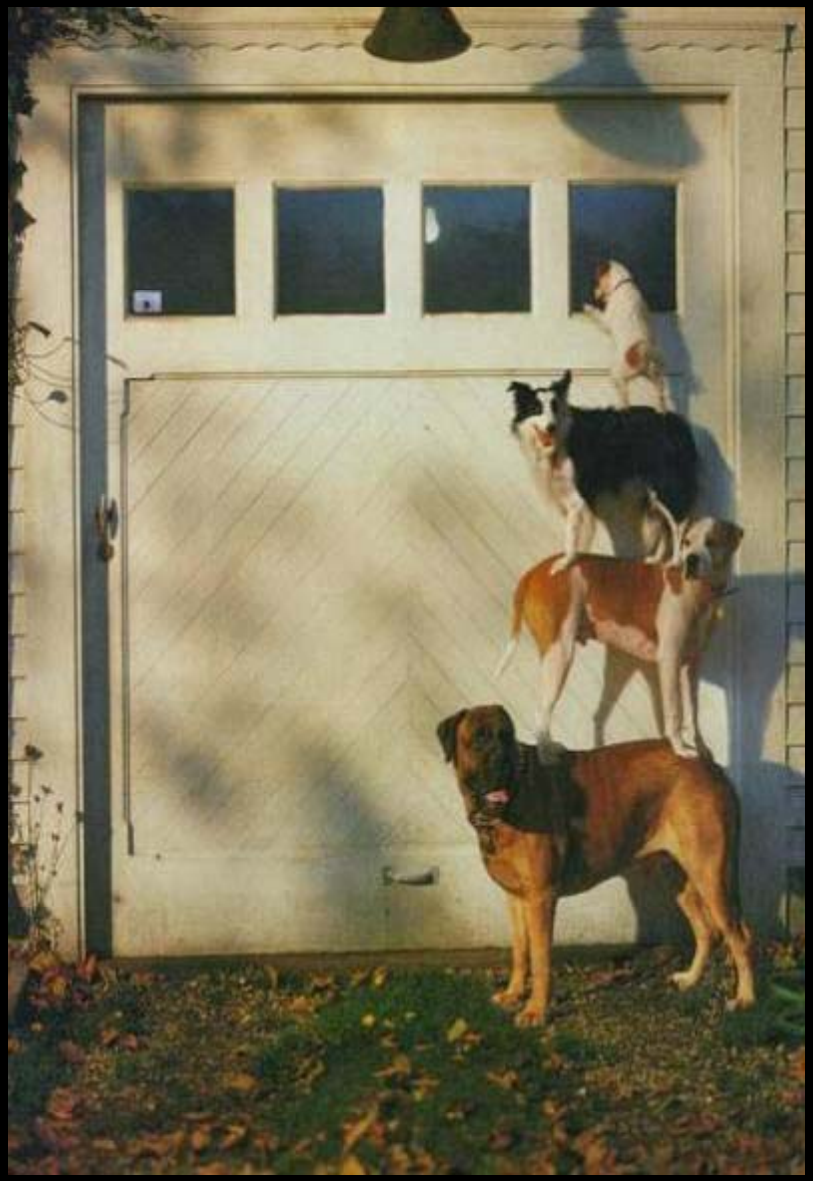
North Carolina
Wm Hooper
Joseph Hewes
John Penn

South Carolina
Edward Rutledge
Thos Heyward jr.
Thomas Lynch jr.
Arthur Middleton

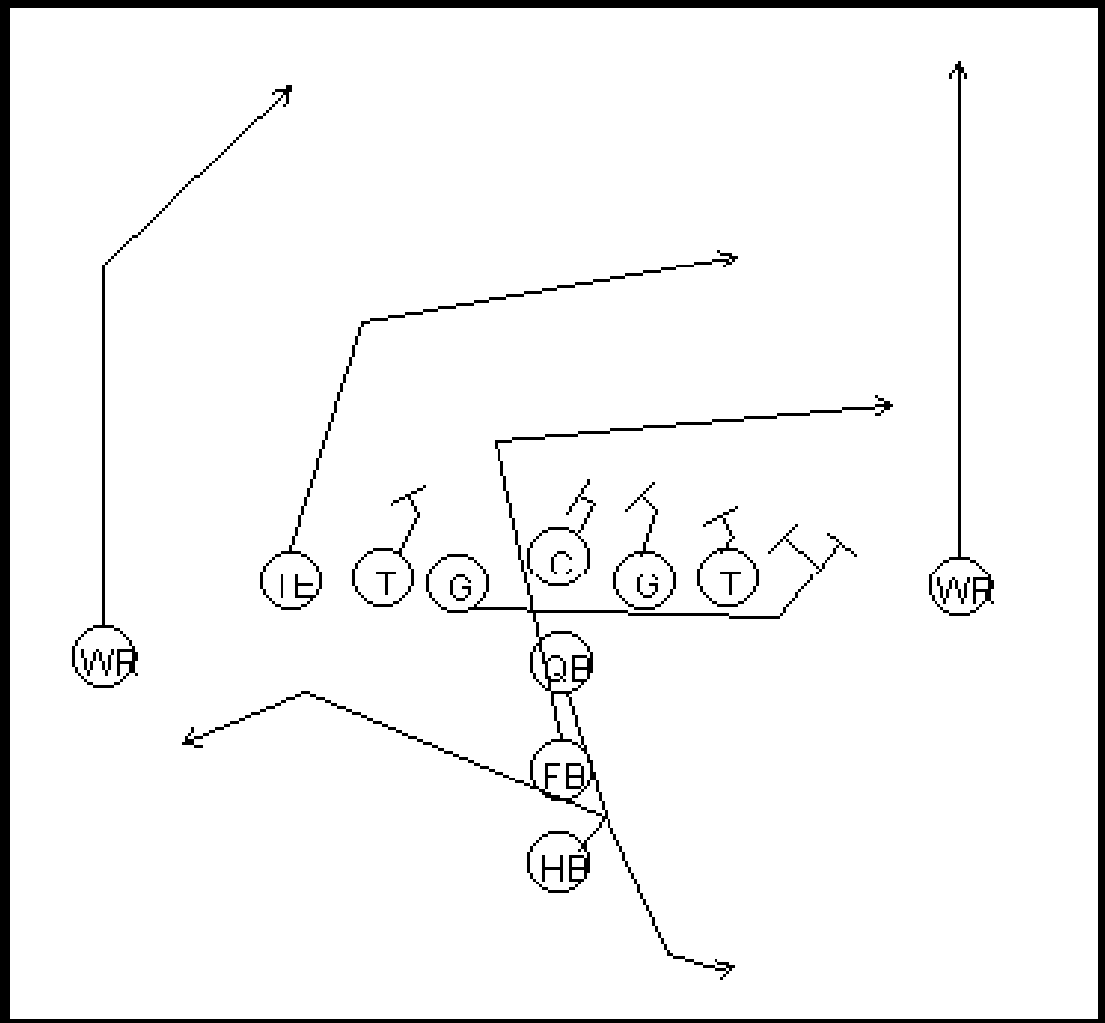
Georgia
Button Gwinnett
Lyman Hall
Geo Walton


Scientists
Engineer
Architect
Builder
Landscape
Interiors

Design Process



Know your role


WR
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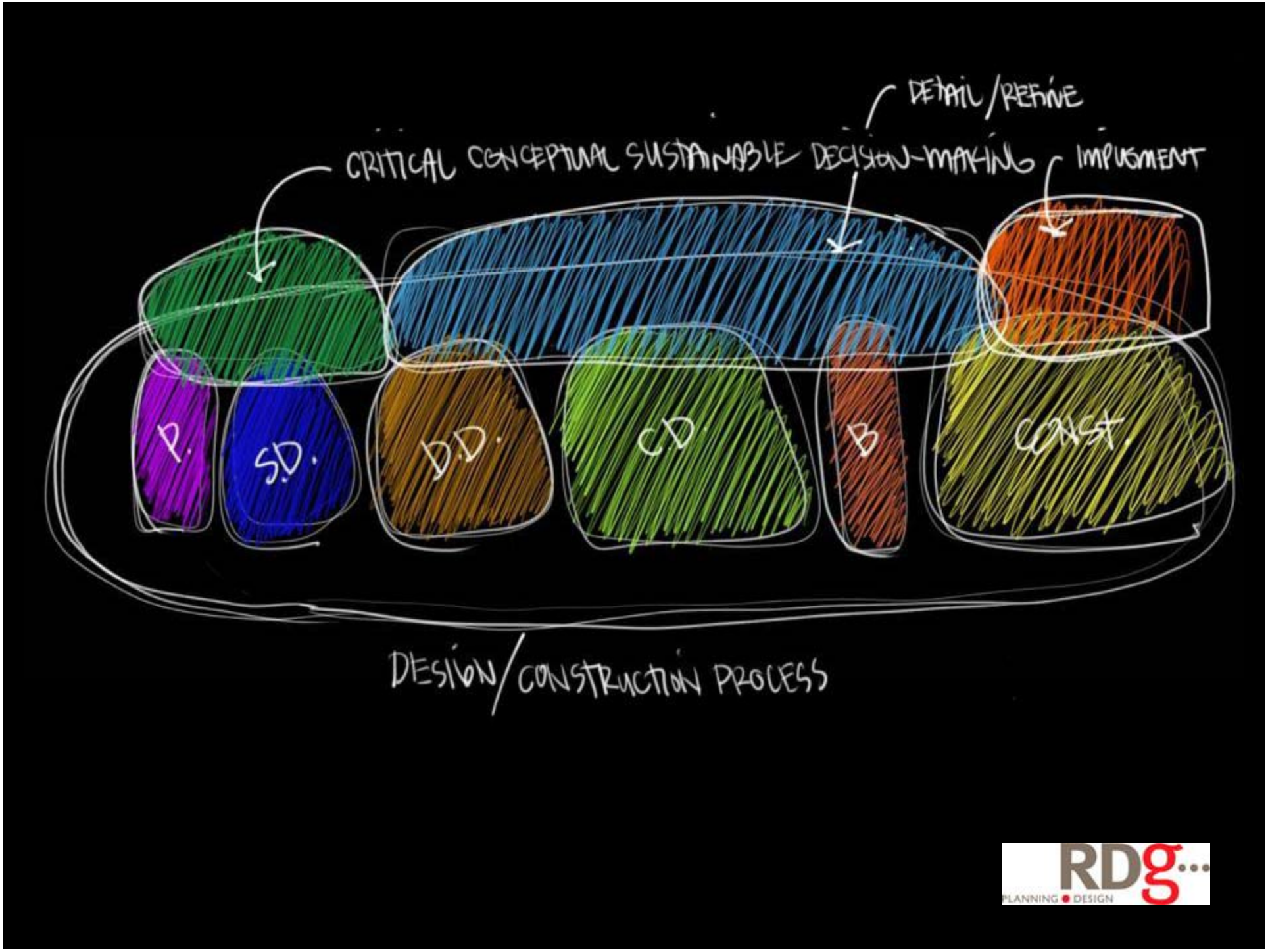

DETAIL/REFINE
CRITICAL CONCEPTUAL SUSTAINABLE DECISION-MAKING
IMPLEMENT
P.
S.D.
D.D.
C.D.
B
CONST.
DESIGN/CONSTRUCTION PROCESS


U.S. GREEN BUILDING COUNCIL
USGBC

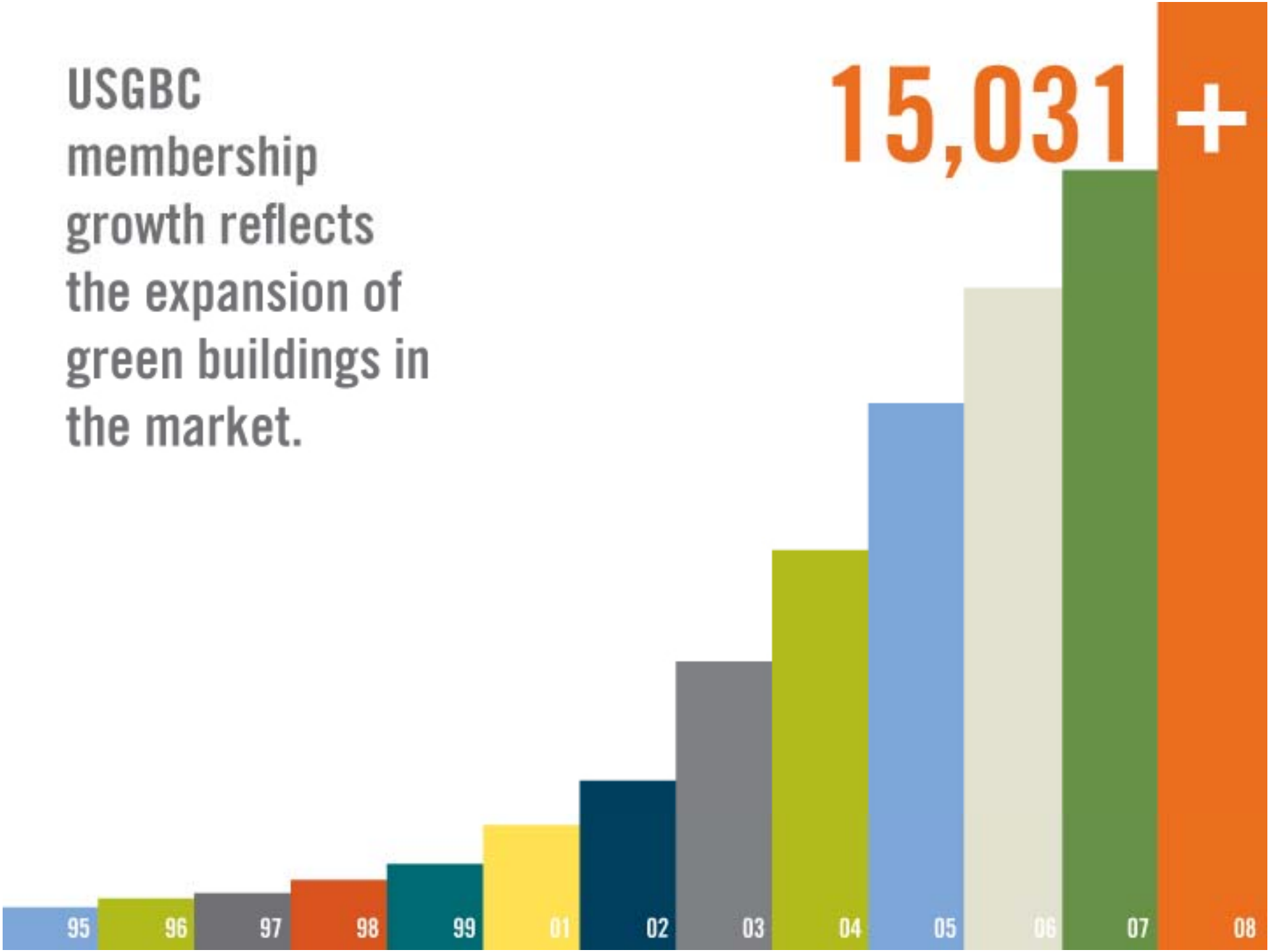
OUR MISSION

To transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy and prosperous environment that improves the quality of life.


STEWARDS
market
transformation
PROVIDES
tools and
expertise
U.S. GREEN BUILDING COUNCIL
USGBC
EDUCATES
the industry
and the public
BUILDS
community
FORUMS
for industry
dialog

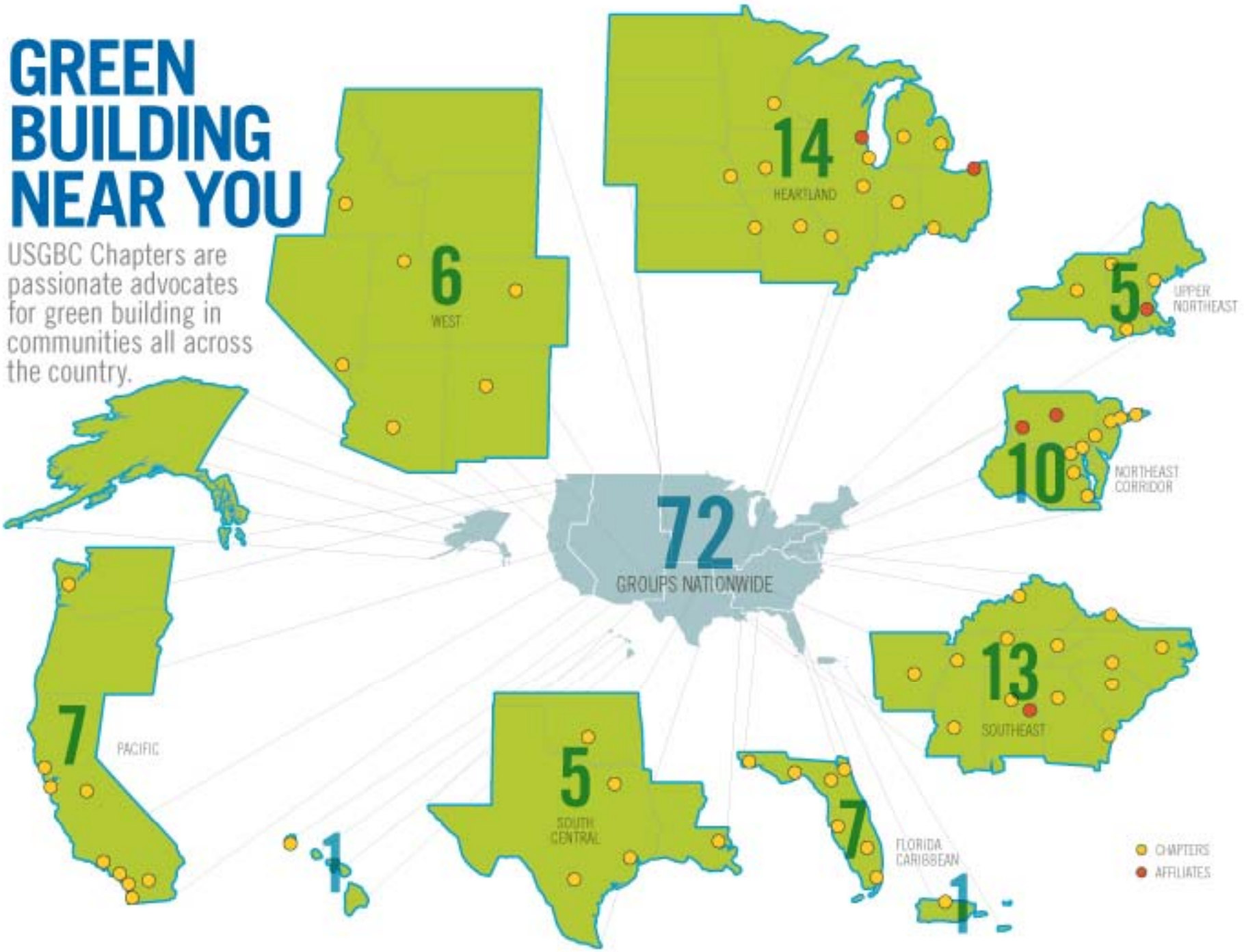
USGBC MEMBERSHIP

USGBC membership growth reflects the expansion of green buildings in the market.



GREEN BUILDING NEAR YOU

USGBC Chapters are passionate advocates for green building in communities all across the country.




GBCI
GREEN BUILDING CERTIFICATION INSTITUTE
HEREBY CERTIFIES THAT
49,762
HAS ACHIEVED THE DESIGNATION OF
LEED® ACCREDITED PROFESSIONAL
BY DEMONSTRATING THE KNOWLEDGE OF GREEN BUILDING PRACTICE
REQUIRED FOR SUCCESSFUL IMPLEMENTATION OF THE LEADERSHIP IN ENERGY
AND ENVIRONMENTAL DESIGN (LEED®) GREEN BUILDING RATING SYSTEM™.
LEED AP

GREENBUILD

INTERNATIONAL CONFERENCE & EXPO

COME TO BOSTON → NOVEMBER 19–21 2008

Leadership in Energy & Environmental Design

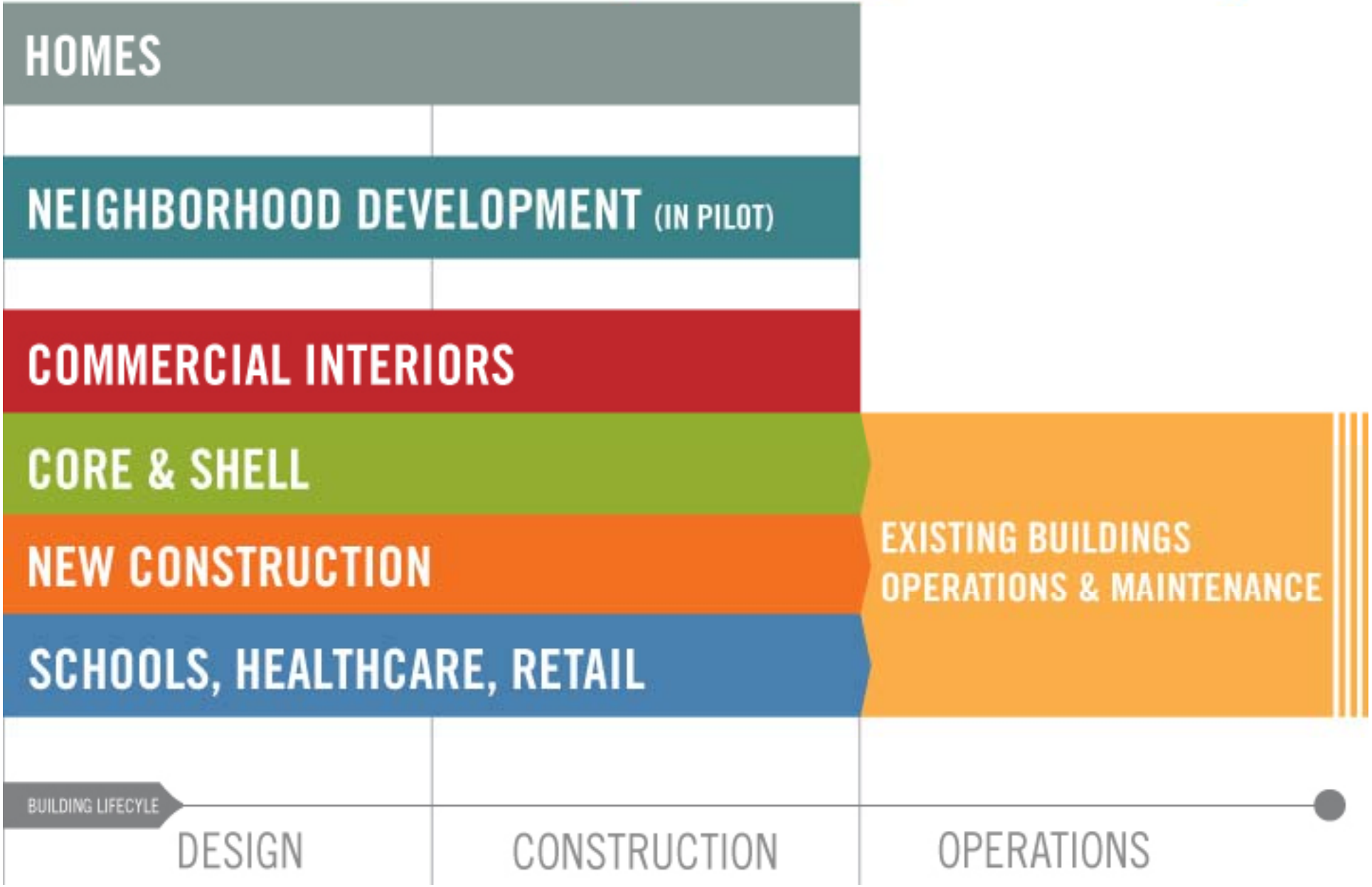

ANIMALS
HIPPOPOTAMUS
ZEBRA
Nutrition Facts
Serving Size 8 crackers (28g
Servings Per Container About 2
Amount Per Serving
Calories 120 Calories From Fat 30
% Daily Value*
Total Fat 3.5g 5%
Saturated Fat 1g 5%
Trans Fat 0g
Polyunsaturated Fat 1.5g
Monounsaturated Fat 0.5g
Cholesterol 0mg 0%
Sodium 140mg 6%
Total Carbohydrate 22g 7%
Dietary Fiber Less than 1g 3%
Sugars 7g
Protein 2g
Vitamin A 0% • Vitamin C 0%
Calcium 10% • Iron 4%
* Percent Daily Values are based on a 2,000 calorie diet.
CONTINUED ON OTHER SIDE

Leadership in Energy and Environmental Design

A leading-edge system for certifying the greenest performing buildings in the world

What Is Green Building?

LEED address the complete lifecycle of buildings:



Cross-Functional Team

LEED Is Consensus-Based

USGBC has four levels of LEED:

Higher Education

Case Study

Vermeer Science Center Renovation & Addition

Owner
Central College, Pella, IA

Higher Education
72,570 sf

LEED Silver

20%
Energy Savings

50%
of energy needs from Renewable Resources

32%
Water Savings

U.S. Green Building Council Chapter
Iowa Chapter

Case Study

Student Housing – Phase II

Owner
Central College, Pella, IA

Higher Education
30,000 sf

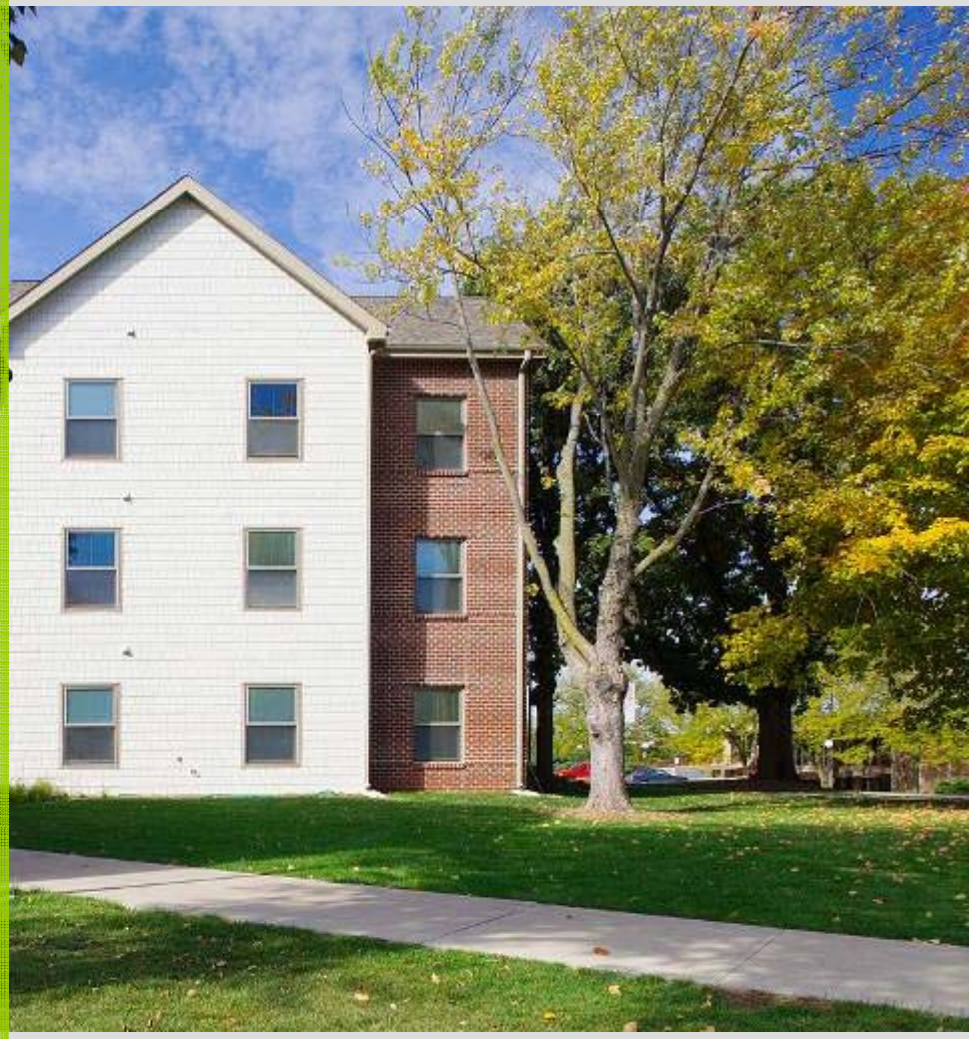
Iowa Chapter

LEED Gold

40%
Energy Savings

30%
Water Savings

PV incorporated into Bike Storage Racks



K-12

Case Study

James Van Allen Elementary School

Owner
North Liberty Schools

North Liberty, Iowa

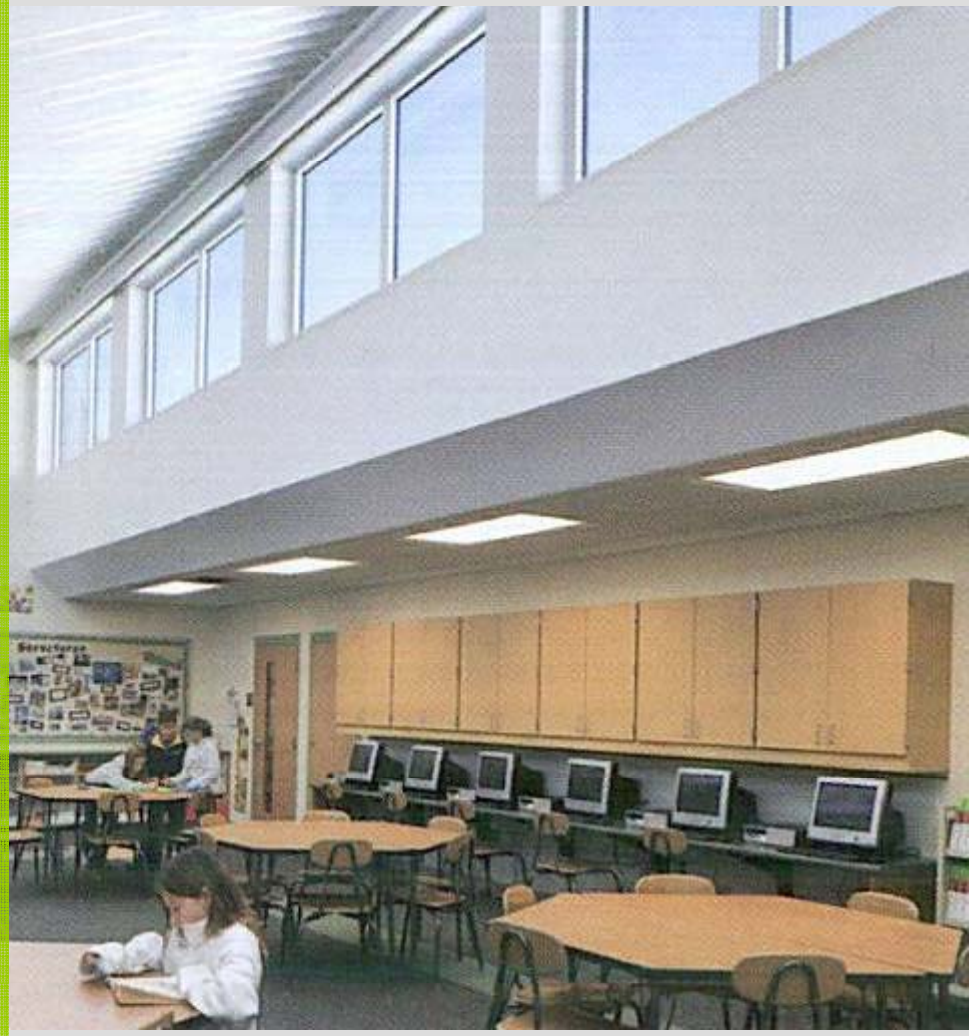
K-12

80,000 sf

LEED Silver

50%
Energy Savings

30%
Water Savings



Iowa Chapter

Case Study

CERA – Environmental Education ARea

Owner
Grinnell College, Grinnell, IA

Higher Education
7,400 sf

Iowa Chapter

Higher Education

LEED Gold

95%
Energy provided by on-site wind turbine

30%
Water reduction

Restoration
of site to native Iowa Prairie

Higher Education

Case Study

LEED Certified

East Campus Dorms

Owner
Grinnell College, Grinnell, IA

Higher Education

Iowa Chapter

Project Name	Owner	City	State	Country	LEED Rating System
ACT Operations Center	ACT	Iowa City	IA	US	LEED NC 2.2
Alpha Chi Omega Sorority House		Iowa City	IA	US	LEED NC 2.2
Ames Transit, CyRide Office Addition	Ames Transit Agency, CyRide	Ames	IA	US	LEED NC 2.2
Bioscience Center		Fort Dodge	IA	US	LEED NC 2.2
Carnegie-Stout Public Library		Dubuque	IA	US	LEED EB 2.0
Cedar River Recreation & Fine Arts Centr		Osage	IA	US	LEED NC 2.2
Central College Ed-Psych Building	Central College	Pella	IA	US	LEED NC 2.2
Central College Housing Phase 2	Central College	Pella	IA	US	LEED NC 2.1
College of Design - Foundations Pavilion	Facilities Planning and Management, Iowa	Ames	IA	US	LEED NC 2.2
Creston Social Security Admin. Building		Creston	IA	US	LEED NC 2.2
DAVENPORT POLICE FACILITY	CITY OF DAVENPORT	Davenport	IA	US	LEED NC 2.1
Dennis & Donna Oldorf Hospice House of M	Mercy Hospital	Hiawatha	IA	US	LEED NC 2.2
Des Moines Federal Building	GSA/Public Buildings Service	Des Moines	IA	US	LEED CS 1.0 Pilots Only
Durrant Group Corporate Headquarters		Dubuque	IA	US	LEED NC 2.2
FCSA: MANCHESTER, IA	FCSA	Manchester	IA	US	LEED NC 2.1
FCSA: MARSHALLTOWN, IA	FARM CREDIT SERVICES OF AMERIC	Marshalltown	IA	US	LEED NC 2.1
Grinnell College Athletic & Fitness Cent	Grinnell College	Grinnell	IA	US	LEED NC 2.2
Grinnell College CERA Environmental Educ		Kellogg	IA	US	LEED NC 2.1
GRINNELL COLLEGE NOYCE SCIENCE	GRINNELL COLLEGE	Grinnell	IA	US	LEED NC 2.1
Grinnell Public Safety Building		Grinnell	IA	US	LEED NC 2.2
HNI/GUNLOCKE CORPORATE HEADQUA	HNI Corporation	Muscatine	IA	US	LEED NC 2.1
Holistic Women's Clinic		Des Moines	IA	US	LEED NC 2.2
Honey Creek Resort State Park	Iowa Department of Natural Resources	Rathbun	IA	US	LEED NC 2.2
Indian Creek Nature Center		Cedar Rapids	IA	US	LEED EB 2.0
Iowa Assoc of Community College Trustees	IACCT	Des Moines	IA	US	LEED NC 2.2

1 2 3

Project Name	Owner	City	State	Country	LEED Rating System
Iowa City East Side Recycling Center		Iowa City	IA	US	LEED NC 2.2
Iowa City Fire Department	The City of Iowa City	Iowa City	IA	US	LEED NC 2.2
Luther Science Building		Decorah	IA	US	LEED NC 2.2
M.U.M. Student Center	Maharishi University of Management	Fairfield	IA	US	LEED NC 2.2
Marion Arts and Environment Center, Tree	City of Marion	Marion	IA	US	LEED NC 2.1
Marshalltown Public Library	Marshalltown Public Library	Marshalltown	IA	US	LEED NC 2.2
McGraw-Hill:Dubuque - Regional HQ	The McGraw-Hill Companies	Dubuque	IA	US	LEED NC 2.2
Mercy West Lakes Medical Center		West Des Moines	IA	US	LEED NC 2.2
Meskwaki Settlement High School	Sac and Fox Tribe of the Mississippi in	Tama	IA	US	LEED NC 2.2
Meskwaki Tribal Health Center		Tama	IA	US	LEED NC 2.2
ML King Park Shelter & Congregate Meal	City Of Des Moines	Des Moines	IA	US	LEED NC 2.2
Mosaic Apartments - Council Bluffs, IA	Mosaic	Council Bluffs	IA	US	LEED NC 2.2
NEUMANN MONSON ARCHITECTS	NEUMANN MONSON ARCHITECTS	Iowa City	IA	US	LEED CI 2.0
North Corridor Elementary	Iowa City Community School District	North Liberty	IA	US	LEED NC 2.1
Parkside Activity Center		Wellman	IA	US	LEED NC 2.2
PolkCounty Oliver Plaza Renovation	Polk County	Des Moines	IA	US	LEED NC 2.2
Port of Dubuque Public Parking Facility	City of Dubuque	Dubuque	IA	US	LEED NC 2.2
Portside Plaza Phase II		Dubuque	IA	US	LEED CS 2.0
Prototype Residence Building - YHMA		Johnston	IA	US	LEED NC 2.2
ROCKWELL COLLINS ENGINEERING OFFICE BLDG	ROCKWELL COLLINS	Cedar Rapids	IA	US	LEED NC 2.2
ROCKWELL COLLINS ENGINEERING OFFICE BLDG	ROCKWELL COLLINS	Cedar Rapids	IA	US	LEED NC 2.2
Stewart Public Library		Grinnell	IA	US	LEED NC 2.2
Sustainable Living Center		Fairfield	IA	US	LEED NC 2.2
THE ACADEMIC HOME FOR THE COLL	THE UNIVERSITY OF IOWA	Iowa City	IA	US	LEED NC 2.1
UNIV OF IOWA HYGIENICS LABORAT	DESIGN AND CONSTRUCTION SERVIC	Coralville	IA	US	LEED NC 2.1
University of Iowa Rowing Team Boathouse		Iowa City	IA	US	LEED NC 2.2
USDA CONSOLIDATED LABORATORY F	USDA	Ames	IA	US	LEED NC 2.1
Vermeer Science Center Renovation & Addi		Pella	IA	US	LEED NC 2.0
West Zone Maintenance Facility	City of Des Moines	Des Moines	IA	US	LEED NC 2.2
Willowwind School	Willowwind School	Iowa City	IA	US	LEED NC 2.2

1 2 3

Higher Education

Case Study

Morrill Hall Renovation

Owner
Iowa State University
Ames, IA

Higher Education
35,000 sf

LEED

Silver

30%
Energy Savings

100%
Construction Waste Diverted from Landfill

Iowa Chapter

Higher Education

Case Study

Great Ape Trust of Iowa

Orangutan 2 Facility

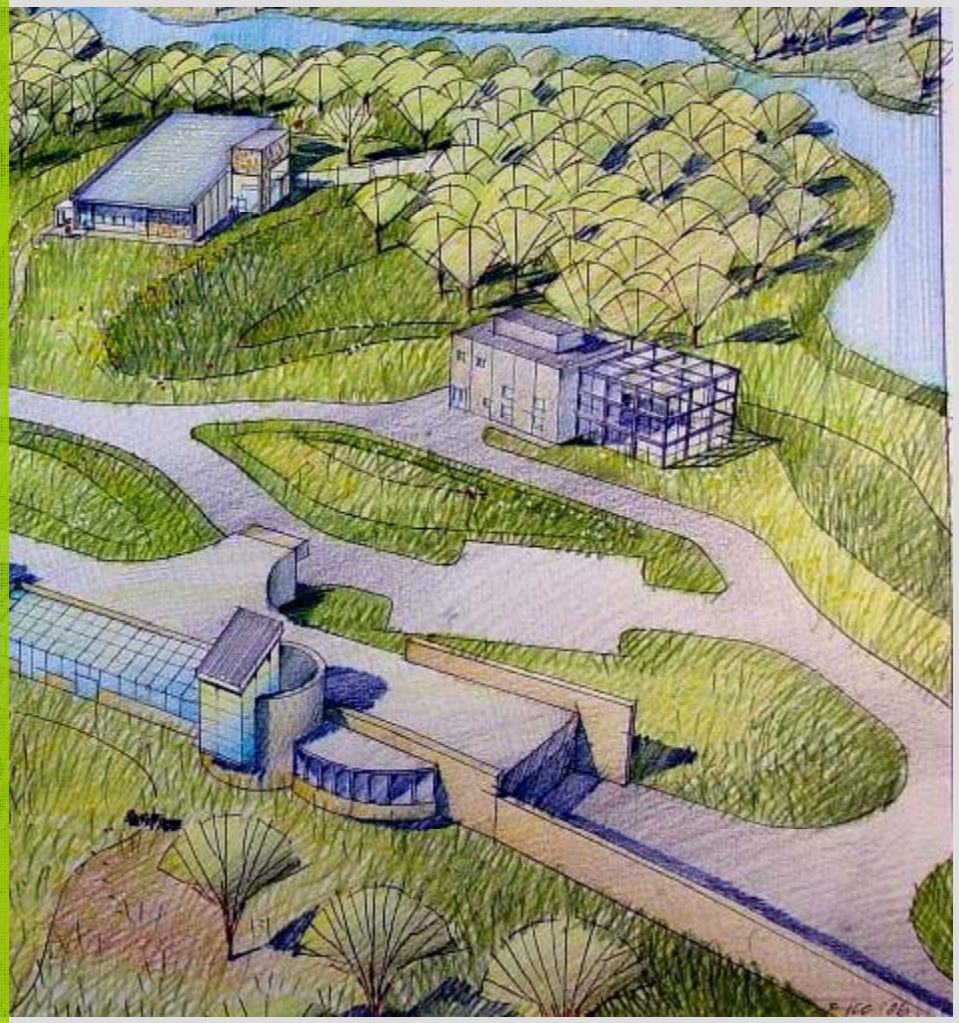
Owner
Great Ape Trust, Des Moines, IA

Research
20,000 sf

LEED Registered

30%
Energy Savings

On-Site Renewable Energy



Iowa Chapter

Case Study

Earthpark

Pella, Iowa

LEED Registered Project

Municipal

Case Study

Marion Arts and Environment Center

Owner
City of Marion, Iowa

Municipal
12,000 sf

LEED Certified

45%
Energy Savings

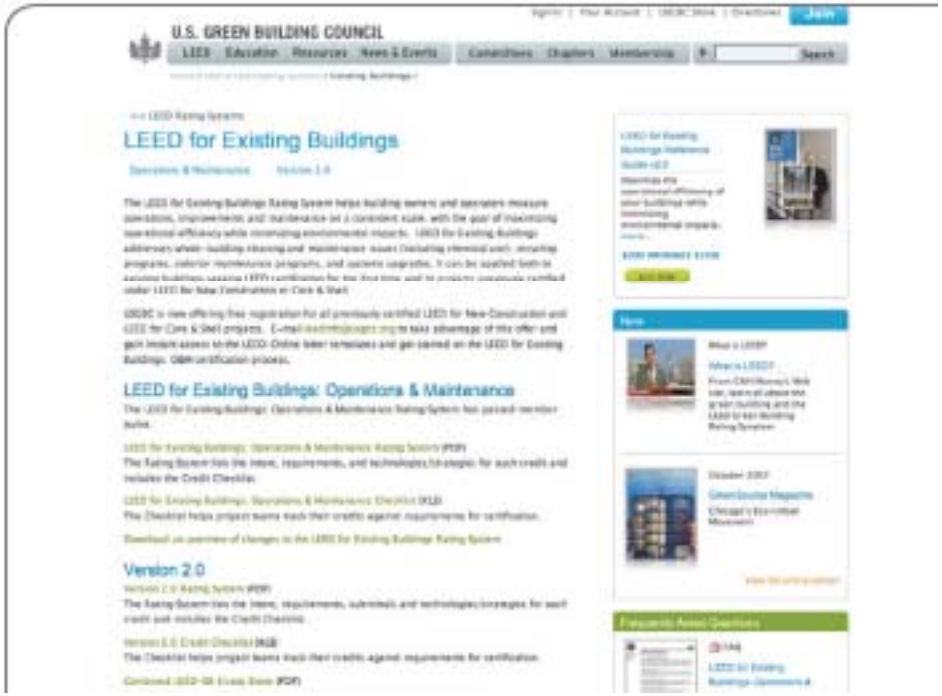
Restoration
Of site to native Iowa Prairie

Iowa Chapter

Steps to LEED Certification

Tools

- Rating systems
- Reference guide
- Project checklist
- Credit Interpretation Requests (CIRs)
- LEED Online
- Educational workshops
- Project case studies
- www.usgbc.org



LEED for Existing Buildings:
Operations & Maintenance

Ongoing certification of all projects

The Basics

9 prerequisites

34 credits

3 - month performance period

Minimum Program Requirements

- Full occupancy for at least 12 continuous months
- Applies to whole buildings
- Federal, state and local environmental law/regulation compliance

Credit Categories & Distribution

12 POINTS Sustainable Sites (SS)

10 POINTS Water Efficiency (WE)

30 POINTS Energy & Atmosphere (EA)

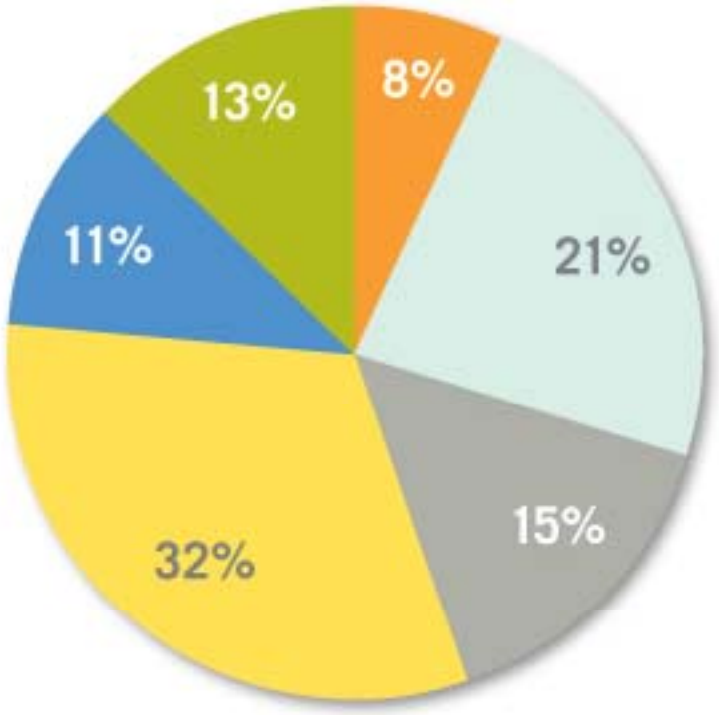
14 POINTS Materials & Resources (MR)

19 POINTS Indoor Environmental Quality (EQ)

7 POINTS Innovation in Operations (IO)

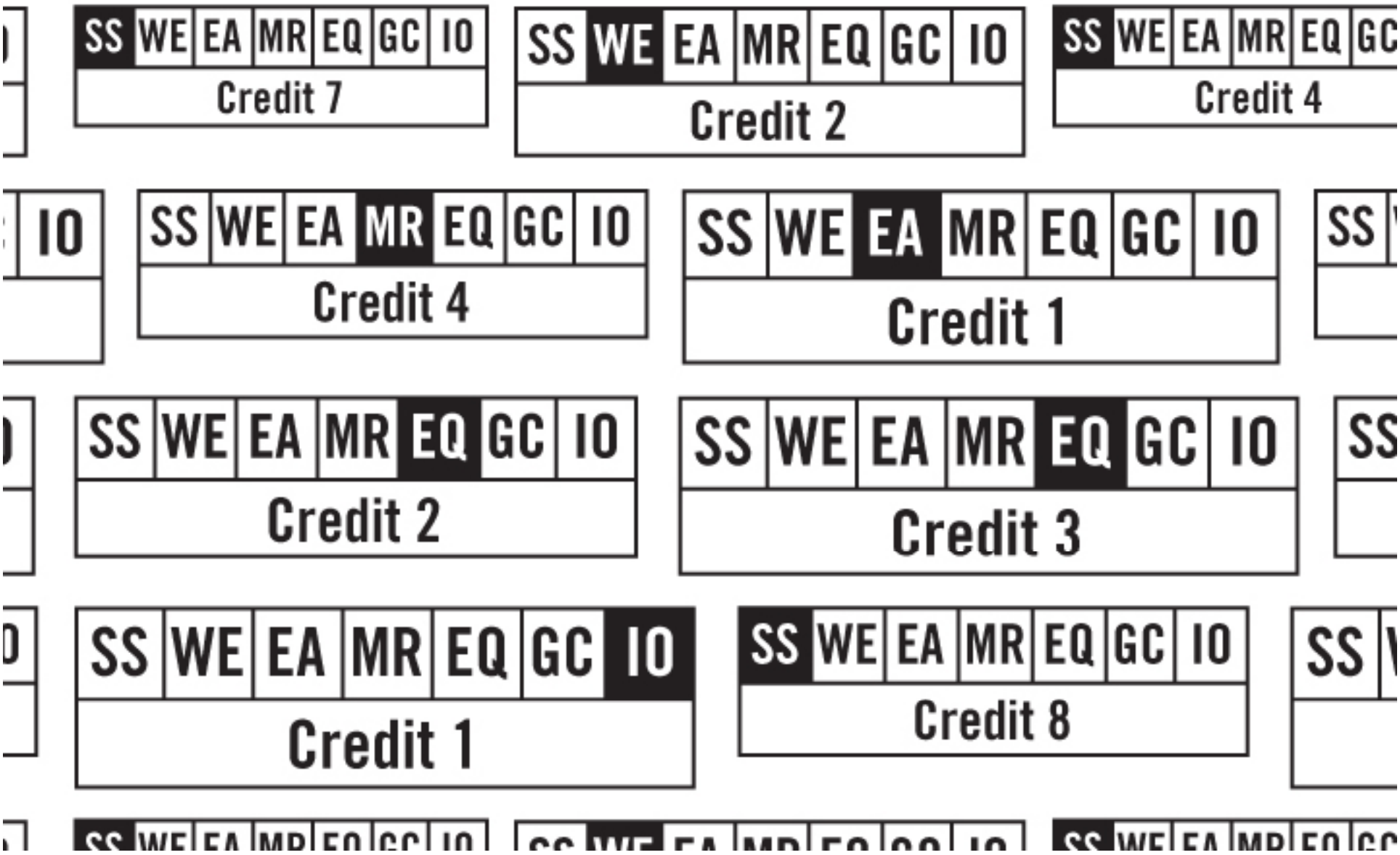
Point Distribution Comparison

Key: SS WE EA MR EQ IO



LEED for Existing Buildings:
Operations & Maintenance

Credits & Points



Sustainable Sites (SS)

Yes	?	No			
0	0	0	**Sustainable Sites**		**12** Points
			Credit 1	**LEED Certified Design and Construction**	**1**
			Credit 2	**Building Exterior and Hardscape Management Plan**	**1**
			Credit 3	**Integrated Pest Management, Erosion Control, and Landscape Management Plan**	**1**
			Credit 4	**Alternative Commuting Transportation**	**4**
				10%	1
				25%	1
				50%	1
				75% or greater	1
			Credit 5	**Reduced Site Disturbance - Protect or Restore Open Space**	**1**
			Credit 6	**Stormwater Management**	**1**
			Credit 7	**Heat Island Reduction**	**2**
				Non-Roof	1
				Roof	1
			Credit 8	**Light Pollution Reduction**	**1**

Yes	?	No			
0	0	0	**Water Efficiency**		**10** Points
Y			Prereq 1	**Minimum Indoor Plumbing Fixture and Fitting Efficiency**	Required
			Credit 1	**Water Performance Measurement**	**2**
				Whole building metering	1
				Submetering	1
			Credit 2	**Additional Indoor Plumbing Fixture and Fitting Efficiency**	**3**
				30%	2

Water Efficiency (WE)

Yes	?	No	Water Efficiency	10 Points
0	0	0		

Y	Prereq 1	**Minimum Indoor Plumbing Fixture and Fitting Efficiency**	Required
	Credit 1	**Water Performance Measurement**	**2**
		Whole building metering	1
		Submetering	1
	Credit 2	**Additional Indoor Plumbing Fixture and Fitting Efficiency**	**3**
		10%	1
		20%	1
		30%	1
	Credit 3	**Water Efficient Landscaping**	**3**
		Reduce Potable Water Use by 50%	1
		Reduce Potable Water Use by 75%	1
		Reduce Potable Water Use by 100%	1
	Credit 4	**Cooling Tower Water Management**	**2**
		Chemical Management	1
		Non-Potable Water Source Use	1

Yes	?	No	Energy & Atmosphere	30 Points
0	0	0		

Y	Prereq 1	**Energy Efficiency Best Management Practices** - Planning, Documentation, and Opportunity Assessment	Required
Y	Prereq 2	**Minimum Energy Efficiency Performance**	Required
Y	Prereq 3	**Refrigerant Management** - Ozone Protection	Required
	Credit 1	Optimize Energy Efficiency Performance	15

Energy & Atmosphere (EA)

Yes	?	No			
0	0	0	**Energy & Atmosphere**		30 Points
Y			Prereq 1	**Energy Efficiency Best Management Practices** - Planning, Documentation, and Opportunity Assessment	Required
Y			Prereq 2	**Minimum Energy Efficiency Performance**	Required
Y			Prereq 3	**Refrigerant Management** - Ozone Protection	Required
			Credit 1	**Optimize Energy Efficiency Performance**	**15**
			Credit 2	**Existing Building Commissioning**	**6**
				Investigation and Analysis	2
				Implementation	2
				Ongoing Commissioning	2
			Credit 3	**Performance Measurement**	**3**
				Building Automation System	1
				System-Level Metering, 40%	1
				System-Level Metering, 80%	1
			Credit 4	**Renewable Energy**	**4**
				On-site 3% / Off-site 25%	1
				On-site 6% / Off-site 50%	1
				On-site 9% / Off-site 75%	1
				On-site 12% / Off-site 100%	1
			Credit 5	**Refrigerant Management**	**1**
			Credit 6	**Emissions Reduction Reporting**	**1**

Yes	?	No	
0	0	0	**Materials & Resources** 14 Points

Materials & Resources (MR)

Yes	?	No		
0	0	0	**Materials & Resources**	**14** Points
Y			Prereq 1 **Sustainable Purchasing Policy**	Required
Y			Prereq 2 **Solid Waste Management Policy**	Required
			Credit 1 **Sustainable Purchasing**	**3**
			Ongoing Consumables, 40%	1
			Ongoing Consumables, 60%	1
			Ongoing Consumables, 80%	1
			Credit 2 **Sustainable Purchasing**	**2**
			Durable Goods, electric	1
			Durable Goods, furniture	1
			Credit 3 **Sustainable Purchasing** - Facility Alterations and Additions	**1**
			Credit 4 **Sustainable Purchasing**	**2**
			Reduced Mercury in Lamps, 90 pg/lum-hr	1
			Reduced Mercury in Lamps, 70 pg/lum-hr	1
			Credit 5 **Sustainable Purchasing** - Food	**1**
			Credit 6 **Solid Waste Management** - Waste Stream Audit	**1**
			Credit 7 **Solid Waste Management**	**2**
			Ongoing Consumables, 50%	1
			Ongoing Consumables, 70%	1
			Credit 8 **Solid Waste Management** - Durable Goods	**1**
			Credit 9 **Solid Waste Management** - Facility Alterations and Additions	**1**

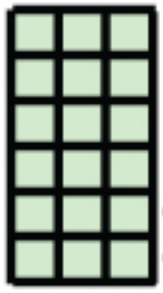
Yes	?	No		
0	0	0	Indoor Environmental Quality	19 Points

Indoor Environmental Quality (EQ)

Yes	?	No			
0	0	0	Indoor Environmental Quality		19 Points
Y			Prereq 1	**Outdoor Air Introduction and Exhaust Systems**	Required
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
Y			Prereq 3	**Green Cleaning Policy**	Required
			Credit 1	**IAQ Best Management Practices**	**5**
				IAQ Management Program	1
				Outdoor Air Delivery Monitoring	1
				Increased Ventilation	1
				Reduce Particulates in Air Distribution	1
				IAQ Management for Facility Alterations and Additions	1
			Credit 2	**Occupant Comfort**	**5**
				Occupant Survey	1
				Occupant Controlled Lighting	1
				Thermal Comfort Monitoring	1
				Daylight and Views, 50% Daylight / 45% Views	1
				Daylight and Views, 75% Daylight / 90% Views	1
			Credit 3	**Green Cleaning**	**9**
				High Performance Cleaning Program	1
				Custodial Effectiveness Assessment, < 4	1
				Custodial Effectiveness Assessment, < 3	1
				Sustainable Cleaning Products and Materials, 30%	1
				Sustainable Cleaning Products and Materials, 60%	1
				Sustainable Cleaning Products and Materials, 90%	1
				Sustainable Cleaning Equipment	1
				Entryway Systems	1
				Indoor Integrated Pest Management	1

Innovation in Operations (IO)

Yes	?	No	Innovation in Operations	7 Points
0	0	0		



Credit 1	**Innovation in Operations**	**4**
	Innovation in Operations	1
	Innovation in Operations	1
	Innovation in Operations	1
	Innovation in Operations	1
Credit 2	**LEED Accredited Professional**	**1**
Credit 3	**Documenting Sustainable Building Cost Impacts**	**2**


U.S. GREEN BUILDING COUNCIL
LEED PLATINUM
USGBC
Adobe Systems Incorporated, West Tower (Almaden)
37% energy savings
41% water savings
94% waste diverted
Source: Cushman & Wakefield of California, Inc. as an agent for Adobe Systems Inc.


U.S. GREEN BUILDING COUNCIL
LEED GOLD
USGBC
JohnsonDiversey Inc.
Global Headquarters
$90,000
annual energy cost savings
32%
water savings
49%
waste diverted
Source: JohnsonDiversey Inc.

Thank you!

RDg...
PLANNING ● DESIGN

THE AMERICAN INSTITUTE OF ARCHITECTS

COTE Top 10 Green Projects for 2002


BSA
The Boston Society of Architects
2005 Sustainable Design Awards Program Jury
Citation for Design
The Weidt Group
TAMU Office and Training Facility

BSA

Boston Society of Architects 2003

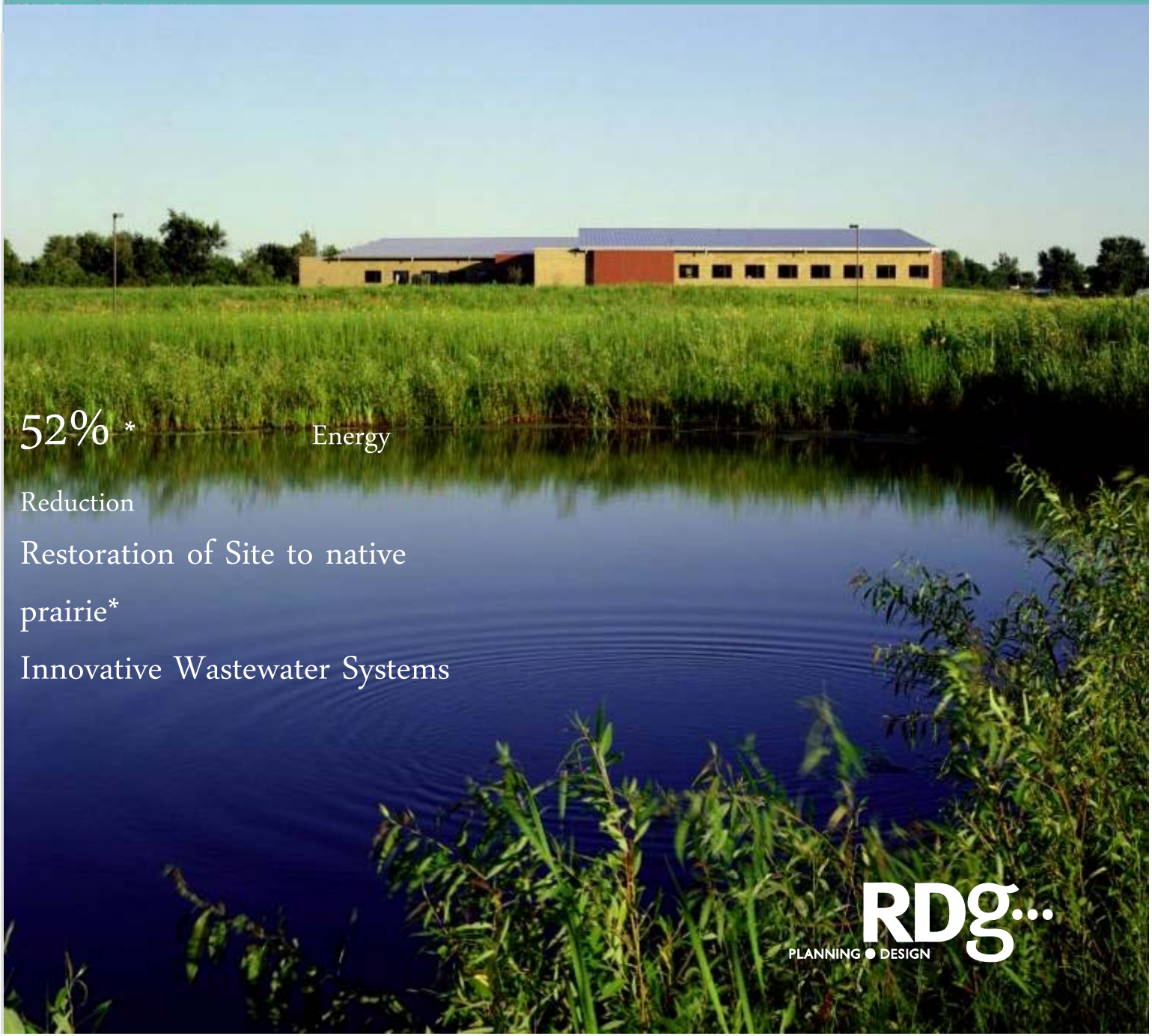
AIA Portland Design Award 2001

Case Study

Iowa Association of Municipal Utilities - Office / Training Facility

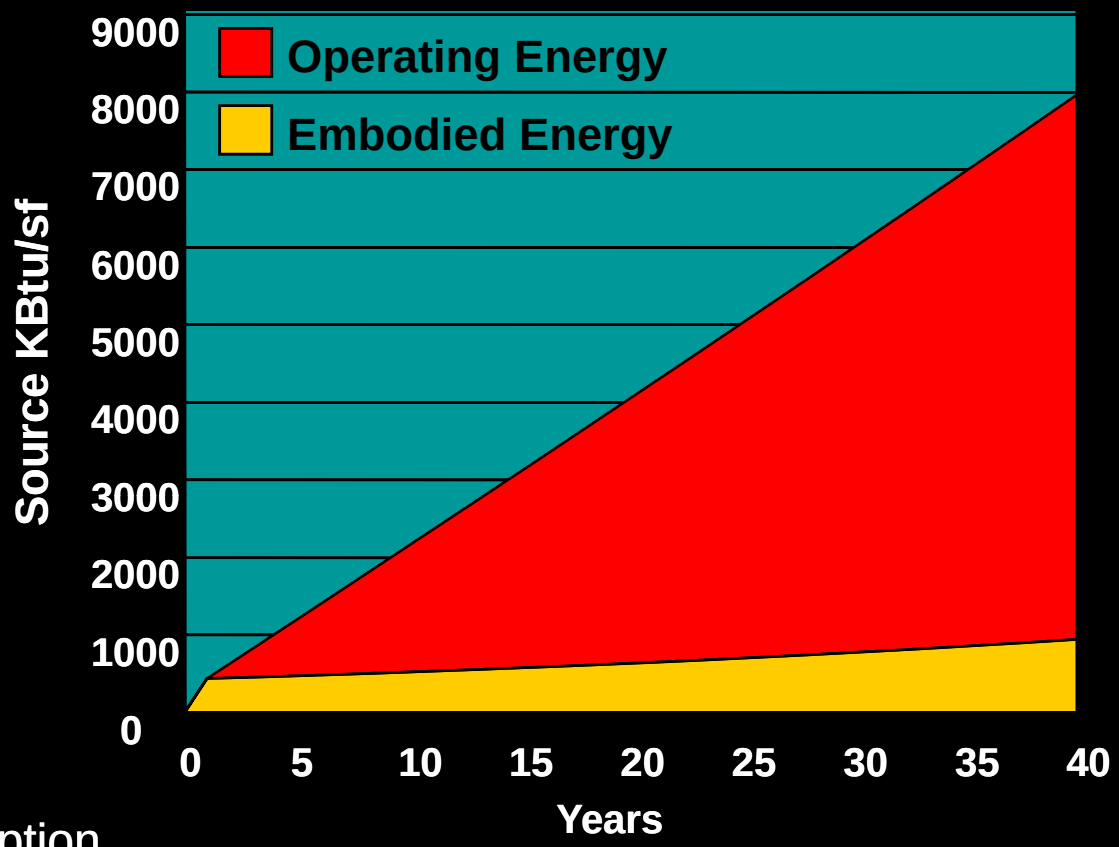
Ankeny, Iowa

Project completed in 2000 – prior to LEED



"Over time, environmental impacts from high energy use may far outweigh all other (environmental) factors."

- *Environmental Resource Guide*

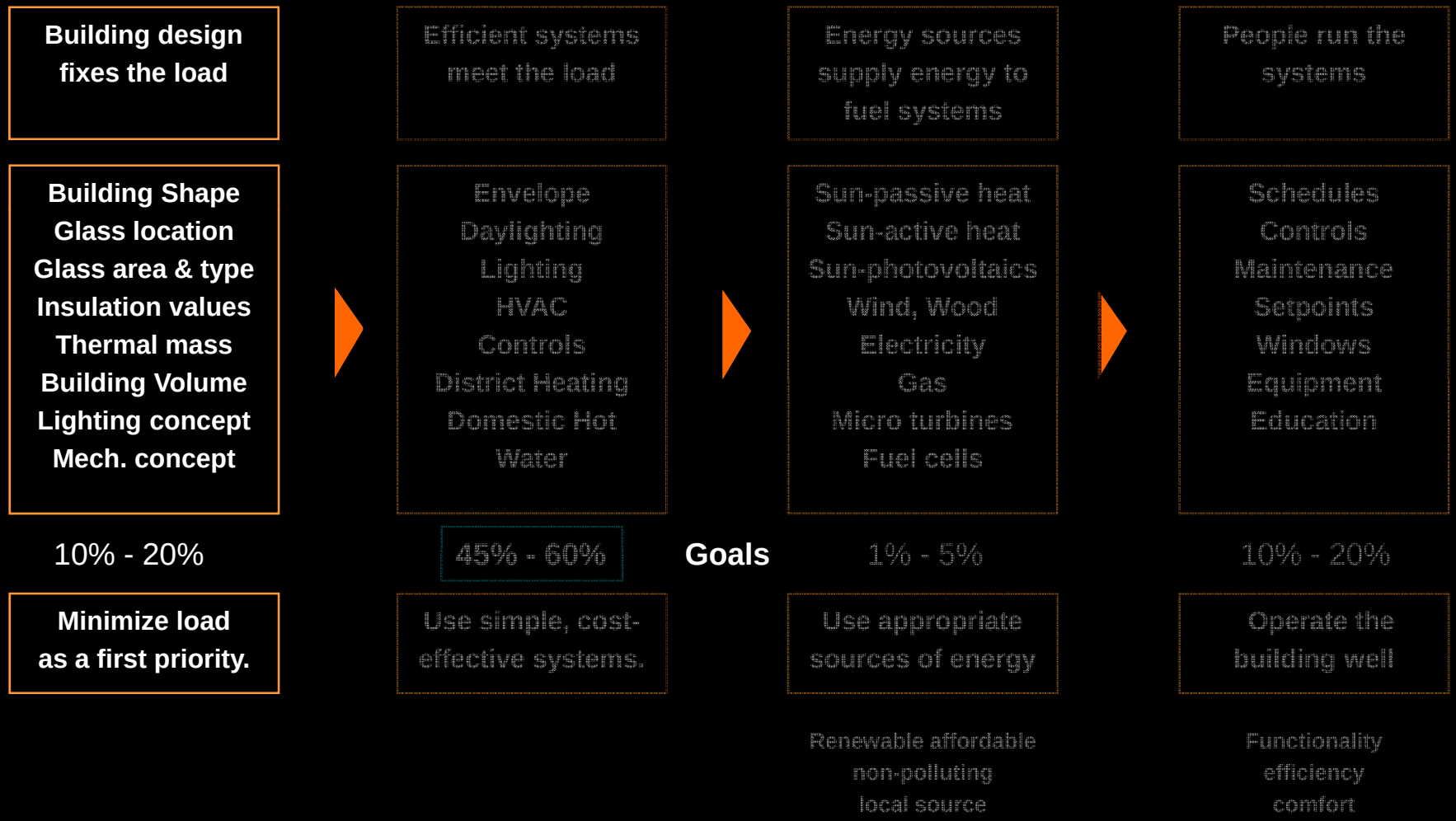


- Reduce building energy consumption
- Daylighting can save 10% to 30% of Commercial building's operating costs.

The Weidt Group

RDg PLANNING ● DESIGN

High Performance Design Perspective
The Weidt Group



Energy Design Assistance Bundle Screening Tool

The Weidt Group

Summary Results

Preliminary estimates of savings and payback

	Savings vs. Code Base		
Estimated Energy Savings	$4,794	$10,579	$10,040
% savings	21%	46%	44%
Incremental First Cost	$33,593	$53,544	$45,812
Payback	**7.0**	**5.1**	**4.6**
Peak KW savings	31.6	56.0	53.7

Iowa Assocation of Municipal Utilities

Zoom to Fit | Unhide Borders | Add | Remove

Select a cell and then press add or remove.

No.	Strategy Description	Savings vs. Code Base: Peak KW	annual energy	first cost	pay-back years	Bundle 1	Bundle 2	Bundle 3
1	**Window Glazing Alternatives**							
WG101	Glazing 1 Std clear - alum. Frame (Code)	0	$0	$0	0.0			
WG201	Glazing 2 High Reflectivity - alum. frame	6	$146	$11,108	76.1			
WG301	Glazing 3 Medium Tinted - alum. frame	4	$54	$4,166	76.8			
WG401	Glazing 4 Low -E Special Clear - alum. frame	5	$470	$8,331	17.7			
WG501	Glazing 5 Low-E Special Clear - wood clad frame	5	$694	$8,331	12.0			
WG601	Glazing 6 Low-E Special Tint - wood frame	6	$711	$8,331	11.7			
WG701	Tuned Glazing LowE Tint/East and LowE Clear/South/Nc	5	$698	$8,331	11.9			
2	**Daylighting Continuous Dimming Controls**							
	26% Window to Wall Area							
DG103	Dayltg: dimming; 26% glzg; Std clear alum	23	$2,169	$59,801	27.6			
DG203	Dayltg: dimming; 26% glzg; Std reflct alum	16	$1,208	$75,681	62.6			
DG303	Dayltg: dimming; 26% glzg; Std tint wood	25	$1,978	$65,756	33.2			
DG403	Dayltg: dimming; 26% glzg; LoE sp clr alum	27	$2,798	$71,711	25.6			
DG503	Dayltg: dimming; 26% glzg; LoE sp clr wood	28	$3,134	$71,711	22.9			
DG603	Dayltg: dimming; 26% glzg; LoE sp tnt wood	29	$3,086	$71,711	23.2			
DG703	Dayltg: dimming; 26% glzg; tuned	28	$3,118	$71,711	23.0			
	18% Window to Wall Area							
DG101	Dayltg: dimming; 18% glzg; Std clear alum	26	$2,710	$14,467	5.3			
DG201	Dayltg: dimming; 18% glzg; Std reflct alum	17	$1,238	$25,575	20.7			
DG301	Dayltg: dimming; 18% glzg; Std tint wood	26	$2,245	$18,633	8.3			
DG401	Dayltg: dimming; 18% glzg; LoE sp clr alum	30	$3,044	$22,798	7.5			
DG501	Dayltg: dimming; 18% glzg; LoE sp clr wood	30	$3,283	$22,798	6.9			
DG601	Dayltg: dimming; 18% glzg; LoE sp tnt wood	30	$3,195	$22,798	7.1			
DG701	Dayltg: dimming; 18% glzg; tuned	30	$3,274	$22,798	7.0			
	14% Window to Wall Area							
DG105	Dayltg: dimming; 14% glzg; Std clear alum	23	$2,534	($11,601)	n/a			
DG205	Dayltg: dimming; 14% glzg; Std reflct alum	14	$1,257	($3,237)	n/a			
DG305	Dayltg: dimming; 14% glzg; Std tint wood	20	$2,006	($8,465)	n/a			
DG405	Dayltg: dimming; 14% glzg; LoE sp clr alum	25	$2,743	($5,328)	n/a			
DG505	Dayltg: dimming; 14% glzg; LoE sp clr wood	25	$2,916	($5,328)	n/a			
DG605	Dayltg: dimming; 14% glzg; LoE sp tnt wood	25	$2,800	($5,328)	n/a			
DG705	Dayltg: dimming; 14% glzg; tuned	26	$2,907	($5,328)	n/a			
3	**Daylighting - Stepped Controls**							
	26% Window to Wall Area							
DG104	Dayltg: stepped; 26% glzg; Std clear alum	15	$1,271	$52,709	41.5			
DG204	Dayltg: stepped; 26% glzg; Std reflct alum	5	($42)	$68,589	n/a			
DG304	Dayltg: stepped; 26% glzg; Std tint wood	16	$892	$58,664	65.8			

Building Design - 1997

Building Program:

Office and Training facility 12,500 square foot
Located in central Iowa
operated all year

Building Cost:

$116 / square foot

Annual Metered Energy Consumption:

28,000 Btu / ft2 - yr

Iowa Association of Municipal Utilities

Building Design Team

IAMU Owner Representatives and member utilities

Design Team –

Architects, RDG Bussard Dikis

Engineers, Alvine Associates

Energy and Environmental Consultants, The Weidt Group

MidAmerican Energy

Iowa Energy Center

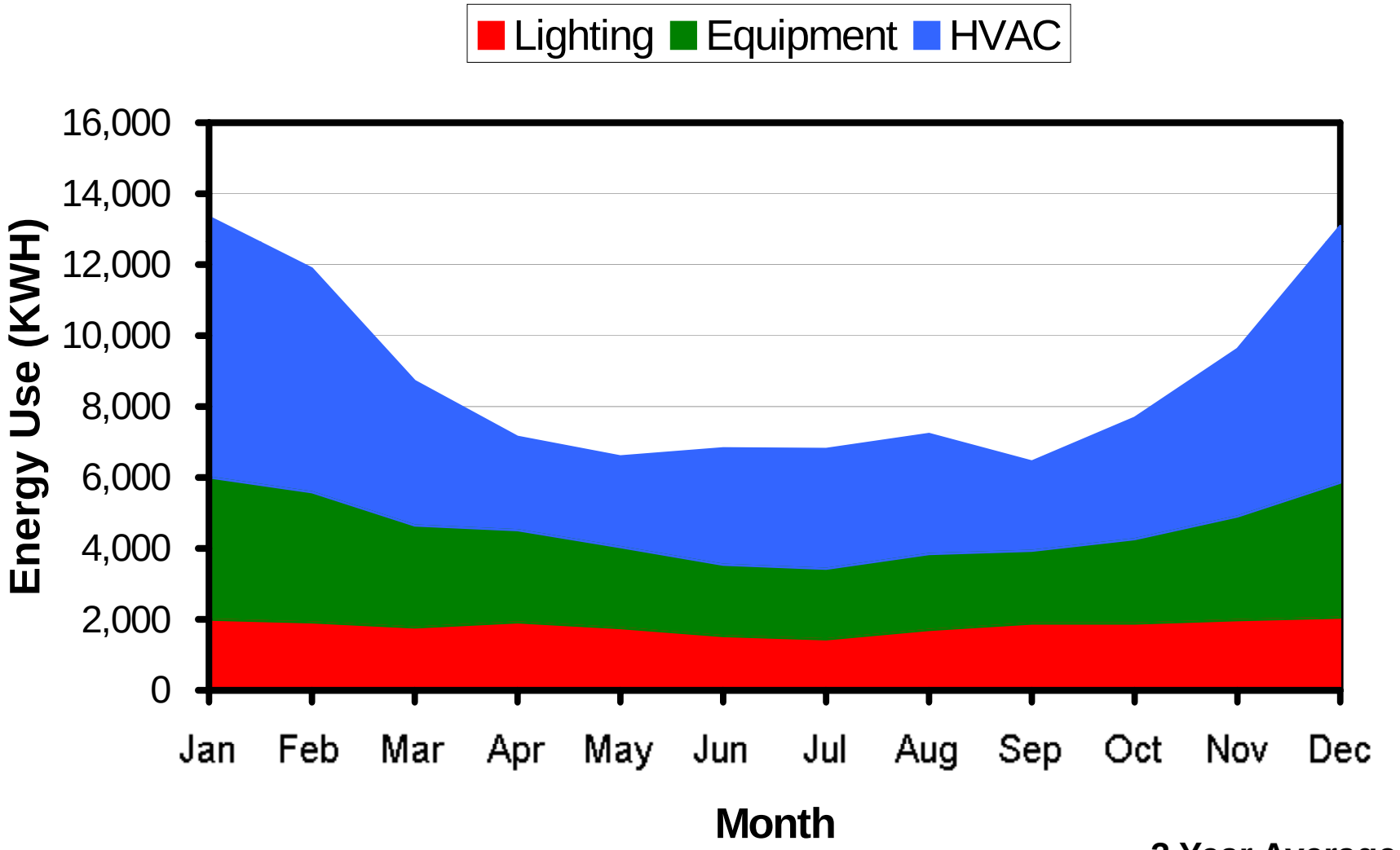
Polk County Conservation Board

Polk County Soil and Water Conservation District

Prairie Roots – prairie restoration team

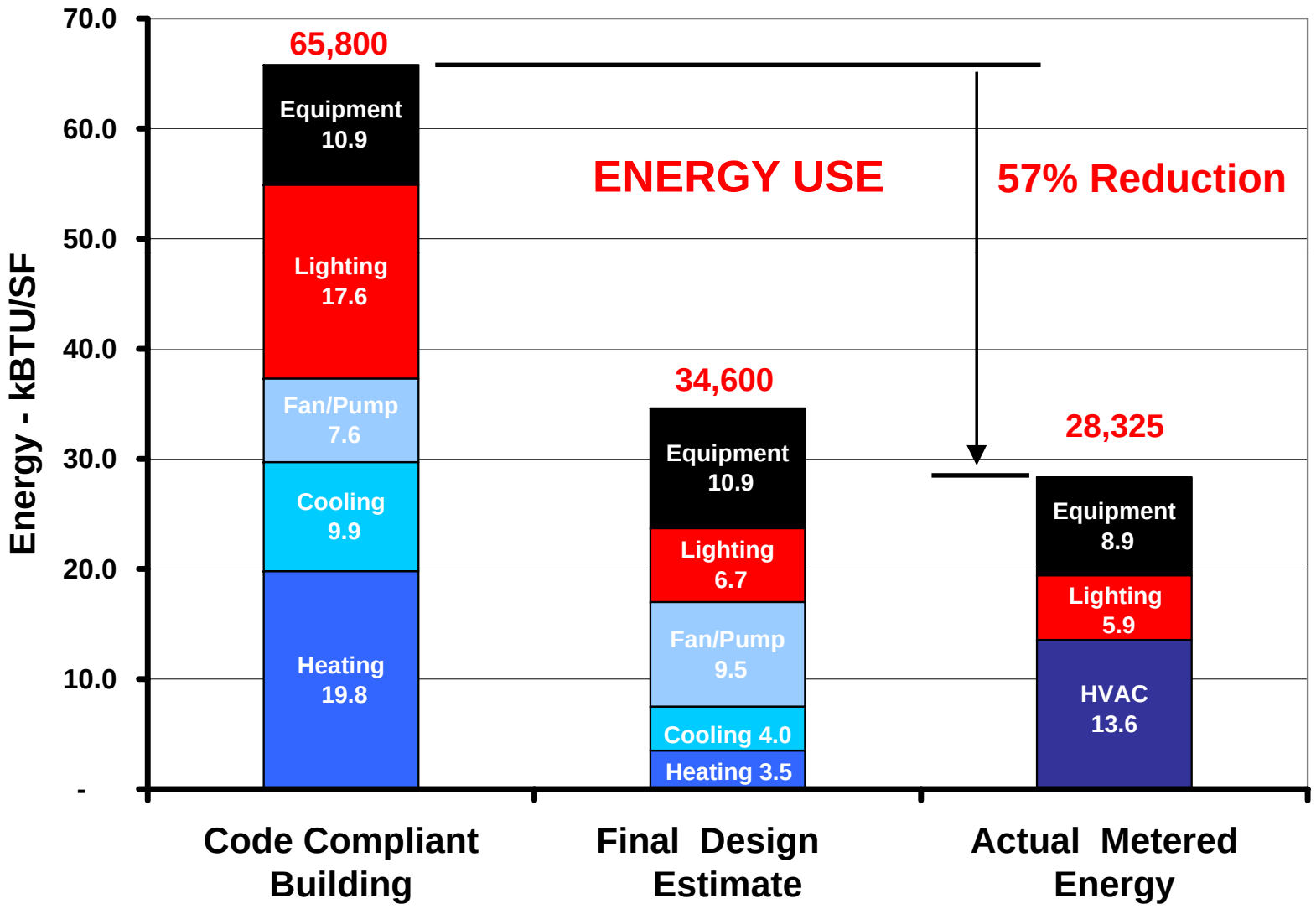
Outdoor Lighting Associates – Dark Sky Association Members

Average Energy Use Profile – Additive



3 Year Average

Actual Building Site Energy Performance

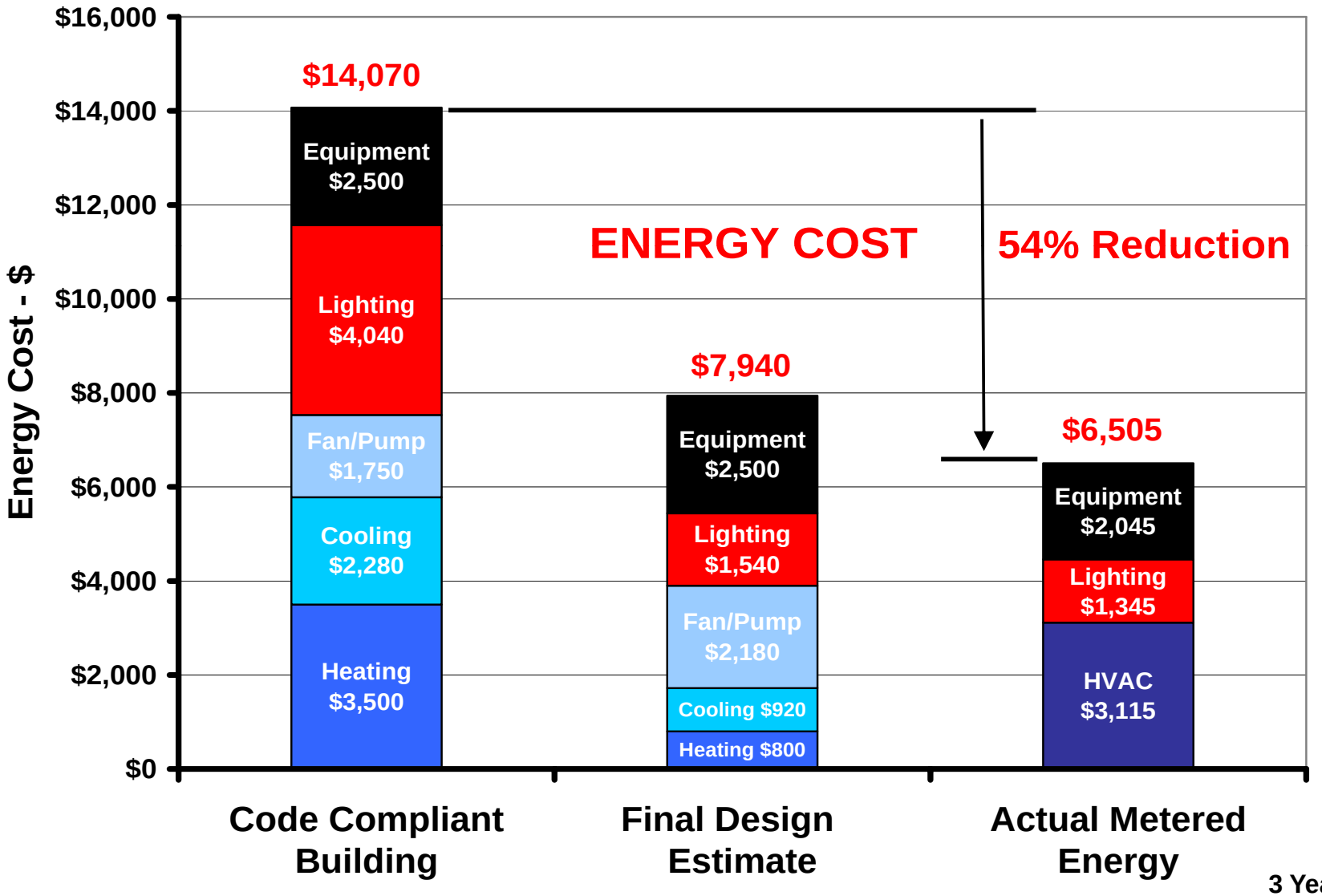


3 Year Average

ERS Energy Resource Station

IOWA ENERGY CENTER

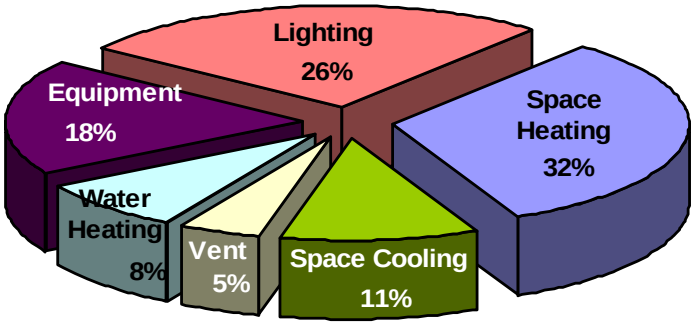
Actual Energy Cost Performance



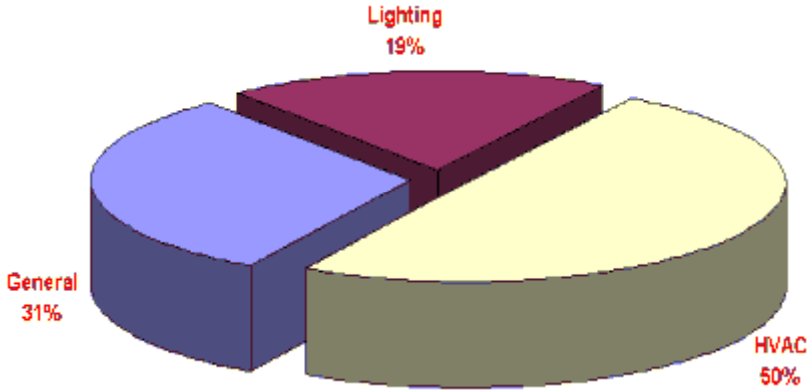
3 Year Average

Compared to Typical Office Building

Lighting 26 %



General 26 %



HVAC Total 48 %

Typical Midwest Small Office Building Site Energy:

Energy Use Index – 126,120 BTU / ft^2 - yr

Energy Cost Index – $1.53 / ft^2 - yr

Source: CBECS 1999 Data

IAMU Office Building Actual Site Energy:

Energy Use Index – 28,325 BTU / ft^2 - yr

Energy Cost Index – $ 0.52 / ft^2 - yr

Uses Less than 25% of the Energy

Operates at 1/3rd of the Energy Cost

Bottom Line

- Construction Cost $116 /Square Foot
  - Low energy, environmentally responsible small office buildings are possible on a speculative office building budget
- Energy Use 28,325 BTU/SqFt-Year
  53¢ / SqFt-Year
  - Measured energy performance results confirm that energy goals were achieved and are sustainable over time
  - Equivalent to a vehicle operating at over 50 MPG
- Energy Star Performance Score 93
  - Identifies an exemplary building
  - Sets an example for other small office buildings

Does Green Pay Off?

By Norm Miller, Jay Spivey and Andy Florance[1]
Preliminary Draft: Date: February 5, 2008

Contact Author: Norm Miller at nmiller@sandiego.edu

Abstract: In this preliminary study and call for further research we provide some comparison data on energy star versus non-energy star rated office property from the entire US using CoStar data. These results are promising for the benefits of investment in energy savings and for the green movement now sweeping our society. In the appendix we provide some definitions as well as a call for research for a new monograph on sustainable real estate.

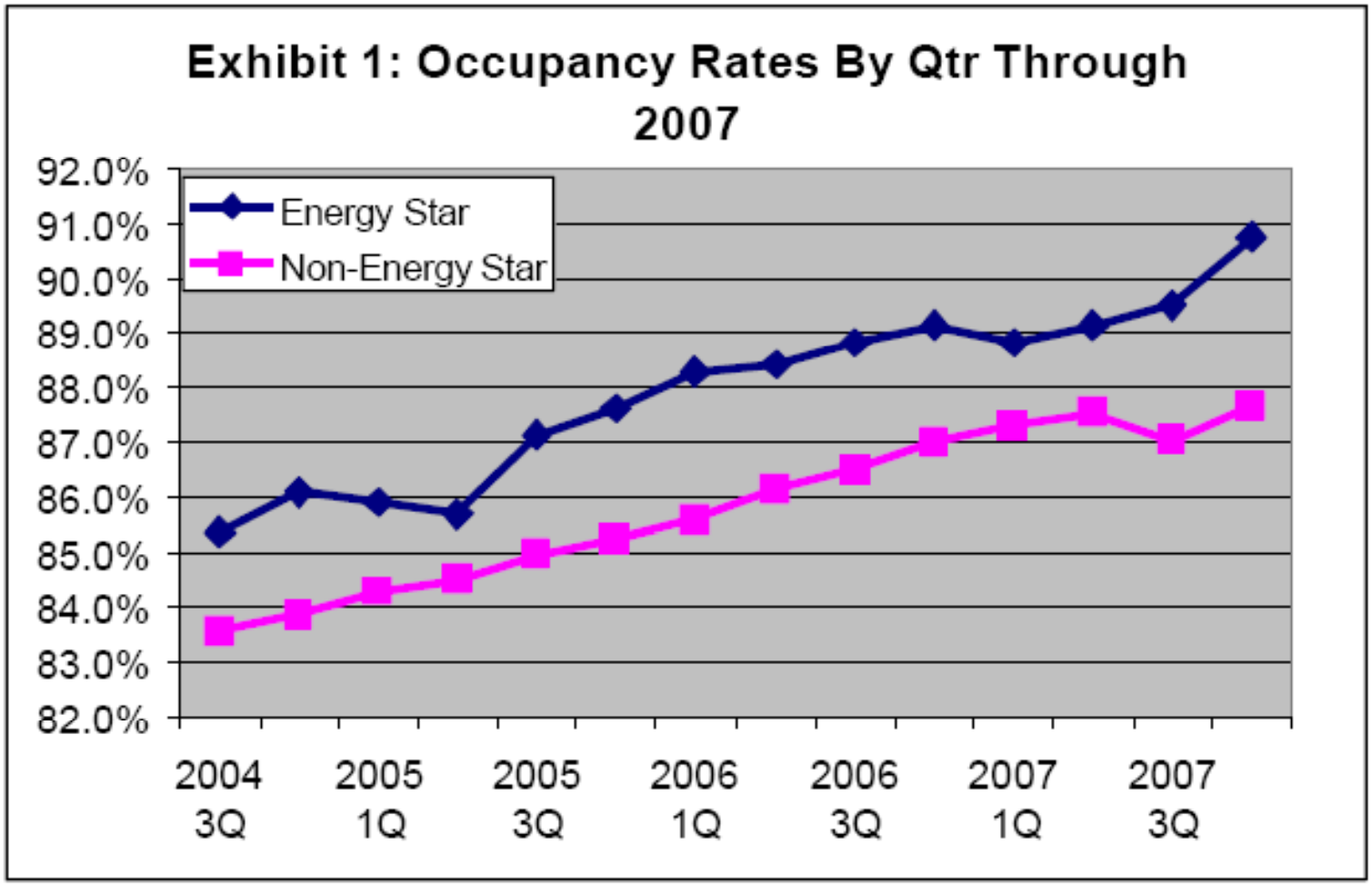


Exhibit 1: Occupancy Rates By Qtr Through 2007
92.0%
91.0%
90.0%
89.0%
88.0%
87.0%
86.0%
85.0%
84.0%
83.0%
82.0%
Energy Star
Non-Energy Star
2004 3Q
2005 1Q
2005 3Q
2006 1Q
2006 3Q
2007 1Q
2007 3Q

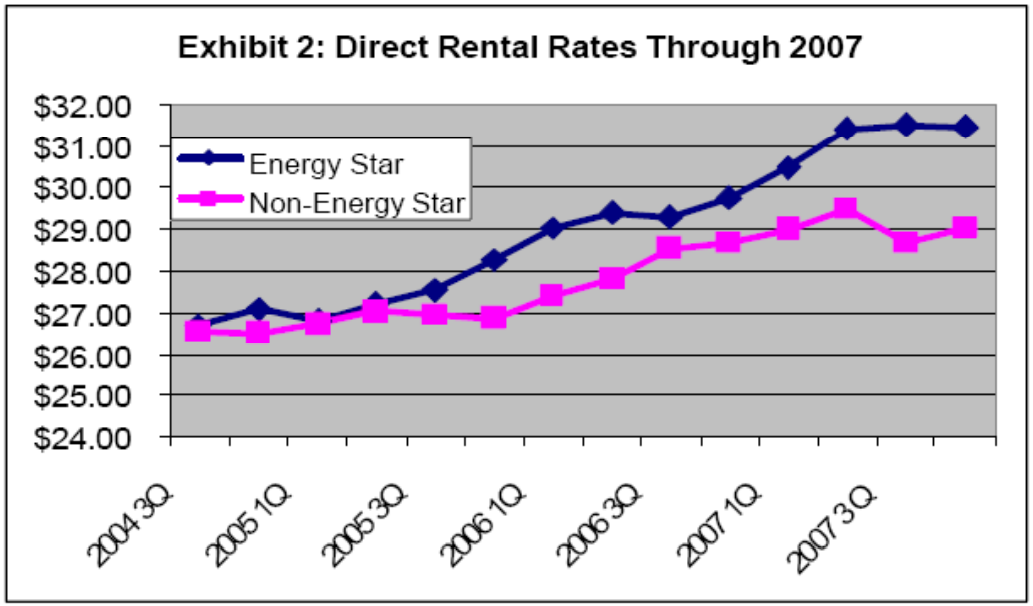


Exhibit 2: Direct Rental Rates Through 2007
$32.00
$31.00
$30.00
$29.00
$28.00
$27.00
$26.00
$25.00
$24.00
Energy Star
Non-Energy Star
2004 3Q
2005 1Q
2005 3Q
2006 1Q
2006 3Q
2007 1Q
2007 3Q

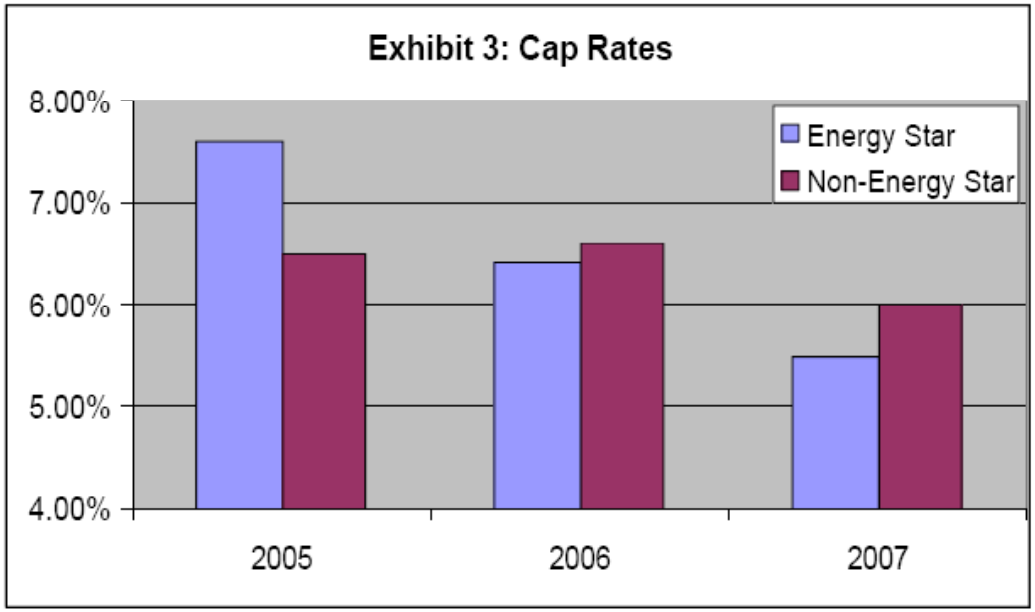


Exhibit 3: Cap Rates
8.00%
7.00%
6.00%
5.00%
4.00%
Energy Star
Non-Energy Star
2005
2006
2007

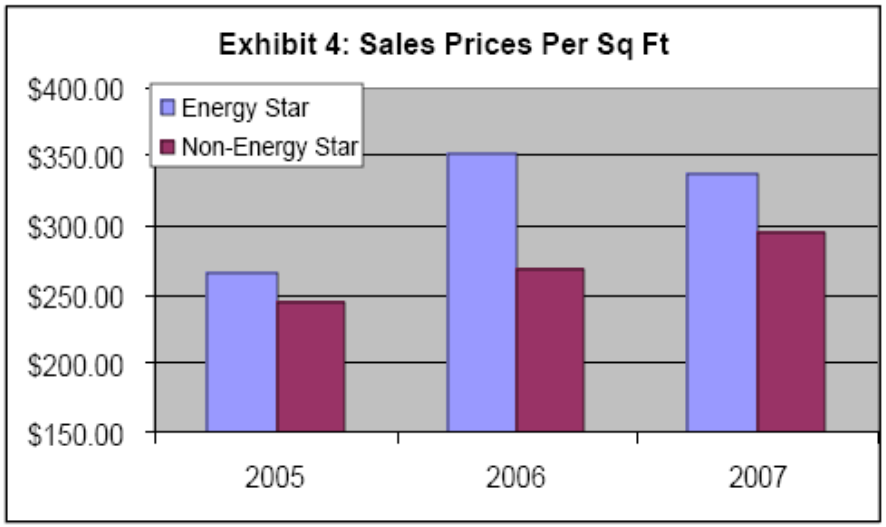


Exhibit 4: Sales Prices Per Sq Ft
$400.00
$350.00
$300.00
$250.00
$200.00
$150.00
Energy Star
Non-Energy Star
2005
2006
2007

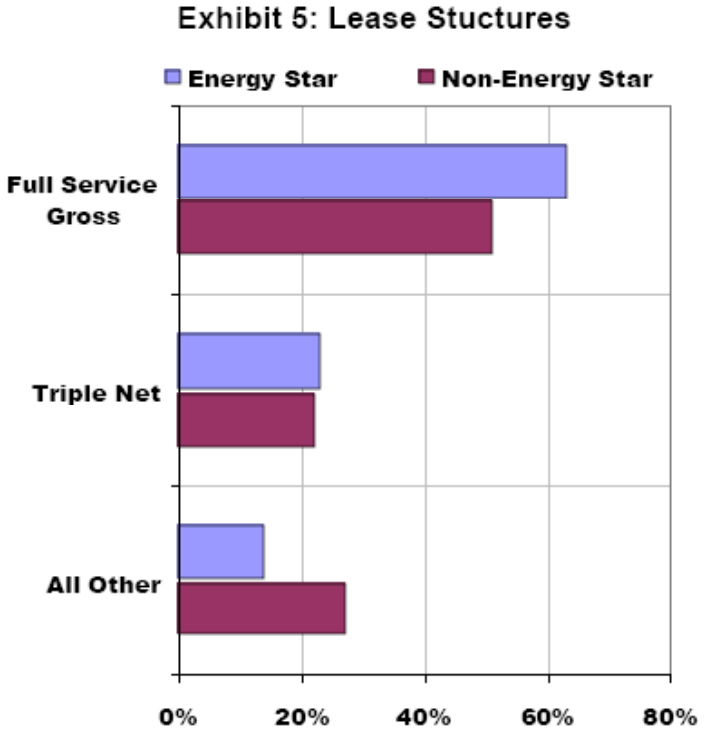


Exhibit 5: Lease Stuctures
Energy Star
Non-Energy Star
Full Service Gross
Triple Net
All Other
0%
20%
40%
60%
80%

Exhibit 6: Extra Costs to Become LEED Certified as of 2007

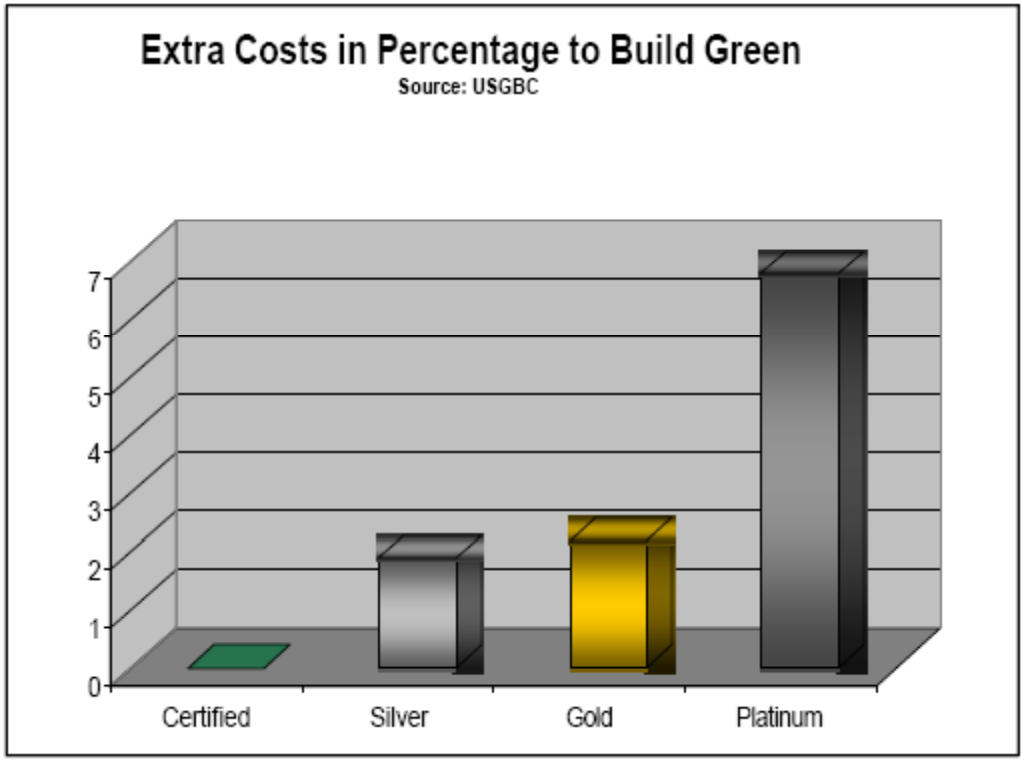


Exhibit 7: Extra Costs to Go Green Vary By Region

Market	Platinum	Gold	Silver
UCSB Ave.	7.8 %	2.7 %	1.0 %
San Francisco	7.8 %	2.7 %	1.0 %
Merced	10.3 %	5.3 %	3.7 %
Denver	7.6 %	2.8 %	1.2 %
Boston	8.8 %	4.2 %	2.6 %
Houston	9.1 %	6.3 %	1.7 %

Exhibit 12: Leading Types of Tenants by Industry in Energy Star Office Buildings as of Second Quarter 2007

	Tenant Type	# Tenants	Square Feet	% of Tota
1	Financial Institutions	968	20,228,058	18.0%
2	Law Firms	822	18,407,157	16.4%
3	Retailers/Wholesalers	694	12,275,254	10.9%
4	Manufacturing	240	9,704,599	8.6%
5	Personal Services	588	7,969,667	7.1%
6	Insurance	305	7,012,850	6.2%
7	Agri/Mining/Utilities	205	6,271,296	5.6%
8	Business Services	560	5,478,659	4.9%
9	Computers/Data Processing	245	5,218,630	4.6%
10	Government	127	5,161,872	4.6%
11	Accountants	196	4,003,835	3.6%
12	Engineers/Architects	148	3,876,718	3.4%
13	Real Estate	367	2,215,196	2.0%
14	Communications	98	1,603,219	1.4%
15	Medical	178	1,516,067	1.3%
16	Transportation	70	1,465,971	1.3%
	Grand Total	**5,811**	**112,409,048**	**100.0%**

Exhibit 9: Leading States for Green as of Second Quarter 2007

	State	# Bldgs	Square Feet	% of Total
1	California	219	51,952,382	26.5%
2	Texas	91	27,942,442	14.2%
3	New York	13	12,580,084	6.4%
4	Minnesota	20	11,381,738	5.8%
5	Colorado	39	11,244,380	5.7%
6	Virginia	27	8,468,423	4.3%
7	Wash. DC	24	7,803,610	4.0%
8	Washington	17	7,649,214	3.9%
9	Florida	28	7,209,186	3.7%
10	Illinois	13	6,326,489	3.2%

	Points Possible	Easy Points
Sustainable Sites:	14	6-7
Water Efficiency:	5	4-5
Energy & Atmosphere:	17	0-1
Materials & Resources:	13	6-8
Indoor Environmental Quality:	15	5-7
Innovation and Design:	5	1-2
Total:	69	**22-30**

From Trevor Jensen, USD Master of Science in Real Estate Student Working Paper on LEED Strategies.

Where and who are the leaders in green development, ownership and occupancy?

Exhibit 8: Leading Metro Areas for Green as of Second Quarter 2007

	Metro Area	# Bldgs	Square Feet	% of Tota
1	Los Angeles	100	26,167,038	13.3%
2	Houston	46	21,101,378	10.8%
3	Washington DC	61	19,796,646	10.1%
4	New York City	11	12,328,784	6.3%
5	San Francisco	30	11,862,367	6.0%
6	Minneapolis/St Paul	20	11,381,738	5.8%
7	Denver	34	10,285,745	5.2%
8	Seattle/Puget Sound	16	7,616,710	3.9%
9	Chicago	13	6,326,489	3.2%
10	Dallas/Ft Worth	20	6,058,892	3.1%

Appendix 2

Exhibit A-1: The Financial Benefits of Going Green are Mostly Related to Productivity

Financial Benefits of Green Buildings
Summary of Findings (per ft^2)

Category	20-year Net Present Value
Energy Savings	$5.80
Emissions Savings	$1.20
Water Savings	$0.50
Operations and Maintenance Savings	$8.50
Productivity and Health Value	$36.90 to $55.30
Subtotal	**$52.90 to $71.30**
Average Extra Cost of Building Green	(-3.00 to -$5.00)
Total 20-year Net Benefit	**$50 to $65**

Source: Capital E Analysis

MidAmerican Energy Company

Energy / Commissioning

BOMA Presentation

May 22, 2008

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY AT YOUR SERVICE.

Overview

- Utility Perspective
- Energy Efficiency Programs
- Commercial New Construction
- Energy Analysis Program
- One-2-Five Energy – Software Tool

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"No one should under estimate the challenge of de-carbonizing an economy that has relied on carbon-based fuels for two centuries."

Testimony of David L. Sokol, Chairman and CEO
MidAmerican Energy Holdings Company
Subcommittee on Energy and Air Quality, Committee on Energy and Commerce
U.S. House of Representatives
March 20, 2007

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY AT YOUR SERVICE.

Des Moines Register

Guest Opinion

April 27, 2008

Bill Fehrman, President

MidAmerican Energy Company

“To achieve carbon reductions, Apollo-like investment required”

Everyone must work together to find new ways to reduce carbon-dioxide emissions. Achieving a low-carbon future is not a matter of choosing one specific technology over another, undertaking energy conservation efforts or developing renewable-energy generation: Each must play a role.

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY AT YOUR SERVICE.

“To achieve carbon reductions, Apollo-like investment required”

To achieve the significant carbon-emissions reductions by 2050 that policymaker’s desire, Congress needs to have the vision and commitment demonstrated with the Apollo program in 1961. In the next 10 years, a significant investment must be made in research and development to create and field-test technologies that are commercially viable and that will accomplish carbon reductions.

“To achieve carbon reductions, Apollo-like investment required”

Technology investment must precede a cap-and-trade system. Cap and trade does not supply emissions-free power. It does not develop or bring new technologies online, and it does not reduce prices for renewable-energy resources. It merely raises prices for carbon-based energy

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY AT YOUR SERVICE.

“To achieve carbon reductions, Apollo-like investment required”

The world cannot move to a low-carbon economy overnight. Leadership to address the issue of climate change is needed from all parties, and MidAmerican continues to act as an advocate for our customers

MidAmerican ENERGY
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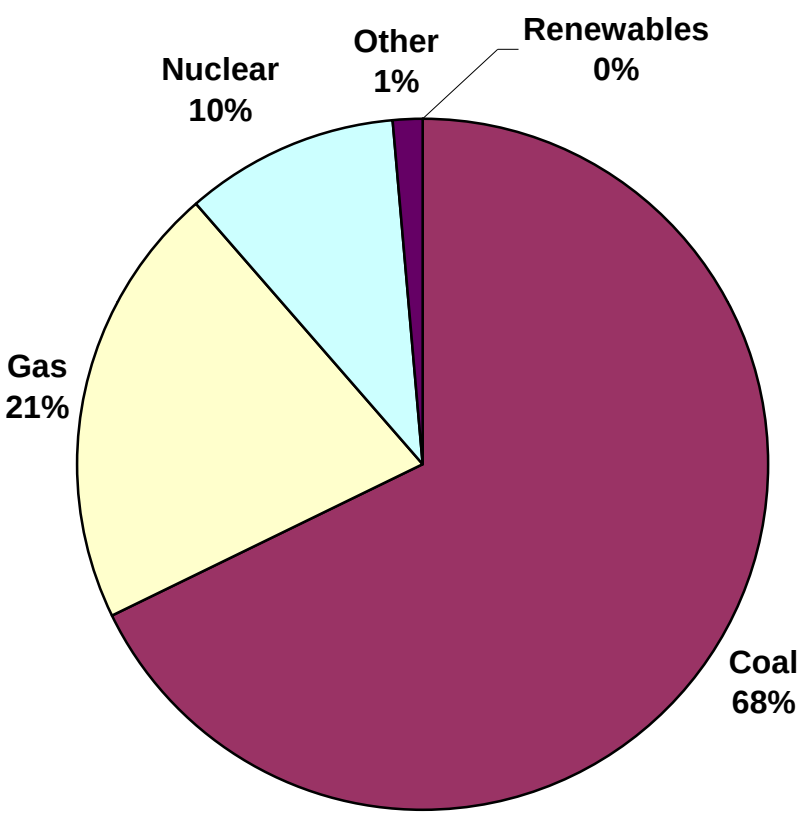
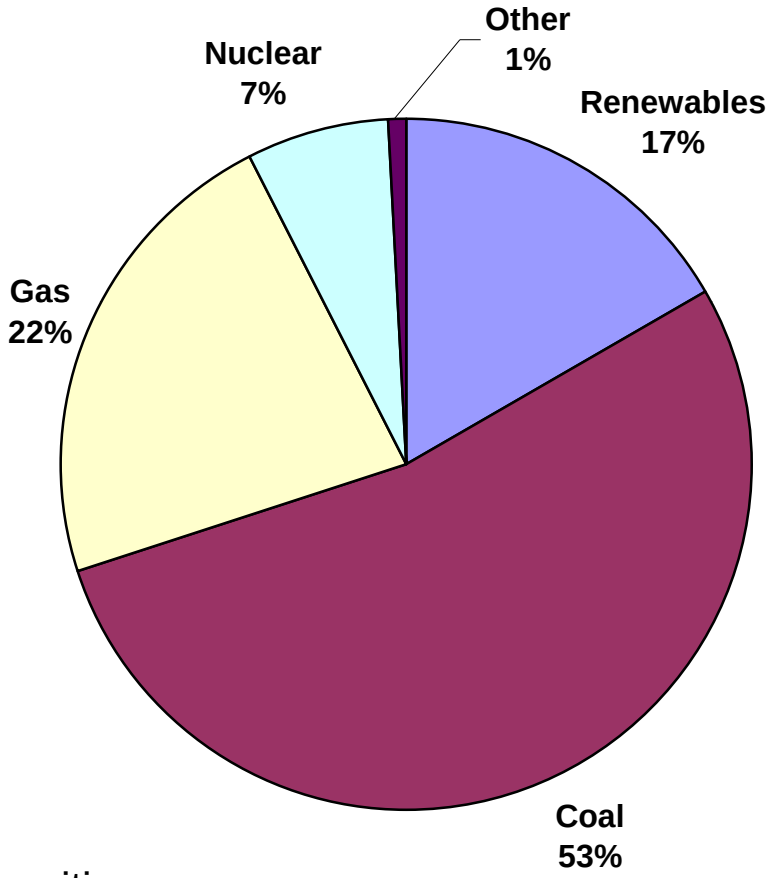
MEC Generation Portfolio Mix

January 1, 2003



December 31, 2008

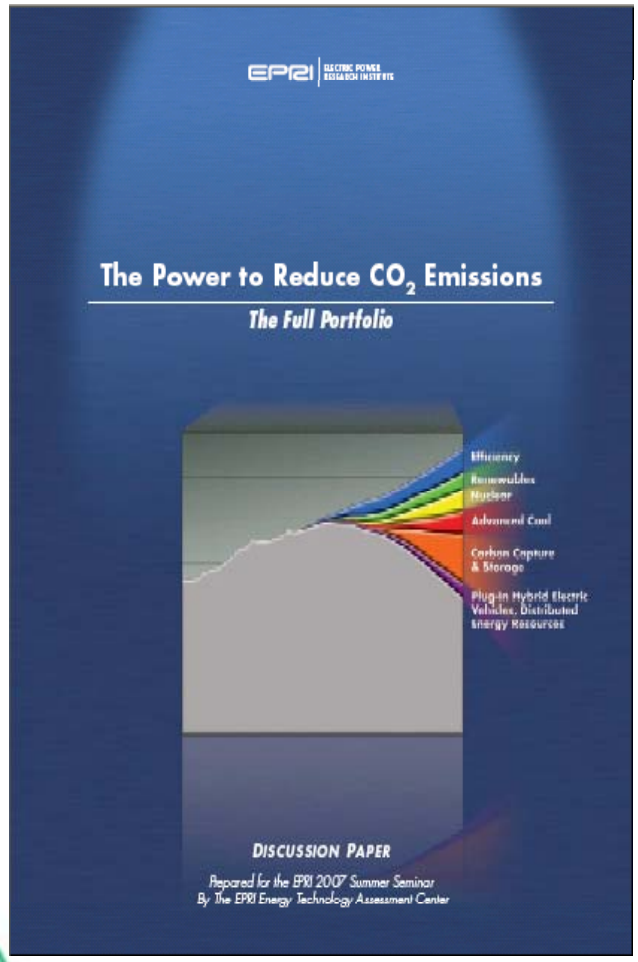


Note: Generating mix based on nameplate capacities.

MidAmerican EnergyAdvantage Save some green

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY AT YOUR SERVICE.

Carbon Constraints Will Require Major Transformation in Energy



All of the following will be necessary:

- Smart grids and communication infrastructures
- Grid infrastructure with capacity and reliability to operate with 20-30% intermittent renewables
- Significant expansion of nuclear
- Commercial-scale coal-based generation units operating with 90+% CO_2 capture and storage
- Efficiency
- Renewables
- Plug-in hybrid electric vehicles
- Distributed energy resources

What is a Renewable Energy Credit?

- A REC represents the attributes associated with renewable generation including the tons of greenhouse gas that were avoided by generating electricity from renewable resources instead of conventional fuels, such as coal, nuclear, oil, or gas.

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What is a Renewable Energy Credit?

- Renewable attributes can be sold separately as renewable energy certificates (RECs). One REC is issued for each megawatt-hour of renewable electricity produced. The electricity that was split from the REC is no longer considered "renewable" and cannot be counted as renewable or zero-emissions by whoever buys it.

What is a Renewable Energy Credit?

- States ***differ*** on their definitions of what qualifies as renewable.

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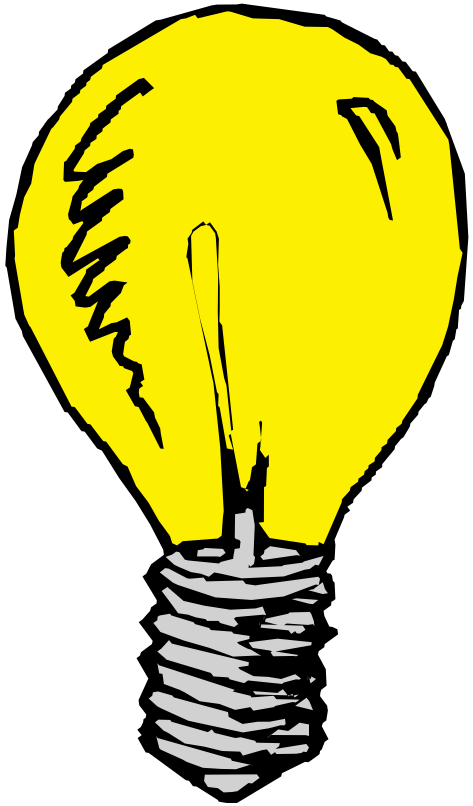
2008
Nonresidential Programs



MidAmerican Energy Advantage Save some green

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Energy Efficiency Programs

- Heating & Air Conditioning Equipment
- Lighting Systems
- Motors & Variable-Speed Drives
- Custom Rebate ..
- Commercial New Construction ..
- Business Check ..
- Electric Curtailment
- Energy Analysis ..

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Nonresidential Custom Systems Program

- Program Features
  - Targets custom-designed systems and nonstandard equipment
  - Rebates up to three years of annual energy cost savings
  - Requires rebate pre-approval for projects
  - Technical assistance/analytic support available

Commercial New Construction Program

- Program Features
  - Energy design assistance for new/renovated commercial buildings
  - Rewards comprehensive energy-savings options with higher rebates

MidAmerican EnergyAdvantage Save some green

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BusinessCheck℠ Program

- Program Features
  - Targets small businesses (less than 25,000 sq. ft.)
  - No-cost energy audit
  - Recommends energy cost-savings opportunities; especially targets insulation and lighting
  - Installation of measures for immediate savings
  - Online audit available

MidAmerican EnergyAdvantage Save some green

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Nonresidential Energy Analysis Program

- Program Features
  - Targets large existing commercial buildings and industrial processes
  - No-cost energy assessment
  - Benchmarking against other similar businesses
  - Recommendations for low-cost/no-cost and capital investment energy- savings projects
  - Recommends detailed studies; pays part or all of cost
  - Rebates to reduce payback on investment projects
  - Potential to become an **Efficiency Partner** with additional benefits. This option is for those companies that desire to pursue a comprehensive approach to energy management over a multi-year period.

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Commissioning & Retro-commissioning

- Commissioning should be done on all new construction as a part of the project cost
- Retro-commissioning - *where warranted* - may be recommended as a strategy identified after the walk-through audit under the Energy Analysis Program

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One –2– Five Energy Software Tool

- “A simple but effective tool to engage site management in understanding their performance and priorities for improving the management of energy use and supply and for reducing carbon dioxide emissions.” - *Peter J Redman, Energy & Climate Change Technology, BP*

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Contact for More Information

Ken Setzkorn – Key Account Manager

MidAmerican Energy

515.252.6768

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Ryan Rasmussen

The GREEN in “Going Green”

Construction Materials

Green Building Materials – Zero VOC Paint

"Indoor air quality is 3 times more polluted then outside air and according to the EPA; It is one of the top 5 hazards to human health"

Benefits

- Contain 0 Volatile Organic Compounds- Better indoor air quality
- Most 0 VOC paints have reduced levels of formaldehyde in comparison to standard paints
- Readily available – All major brands have paints with 0 VOC's
- Still have large color palette

Drawbacks

- Material cost is roughly 20% more, Low VOC paints costs are comparable to standard VOC paints
- Tinting capabilities- Not all manufactures have this capability

Green Building Materials – Cast Ceiling Tile

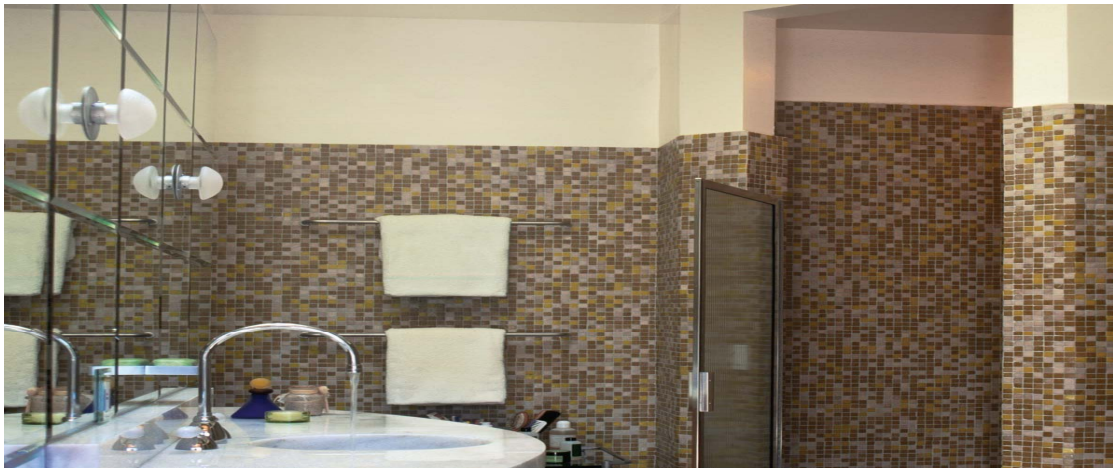
Benefits

- Made up of roughly 72% recycled content – Pre Consumer
    - Tile composed mainly of Mineral fiber & clay
- Binders are made of renewable resources – starches (corn/wheat)
- Core is the same color as the face, natural texture
- Low VOC – Formaldehyde Free
- Cast tiles last longer & can be recycled

Drawbacks

- Cost is roughly $0.80 - $1.00 more per sqft
- Harder to cut compared to a standard pad
- Cannot mix production lots due to variation

Green Building Materials – Gypsum Fiberboard



Benefits

- High performance panels made up of recycled cellulose and synthetic gypsum
- 95% certified recycled content – Pre Consumer
- Denser then standard type x Gypsum wallboard
- Longer life cycle, more durable/impact resistant
- High resistance to mold and mildew
- Contains no face paper to scratch or tear

Drawbacks

- Cost is roughly 2-1/2 times standard green gypsum board
- Heavier materials – Difficult to cut

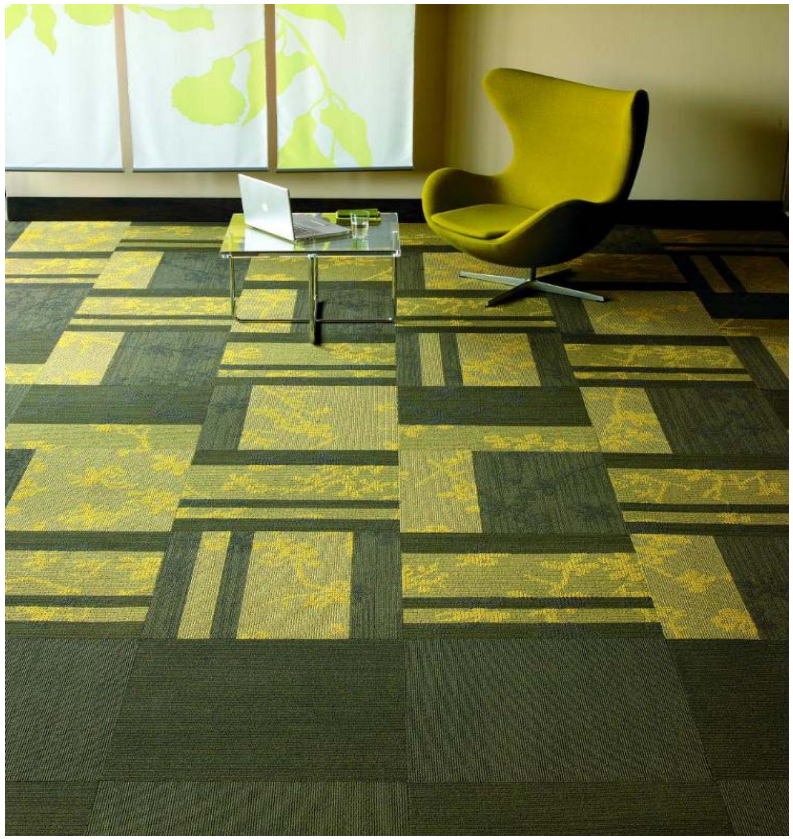
Green Building Materials – Recycled content Carpet

Benefits

- Majority of carpet made of Post Industrial recycled content.
- Recycled products perform the same as non-recycled; durability/longevity
- Cost is the same as carpet that doesn't contain non-recycled content
- Flammability ratings are the same
- Reduces landfill space
    - Carpet ranks 2nd only to diapers as a contributor to landfills
    - With a 5-10 year lifecycle, using recycled content carpet makes sense

Drawbacks

- Post-Consumer recycled content carpeting is only available in limited quantities



Green Building Materials – High Efficiency Light Fixtures; T8 vs. T12 Fixtures/Lamps

3 - 32 watt T8 TY244 432 B11 = 4 - 34 watt T12 TY244 440 E1

Benefits

- T8 systems can be retrofitted to replace T12 systems
    - Uses less ballasts (T8/Electric vs. T12/Magnetic)
- T8 lamps are smaller and use less energy (Ballasts & Lamps)
    - Depending on lights & ballasts savings can vary
- T8 lamps have a higher efficacy (lumens per watt) rating and better color rendering than T12 lamps – Less flickering/buzzing
- Extended ballast life and lamp life (24,000hr Vs. 20,000hr)
- Mid-American Energy has excellent rebate programs available

Drawbacks

- Retrofit costs are roughly $50 - $60 per 4 lamp fixtures

Recycling efforts during construction/remodel

Benefits

- Dollars in Your Dumpster- It may be easier and less expensive to divert your jobsite waste from the landfill than to dispose of it.
- Materials hauled off to be reused, recycled
- Maximize diversion rates
- Commingled or source-separation methods can be used. Depends on resources available in your area

Drawbacks

- Training construction personnel or subcontractors
- Can take up space (source-separated)

Material Reuse – "A strategy to return materials to active use in the same or related field"

Benefits

- Reduced disposal needs and costs
- Requires fewer resources, less energy, and less labor then creating materials from virgin products
- As deconstruction becomes more prevalent, reuse will become an easier practice
- Reduces air, water and land pollution

Drawbacks

- Reuse often requires cleaning or transport, which have environmental costs
- Sorting and preparing items for reuse takes time, which is inconvenient for consumers and costs money for businesses.

Managing Trash ***and*** Recycling in Existing Buildings

LEED Materials and Resources (MR) Prerequisite 1.1:
Source reduction and waste management:
Waste Management Policy and Waste Stream Audit

Tom Hadden
Executive Director
Metro Waste Authority

Metro Waste Authority
Your Partner in Environmental Solutions

BOMA
Building Owners and Managers Association

Presentation overview

- What is Metro Waste Authority?
- Where does the trash go?
- Challenges of recycling efforts and the future of recycling
- Why recycle?
- Conclusion with MWA case study and efforts

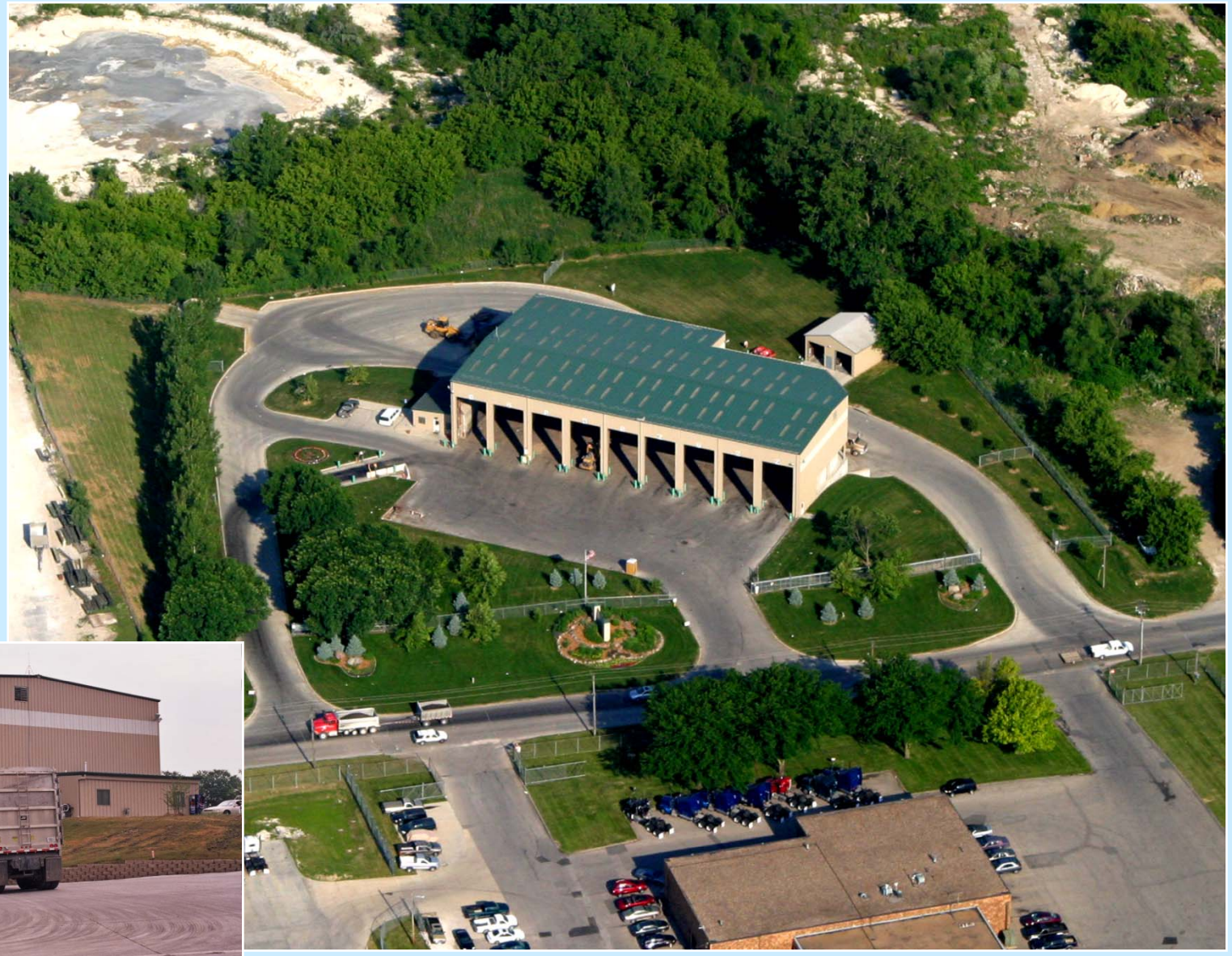
Metro Waste Authority (MWA)

- Local government
- Is the leader in environmental stewardship and cost-effective waste management
- Does not receive tax dollars
- Oversees Metro Park East Landfill, the Regional Collection Center for Household Hazardous Waste, Metro Compost Center, & Metro Transfer Station
- Provides curbside recycling and yard waste collection program to 23 communities in Polk County

Metro Compost Center

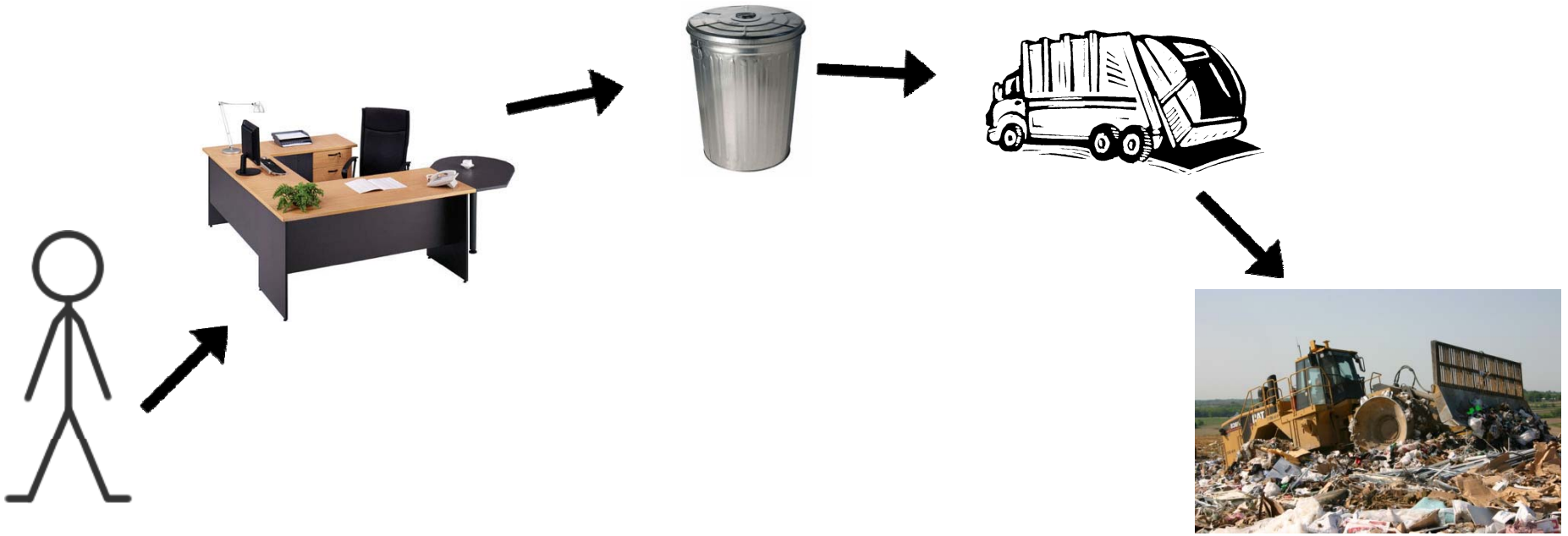
Regional Collection Center

MWA Transfer Station



Metro Park East Landfill

Where does the trash go?



70% of the waste that comes to Metro Park East Landfill is from businesses…

And **40%** of that waste is paper.

Focusing on recycling

Challenges of recycling

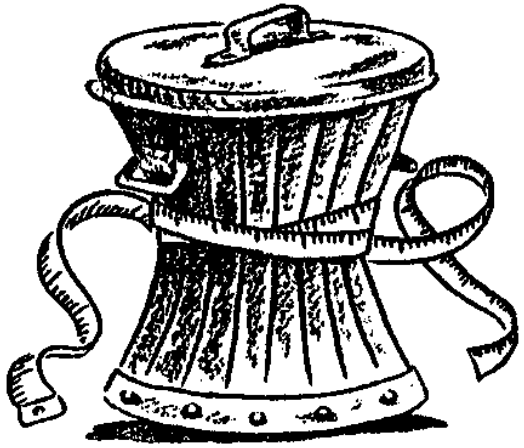
- Space restrictions
  - No room for recycling containers/dumpsters
- Education
  - Knowing what items can be recycled
- Building managers
  - Don’t know benefits of recycling programs
- Office/building size
  - Cost of hauling recyclables
- Not recycling correct materials or knowing what to recycle

Overcoming recycling challenges

- Work with MWA to help establish a program in your buildings, offices, and facilities
- Work with your garbage hauler and local recycling processors to find the best program to fit your needs
- Understand that if you recycle in large quantities you could potentially receive revenue back from the processor, also can lower garbage hauling costs
- Looking beyond the monetary cost, but also the environmental cost of not recycling.

The future of recycling

- Business recycling mandates in large cities, not in Iowa - yet
- Concept of zero waste
- Pre-cycling – front end reduction of waste
- More demand for recycled products – the higher it will drive the market to collect recycled materials
  - Cost of oil will also push this market



Why recycle?


Conservation of
natural resources

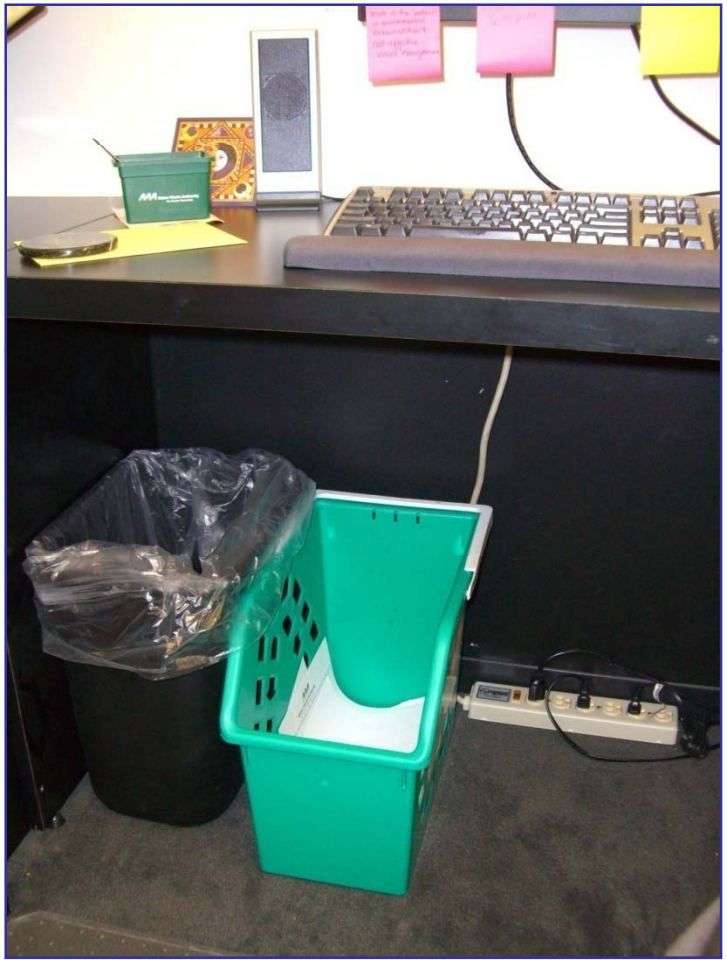
Other reasons to recycle

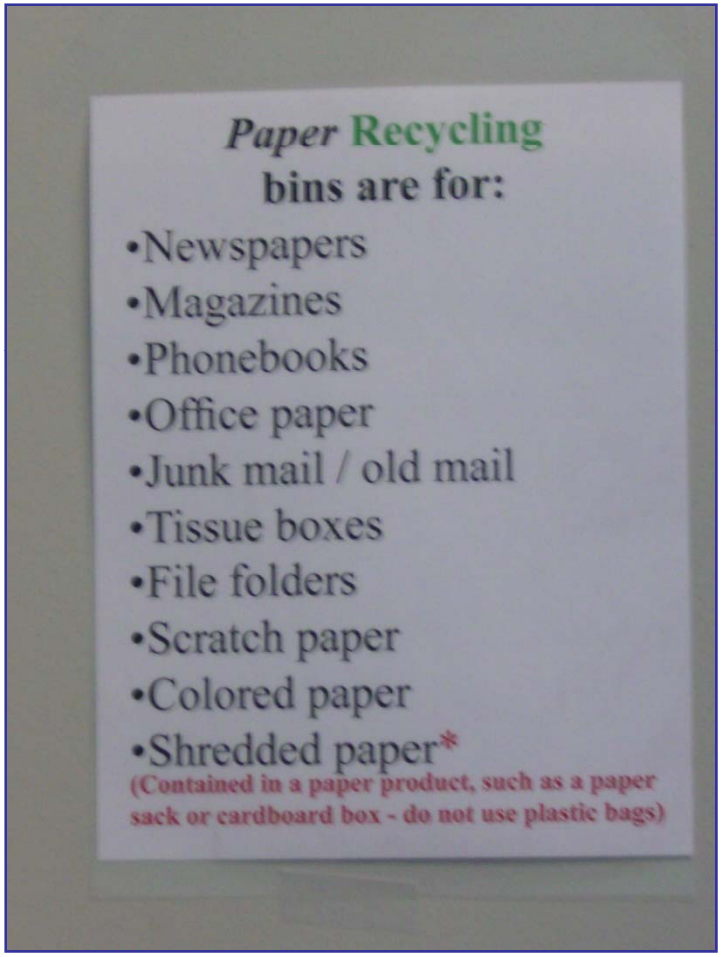
- Reduce amount of waste sent to landfills
  - Use only the landfill space necessary and increase the life of landfills
- Reduce your building or offices' environmental impact and carbon footprint
- Reduce the need for raw or virgin products
- It's the right thing to do

Making recycling happen – MWA Case Study

- MWA Central Office
  - Located in East Village
  - Offers all paper fibers, plastic and aluminum recycling on site
  - Participate in proper electronic recycling when necessary
  - Closes the loop by purchasing recycled products
    - From building construction to office materials used today

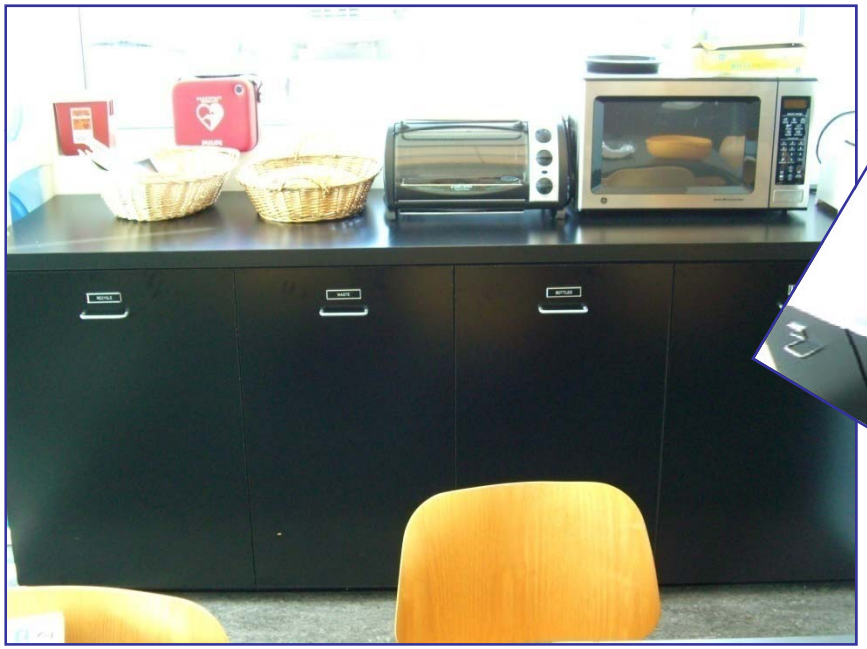
MWA Case Study





Metro Waste Authority
Your Partner in Environmental Solutions

MWA Case Study



Metro Waste Authority
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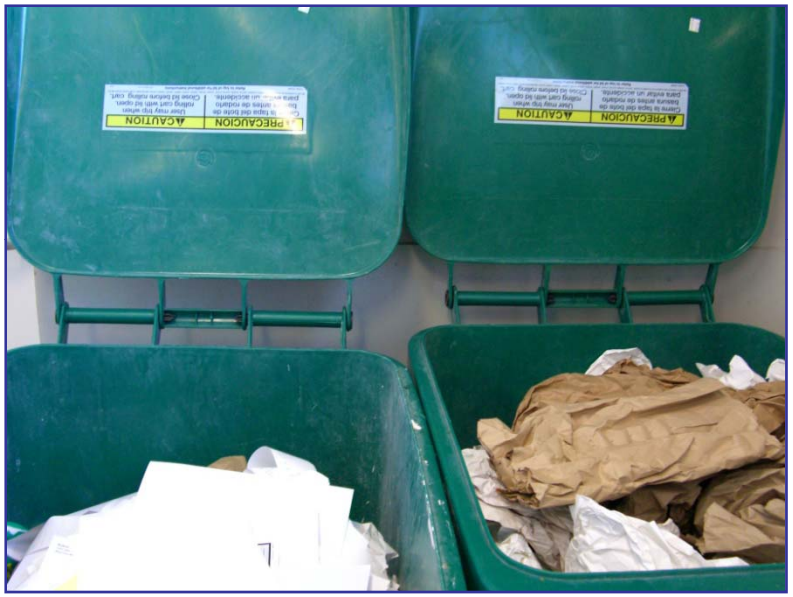
MWA Case Study



Metro Waste Authority
Your Partner in Environmental Solutions

MWA Case Study

Metro Waste Authority
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MWA Case Study

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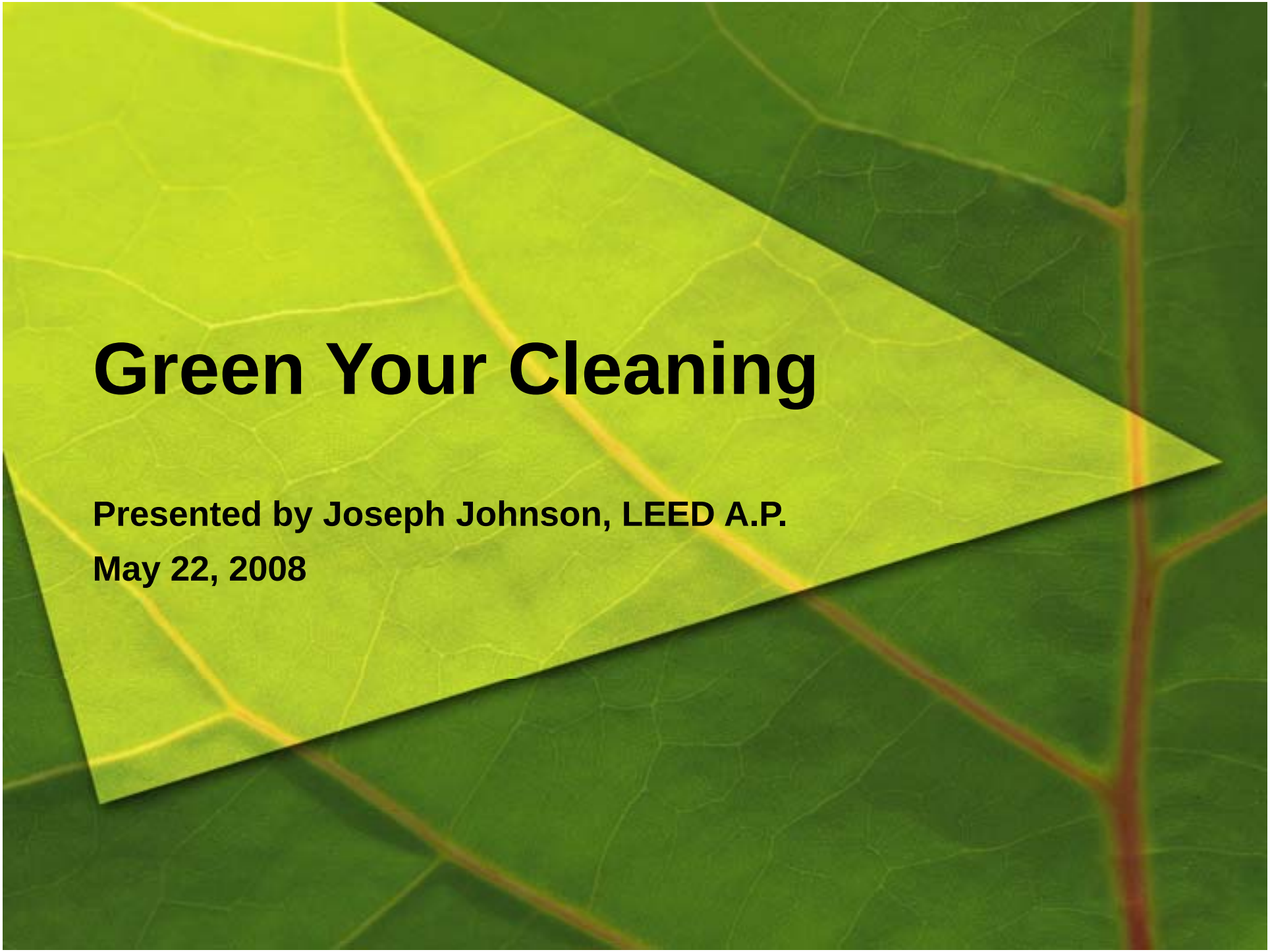
Conclusion

- Recycling is a section of LEED for Existing Building Requirement
  - LEED Materials and Resources (MR) Prerequisite 1.1: Source reduction and waste management: Waste Management Policy and Waste Stream Audit
- Recycling can be done, correctly and cost effectively
  - Get the correct people involved to help
- It's everyone's responsibility to see that recycling happens in your day to day activities and workplace

Questions?

Tom Hadden
Metro Waste Authority
244-0021

Metro Waste Authority
Your Partner in Environmental Solutions



Green Your Cleaning

Presented by Joseph Johnson, LEED A.P.

May 22, 2008

LEED-EB 2008 Cleaning Points

Sustainable Sites	Water Efficiency	Energy & Atmosphere	Materials & Resources	Indoor Enviro Quality	Innovations in Operations
Exterior Management 1 Point		1 Point	Waste Stream Audit	Cleaning Prerequisite	LEED AP 1 Point
IPM & Landscaping 1 Point		2 Points	Solid Waste Management	Custodial Effectiveness 2 Points	
		1/2 Point	Purchasing Durable Goods	Cleaning Policy 1 Point	
				Cleaning Equipment 1 Point	
				Entryway Systems 1 Point	
				Indoor IPM 1 Point	
				Cleaning Products 3 Points	

Green	34 - 42 Points
Silver	43 - 50 Points
Gold	51 - 67 Points
Platinum	68 - 91 Points

V 2008

15.5 Total Points

46%

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ServiceMaster Green

The Cleaning Industry is One of the Largest in the World

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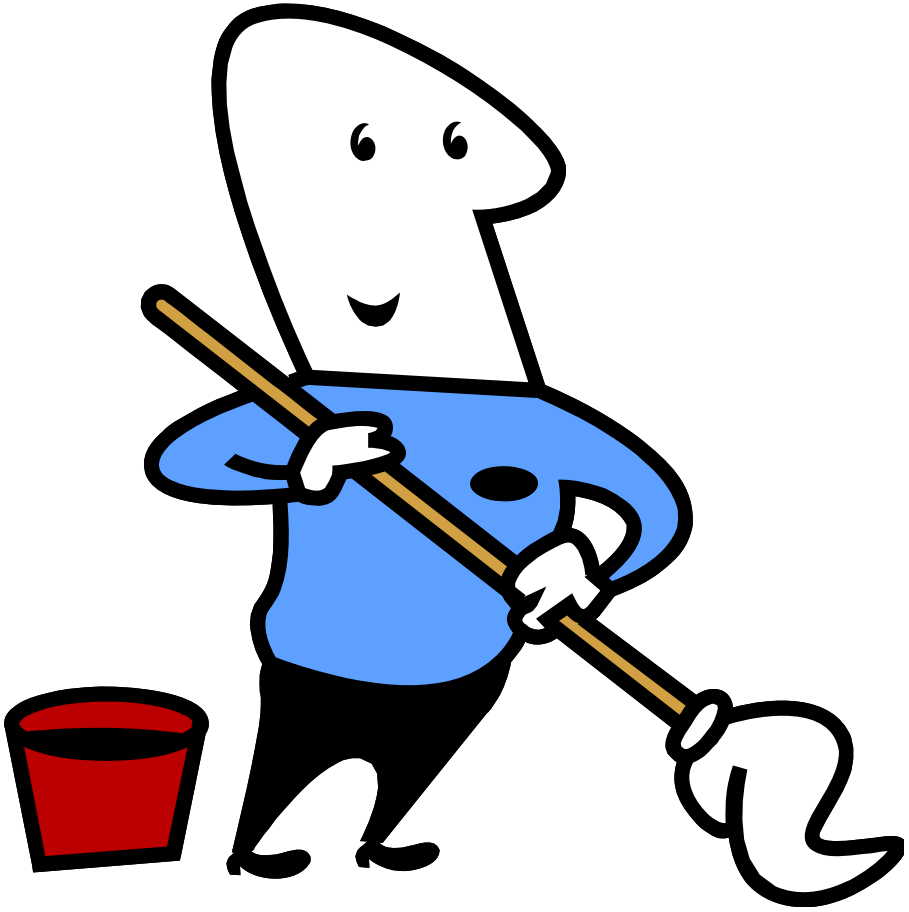
Why Do We Clean?



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Cleaning Has Come to be Perceived as a Commodity

Green Cleaning	*Traditional Cleaning*
Comprehensive Program	**Single Products**
Focus on Health	**Focus on Appearance**
Focus on People	**Focus on Cost**
Shared Responsibility	**Suppliers are “Tolerated”**
Perceived as Added Value	**Perceived as a Commodity**

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Putting the Green Cleaning Pieces Together Can Be Puzzling

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This Presentation Will Help You Put Your Puzzle Together

Joseph Johnson, LEED A.P.
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You Can Make A Difference

“Never doubt that a small group of thoughtful, committed citizens can change the world.

In fact, it’s the only thing that ever has.”

Margaret Mead

Joseph Johnson, LEED A.P.
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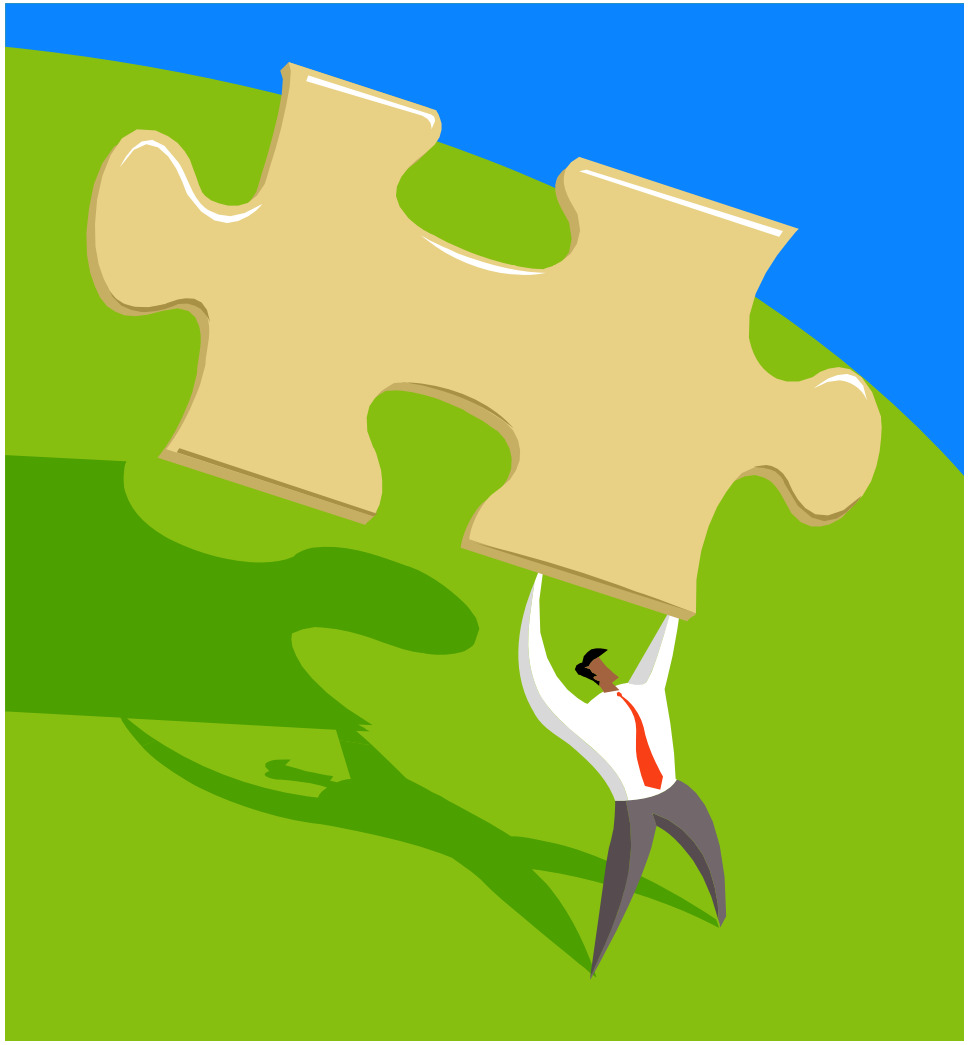
We'll Start by Defining the Green Cleaning Puzzle



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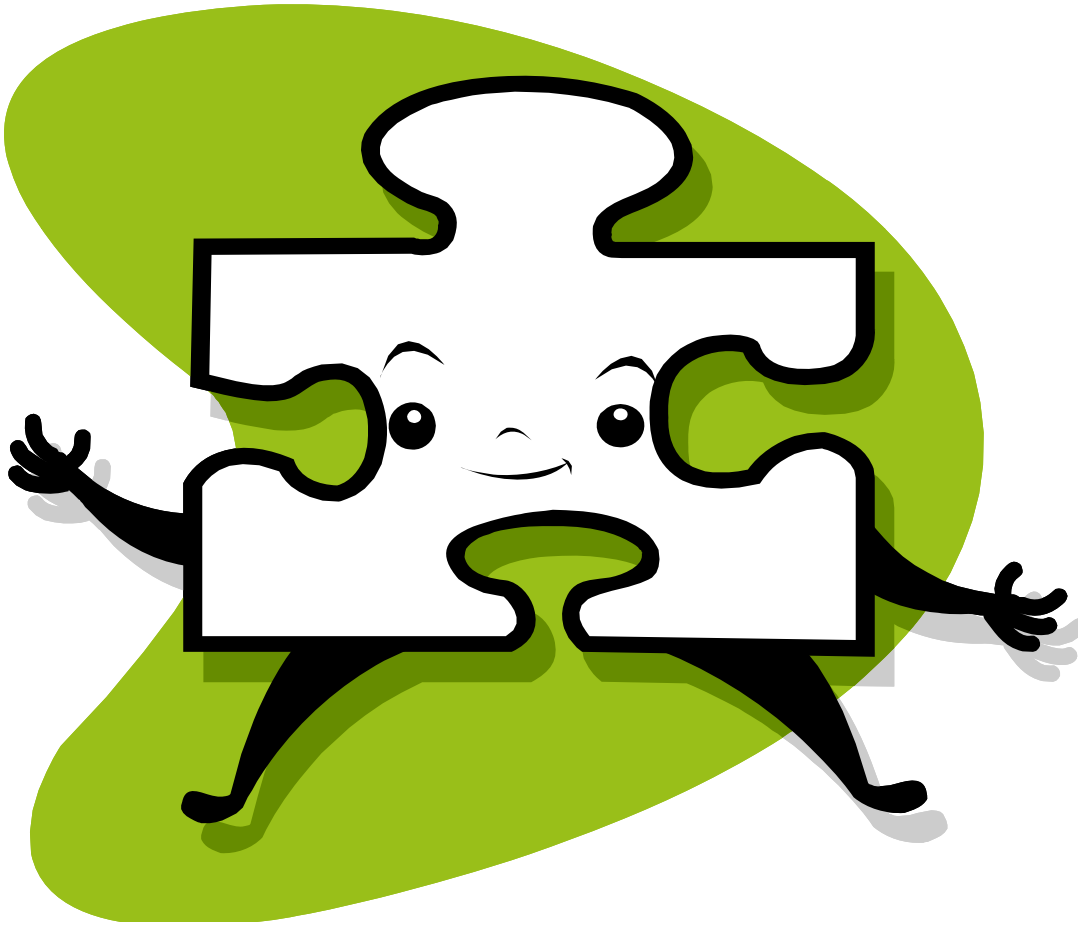
The First Piece of Our Puzzle - "What is Green Cleaning?"



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We Must Reduce Health & Environmental Impacts

"…products and services that reduce the health and environmental impacts compared to similar products and services used for the same purpose…"

Executive Order 13101

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The Simplest Definition is an Excellent Working Definition

Green Cleaning

Cleaning that protects health

without harming the environment.

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Green Cleaning is More Than Changing to a Milder Soap

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A Green Cleaning Program is a Complete Approach to Cleaning

- Green Seal GS-42 Standards and Certification
- The benefits of green cleaning are maximized when environmentally preferred products, effective tools, efficient equipment and proper training are all married into a system that provides consistent and predictable results time after time, while reducing health and environmental impacts.

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There are Many Misconceptions about Green Cleaning

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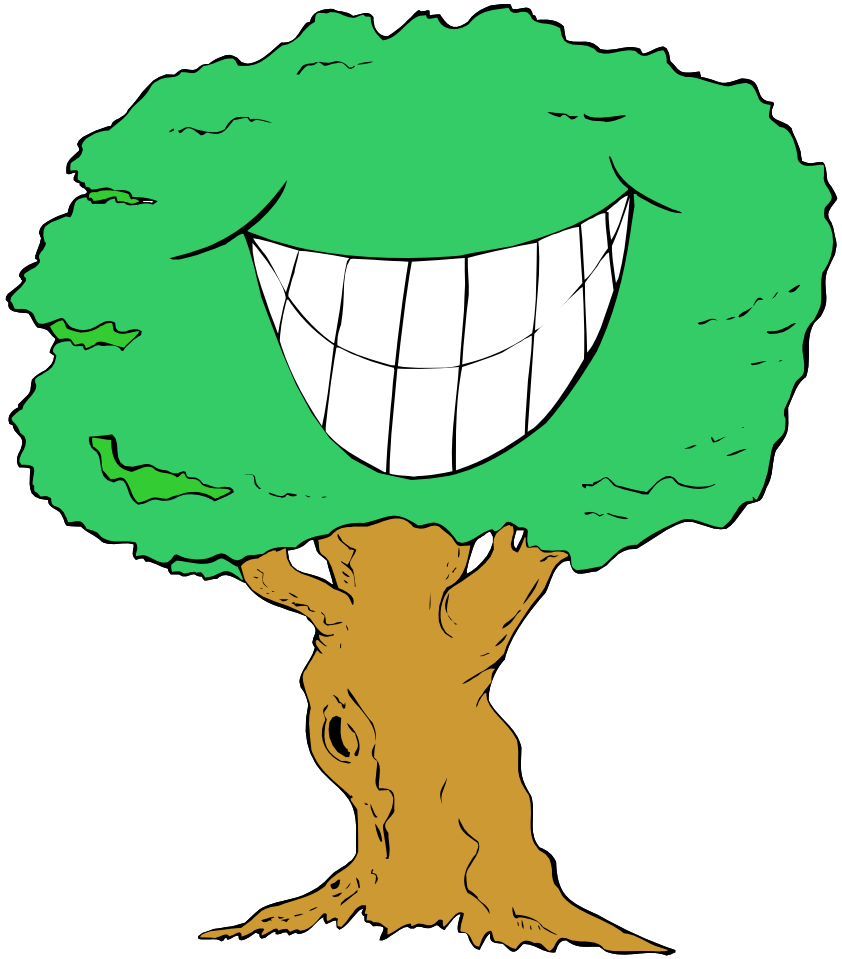
However, The Reality of Green Cleaning is Very Positive



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Green Cleaning Is Not a Fad, It Has Become Mainstream

4 billion square feet of commercial building space is registered or certified under the LEED Green Building Rating System.

978 building projects have registered with LEED for Existing Buildings and 70 have completed certification.

6,442 building projects have registered with LEED for New Construction and 978 projects have completed certification.

30% cut in energy use can save tenants 50 cents per square foot per year (*according to the U.S. Environmental Protection Agency research*).

20% savings in O&M costs for LEED buildings over their life (*from: The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force)*

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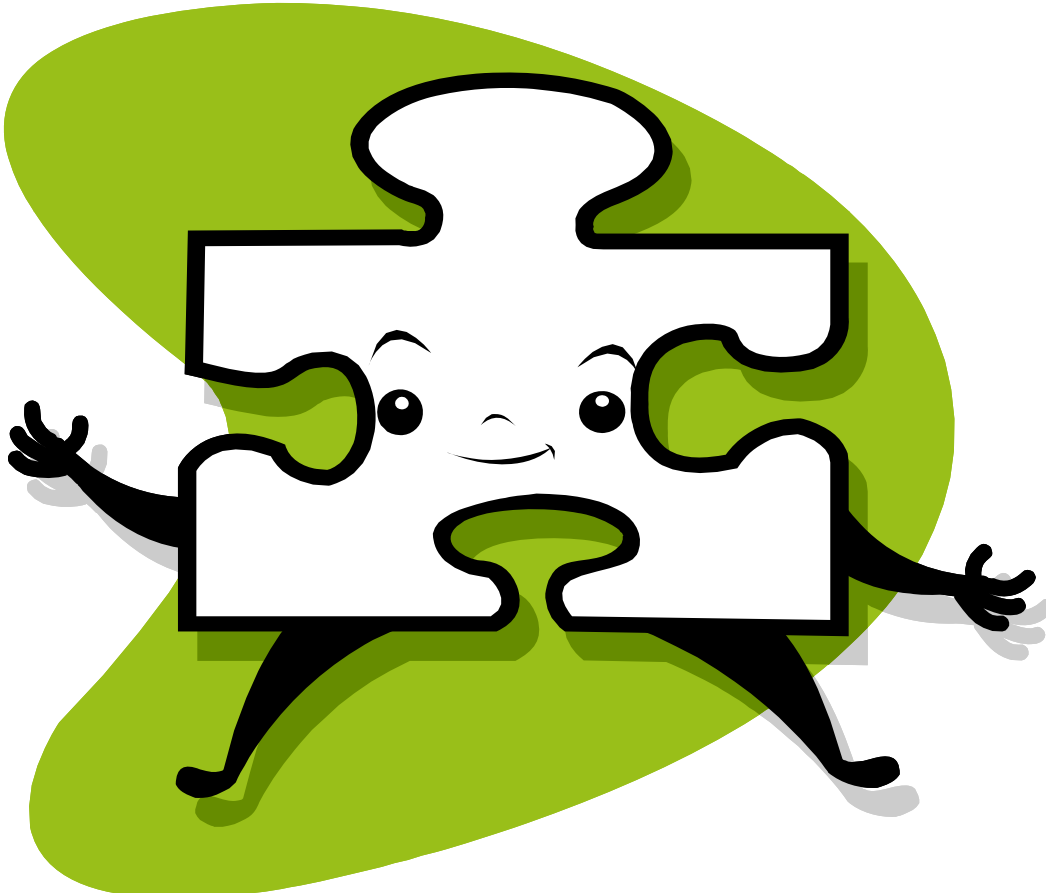
The Next Piece of Our Puzzle - "Why Green Cleaning?"



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The Quality of the Indoor Environment Impacts Everyone

- 90% of our day is spent indoors
- Asthma afflicts 20 million Americans
- Creating a better indoor environment can help building owners, managers, occupants, architects and builders to minimize or eliminate the negative health effects, liability, bad publicity, and costly renovations and repairs often associated with IEQ problems. - *EPA*

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Green Cleaning Improves Occupant Health & Productivity

Tenant Health and Productivity

- Productivity
  - $160/sq ft
  - 2% - 7%
  - $3+/sq ft
- Litigation
- Marketing

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Green Cleaning Improves a Building's ROI

Building Owners & Managers

- *Complaints*
- *Tenant Retention*
- *Profitability*
  - *Vacancy Costs*
  - *Sales*
  - *Space Improvements*
- *Marketing*
- *Avoid Regulations*

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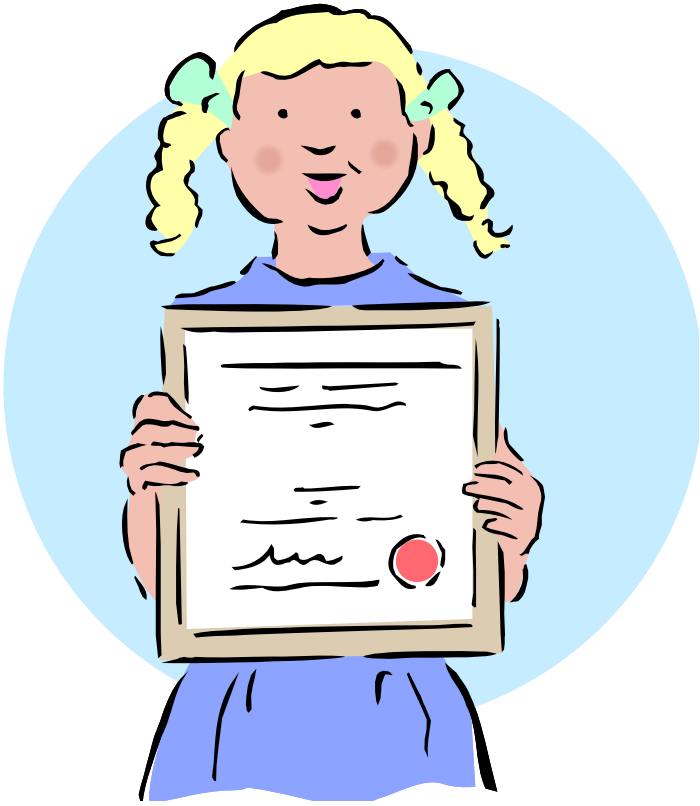
Green Cleaning Can Improve a Student's Ability to Learn

- 25% improvement in number of students meeting or exceeding basic levels on math & reading tests
- Dramatic decreases in reported illnesses & nurse visits
- Dramatic improvements in reported attitudes from students & staff



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Patients & Staff in Health Care Facilities are Vulnerable to Cleaning

- Patients may suffer with compromised immune systems
- Difficult to isolate them from the impacts of cleaning
- 2 Million nosocomial infections acquired annually

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How We Clean Also Impacts The People Who DO the Cleaning

Product Users

- *Health & Safety*
- *Workman's Compensation*
- *Turnover*
  - *Recruiting*
  - *Hiring*
  - *Training*
  - *Impact on service*
- *Impact on cost of services*

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The Cleaning Industry Has a Major Impact on the Environment

- 6 Billion pounds of chemicals
- 4.5 Billion pounds of paper
- 35 Billion plastic liners
- 2.5 Billion pounds of equipment

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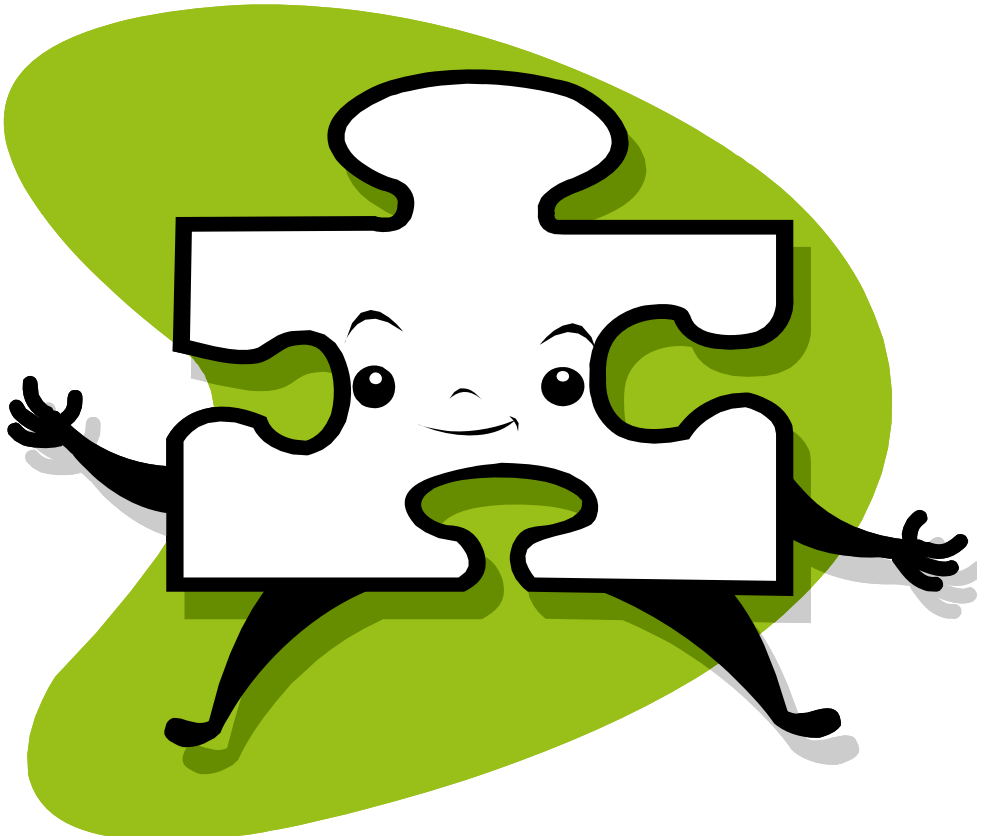
The Next Piece - Implementing a Green Cleaning Program



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Green Cleaning is More Than Choosing a New Product…

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Begin by Planning Your First Green Project

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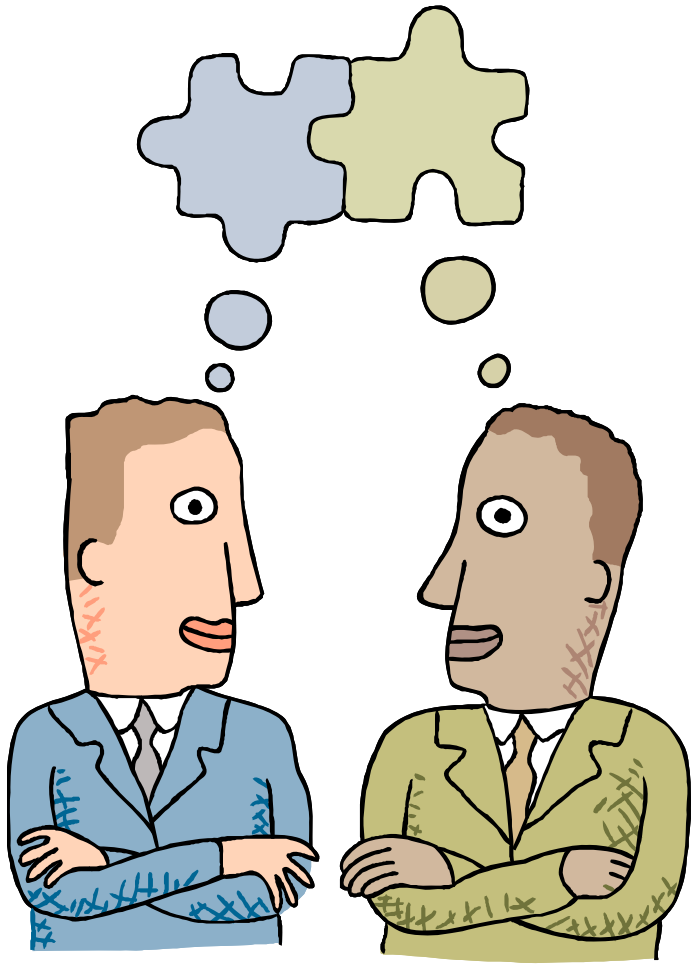
Set & Communicate Clear Goals and Expectations



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Consider Starting with a Pilot Project

Begin by Choosing Certified Green Cleaning Chemicals and Services

- Environmental Choice
- Envirodesic
- Green Seal GS-42 Services
- Green Seal GS-37
  - Glass Cleaners
  - General Purpose Cleaners
  - Washroom Cleaners
  - Carpet Extraction Chemicals
- Closed Loop Dispensing Equipment

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Replace Traditional Chemicals and Add More Green Cleaning Chemicals to Your Operation

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Choose Paper With Post-Consumer Recycled Content

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Use EPA Guidelines To Choose Janitorial Paper

Item	Post-Consumer Fiber %	Recycled Fiber %
Toilet Tissue	20 – 60	20 – 100
Paper Towels	40 – 60	40 – 100
Paper Napkins	30 – 60	30 – 100
Facial Tissue	10 – 15	10 – 100
General Purpose Wipes	40	40 – 100
Plastic Liners	10 – 100	10 - 100

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BIGGER is better

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Choose Ergonomic Equipment That Improves Productivity

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Choose Equipment to Capture And Contain Dirt & Dust

CRI
CARPET
INDUSTRY
APPROVED

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Complete Your Green Shopping With Additional Products

- Entryway mats
- Micro-fiber cloths & mops
- Recycling bins
- Trash cans & liners
- Pest management products
- Water-saving devices
- Ice melt
- More…

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Choose Green Landscaping Products and Services

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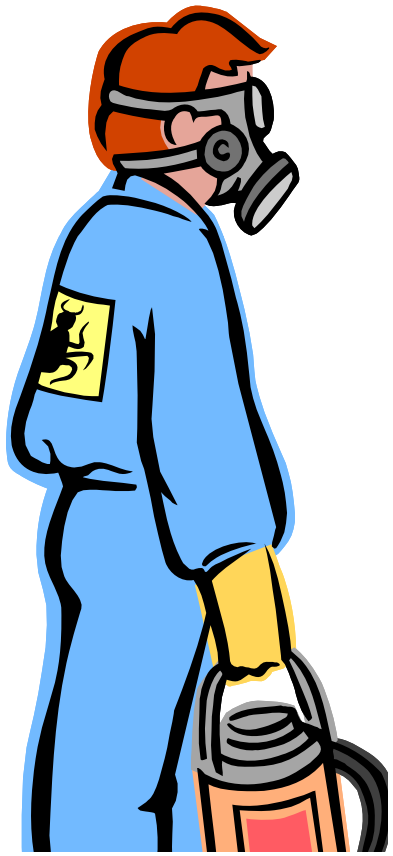
Make the Move to Integrated Pest Management



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Effective Implementation Requires Effective Training

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Detail the What, When, and Why's of Green Cleaning

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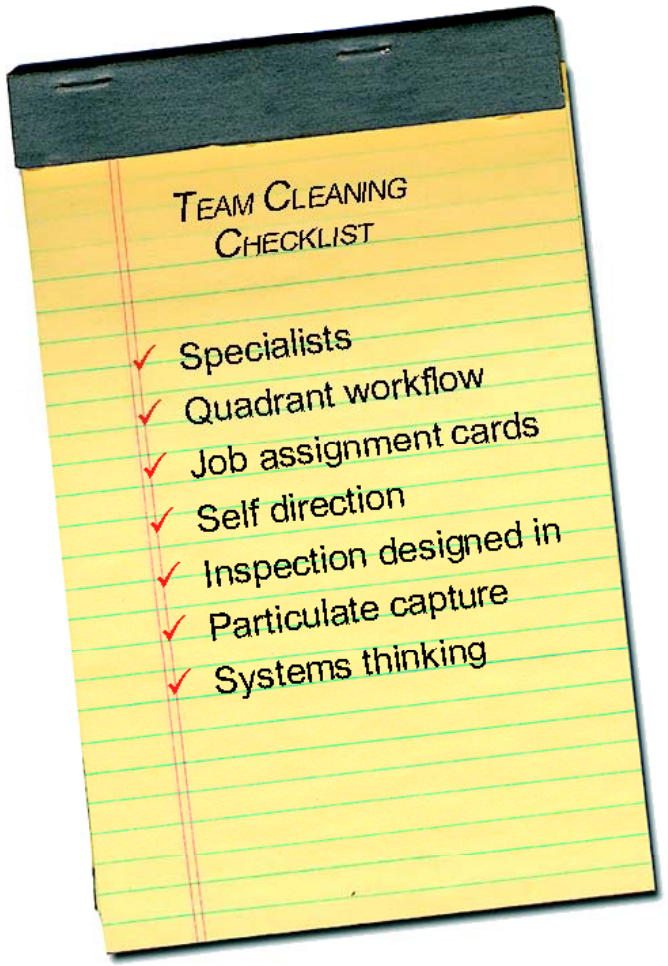
Maximize Labor Productivity to Minimize Costs



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Document Results and Improve the Process

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Develop a Stewardship Plan For Sustainable Results

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ServiceMaster Green

Ensure Everyone Understands The Concepts of Stewardship

Joseph Johnson, LEED A.P.
ServiceMaster Green

Communicate the Elements of a Stewardship Plan

- Building Policy
- Management Goals
- Staffing Plan
- Building the Stewardship Team
- Product Criteria
- Cleaning Guidelines
- Safety & Health Guidelines
- Hazardous Materials Management
- Hazardous Waste Management
- Waste Minimization & Recycling
- Communications
- Goals Measurements

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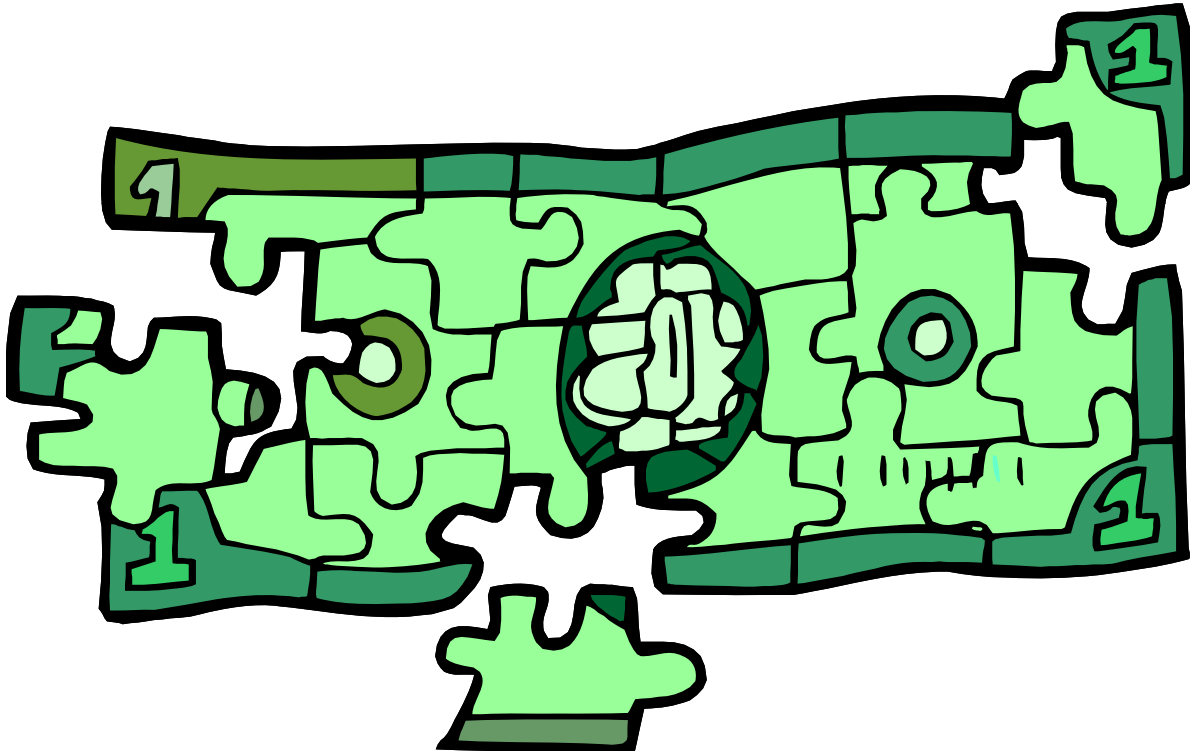
Let’s Look at Our Green Cleaning Puzzle



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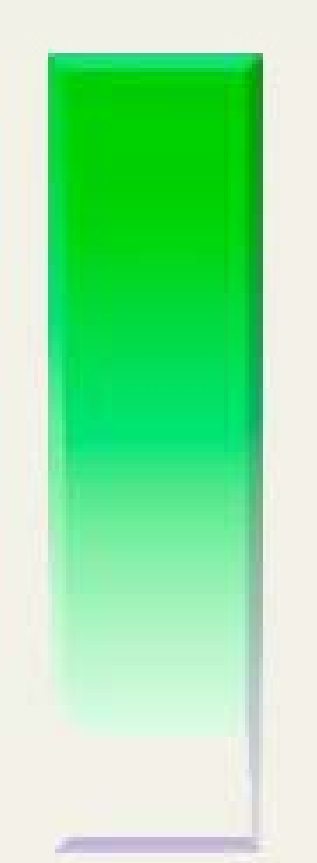
Where are You on The Green Continuum?



- Green Cleaning champions
- Established a stewardship program
- Joined USGBC and have a LEED project
- Implementing Green Cleaning
- Started a pilot project
- Choosing “greener” products & equipment
- Investigating Green Cleaning
- Cleaning for appearance

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Where can I learn more about going green?

- Ashkin Group
- Building Owners' and Managers' Association (BOMA)
- Building Service Contractors Association International
- Carpet and Rug Institute (CRI)
- Center for Disease Control and Prevention
- The Collaborative for High Performing Schools (CHPS)
- Green Seal
- Health Care Without Harm
- Leadership in Environmental Design
- US Environmental Protection Agency
- US Green Building Council

How can I contact Joe Johnson and ask additional questions?

- **Servicemastergreen.com**
- **joe@servicemastergreen.com**
- **515-27-GREEN (274-7336)**

MARKET TRANSFORMATION

The Building Owners and Managers Association (BOMA) International recognizes that current research estimates that energy consumption in commercial buildings accounts for 18 percent of U.S. greenhouse gas (GHG) emissions. BOMA also recognizes that responsible building operating and management practices can significantly reduce energy consumption, diminish a building's carbon footprint, and thus lower GHG emissions. By working with real estate professionals, through our network of 92 local BOMA associations with all levels of government, and the myriad of public and private groups with similar goals, market transformation will be realized.

Commercial real estate owners and operators understand the triple bottom line of reducing energy consumption and implementing "green" management practices is a social and environmental responsibility, and can result in a positive return on investment (ROI).

BOMA INTERNATIONAL CALLS UPON ITS MEMBERS TO ACCEPT THIS 7-POINT CHALLENGE TO REDUCE THE USE OF NATURAL RESOURCES, NON-RENEWABLE ENERGY SOURCES, AND WASTE PRODUCTION AND WORK IN COORDINATION WITH BUILDING MANAGEMENT, OWNERSHIP AND TENANTS TO ACHIEVE THE FOLLOWING GOALS

1. Continue to work towards a goal to decrease energy consumption by 30 percent across your portfolios by 2012 – as measured against an "average building" measuring a 50 on the ENERGY STAR® benchmarking tool in 2007;
2. At least once a year, benchmark your energy performance and water usage through EPA's ENERGY STAR benchmarking tool and share your results with BOMA;
3. Provide education to your managers, engineers and others involved in building operations, to ensure that equipment is properly installed, commissioned, maintained and utilized;
4. Perform an energy audit and/or retro-commissioning of your building, and implement low-risk, low-cost and cost effective strategies to improve energy efficiency with high returns;
5. Extend equipment life by improving the operations and maintenance of building systems and ensure equipment is operating as designed;
6. Through leadership, positively impact your community and your planet by helping to reduce your industry's role in global warming; and
7. Position yourself and the industry as leaders and solution providers to owners and tenants seeking environmental and operational excellence.

BOMA International believes that through implementation of these no- and low-cost operation and management practices, buildings may see a reduction in energy consumption alone of up to 30 percent. In addition to lowering operating costs and enhancing asset value, these measures will improve tenant comfort and satisfaction with better building temperature control and lower absenteeism and increase your tenants' productivity, resulting in real cost savings for tenants.

BOMA International

BOMA International also calls on its network of 92 federated local associations to accept the challenge to work at the local and state level to implement responsible government programs and voluntary incentives to facilitate market transformation.

SPECIFICALLY, WE CALL ON BOMA LOCAL ASSOCIATIONS TO:

1. Partner with local government, other industry groups and associations, as well as utilities, to identify voluntary energy efficiency strategies with proven results and application to existing buildings;
2. Partner with local government to share education and case studies on no- and low-cost building operating and management practices to assist in efforts to transform state and municipal buildings;
3. Work with policymakers to enact voluntary, incentive-based programs to accomplish their goals of implementing green communities; and
4. Work cooperatively with state and local government to update, at a reasonable frequency, its model building and energy codes.

BOMA INTERNATIONAL BELIEVES THAT MARKET TRANSFORMATION IS THE MOST IMPORTANT CONTRIBUTION OUR ASSOCIATION CAN MAKE TO OUR SOCIETY AND TO OUR COMMUNITIES. IN ADDITION TO ENCOURAGING OUR MEMBERS AND NETWORK OF LOCAL ASSOCIATIONS TO WORK TO IMPLEMENT ENVIRONMENTALLY AND SOCIALLY RESPONSIBLE BUILDING MANAGEMENT PRACTICES THAT RESULT IN REDUCED RELIANCE ON NON-RENEWABLE RESOURCES AND A FAVORABLE RETURN ON INVESTMENT, BOMA PLEDGES TO:

1. Work with our members to encourage them to decrease energy consumption by 30 percent across their portfolios by 2012. However, we understand that many buildings have already achieved these reductions, and some older buildings may not be able to attain this level of energy reduction;
2. Continue to develop education programs for building owners and managers that can result in immediate reduction of energy consumption and reduce energy costs by as much as 30 percent;
3. Join forces with other organizations, the scientific research community and industry leaders engaged in issues related to sustainable building operating and management practices to facilitate the dialogue, conduct any needed research, share knowledge and best practices, and accelerate market transformation;
4. Participate in building codes and standards development efforts for energy efficiency and green buildings standards that promote aggressive but attainable and cost-effective results;
5. Work with the United States Congress, Administration and federal agencies to implement responsible energy policy that encourages voluntary action and resorts to mandates only with commensurate and offsetting incentives;
6. Promote documentation and benchmarking, through the EPA ENERGY STAR benchmarking tool (for energy and water), of the measurable contributions resulting from implemented sustainable operation and management approaches;
7. Promote research by industry, scientific, and governmental entities to provide the commercial real estate industry with full life cycle assessment data for all products, materials and equipment used in the construction, operation and management of the built environment to facilitate decision-making;
8. Promote research that will result in technological advances necessary to make buildings operate even more efficiently and achieve the goal of carbon-neutral buildings;
9. Communicate the benefits of environmentally responsible management practices, including higher occupancy rates, rental rates, asset value, and tenant satisfaction, to both the public and private sector;
10. Work with utilities to encourage voluntary demand-side management (DSM) and rebate programs to encourage energy efficiency;
11. Assume a global leadership role as advocates for sustainable operations and management practices in the built environment and share knowledge and promote sustainable practices throughout the world.

TO SIGN ON TO BOMA'S 7 POINT CHALLENGE, CONTACT KAREN PENAFIEL AT KPENAFIEL@BOMA.ORG.

BOMA International, Suite 300, 1201 New York Ave., NW, Washington, D.C., 20005, (202) 326-6300, www.boma.org