



Sustainable Design TAROT

How not to loose your wallet in the
game of green building.



GovEnergy
www.govenergy.gov

Definitions?

Tarot

A set of cards that came to be utilized for:

- Divination – fortune telling
- Psychological – reveal the subconscious
- Mnemonic device –



Arcana

- Major – Trump Cards
- Minor – 56 playing cards
 - Wands
 - Cups
 - Swords
 - Coins



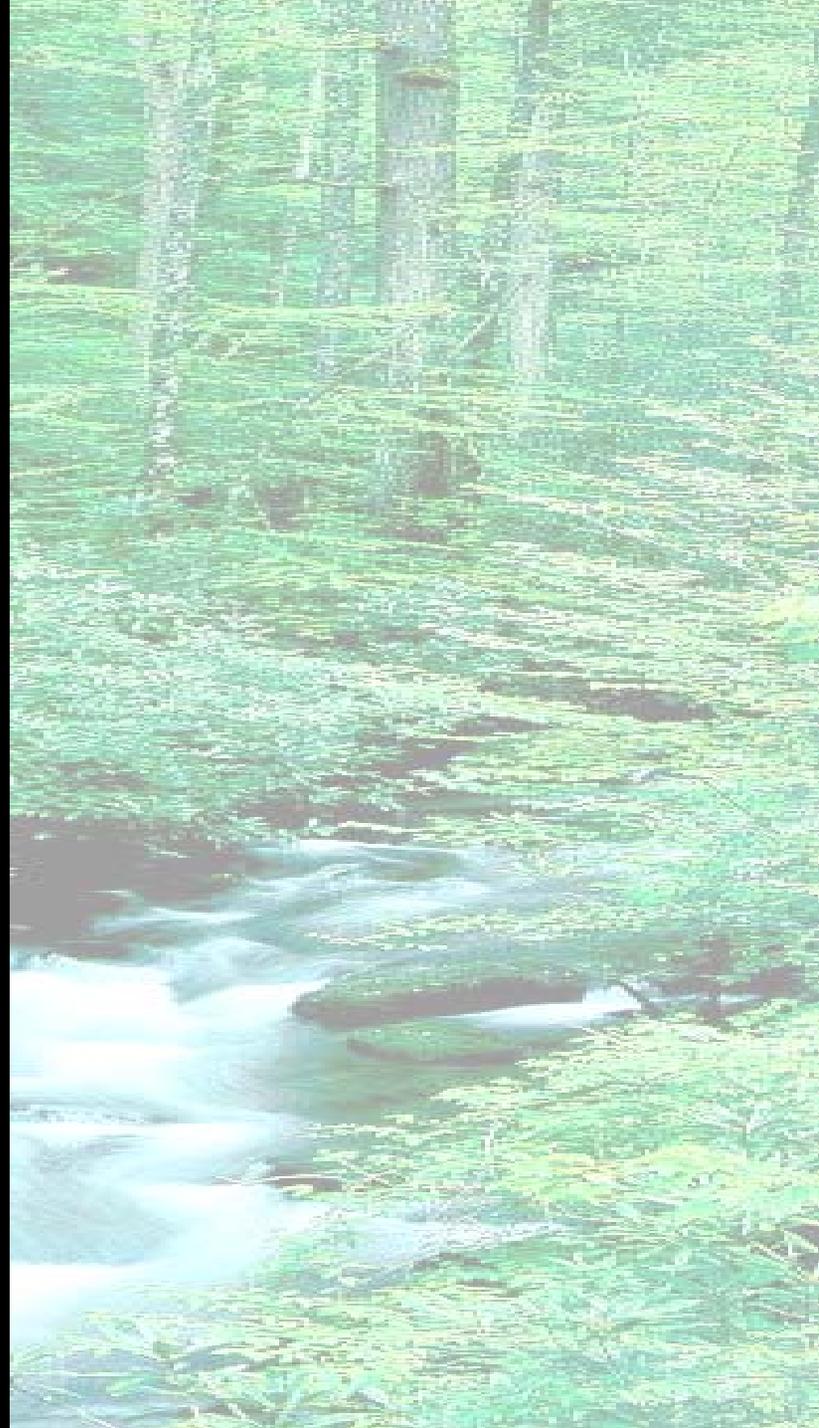
What is your image of Green?



Reality



- **Sustainable - meeting "the needs of the present without compromising the ability of future generations to meet their own needs"**
- **Environmental – the circumstances or conditions that surround one**
- **High Performance building – a good energy performing building**

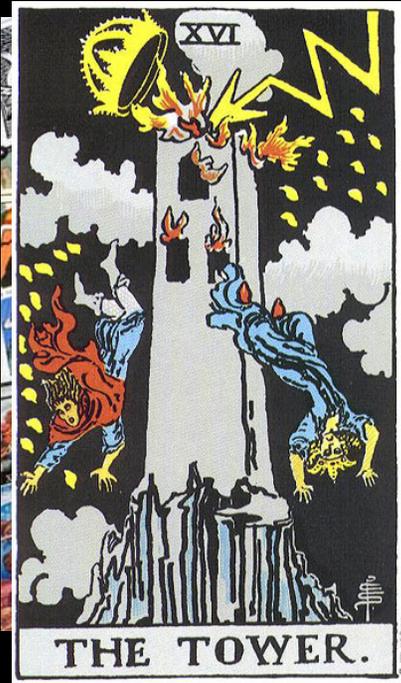


Sustainable Principles

- Water
- Energy
- Materials
- Indoor Air Quality
- Site



What do we do?



1900's



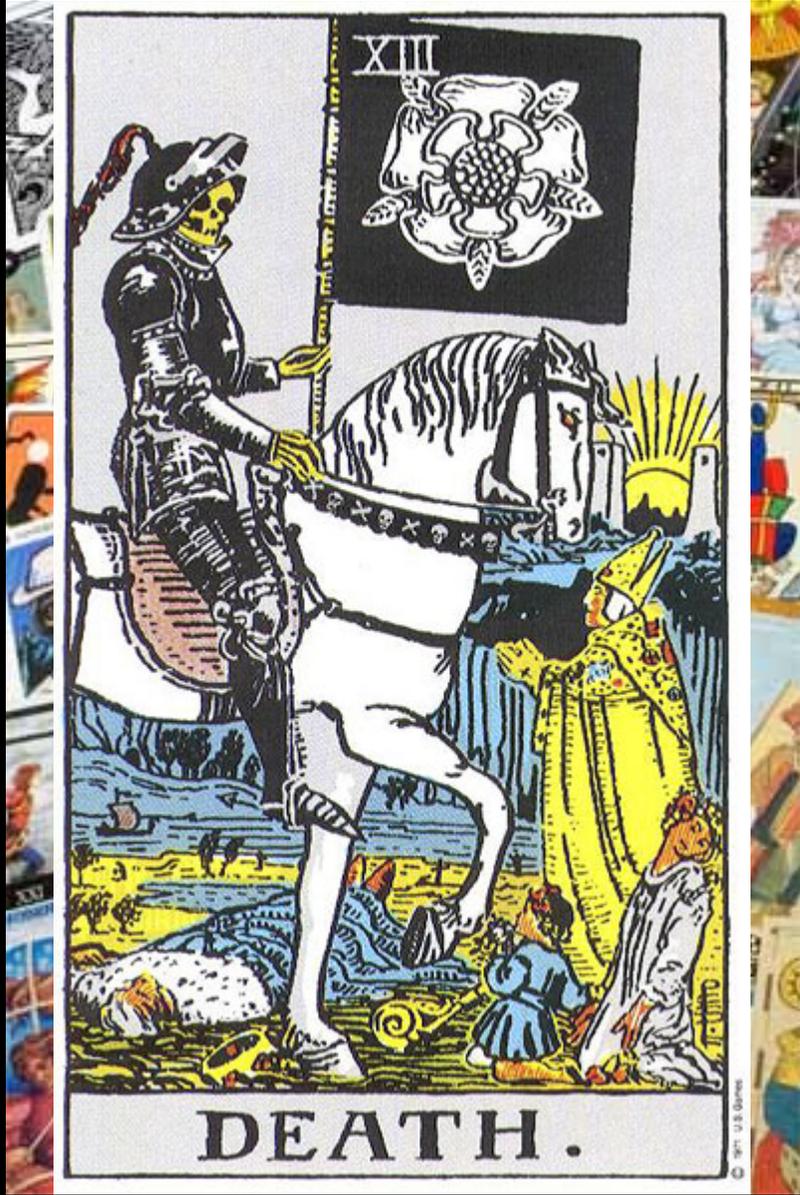
1960's





2000's

We need a different
perspective!



Geological Time – Part 1

Based on Mid Course Correction by Ray C. Anderson.

1 day=750 million years

Earth is formed on Monday at midnight

No life till Tuesday morning

Photosynthesis shows up on Thursday morning just after midnight

On Saturday morning, the sixth day, amphibians can come on land

Giant reptiles show up at 4 pm on Saturday and last 6 hours. The longest of any species so far.

Primates show up around 10 pm Saturday.

Geological Time – Part 2

Australopithecus shows up 7 minutes before midnight

Homo sapiens sapiens arrive at 11:59:54 pm That is us. We have been around for 6 seconds.

1/3 of a second till midnight, Buddha, 1/4 of a second till midnight, Jesus.

1/40 of a second ..., the industrial revolution

1/80 of a second ..., we discover oil

1/200 of a second ..., we split the atom.

How do we measure
success?



2002

2003

2004

2005

2006

2007



SSA Building,
Woodlawn, MD
(NC2-O-02)

SSA Child Care
Center, Woodlawn,
MD (NC2-O-03)

DOT Office Building,
Lakewood, CO
(NC2-L-04)

U.S. Border Station,
Sweetgrass, MT
(NC2-O-05)

Metzenbaum
Courthouse, Cleveland
OH (NC2-O-06)

W.L.Morse Courthouse,
Eugene, OR
(NC2-O-06)

Duncan Building
Knoxville, TN
(EB2.0-O-07)



U.S. Courthouse,
Youngstown, OH
(NC2-O-02)

EPA New England Regional
Laboratory, Chelmsford, MA
(NC1-L-03)

Scowcroft Building
(IRS), Ogden, UT
(NC2-L-05)

Potomac Yards I,
Arlington, VA
(NC2-L-06)

DHS/CIS
Lincoln, NE
(NC2.0-L-06)



EPA Science & Technology
Center, Kansas City, KS
(NC2-L-03)

OSHA Salt Lake
Technical Center,
Sandy, UT (NC2-L-05)

Potomac Yards II,
Arlington, VA
(NC2-L-06)



EPA Computer Center,
Research Triangle Park,
NC (NC2-L-05)

Byron Rogers
Courthouse, Denver,
CO (EB1.0-O-06)



NPS Midwest Regional
Headquarters, Omaha,
NE (NC2-L-05)

DHS/CIS
Omaha, NE
(NC2.0-L-06)

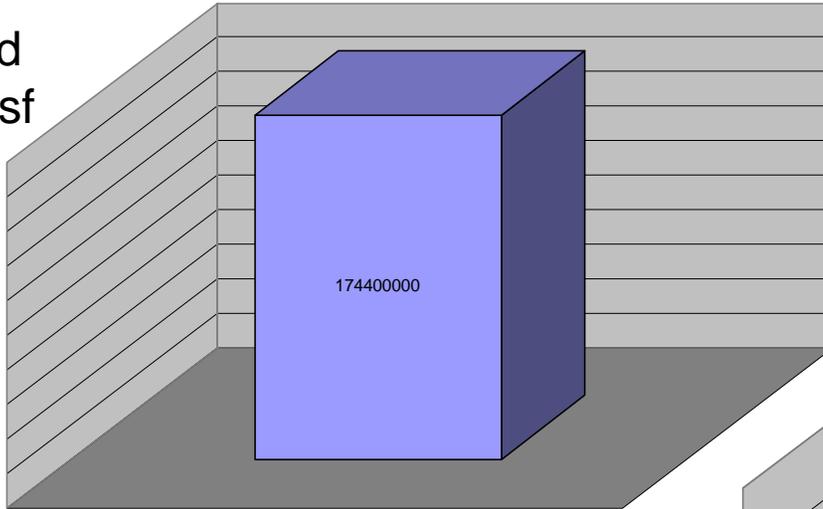


LEED®
Rated
Buildings

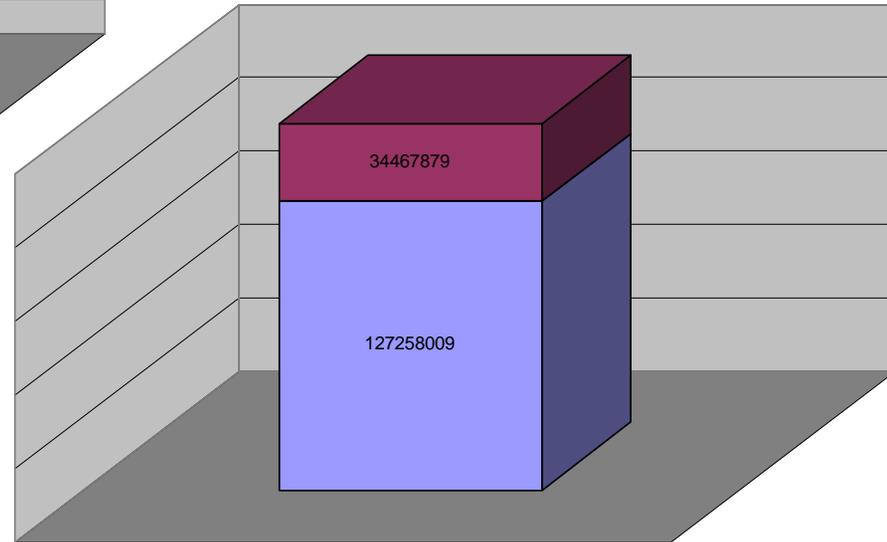
How are we incorporating
sustainable design principles?

2006
GSA Owned
174 million sf

GSA Owned 2006

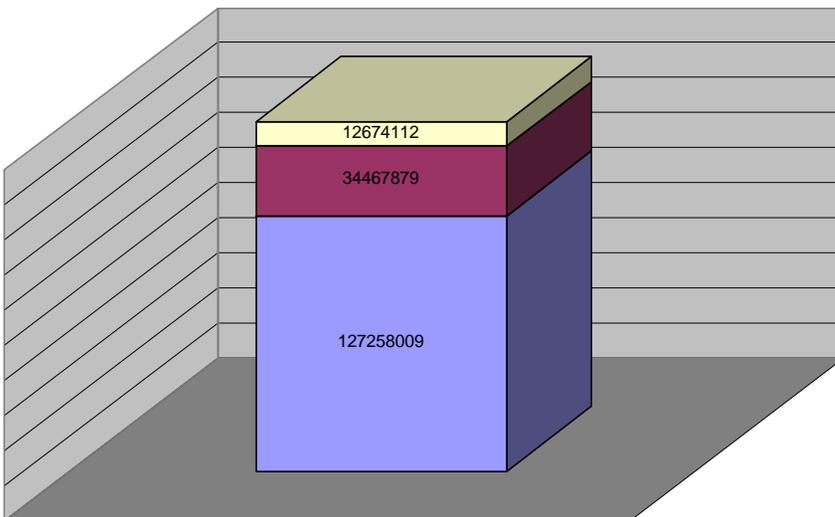


GSA Renovated and Altered



10 years
renovate
34 million sf

GSA Inventory, 2016



10 years
add
13 million sf

27% of the portfolio
can be changed to
meet regulations.

Sustainable Design, EO, MOU, EPACT 05, LEED

Boiler
Plate
Scope -
Contracts

Boiler
Plate
Scope –
Feasibility
Studies

Boiler Plate
Scope –
Contractors,
CM,
Commissioning

P100
being
revised

Boiler
Plate
Scope -
Leases

OCA memo for
A/E Scope

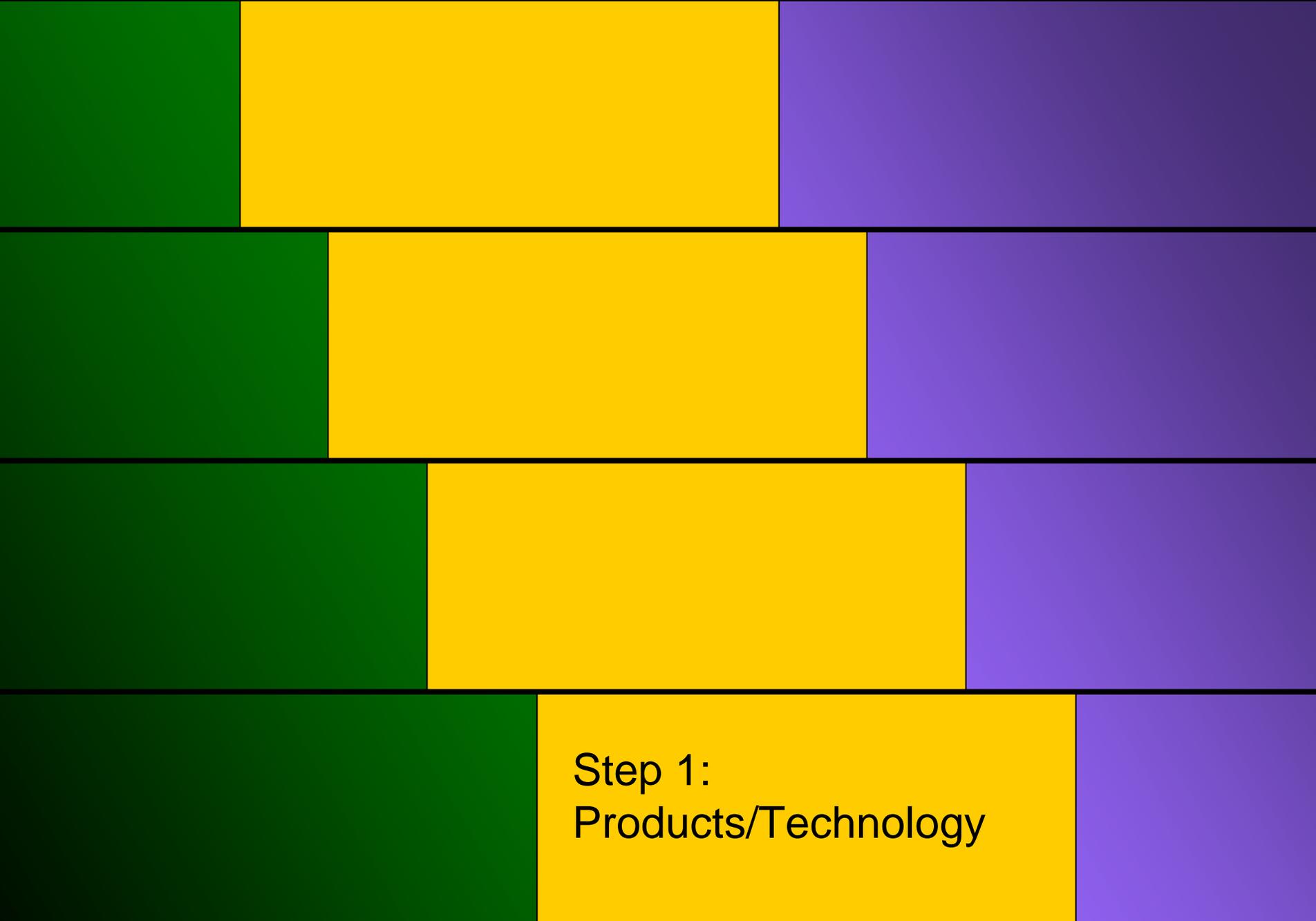
Green Leasing
–Realty
Services Letter
Forthcoming

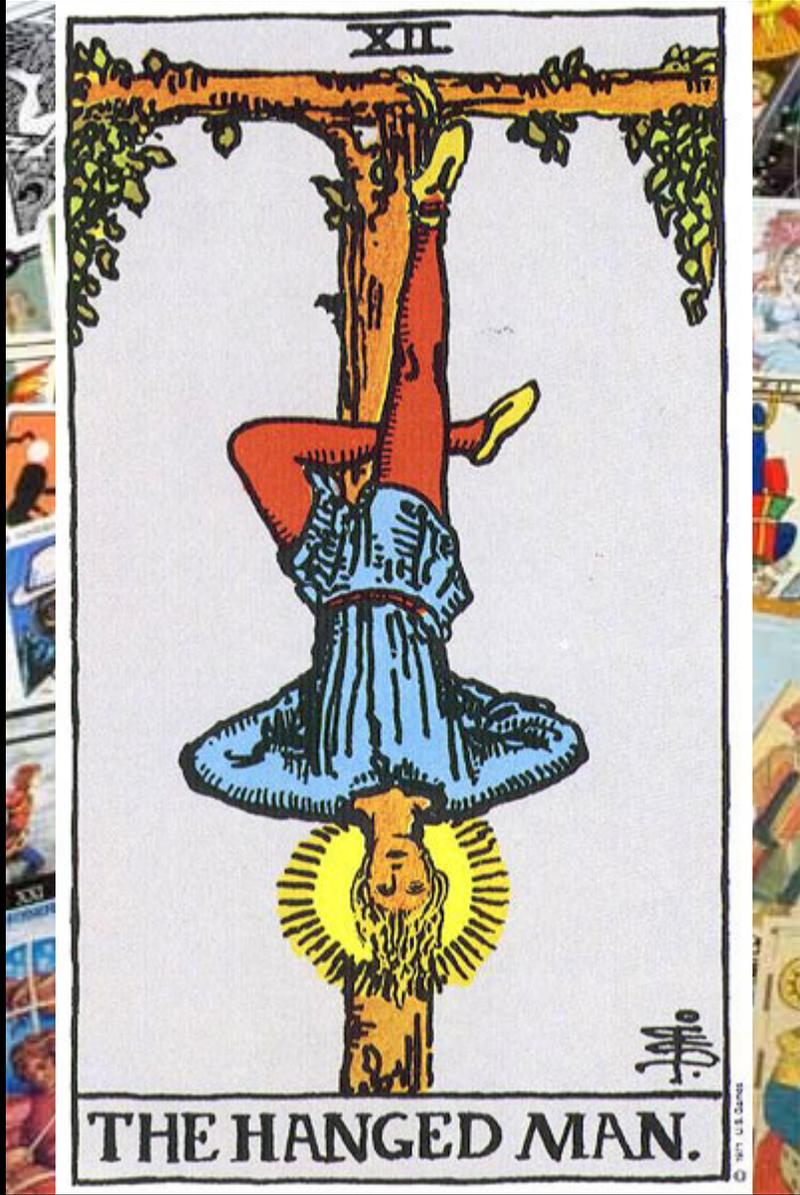
O&M policies for LEED EB and
Green Cleaning,

Money

A new model of thinking.

Brain Power





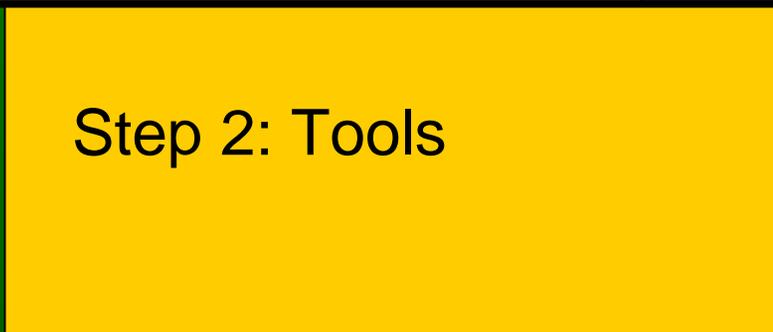
THE HANGED MAN.

© 1971 U.F. Games

Money

A new model of thinking.

Brain Power



Step 2: Tools

Step 1:
Products/Technology



Money

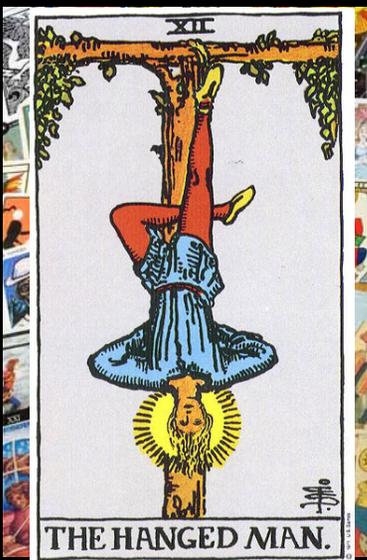
A new model of thinking.

Brain Power

Step 3: Process

Step 2: Tools

Step 1:
Products/Technology



Money

A new model of thinking.

Brain Power

Step 4: Mental
Intuition

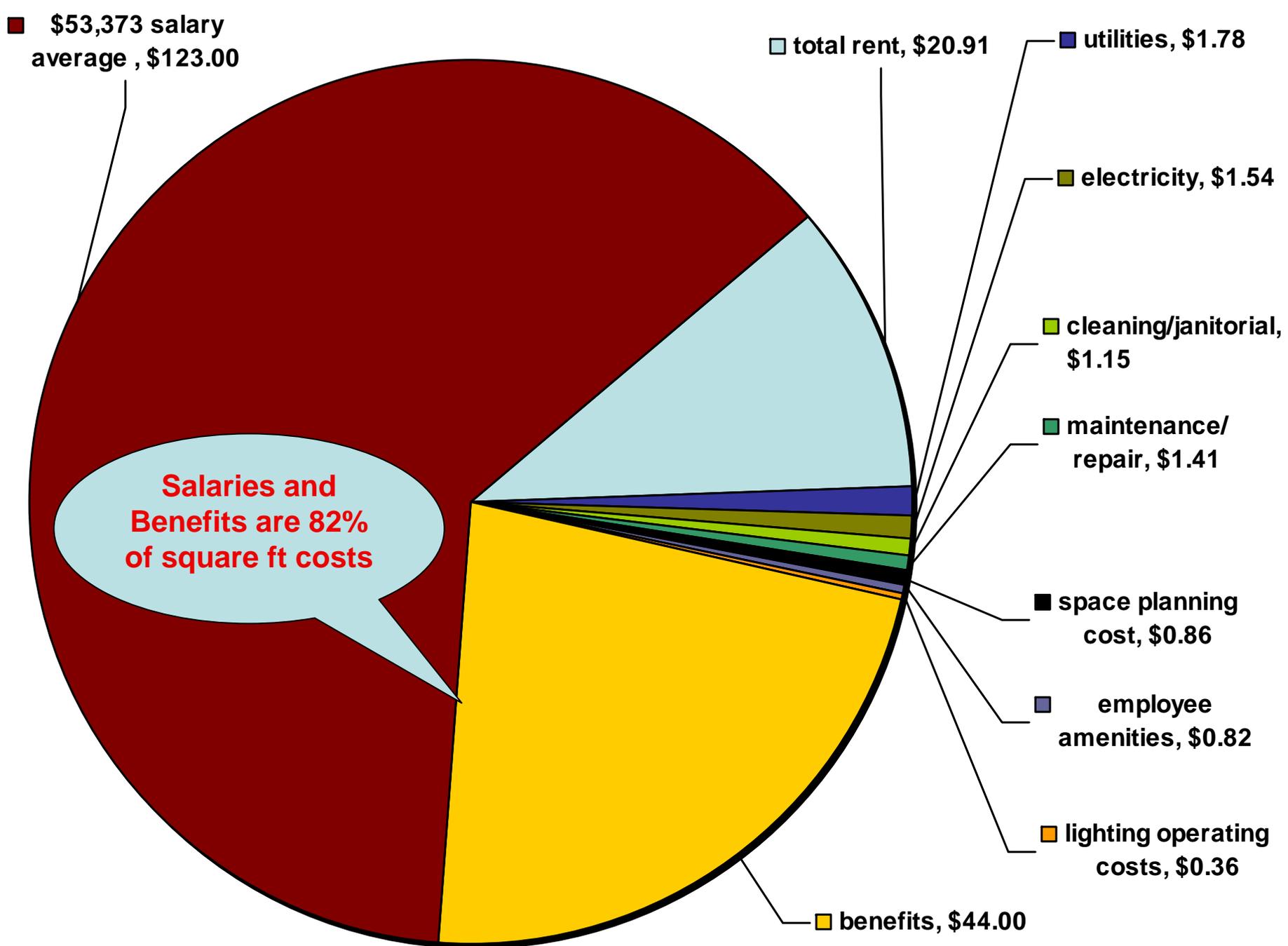
Step 3: Process

Step 2: Tools

Step 1:
Products/Technology







Annual Office Costs / SF

Regulations



EO 13423

Strengthening Federal Environmental, Energy, and Transportation Management

- **Reduce greenhouse emissions 3% annually till 2015**
- **Purchase new renewable energy**
- **Reduce water consumption 2% annually till 2015**
- **Use biobased, EP, energy and water efficient and recycled products**
- **Comply with guiding principles of HPSB MOU for all new, 15% of existing capital asset building inventory by 2015**

Guiding Principles for High Performance and Sustainable Buildings

- **Energy Efficiency 30% better than ASHRAE 90.1.**
- **Energy Star Benchmarking**
- **Indoor water efficiency of 20%.**
- **Outdoor water efficiency of 50%.**
- **Ventilation and comfort to meet ASHRAE 55 and 62.1.**

High Performance and Sustainable Buildings MOU

- Moisture Control strategy.
- Daylight factor of 2% in 75% of occupied space.
- Low emitting materials.
- Construction IAQ, 72 hour flush out.
- Recycled products per EPA or calculation.
- USDA biobased products.
- Salvage 50% construction waste.
- Eliminate ozone depleting compounds.

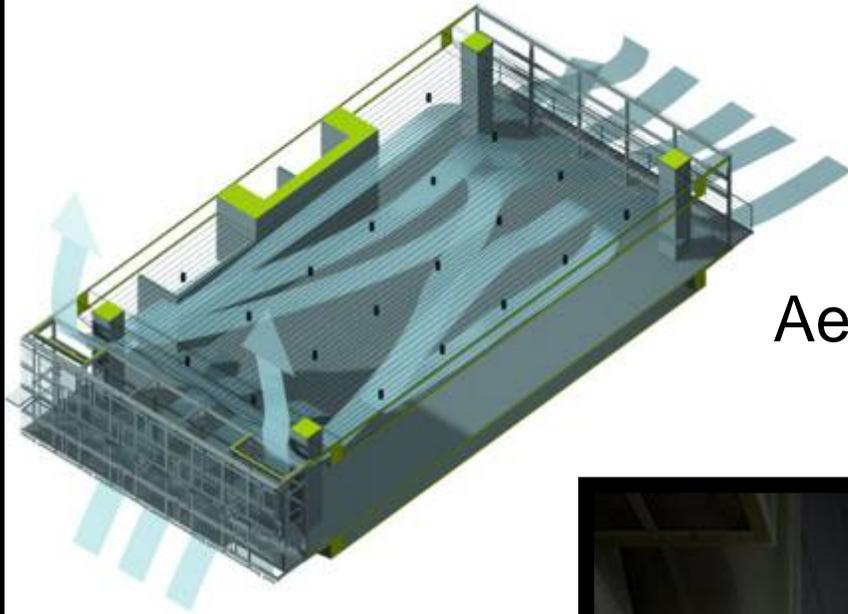
Examples



San Francisco FOB

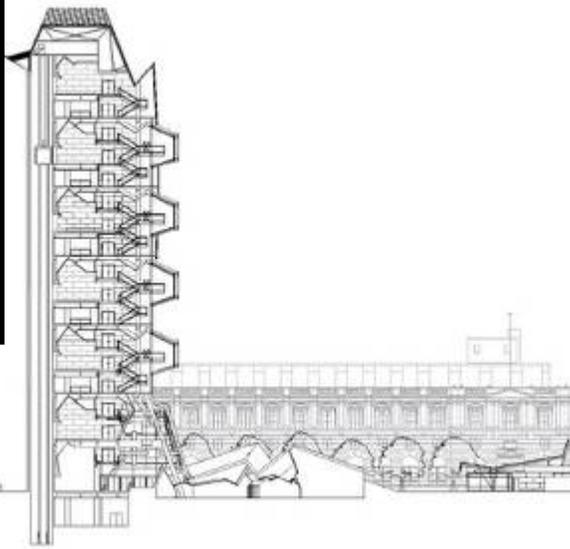


Chronicle / Kurt Rogers

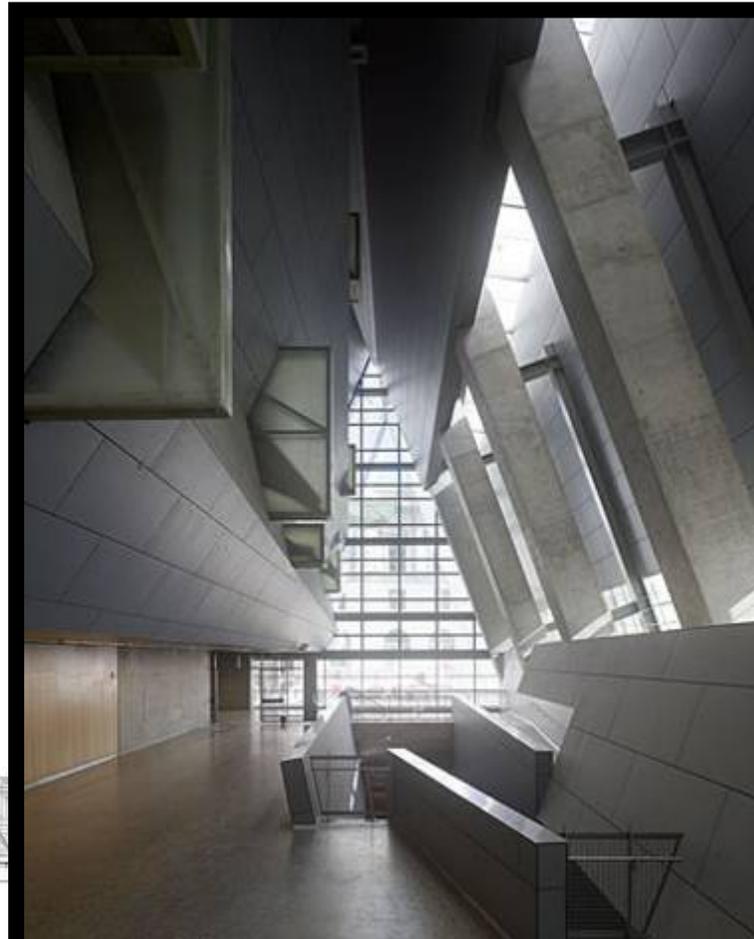


Aesthetics

&



Technology





Frank Oms Photographer

Alfred A. Arraj U.S. Courthouse, Denver, Colorado



IRS Regional Headquarters Kansas City, MO



**IRS Regional Headquarters
Kansas City, MO**



IRS Regional Headquarters Kansas City, MO





IRS Regional Headquarters

Kansas City, MO

**Wayne L. Morse
U.S. Courthouse
Eugene, OR**



Wayne L. Morse U.S. Courthouse

Eugene, OR



**Wayne L.
Morse U.S.
Courthouse
Eugene, OR**



**Wayne L. Morse
U.S. Courthouse
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U.S. Census Bureau

Suitland, MD







NOAA Satellite Operations

Suitland, MD



NOAA Satellite Operations

Suitland, MD

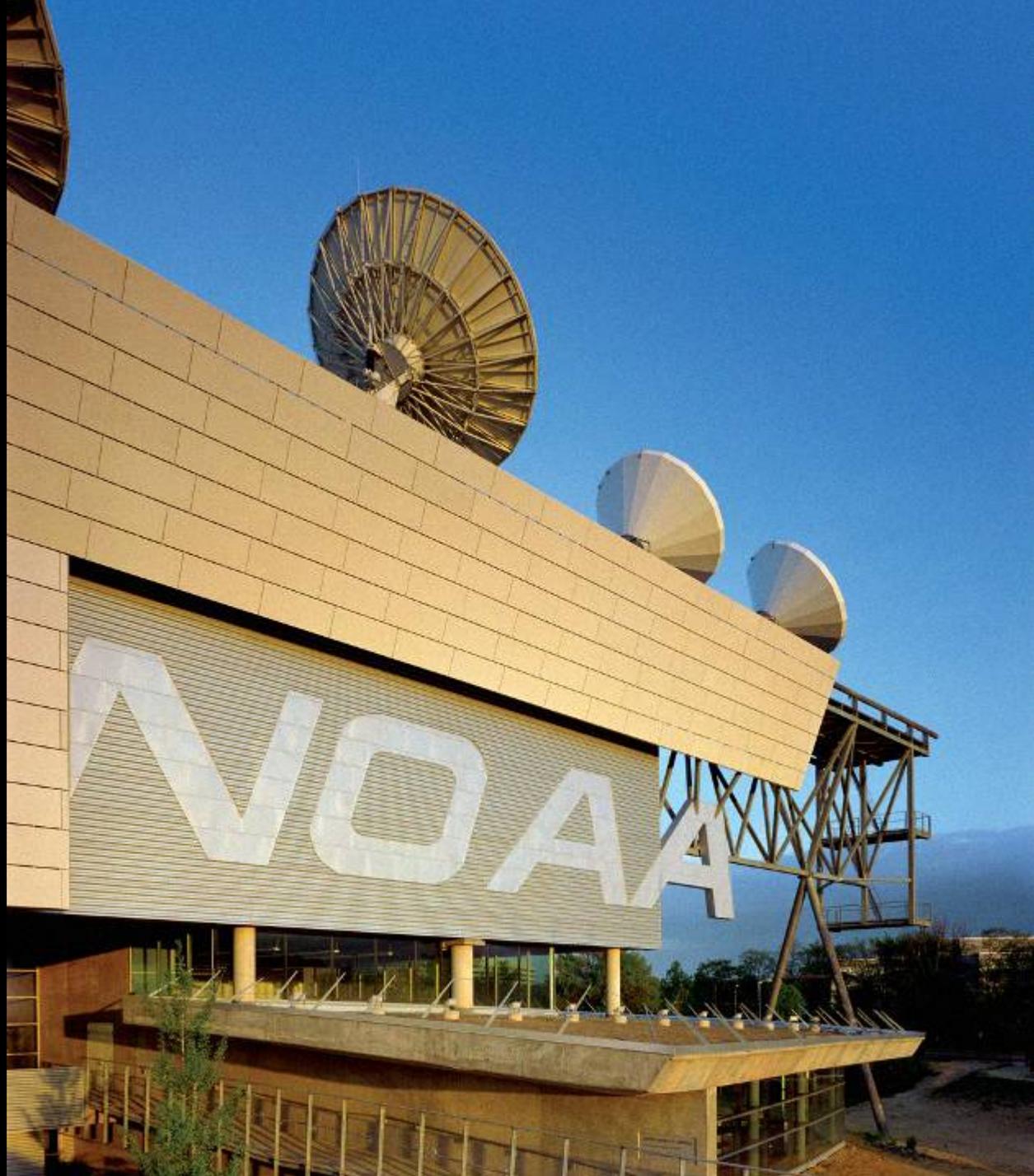


NOAA Satellite Operations

Suitland, MD



**NOAA Satellite
Operations
Suitland, MD**





Look at all the options, not just face value.

Use integrated thinking.

Start big, start small, but start.

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GSA, Sustainable Design Expert

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202-208-2038

Websites

- **Whole Building Design Guide**
www.wbdg.org
- **GSA Sustainable Design Program**
www.gsa.gov/sustainabledesign
- **GSA GO Green**
www.gsa.gov/green



GovEnergy
www.govenergy.gov



New Orleans
August 5-8