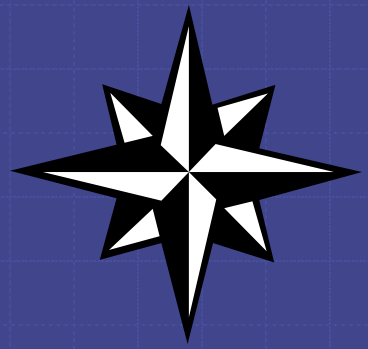
Good morning, folks.

If I only had 20 minutes…



- What is this sustainability thing?
- How does energy play into it?
- What is “Green” building?
- Why do we care as a State entity?
- How can WSU fit into the picture?

What is a “green” building?

What is ecologically sound about making a building?

What is our goal as a society?

- Most of what I will be showing you is what I consider to be “lip service”
- Are we doing “good” or are we just doing a little better?
- If our goal is to stop depleting, and if our goal is to start replenishing, what is necessary on our part?

How it's usually reported

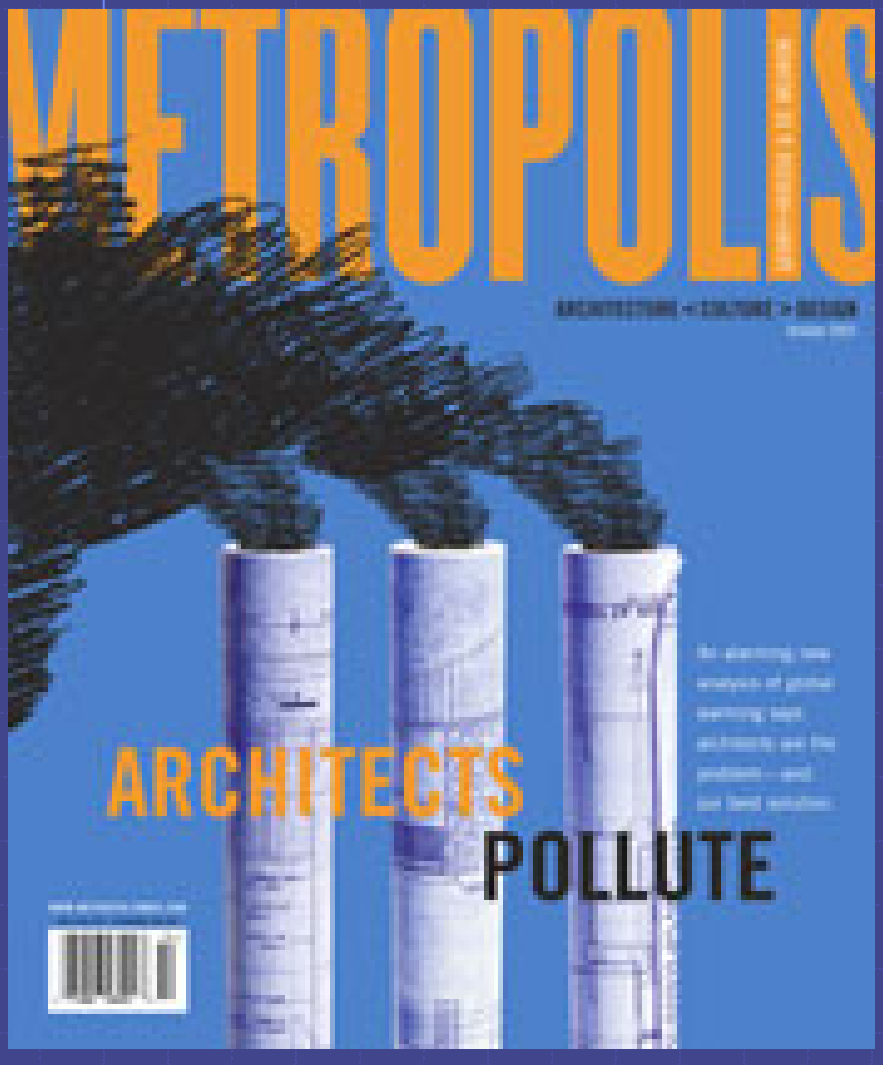
The Energy Breakdown

- Industry 35 percent
- Transportation 27 percent
- Residential 21 percent
- Commercial 17 percent

- **The Question is:**

- ***How much energy used in the U.S. is directly in the control of designers and buildings?***

HALF



(Well ... 48%)

The article is actually posted on the web if you're into it.

www.metropolismag.com

Year:	1992
Site:	NYC
Size:	98k ft^2
Cost:	$24M
$/SF:	$122/$ft^2$

The Audubon House is the HQ for the society. It is an extensive rehab of a 100-year-old, run-down building. It uses the latest in heating, cooling and lighting.

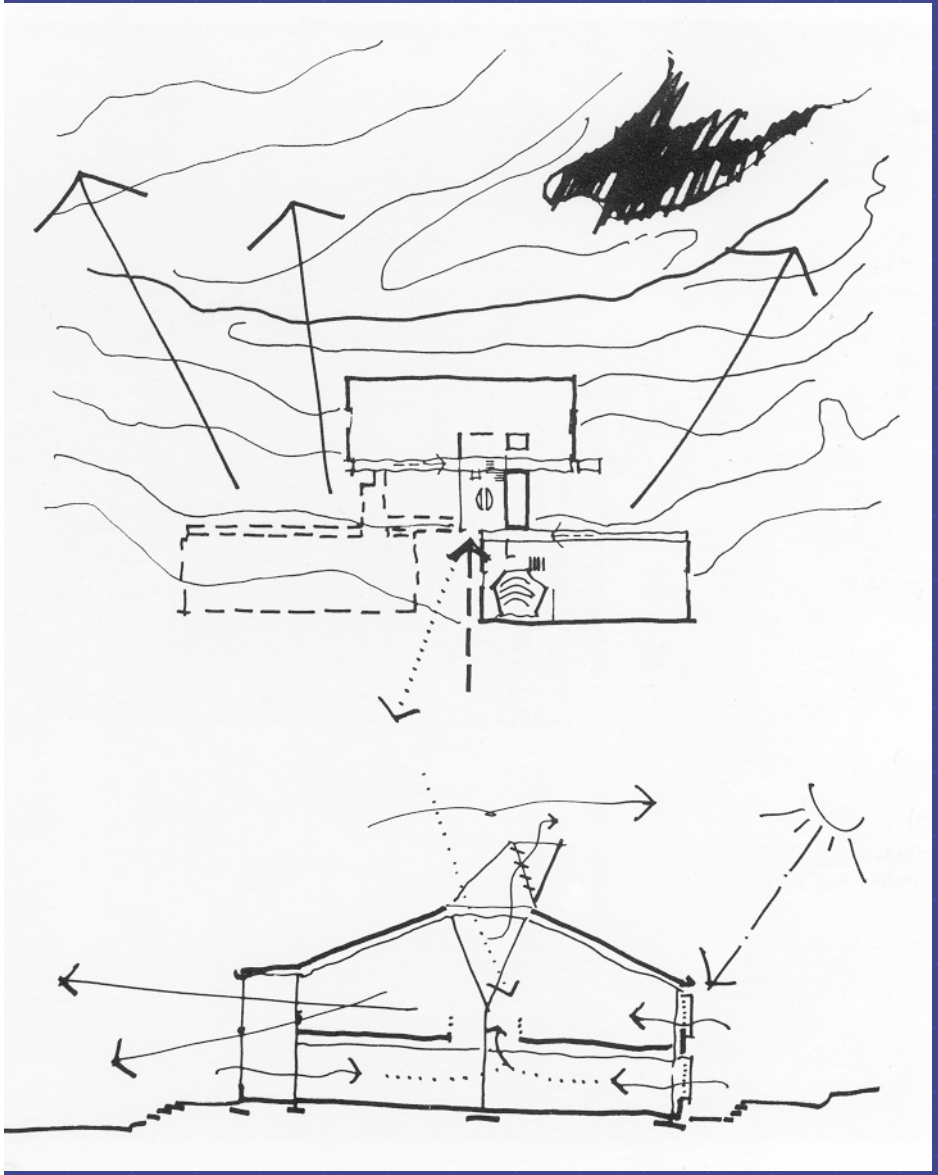
Features of the Audubon House

SYSTEMS AND STUFF

- **Gas absorption chiller**
- **Extensive daylighting**
- **High-E everything**
- **Non-toxic interiors**
  (paint, carpet, finishes)

SOME NUMBERS

- **3X as much fresh air**
- **2X better lighting**
- **Two Thirds the energy than usual in NYC**
- **30 % less first cost than typical buildings**



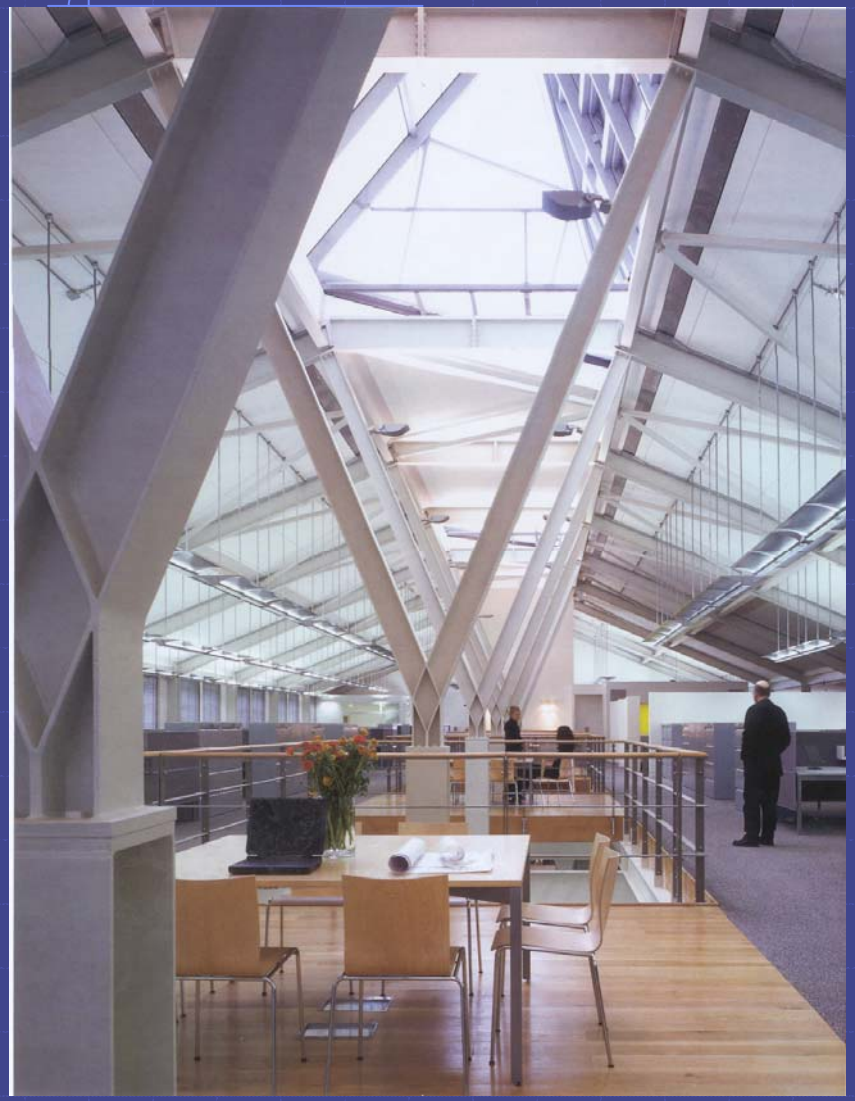
an example...
Arup Campus

Arup Associates are revered for their work in the ecological and energy efficiency side of building.

They needed a new building, and they needed to “practice what they preach.” Here’s the result – it’s simply beautiful and beautifully simple.

Solihull, UK
built in 2001

Here's the inside
(imagine being able to work here!)



Energy:
$^{1}/_{4}^{th}$

Lighting:
$^{1}/_{3}^{rd}$

Heating:
$^{1}/_{5}^{th}$

Cooling:
(infinite)

Cost:

Equal!!!!!!!!

Chesapeake Bay Foundation

Year:	2000
Site:	Annapolis
Size:	32k ft^2
Cost:	$12M
$/SF:	$185/$ft^2$

The "greenest" building in the US

It’s simple and beautiful.

There’s nothing fancy in it except the ideas behind it.

This is a great example of how the “new” design process can be used to make a really good building.

The design approach is a “cradle-to-cradle” method that uses recycling as a rule.

FEATURES

- LEED “Platinum”
- rainwater catchment
- composting toilets
- geothermal heat pumps
- passive cooling/heating
- on-site electrical (PV)
- brownfield site revamp

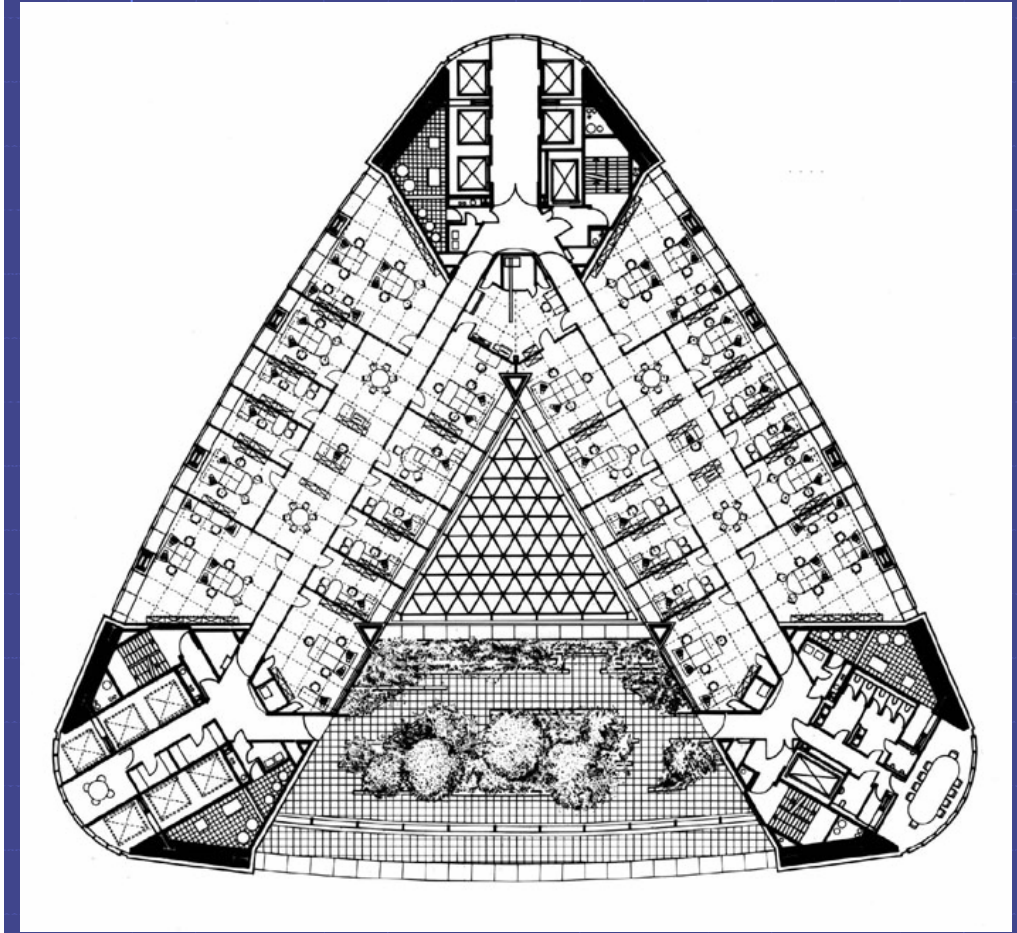
SOME NUMBERS

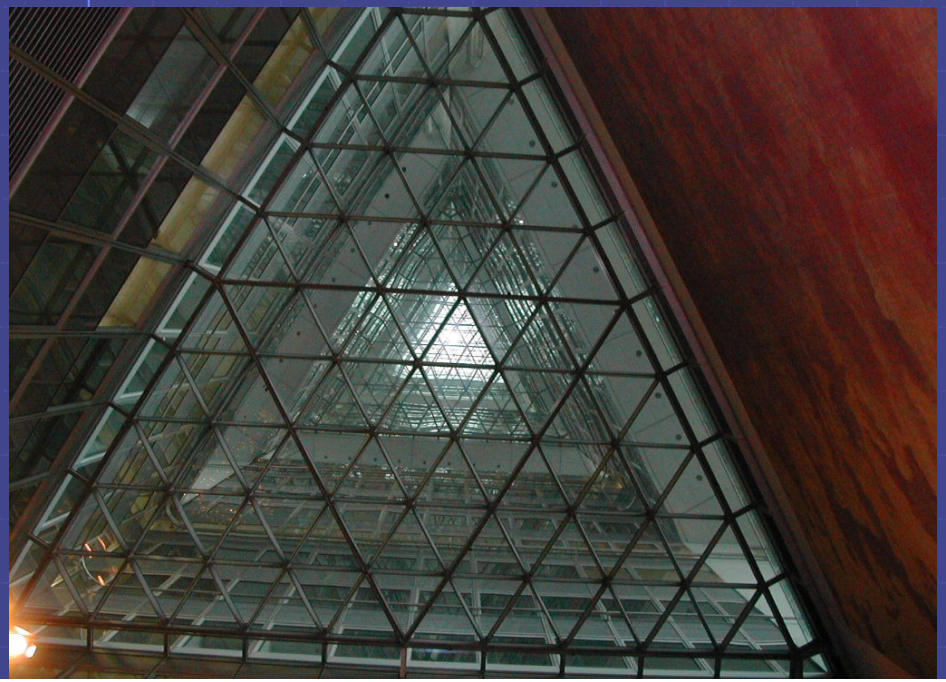
- 1/3 the energy
- 100% solar hot water
- 25% electrical from PV
- 14% of site for building
- EE payback of 4.1 years

The quick critique?

It was a complete “green” failure.

(my favorite)



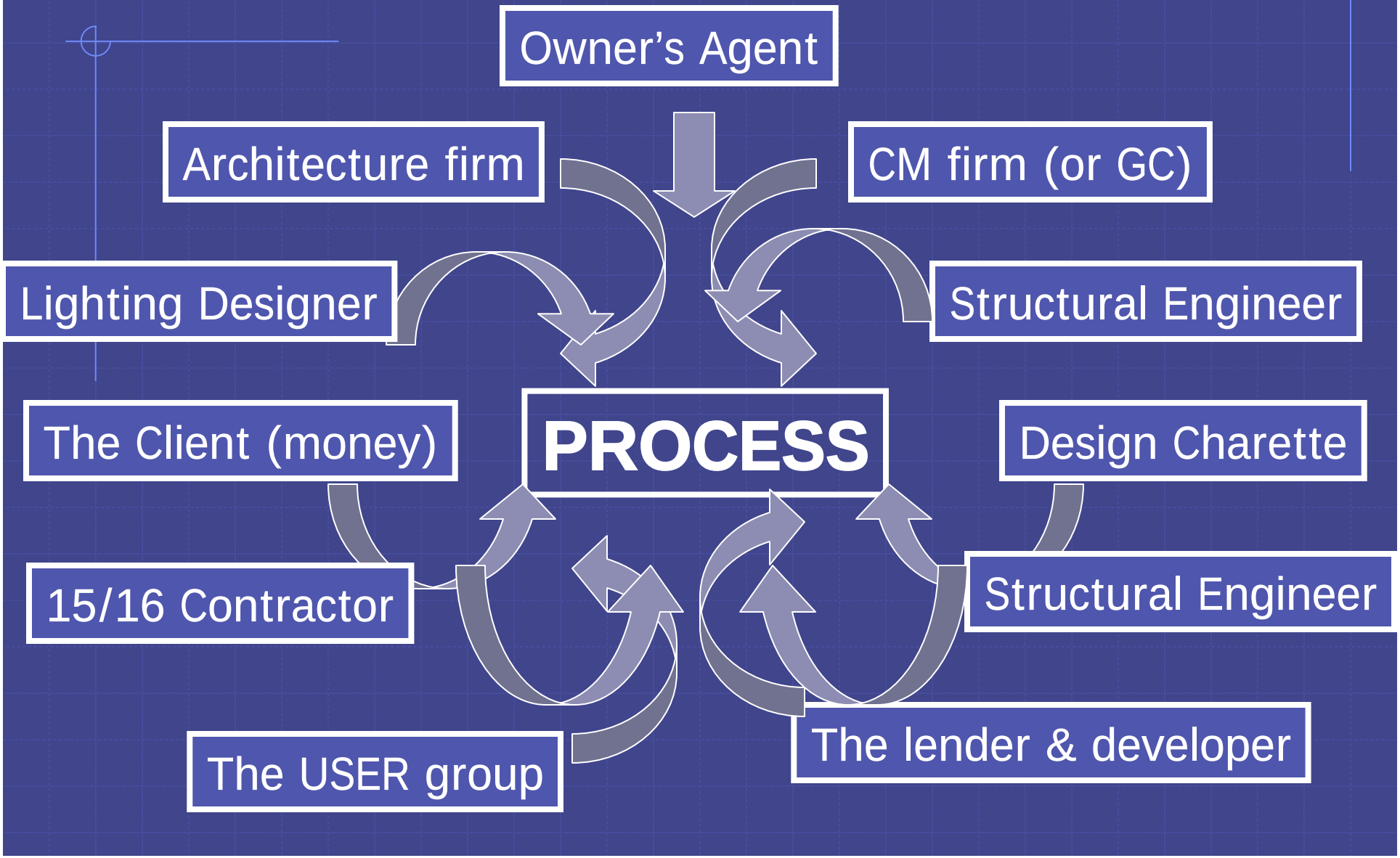


Commerzbank in Frankfurt, Germany (Foster)

- Uses ONE THIRD the energy of typical Euro-buildings
- Uses ONE SIXTH the energy of typical US buildings
- Cost about 25% more than typical Euro-high-rises

And it has a “home sick” rate that is ONE TENTH that of similar use buildings (banks)

The design process in HPB's



The Mat Taylor “rule of 7”

- To really make a difference, we need to divide our energy use by SEVEN!
- If our goal is to reverse our “evils” of global warming, it has to happen.
- We, the United States, are the most consumptive Country on the planet.
- The whole world thinks so...

Do we have the technology?

The Smart

- 70 mpg
- $12,000
- 6 year limited warrantee

<u>The Question?</u>

Is the US ready for such a ...

REVOLUTION?

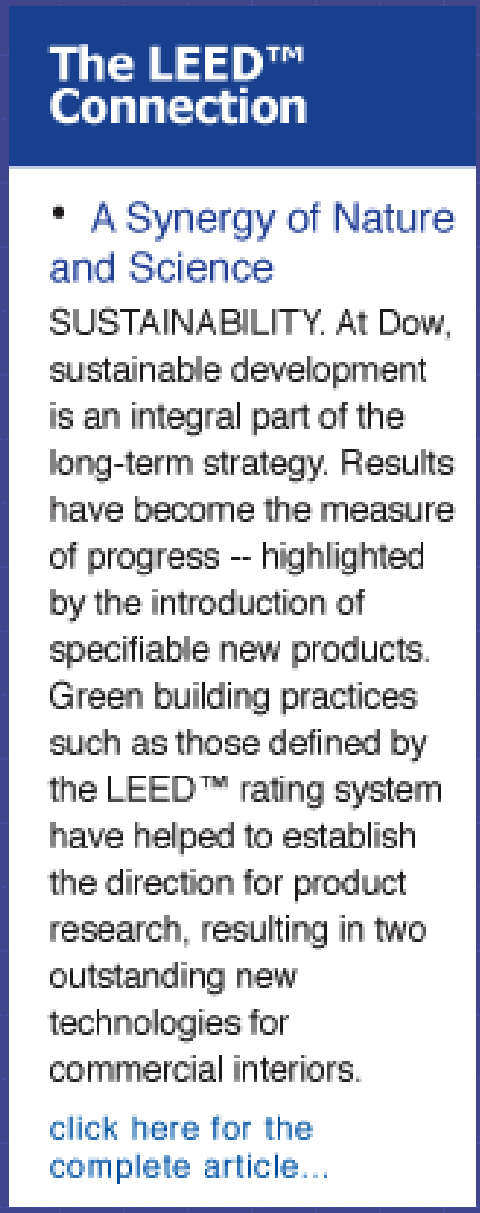
LEED: What is it?

In General: LEED is a way for (us) to quantify the impact of design.

What's good: It gives prescriptive and clear priorities and reporting for "green" buildings. It's a heck of a checklist!

What's not good: It's basically an in-depth accounting procedure and gives credit for being, well, just better.

What it means to you: LEED certified professionals simply have more appeal.



What does it consider?

The Site: erosion control, storm water management

Water: efficient use of water inside and outside

Energy and Atmosphere: limiting pollution

Materials/resources: limiting environmental impact

Indoor environment: low-emissions materials, good air

Design process: inclusion of a diverse team

What does it actually do?

- It catalogs the things that a designer can do to help limit environmental damage
- It gives credit to buildings and landscapes that regenerate (rather than do damage)
- It helps designers streamline the process of ecological design
- But... it's only a start

Should we hop on the green building bandwagon?

- ...well, we have to (by mandate),
- YES, because it's big business,
- YES, because it's the right thing,
- and, YES, because we need to.

Among the buzz words and lip service and good intentions, the sustainability movement is here to stay. Period.

Where can we fit in?

- Bio-fuels and agri-energy
- Building technology and systems
- Professionals into the workplace
- Radical energy efficiency
- Showcases of sound design
- Photovoltaics and electrical systems
- Hydrogen production (high temp'?)

More possible markets

- Sustainable materials and recycling
- Composting technologies
- Biogas and farm “waste” systems
- Anything into oil?
- Education and adaptation
- And what about our students?


Questions?