

the  
*inevitable*  
ARCHITECT



# ERIC COREY FREED

## Principal, organic architect



15 years of experience in green building

LEED Accredited Professional, US Green Building Council

Author: “Green Building for Dummies”

Author: “The Inevitable Architect: A Phase By Phase Guide to Green Building”

Founding Chair of Architecture, The San Francisco Design Museum

Board of Directors, Architects/ Designers/ Planners for Social Responsibility

Advisory Boards: Green Home Guide, Ecosa Capital, West Coast Green

Co-Founder, ecoTECTURE: The Online Journal of Ecological Design

Syndicated Columnist, GreenerBuildings.com

Developer: Sustainable Design Curriculum  
Academy of Art University  
University of California Berkeley

there should be as many  
**styles of architecture**  
as there are  
**INDIVIDUALS**

# DESIGN SCIENCE & SUSTAINABILITY

“the effective application of the principles of science to the conscious design of our total environment, in order to help make the Earth’s

**finite resources**  
meet the needs of  
**all of humanity**  
without disrupting the  
ecological processes of the  
planet.”

-R. Buckminster Fuller

# DESIGN SCIENCE & SUSTAINABILITY

developing the needs of the  
**PRESENT**  
without sacrificing the needs  
of our **FUTURE**

-United Nations, 1993

**eco (oikos) = house**  
**-nomy = management**  
**-logy = knowledge**  
**bio = life**



**ecology means “house knowledge”**  
perhaps we should think in terms of:  
**ecology & economy**  
**working together**

**In the last 100 years, we have:**

**Lost 50% of the world's wetlands**

**Cleared 50% of the world's forest**

**Depleted 70% of the world's major  
marine fisheries**

**Put nearly 60% of coral reefs at risk**

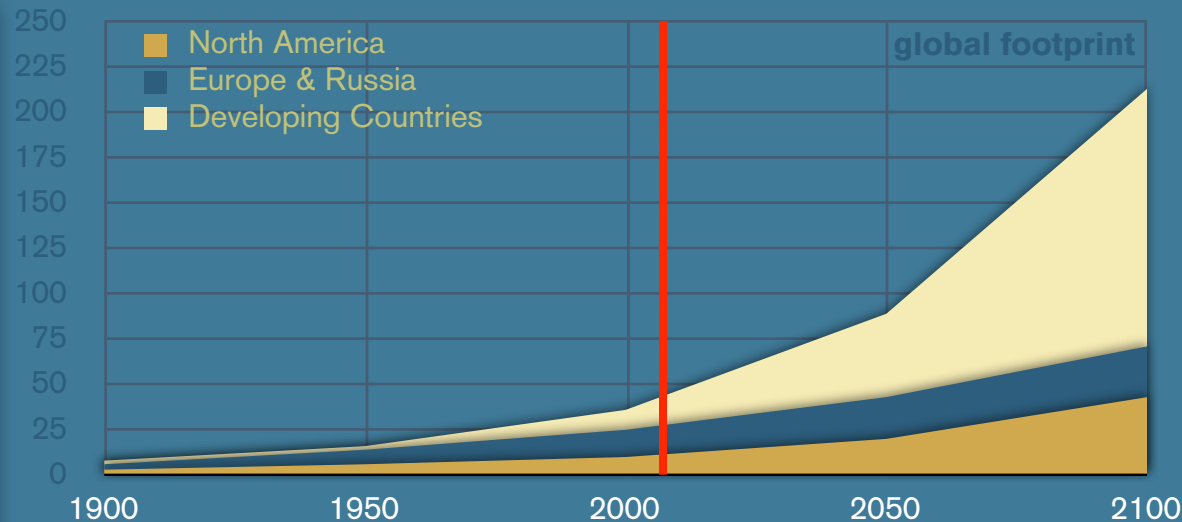
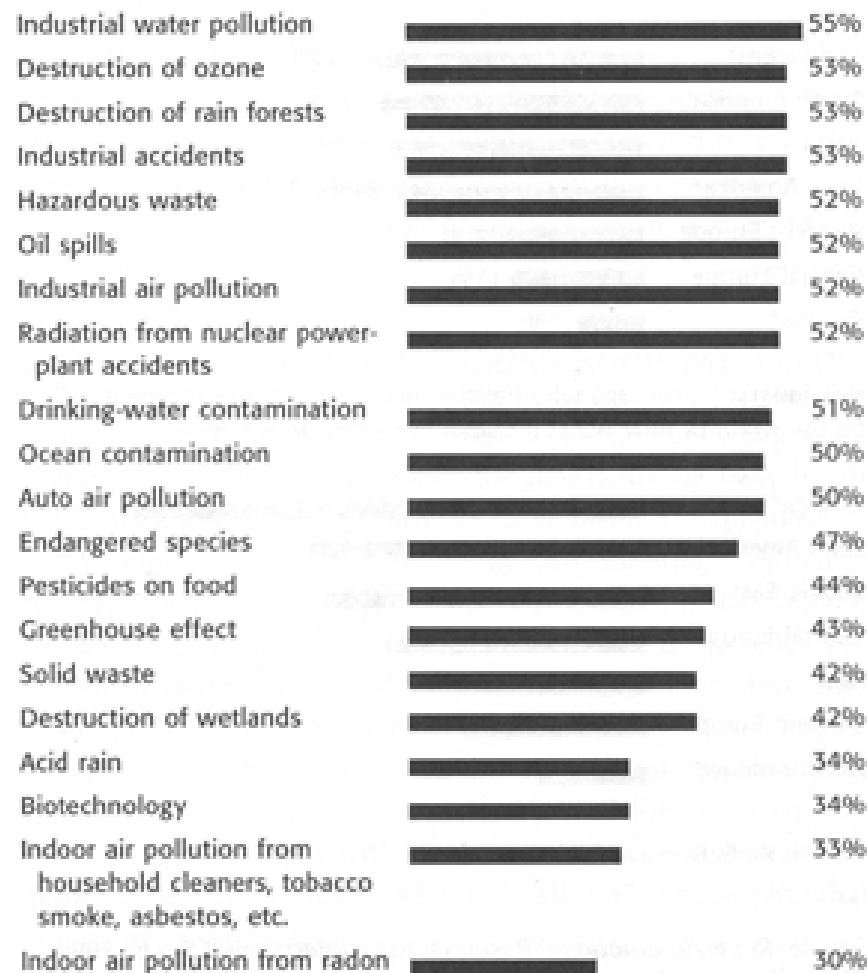


Exhibit 1.1  
**"Very Serious" Environmental Concerns**

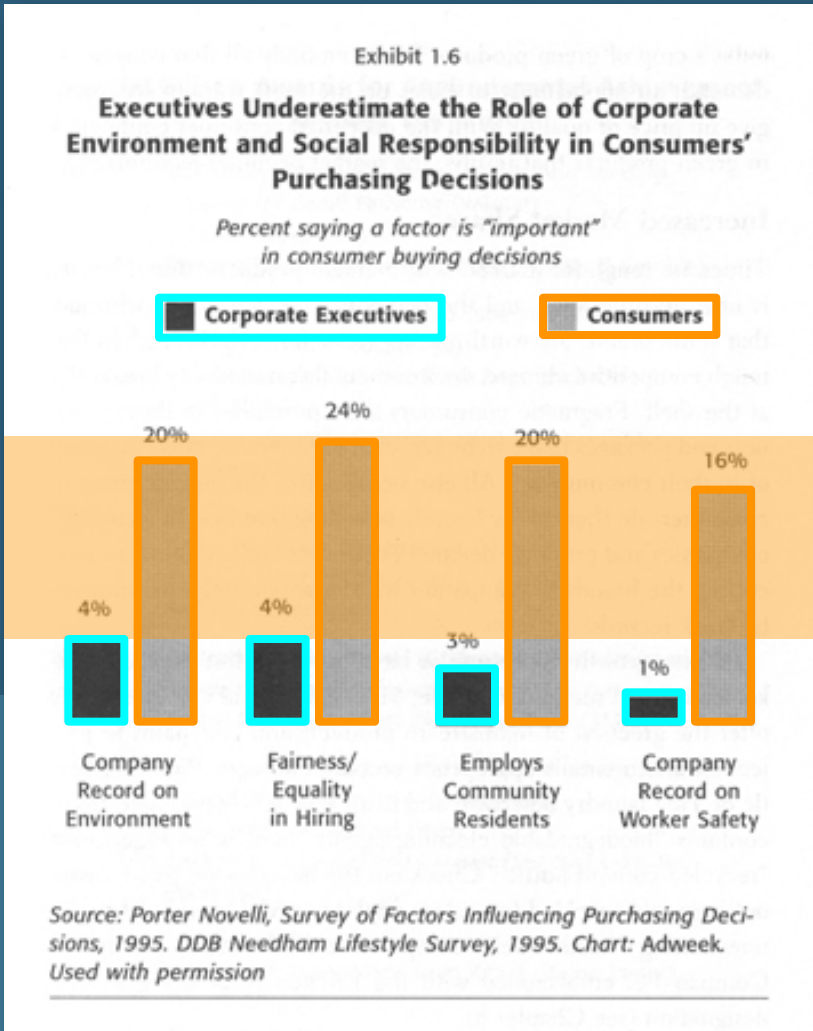
*Percent describing as "very serious" problems*



Source: Roper Starch Worldwide, Green Gauge, 1996. Used with permission

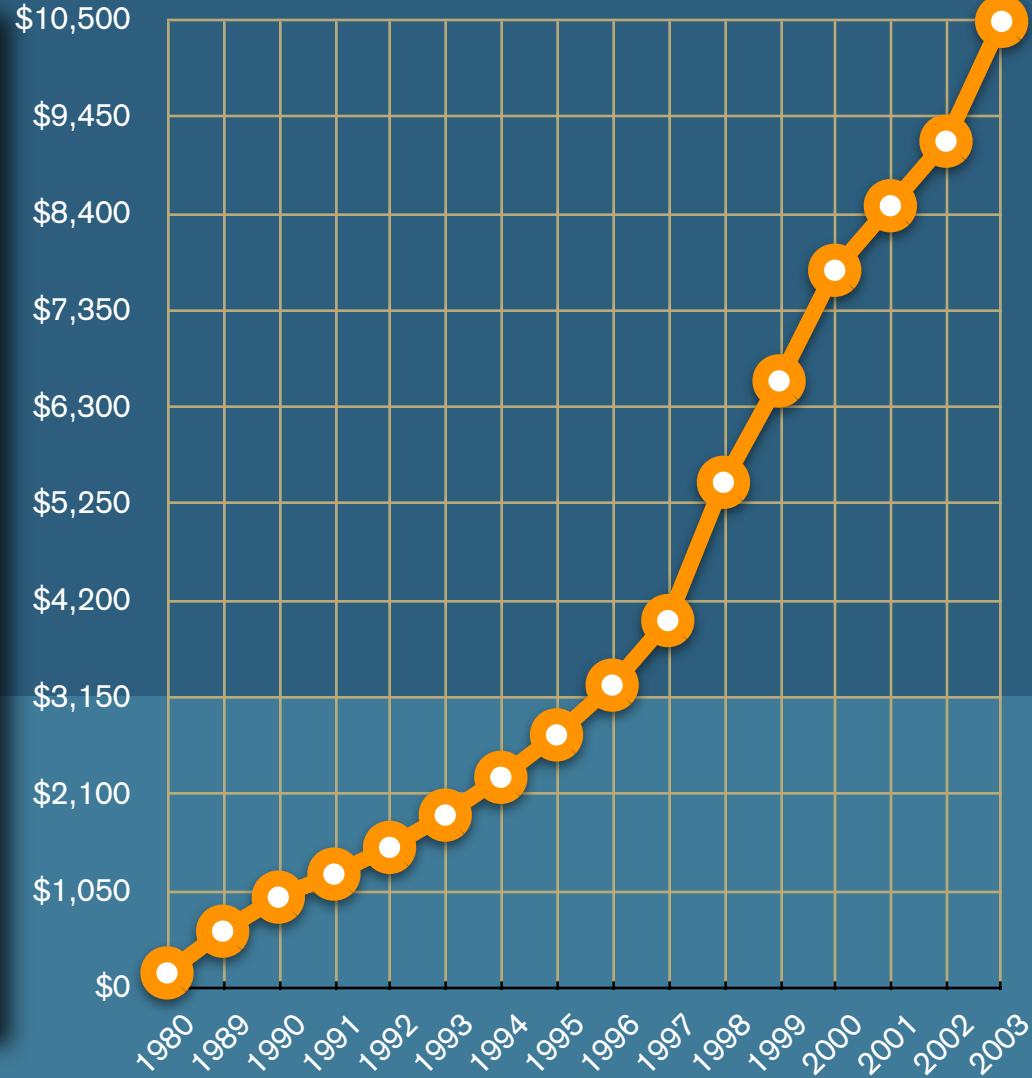
# THE UNTAPPED MARKET

## Very Serious Environmental Concerns



SOURCE: Ottman Consulting

## Organic Industry Sales Trends



www.time.com AOL Keyword: TIME

# SPECIAL REPORT

# TIME

## HOW TO SAVE THE EARTH

The hot and wild weather is a sign of things to come. But fresh ideas and new technology can cool us down and make this a **GREEN CENTURY**

APRIL 9, 2001 \$3.50 www.time.com AOL Keyword: TIME

# VANITY FAIR

JANUARY 2001 \$2.00

## A THREAT GRAVER THAN TERRORISM: GLOBAL WARMING

How much of New York, Washington, and other American cities will be underwater?

### SPECIAL [GREEN ISSUE]

**GEORGE CLOONEY, JULIA ROBERTS, ROBERT F. KENNEDY JR., AND AL GORE**  
and the call for  
**A NEW AMERICAN REVOLUTION**

**PLUS**  
EXCLUSIVE BOOK EXCERPT!  
**THE BOSTON STRANGLER**  
MY MOTHER'S BRUSH WITH DEATH BY SEBASTIAN JUNGER

Dr. Bush's Rx for Health Care

# TIME

## VANISHING OZONE

THE DANGER MOVES CLOSER TO HOME

www.time.com AOL Keyword: TIME

# SPECIAL REPORT GLOBAL WARMING

# TIME

## WARRIED. VERY WARRIED.

It isn't some vague threat—it's already here. The planet is at an alarming temperature, and it affects you, your kids as well.

**TIPPING POINT**  
WHAT'S AT RISK FOR YOUR HEALTH  
INDIA CAN HELP THE WORLD—OR DESTROY IT  
CRUSADERS

AUGUST 1, 1999 \$2.00

# TIME

Special Offer

## Our Filthy Seas

MY SUPER SWEET 16 • THE BIGGEST LOSER • HEROES

# MAD<sup>IND</sup>

We Salute  
**GLOBAL WARMING!**



UNITED STATES



#477 MAY 2007 \$3.99 CHEAP!

madmag.com

**PLUS WE  
PUT THE HEAT ON:  
LOVABLE STALKERS  
DOUBLE-TALKING TEACHERS  
ANNOYING AIRPORT SECURITY**

so, what does this  
have to do with  
**BUILDINGS**



carbon emissions

buildings of the world  
**consume**

**40%**

of the world's energy & materials

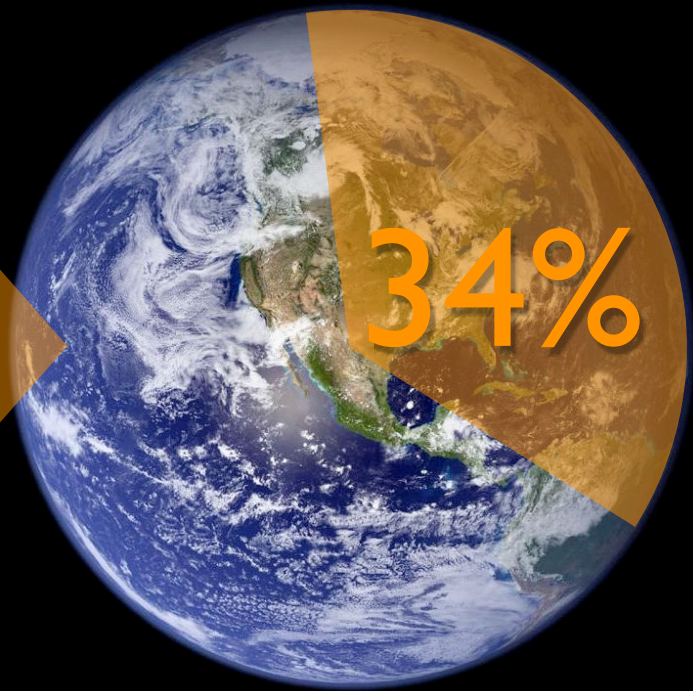
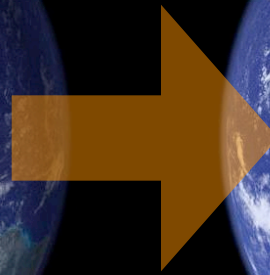
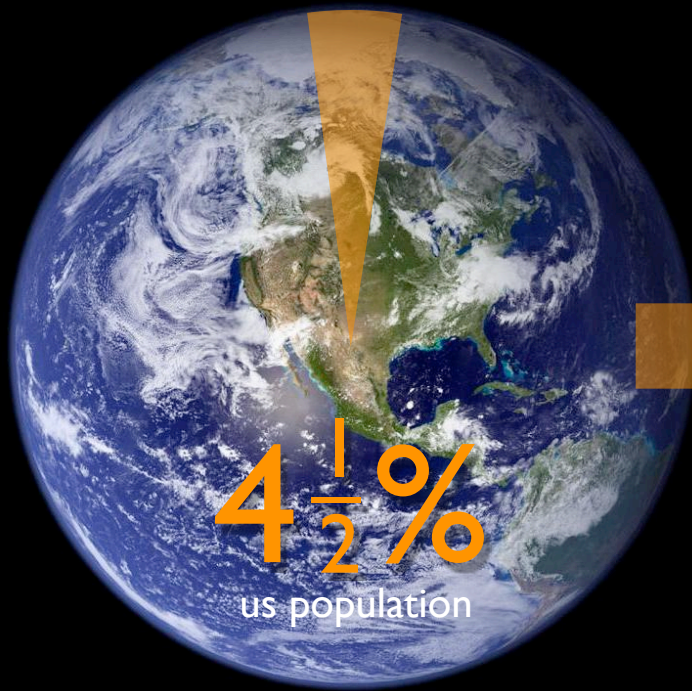
**17%**

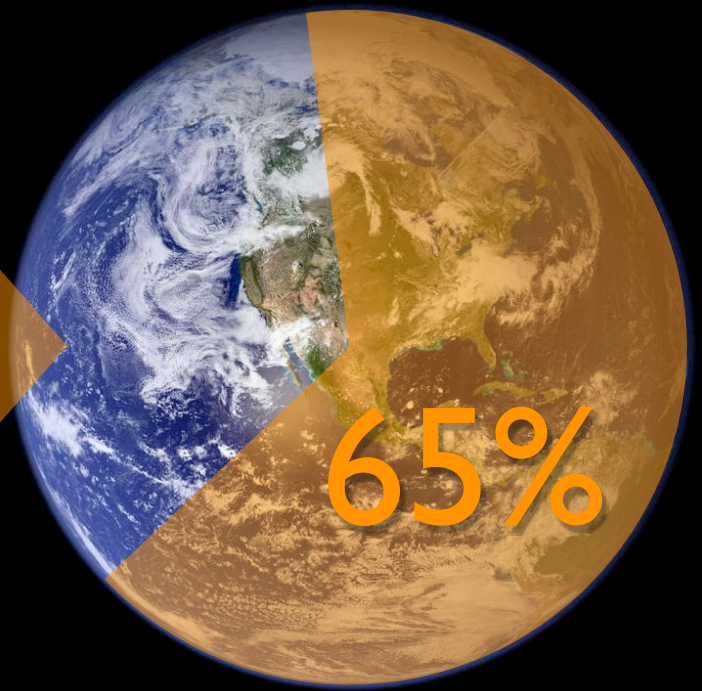
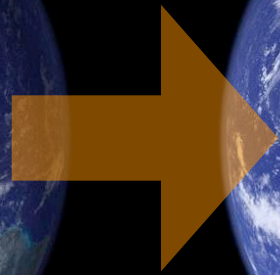
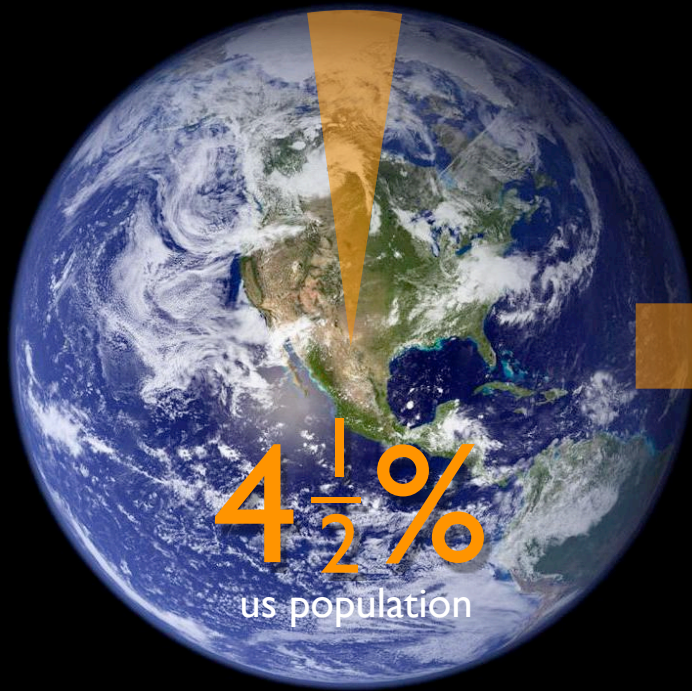
of our water

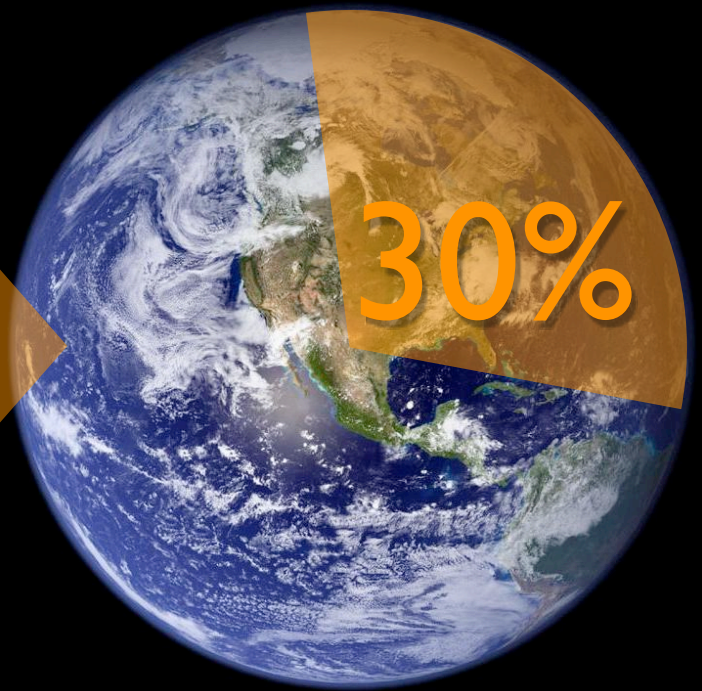
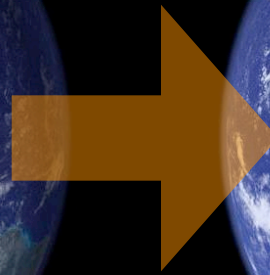
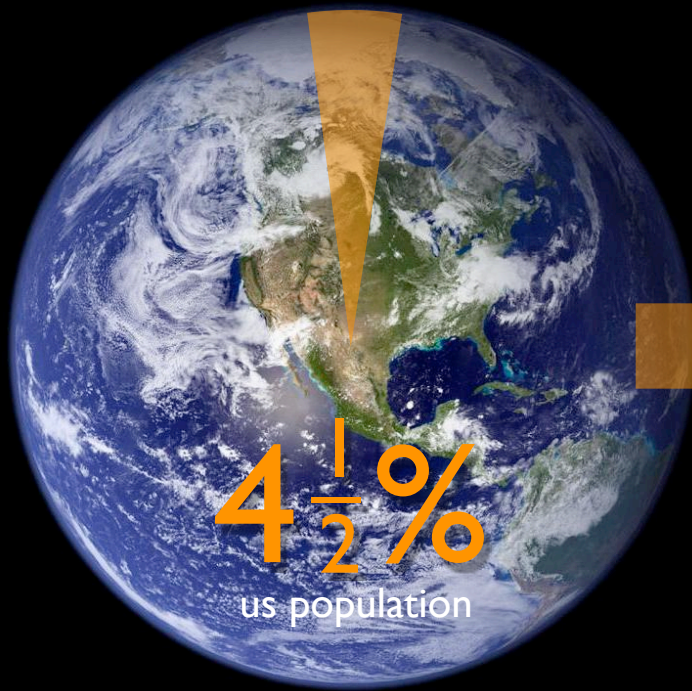
**25%**

of the wood harvested

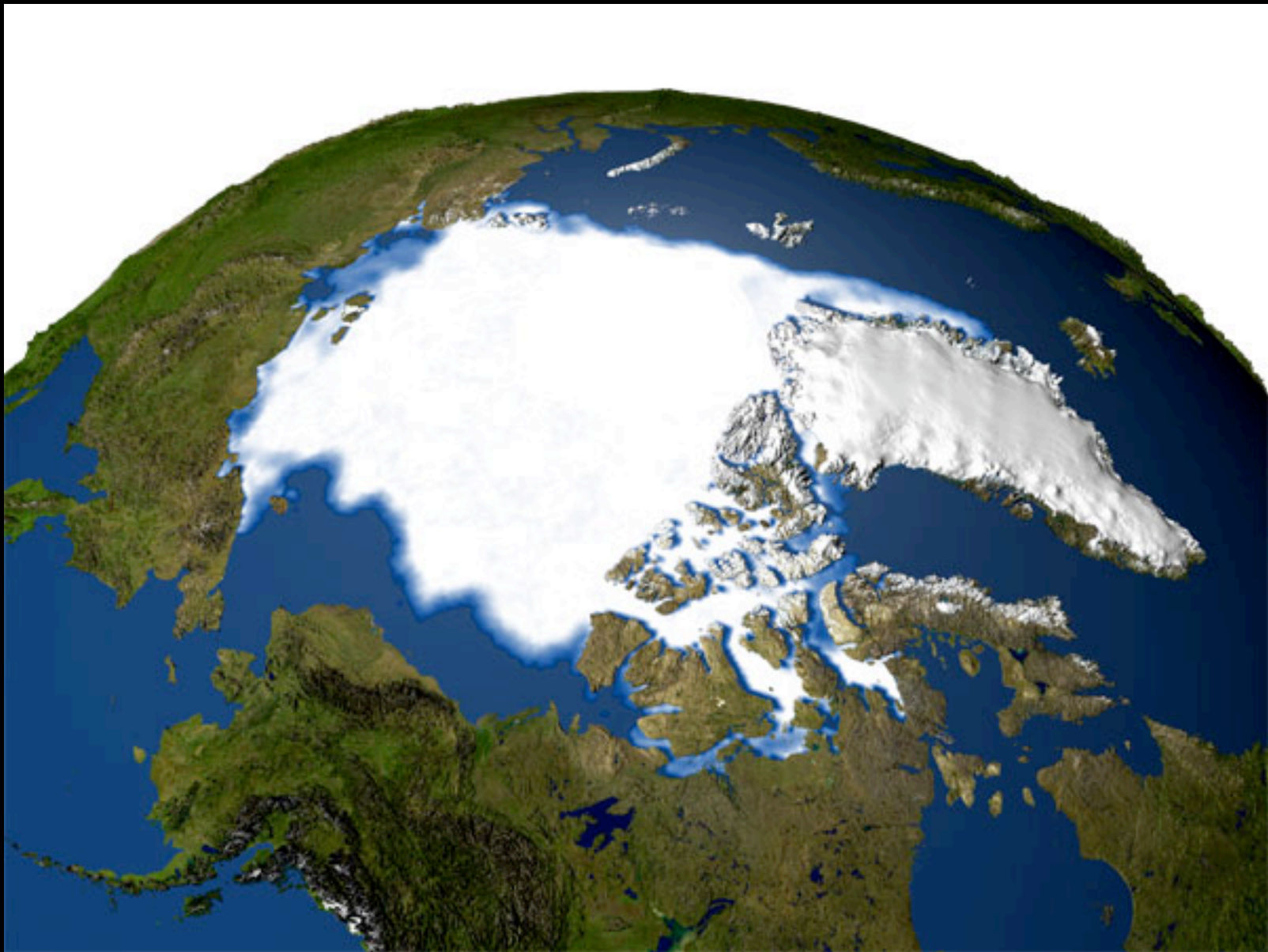




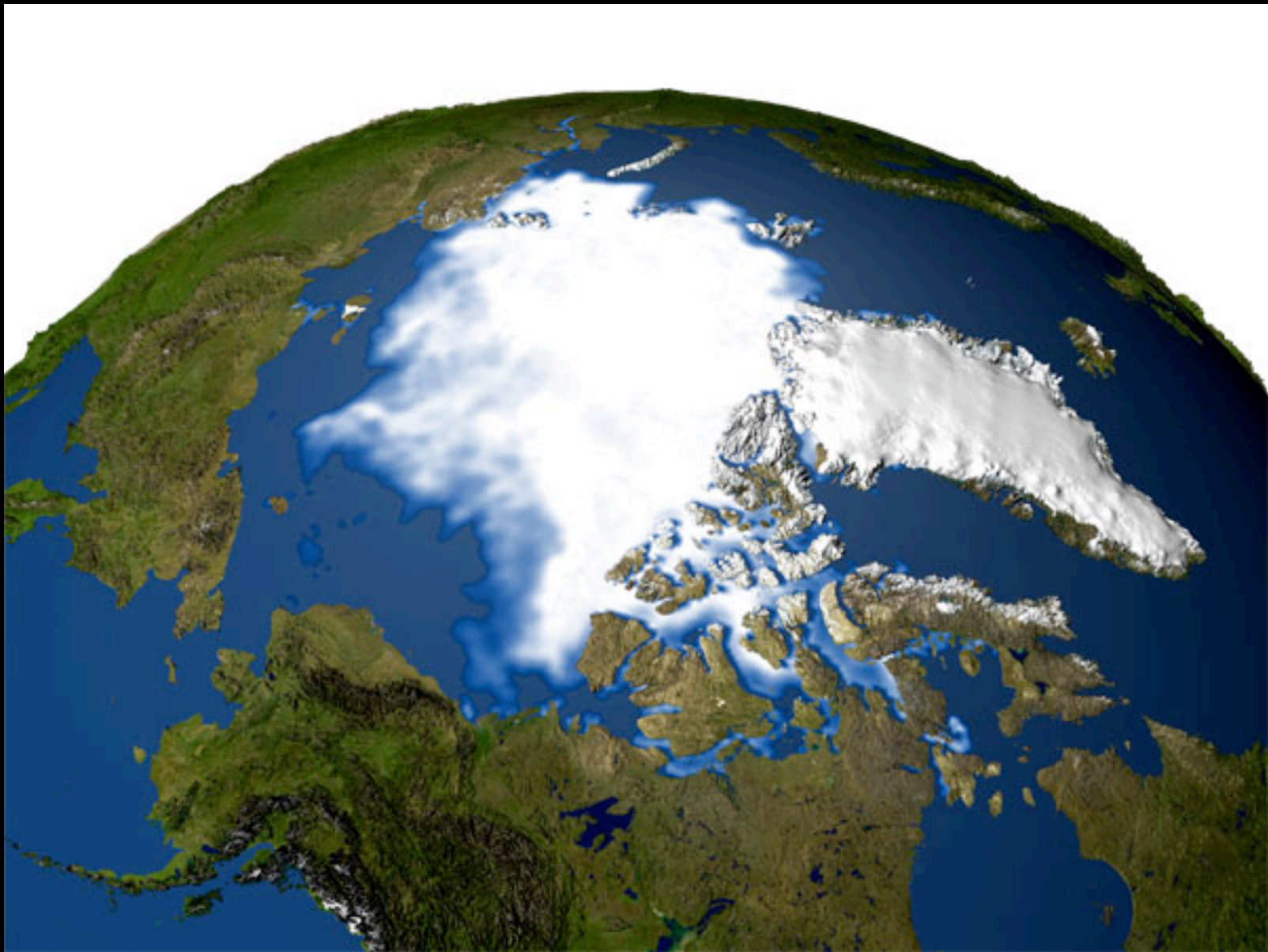




greenhouse  
gas emissions



**1979**



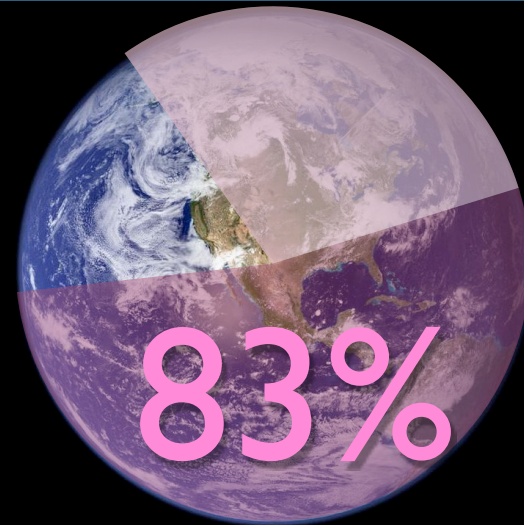
**2003**


## THE DESIRE BUT NOT THE DRIVE

**83% of designers believe they have a moral obligation to offer sustainable solutions to clients, only 37% do so.**

IIDA: International Interior Designers Association  
Study in 2000: [www.iida.org](http://www.iida.org)

**They classify the primary obstacle as: too little information.**





“Each snowflake in the  
avalanche pleads  
**not guilty.**”

-Stanislaw J. Lec

# THE ANCIENT ROOTS OF DESIGN

DESIGN MUST BE:

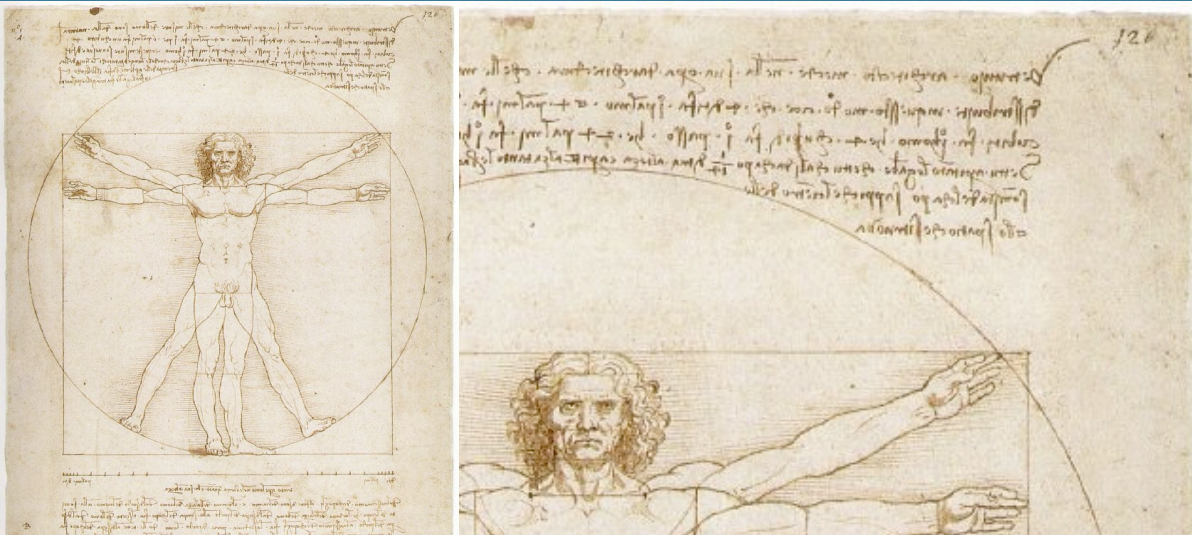
**Functional**  
**Aesthetically Pleasing**  
**Responsible**

VITRUVIUS (27 B.C.)

Commodity

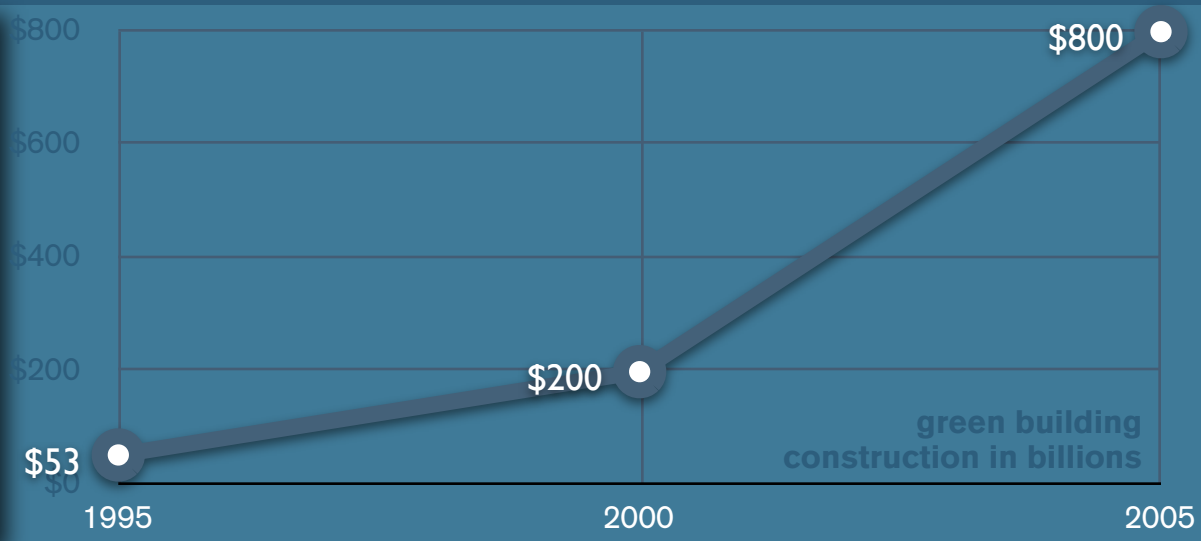
Delight

Firmness



**10** BOOKS of  
ARCHITECTURE

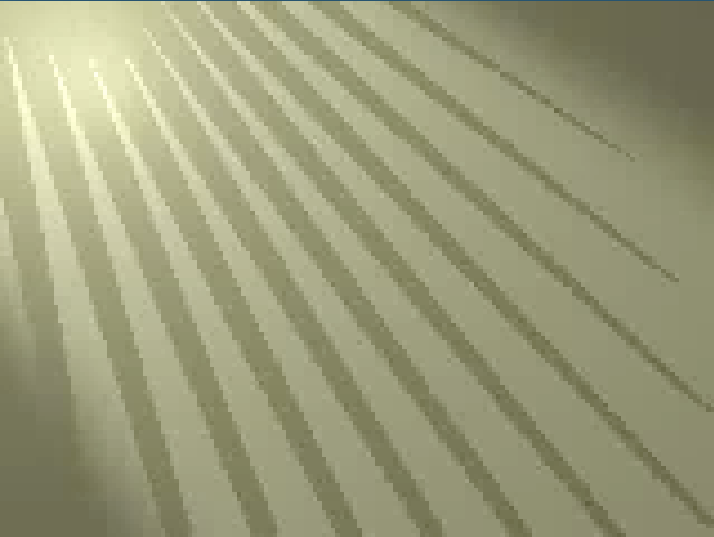
**IN THE NEAR FUTURE**  
the term  
**GREEN ARCHITECT**  
will be redundant  
(every building will be green)



## CONCLUSIONS

SO, GIVEN THE:

- extensive environmental damage
- untapped market eager for green solutions
- architects are responsible for most of it
- architects want to offer these solutions



given all of this:  
what is the  
**PROBLEM?**

PROBLEM **1**  
**Few designers**  
**UNDERSTAND**  
**how to**  
**EXPLAIN**  
**this to their clients**



**WHAT IS THE PROBLEM?**

WHY ISN'T THIS CATCHING ON?

EXPLAINING SUSTAINABILITY:

every  
**MATERIAL & PRODUCT**  
has a  
**LIFECYCLE**  
and some parts of that are...



EXPLAINING SUSTAINABILITY?

SOME DEFINITIONS

## EMBODIED ENERGY:

**All of the energy:  
DIRECT & INDIRECT  
used to  
extract, manufacture, transport  
and install  
a material or product.**



**WHAT IS EMBODIED ENERGY?**

SOME DEFINITIONS

**BY PRODUCTS:**

**The resultant materials, both  
GOOD & BAD  
caused from the  
extraction, manufacture, transport  
and installation  
a material or product.**

**WHAT IS A BY-PRODUCT?**

SOME DEFINITIONS

**WASTE:**

**A man-made  
LABEL  
used to describe  
potentially valuable resources  
we have yet to find a use for.**

**There is no such thing as waste.**

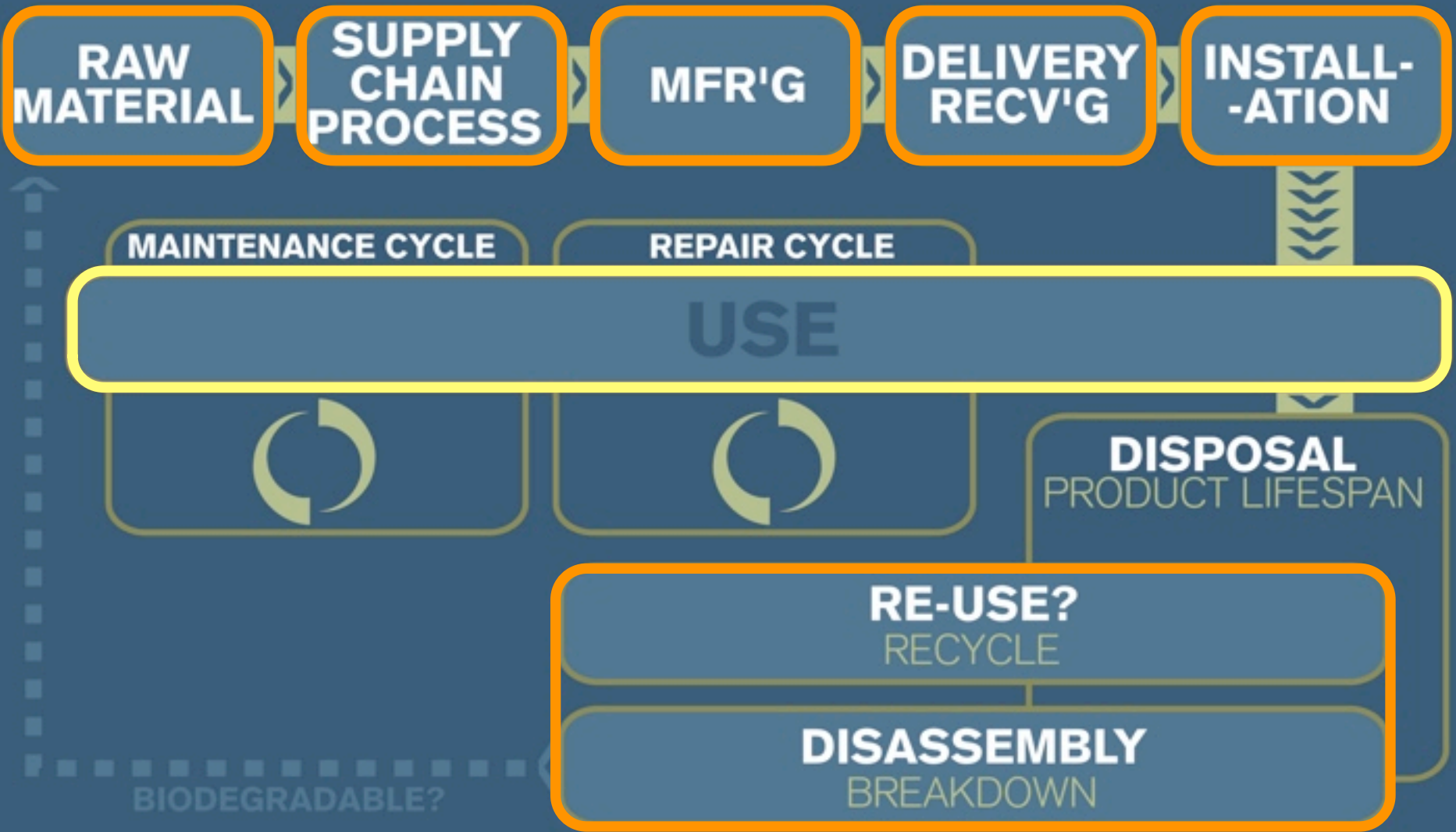


**LIFECYCLE:**

a look at the entire life of a  
**MATERIAL** or **PRODUCT**  
from  
extraction, manufacture, transport  
and installation  
through  
**USE**  
and including  
**disposal**



# ADDING SUSTAINABILITY TO YOUR DESIGNS



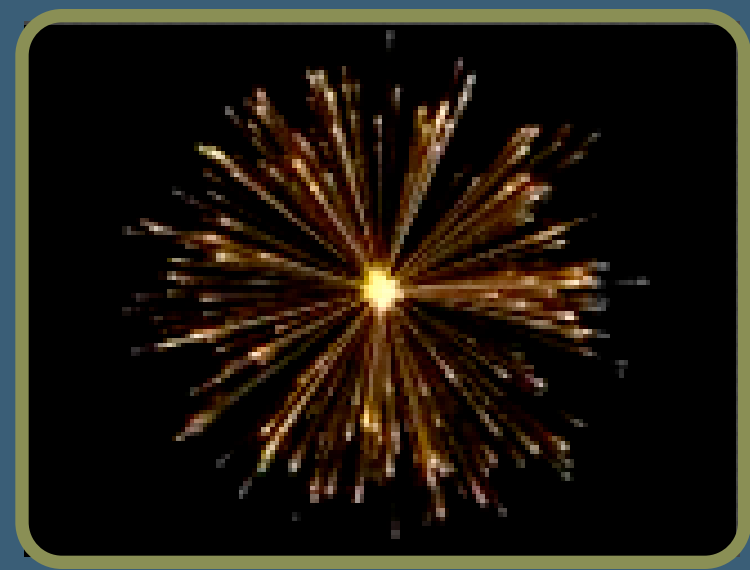
## THE LIFECYCLE OF ANY PRODUCT

HOW DO WE EMBRACE SUSTAINABILITY WITH DESIRE?

AT EACH STAGE of the LIFECYCLE:

**ENERGY**  
is provided

**ENERGY**  
is lost



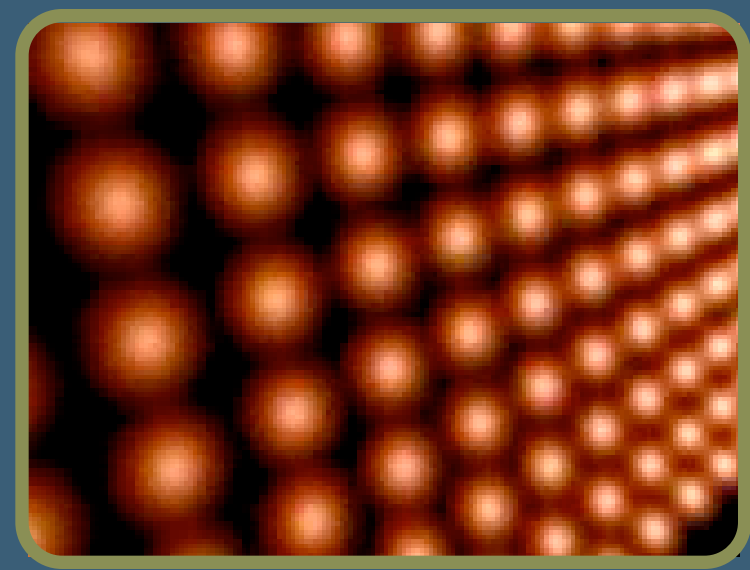
AT EACH STAGE...  
OPPORTUNITIES

AT EACH STAGE of the LIFECYCLE:

**BYPRODUCTS**  
are given off

**BYPRODUCTS**  
are lost

(Some call this WASTE)



AT EACH STAGE...  
OPPORTUNITIES

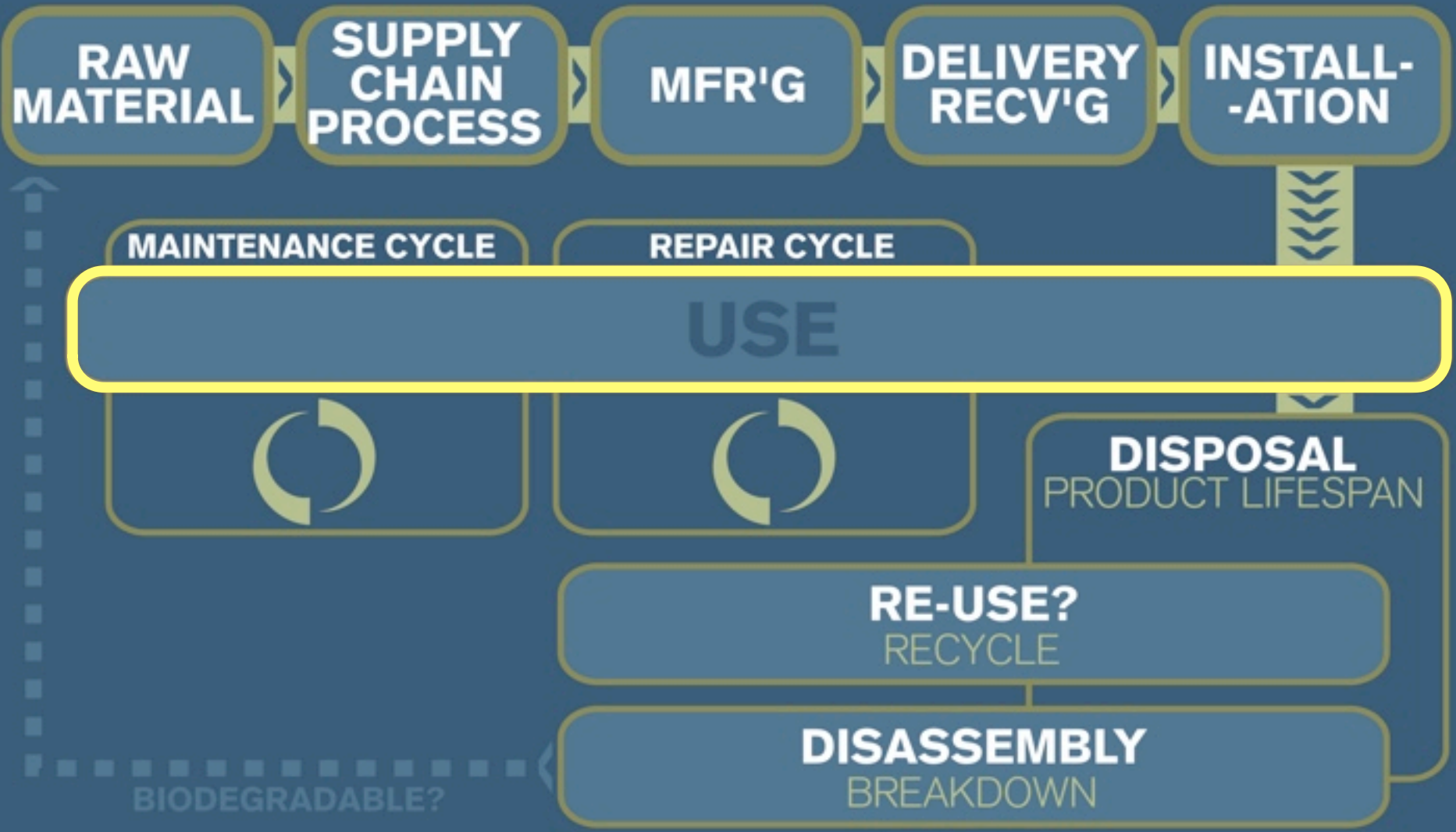
**Most designers only  
concern themselves with  
USE**



**AT EACH STAGE...**

OPPORTUNITIES

ADDING SUSTAINABILITY TO YOUR DESIGNS



THE LIFECYCLE OF ANY PRODUCT

HOW DO WE EMBRACE SUSTAINABILITY WITH DESIRE?

AT EACH STAGE of the LIFECYCLE:

**ASK**

how can we use this to

**INSPIRE OUR DESIGN**

and

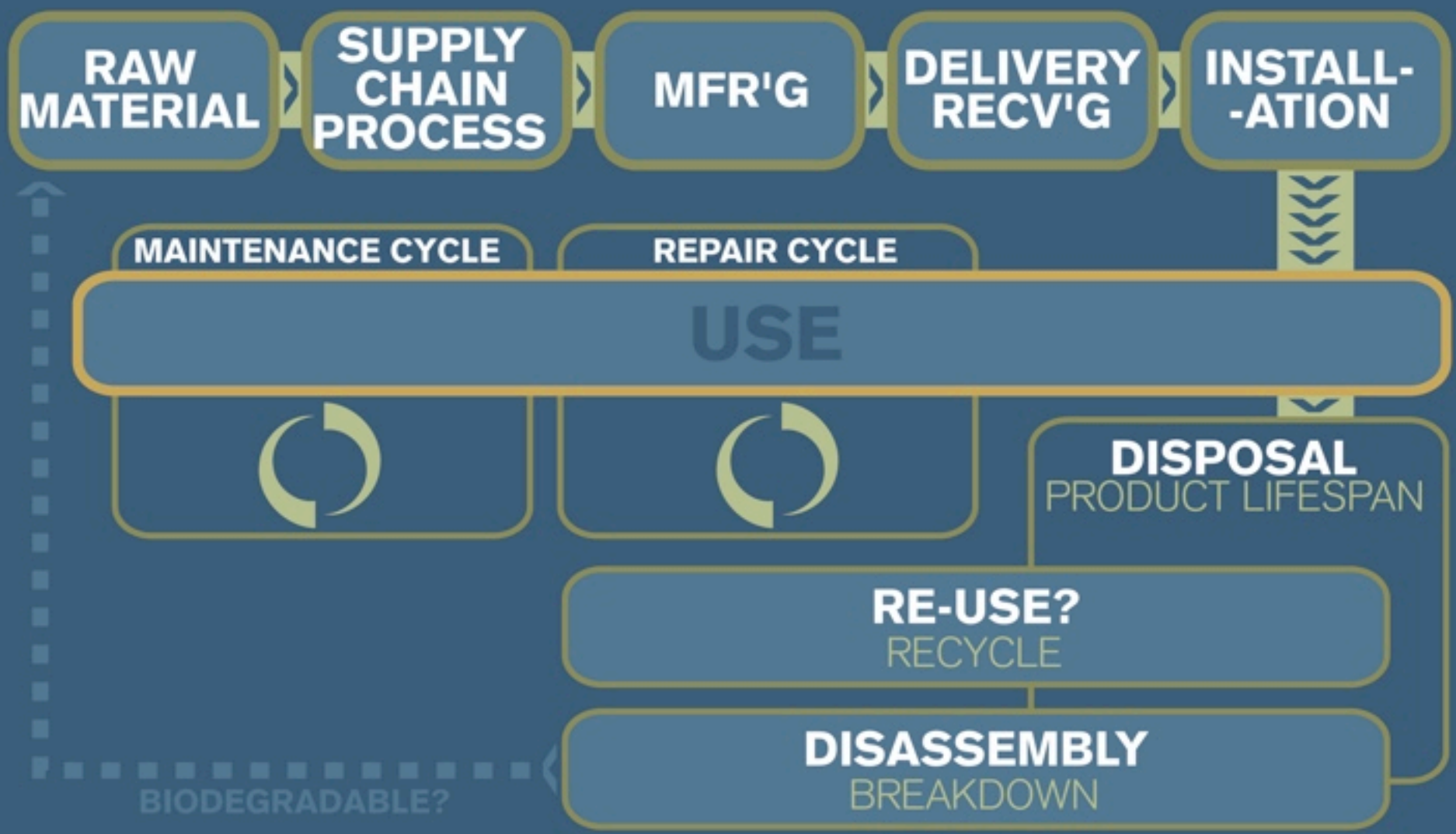
**PROTECT OUR RESOURCES**



AT EACH STAGE...

OPPORTUNITIES

# ADDING SUSTAINABILITY TO YOUR DESIGNS



## THE LIFECYCLE OF ANY PRODUCT

HOW DO WE EMBRACE SUSTAINABILITY WITH DESIRE?

**CURRENT PARADIGM:**

**when**  
**BYPRODUCTS**  
**are left unused,**  
**we call this**  
**CRADLE TO GRAVE**  
**(Some call it Industry)**

**AT EACH STAGE...**

OPPORTUNITIES

**CURRENT PARADIGM:**

when we think in terms of  
**DISPOSAL**  
we call this  
**CRADLE TO GRAVE**  
(Some call it Industry)

**AT EACH STAGE...**

OPPORTUNITIES

**NEW PARADIGM:**

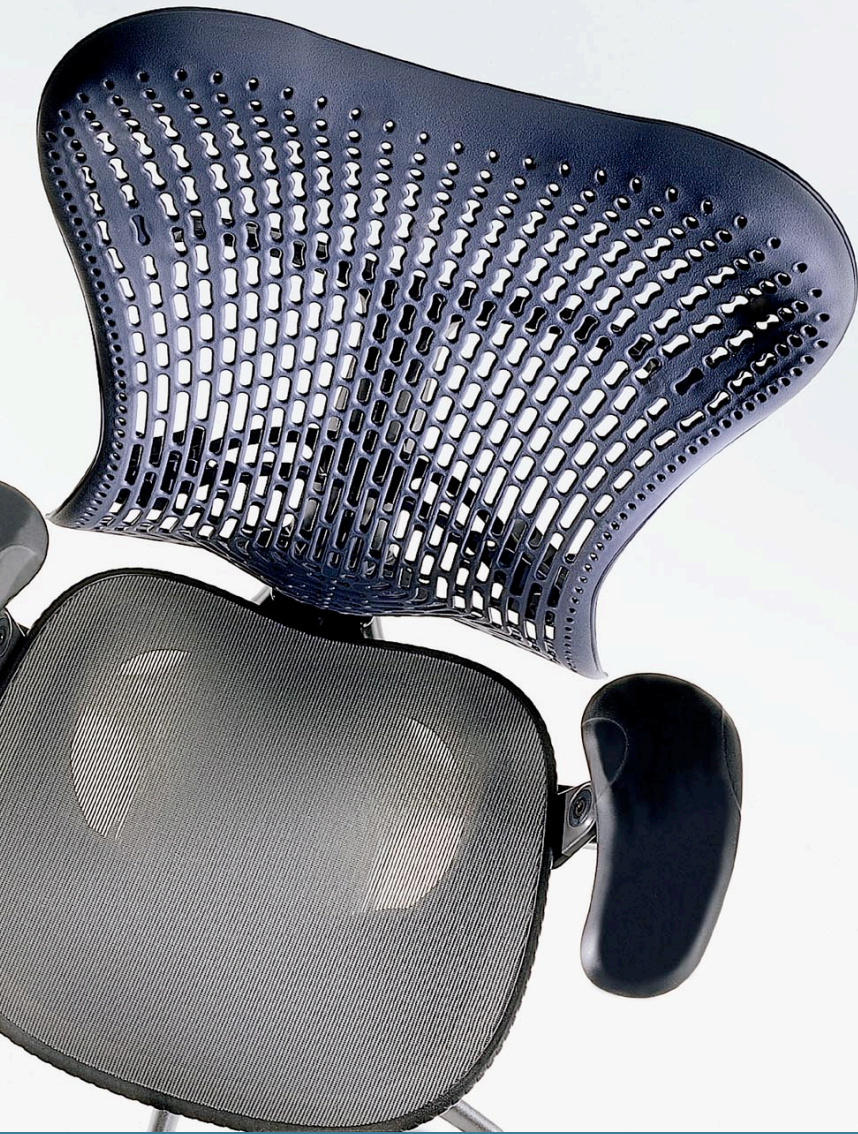
**IF we think in terms of  
REUSE and LIFECYCLE  
we call this  
CRADLE TO CRADLE**



**AT EACH STAGE...**

OPPORTUNITIES

INSPIRED BY CRADLE TO CRADLE THINKING



MIRRA CHAIR BY HERMAN MILLER

# PROBLEM 2

At best

**ENVIRONMENTALISM**

is not a

**BLACK & WHITE**

issue



**WHAT IS THE PROBLEM?**

WHY ISN'T THIS CATCHING ON?

**NOT BLACK AND WHITE:**

**biodegradable vs. low energy**

**local vs. certified**

**recycled vs. recyclable**

**old appliances vs. new efficient**

**energy efficient vs. indoor air quality**



**WHAT IS THE PROBLEM?**

BACK TO OUR GRAY EXAMPLE

NOT BLACK AND WHITE:

**CONCRETE**

high embodied energy

but

natural materials

healthy materials

locally produced



**WHAT IS THE PROBLEM?**

WHY ISN'T THIS CATCHING ON?

**At best**  
**ENVIRONMENTALISM**  
**is**  
**SHADES of GRAY**  
**(SHADES of GREEN)**



**WHAT IS THE PROBLEM?**

WHY ISN'T THIS CATCHING ON?

**NOT BLACK AND WHITE:**

**how do we make  
ENVIRONMENTALISM  
appear  
BLACK & WHITE  
so people understand it?**



**WHAT IS THE PROBLEM?**

WHY ISN'T THIS CATCHING ON?

CONSUMER ALERT:

avoid  
**tuna** that is not  
**DOLPHIN SAFE**



The Best Tuna  
**Chicken of the Sea**



NOT BLACK AND WHITE:

**CONCRETE**

high embodied energy

but

what if we lowered that with

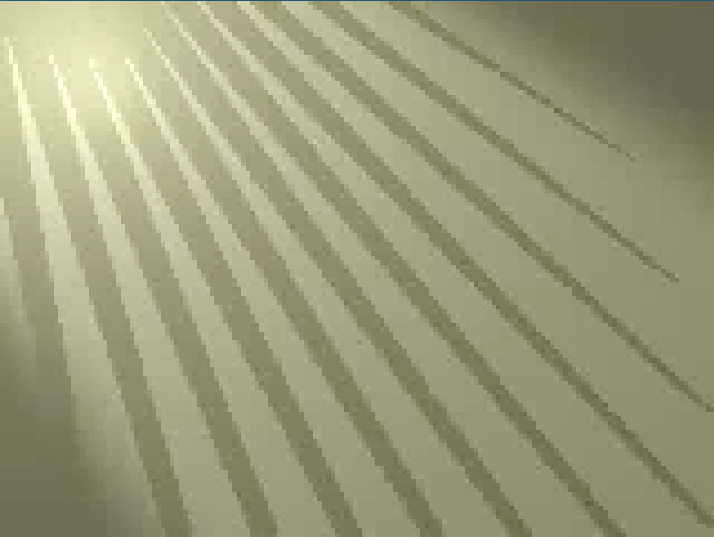
**FLY ASH?**



**WHAT IS THE PROBLEM?**

BACK TO OUR GRAY EXAMPLE

Break it down into  
**3 LEVELS**  
of financial  
**COMMITMENT**  
to your clients



**FINISHES**  
**SYSTEMS**  
**STRUCTURE**

LEVELS of COMMITMENT:

**FINISHES**

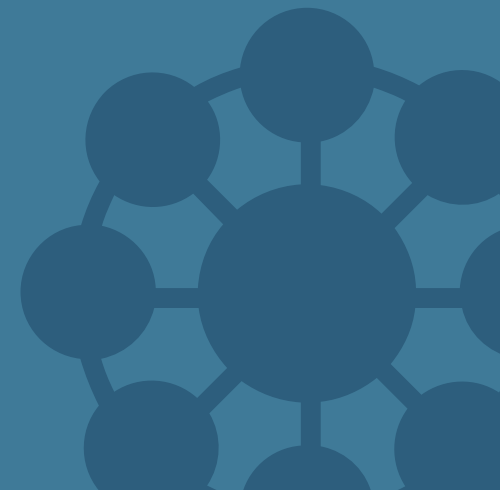
play the substitution game

**SYSTEMS**

calculate the return on their investment

**STRUCTURE**

new materials meet resistance with contractors



## CHANGE YOUR THINKING

### YOUR (NEW) PRIORITIES TOWARDS FINISHES:

- **natural / non-toxic**
- **low embodied energy (includes salvaged)**
- **sustainably harvested**
- **recyclable/biodegradable**
- **recycled content**
- **locally harvested**
- **durability**



we should not  
**KILL**  
our clients

## CHANGE YOUR THINKING

YOUR (NEW) GOALS (shown in priority):

- indoor environmental quality
- water efficiency
- site selection & planning
- energy reduction
- material & resource efficiency
- community building



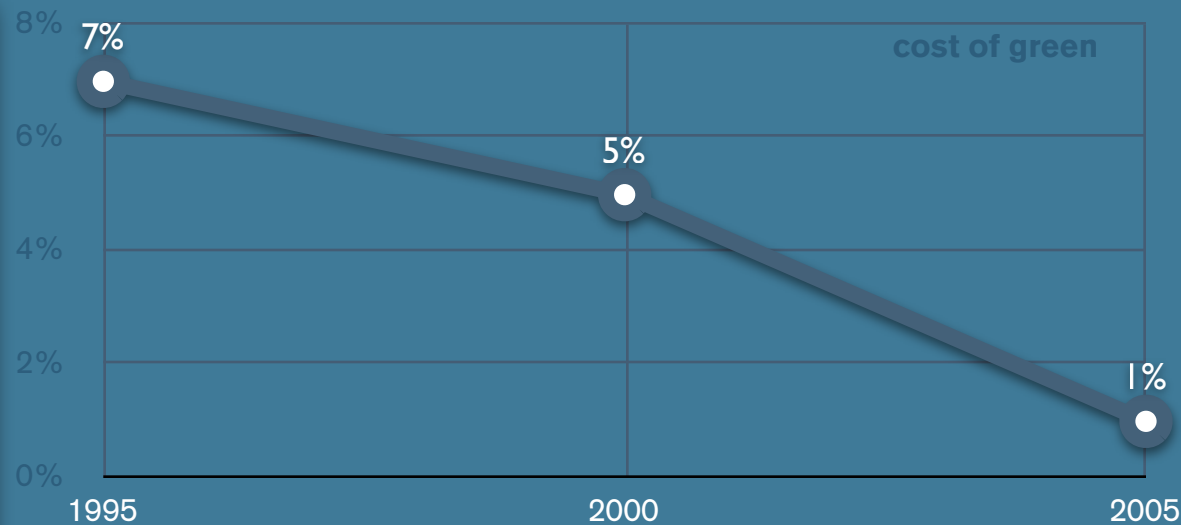
these are in  
**ADDITION**  
to budget & schedule

# BEAUTY

is not exclusive of  
sustainability

# COST

is not tied to  
green materials



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

**1. Stress the lifecycle  
cost rather than the  
up-front cost.**

solar panels cost nothing  
(after 5 years or so)



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

**2. Stress the  
environmental benefits.**

buildings consume 40%  
of the worlds energy



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

**3. Stress the  
social benefits.**

**SAT Scores up 14%**  
**in a room with natural sunlight**



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

**4. Stress the  
health benefits.**

asthma is the leading  
chronic illness in children



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

**5. Stress the performance benefits.**

fewer light bulbs to replace



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

**6. Stress the  
occupant satisfaction  
benefits.**

reduced absenteeism  
higher sales



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

## 7. Return on Investment: Energy Savings

double the insulation pays for itself  
in a matter of months



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

## 8. Return on Investment: Maintenance Savings

investments in green buildings  
pay for themselves 10x over



how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

## 9. Return on Investment: Tax Incentives

solar credits  
energy star credits



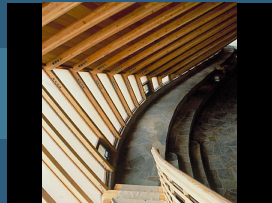
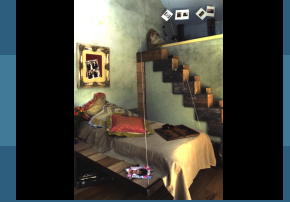
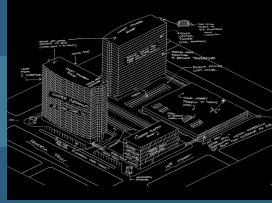
how do I  
**SELL THESE IDEAS**  
to my  
**CLIENTS?**

**10. Fall in love  
with the beautiful.**

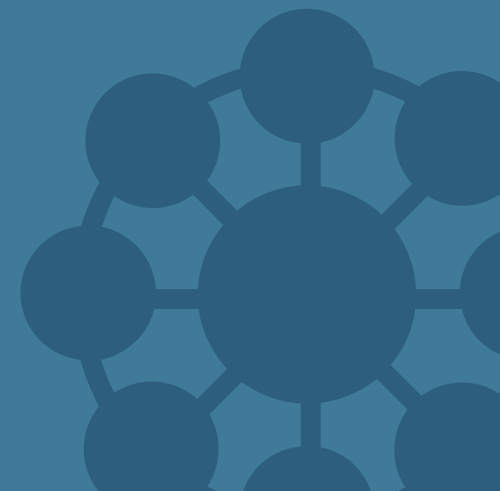
why sell the obvious?



# TIME FOR MORE?

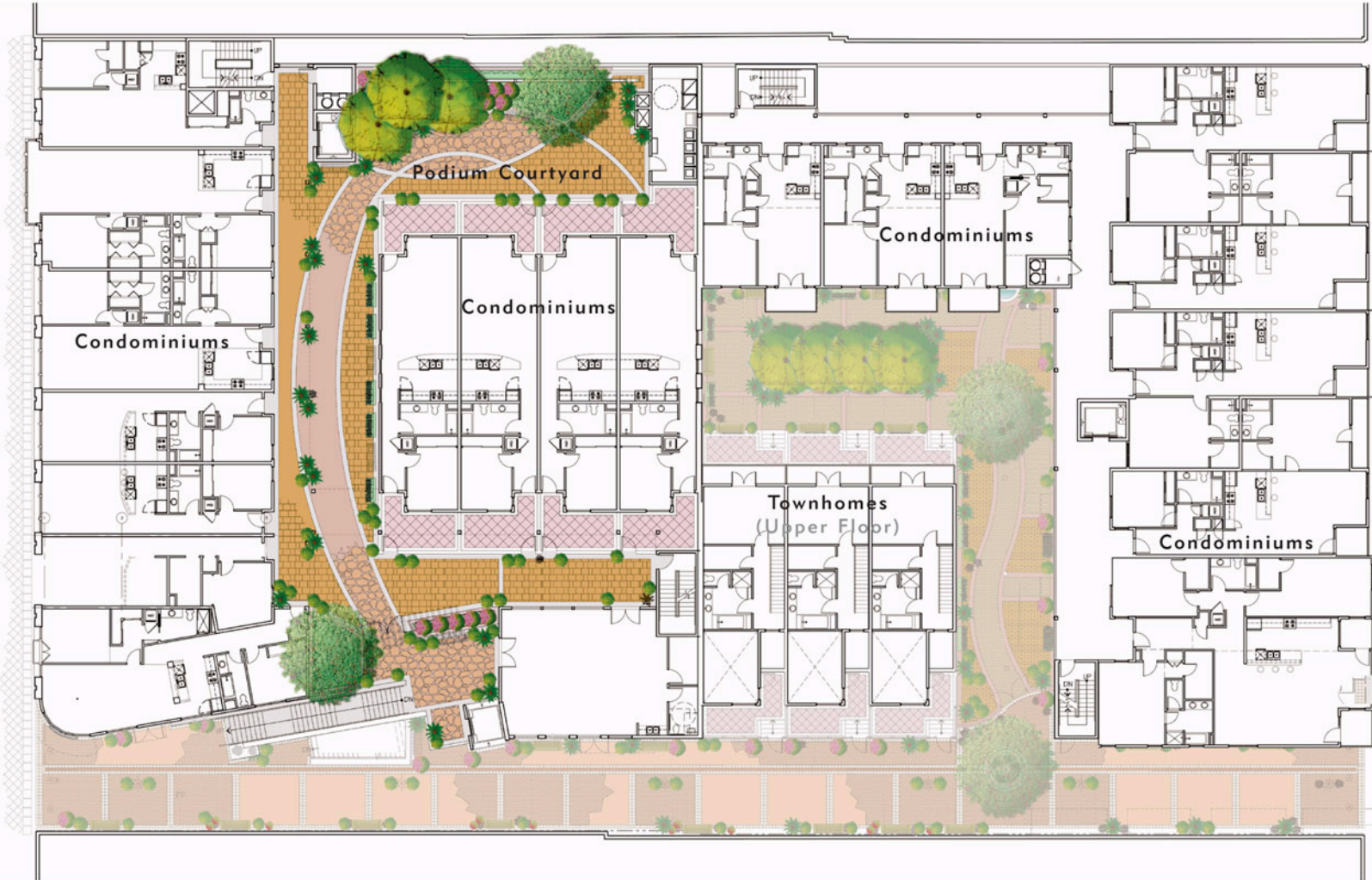


# CASE STUDIES?



South Second Street

South Third Street



Level 2 Plan



South Second Street Elevation





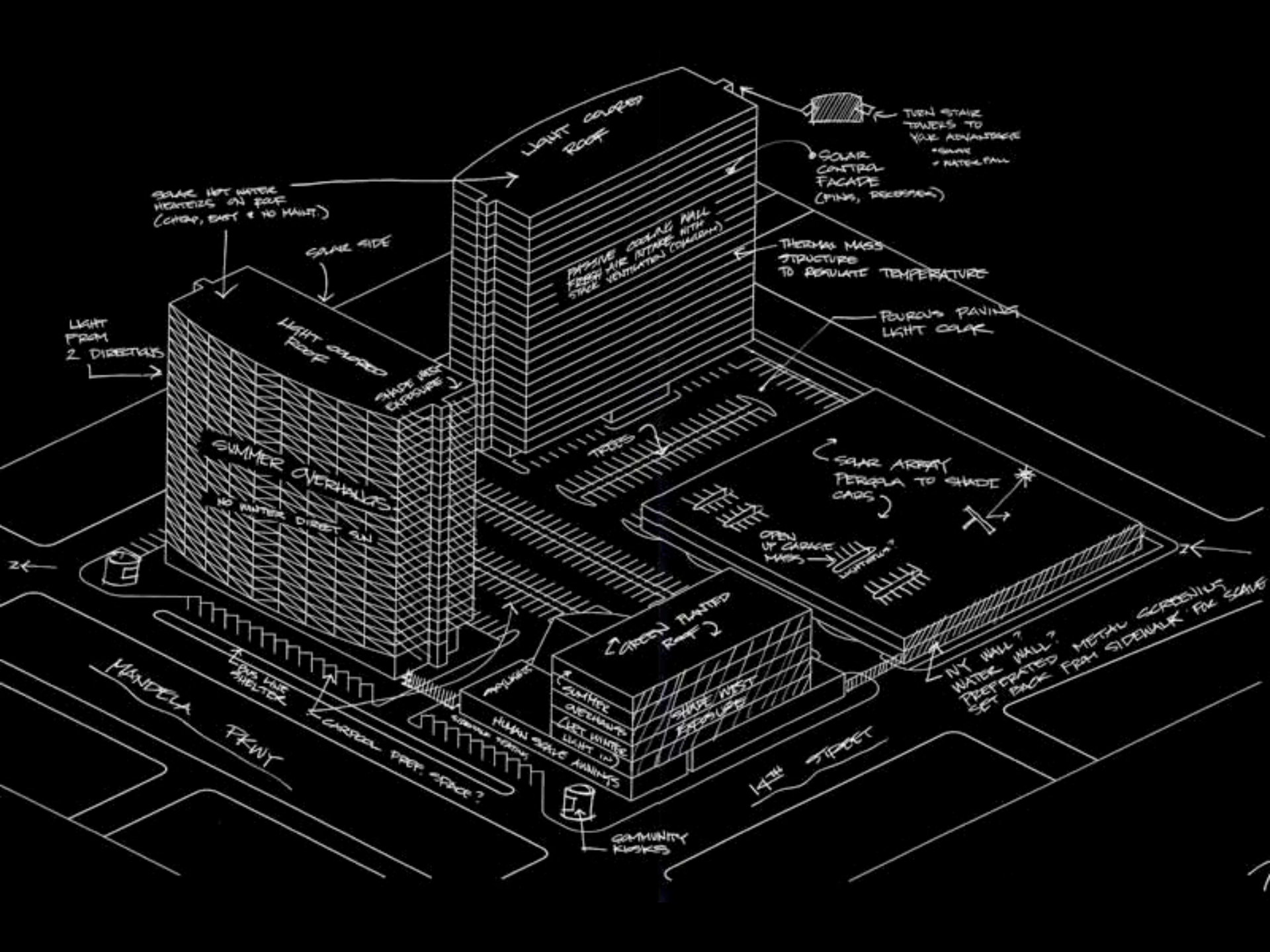


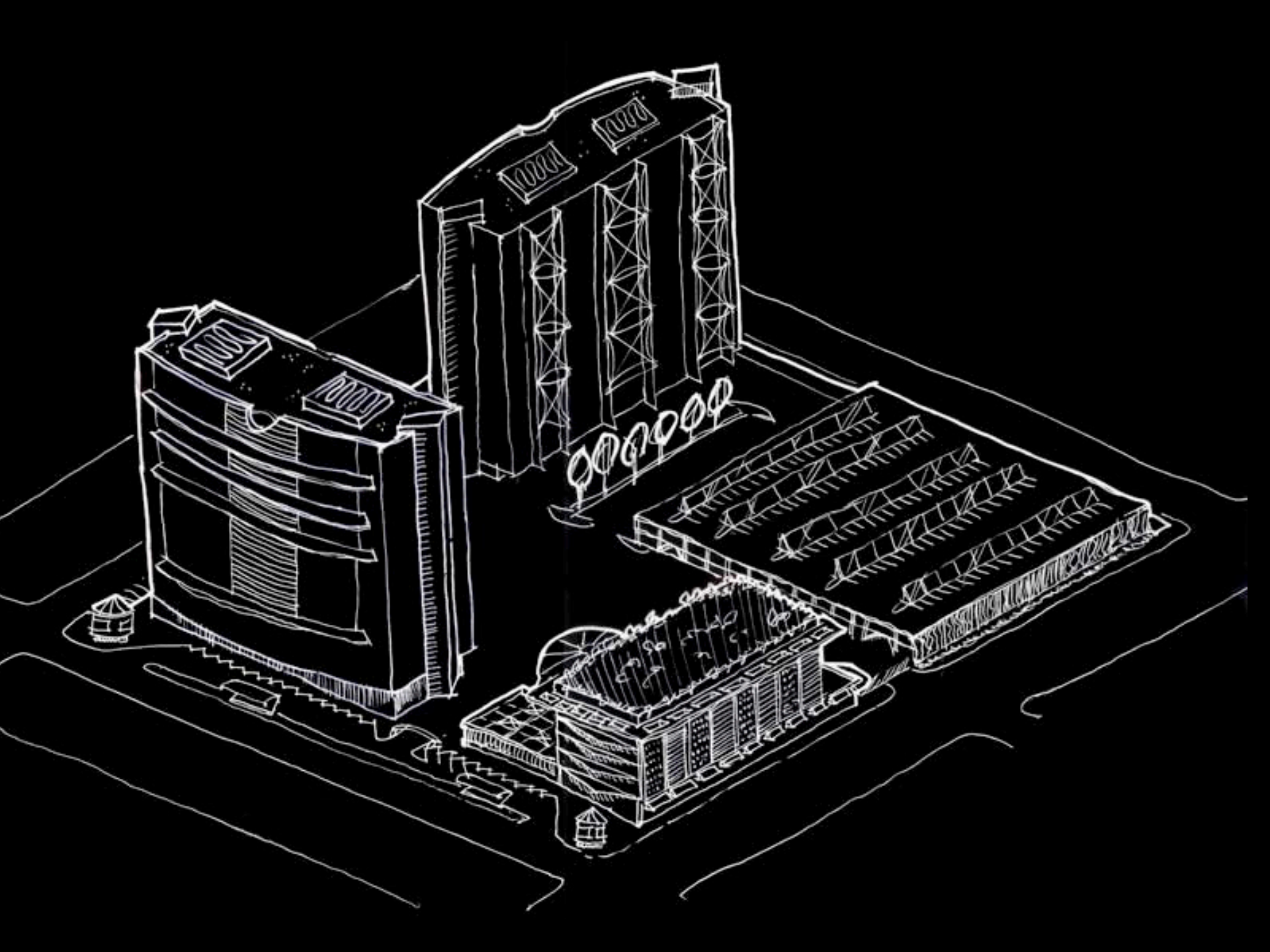


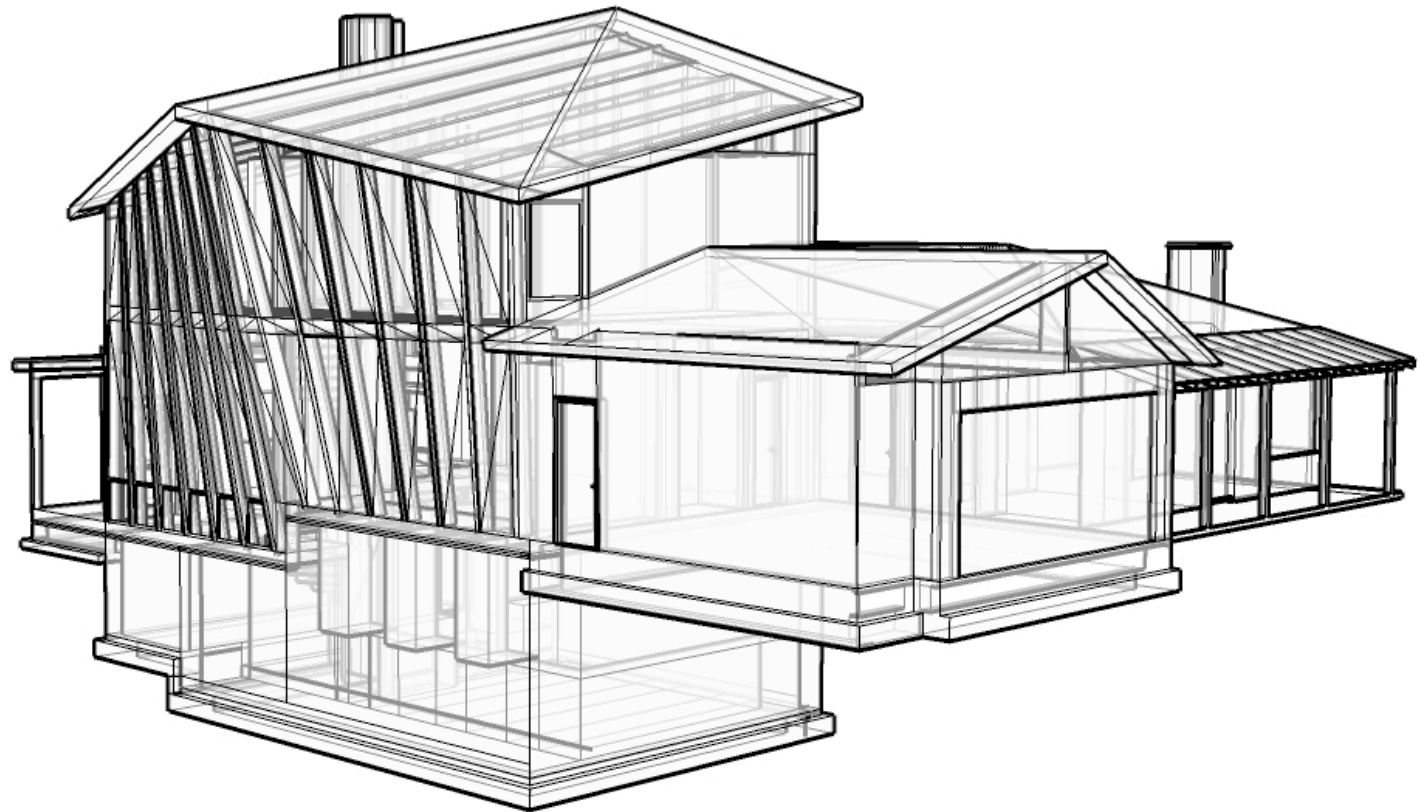


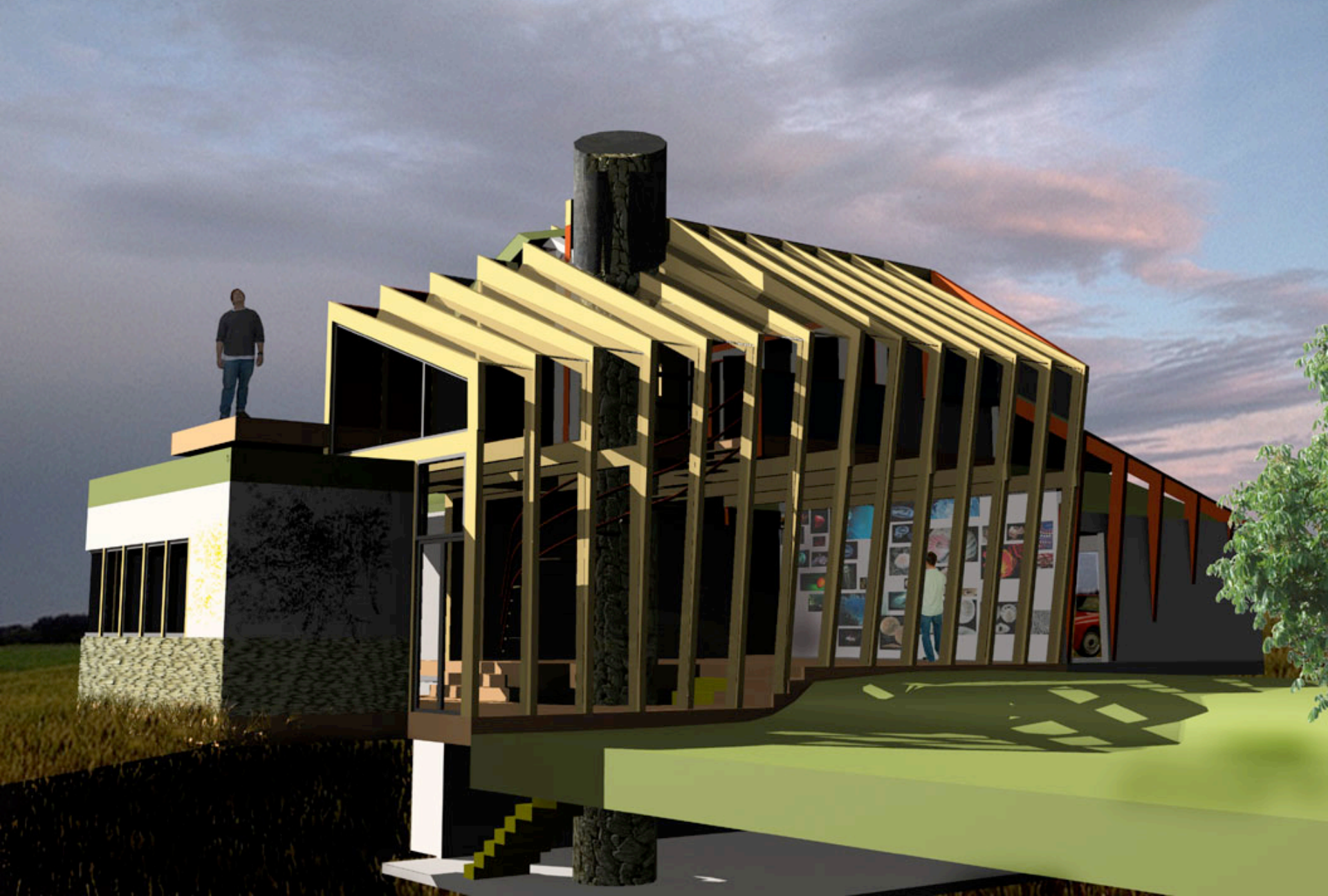












**REDWOOD CITY HOUSE**  
LIVING IN A GLASS BOX





**OPTION ONE:**  
Horizontal rain screen facade  
Intergally colored fiber-cement paneling  
cut into planks, installed over redwood battens































AUDIENCE?

so, what  
should I do  
**NEXT?**

ARCHITECTS

INDIVIDUALS

how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

**1. Include into your  
existing peer review.**

if it gets measured, it gets managed



how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

**2. Fill product library  
with green finishes.**

if you see it, you will use it



how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

**3. Stop asking the client  
for permission to do what  
is right.**

they expect you to be a professional



how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

4. Bring green to the  
attention of your current  
clients.

stop waiting to be asked



how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

**5. Offer it as part of your  
basic services.**

because you care about your clients



how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

**6. Only show the client  
green materials.**

why offer toxic materials?



how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

**7. Create green  
standards for all projects.**

staff knows ahead of time what to do



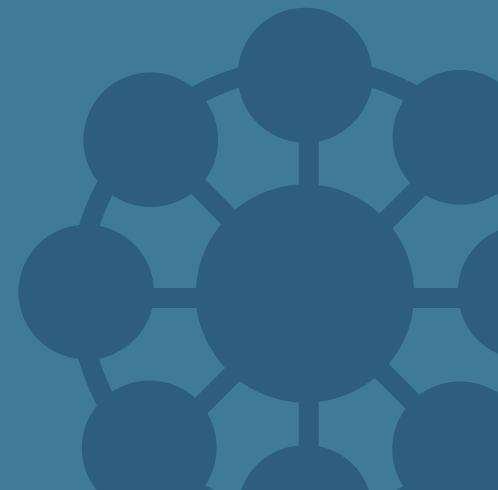
how do I  
**IMPLEMENT THESE IDEAS**  
for our  
**OFFICE?**

**8. Explain the eco goals  
to the project team  
(including the contractor)**

don't do it all yourself



some  
parting words >>



what's next:

# 5 action steps



**STEP ONE:**

**view**  
**SUSTAINABILITY**  
**as yet another**  
**REQUIREMENT**

**EXAMPLES:**

**building codes**  
**shipping constraints**  
**printing limitations**  
**budget requirements**



## STEP TWO

**think about what comes  
IN & OUT  
of your house and  
DO SOMETHING ABOUT IT**

### EXAMPLES:

**non-toxic cleaning products  
organic food  
bulk packaging  
recyclable materials**



**STEP THREE**

**try to go through  
ONE WHOLE DAY  
without  
THROWING ANYTHING AWAY**

**EXAMPLES:**

**compost  
recycle  
freecycle  
donate**



**STEP FOUR**

**download**

**FREE LISTS**

**at**

**organicarchitect.com**

**LISTS FOR:**

**architects**

**contractors**

**developers**

**homeowners**



**STEP FIVE**

**most important:**  
**TELL OTHERS**  
**about**  
**what you have learned**

**BONUSES:**


**manufacturers**  
**contractors**  
**designers**  
**office managers**





developing the needs of the  
**PRESENT**  
without sacrificing the needs  
of our **FUTURE**

-United Nations, 1993



“Each snowflake in the  
avalanche pleads  
**not guilty.**”

-Stanislaw J. Lec



“you must be the  
**CHANGE**  
you wish to see in the  
**WORLD...”**

-Mahatma Gandhi

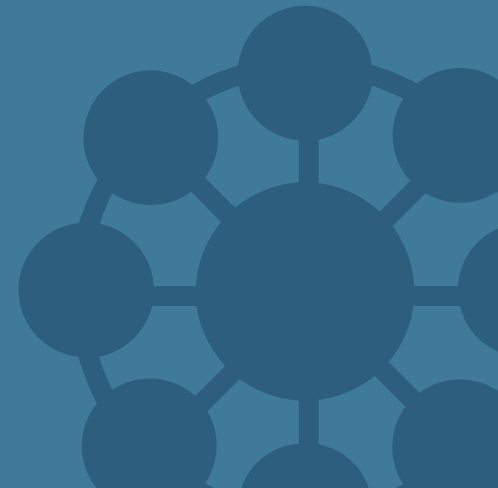
## RESOURCES

WEB: [www.organicarchitect.com](http://www.organicarchitect.com)

WEB: [www.ADPSR-norcal.org](http://www.ADPSR-norcal.org)

WEB: [www.greenhomeguide.com](http://www.greenhomeguide.com)

BOOK: **Cradle to Cradle**

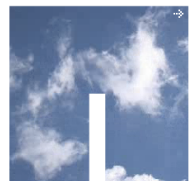




**RE:VISION**  
COMPETITIONS FOR VISIONARY THINKERS

In January 2007, Archiventure launches the first in a series of idea competitions that explore ways of transforming disengaged communities into energetic, family-centered expressions of sustainable urban life.

> RE:VIEW





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RESIDENTIAL BUILDING CONFERENCE + EXPO

**September 20-22, 2007**

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**QUESTIONS**



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