

# A Contractors View of Sustainable Development

presented to

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The Turner logo consists of three horizontal lines of varying lengths stacked vertically, followed by the word "Turner" in a bold, sans-serif font.

# Turner Green Building Experience

Since 2000

- Over 325 Projects with Green Building Elements Completed or Under Construction
- Construction value: over \$27 Billion
- Over 87 million square feet
- 65+ LEED Certified Projects (\$3.2 Billion)
- 100+ LEED Registered Projects
- Over 425 LEED Accredited Professionals

# Growth of Green Building Volume (LEED Certified, LEED Registered)

- 17% of Sales in 2005
- 24% of Sales in 2006
  
- \$1.3 billion WIP in 2006
- \$1.8 billion WIP in 2007

# Turner's Commitment to Green

## Ongoing since 2004

- Construction Waste Recycling Program
- Green Training Program
- Increase LEED Accredited Employees
- Green Advisory Board
- Green Center of Excellence, Green Champions

## Operational Excellence

- LEED AP Assigned to Every Green Job
- All Subcontractors Must Take TKN On Line Course
- Green Operations Manual & Training
- Green Building Diagnostics

## Corporate Sustainability

- All Future Turner Offices Will be LEED
- Corporate Sustainability Statement
- Member of EPA Climate Leaders



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# The Builder's Role in Delivering Sustainable Buildings

## Part 1 – Evolution of the process

- Overview 1999-2007
- Some Case Studies

## Part 2 – Evolution of the product

- We are all in this together

# Project Delivery - The “Old” Way

Design / bid / build – Builder as functionary

- Sequential “silos”, builder at the end of the line
- Design is complete before the builder first sees it
- Any builder input is seen as intrusion in the process costing time and money
- Green elements, if any, are “bolted on” and by definition are an “added” cost

# Project Delivery - The “New” Way

Owner, designer, builder, facility manager and end user work together as an integrated team

- Design is developed collaboratively. Knowledge of each team member contributes to synergies
- Builder input at early stages helps team “get it right the first time”
- The result is a better product, quicker to market
- Green elements are integrated within program, budget and schedule



# Some Case Studies

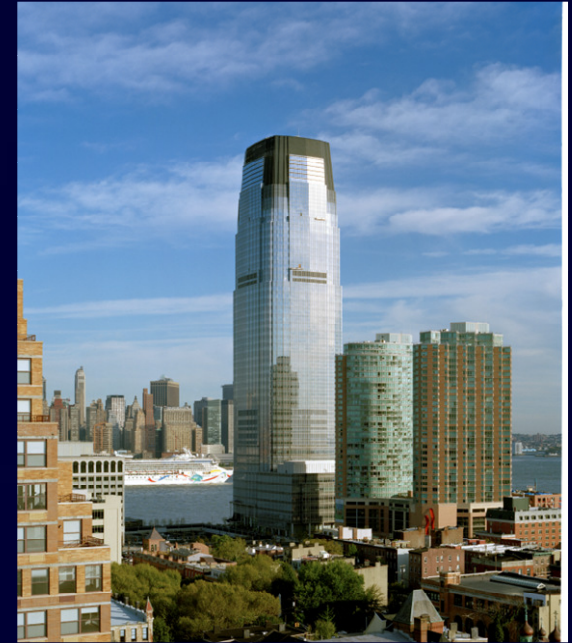


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# Turner-NY Green Buildings Completed

## Goldman Sachs: **CERTIFIED**

- Location: Jersey City, NJ
- Construction value: \$712 Million
- 42-story, 1.5 Million sq.ft office bldg
- Completed 02/2004



# History of Green Building - Phase 1

## 30 Hudson Street (“Fits and Starts”)

- Committed Owner but not much experience
- Early adopters “made it up” as we went using integrated design.
- Misperception of costs and benefits hampered adoption.
- Few affordable and readily available products and lack of experienced practitioners.

Result?

- Certified, but w/ minimum # credits.

# Turner-NY Green Buildings Under Construction

## MSK Cancer Center: Seeking **Certified**

- Location: New York, NY
- Construction value: \$430 Million
- 23-story, 692,000 sq.ft research bldg
- Anticipated completion: 05/2008



# History of Green Building - Phase 1a Memorial Sloan Kettering Cancer Center

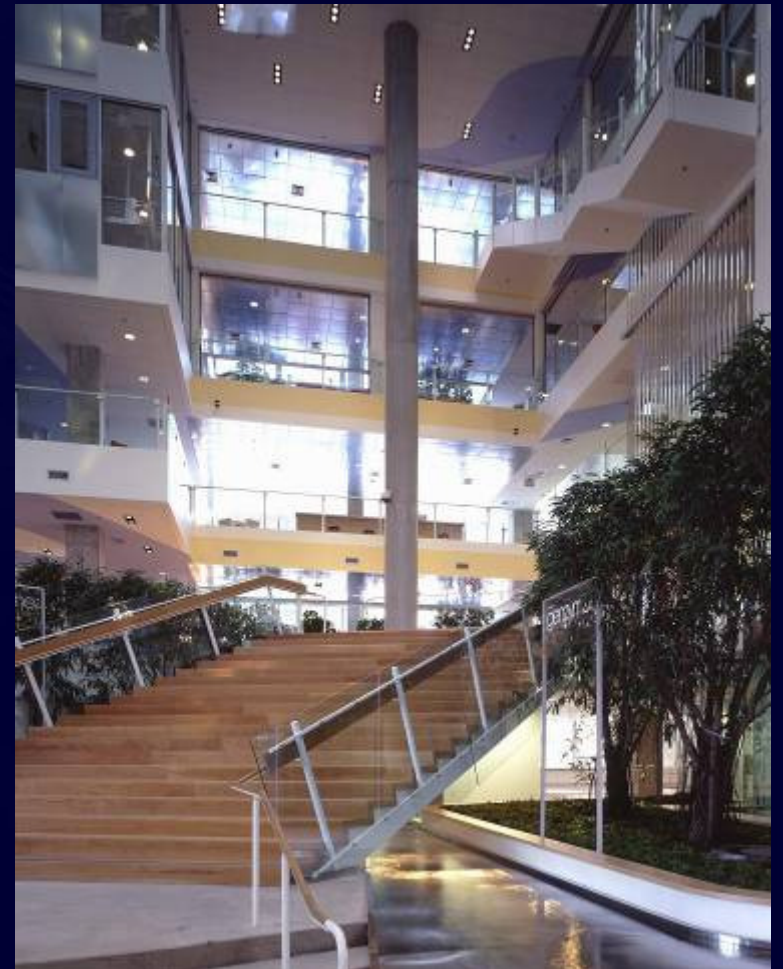
- Lack of fully integrated team results in missed opportunities and/or unnecessary “pain” in achieving credits
- Owner primary concern with first cost
- Late start on sustainability issues, poor coordination, lack of follow up made everything more difficult

Result?

- Will be certified, could have done better.

# Genzyme Center

Boston, Massachusetts  
LEED® Certified Platinum  
52 Points



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# Genzyme



- The building's central atrium acts as a huge return air duct and light shaft
- Natural light from the fully glazed facade and from the atrium (brought in by solar-tracking mirrors above the skylight) is reflected deep into the building.
- The building uses 32% less water than a comparable office building by using waterless urinals
- Stormwater supplement the evaporative cooling towers and irrigates the landscaped roof
- Green power provides over 50% of electricity
- Brownfield redevelopment

# History of Green Building - Phase 1b Genzyme Headquarters (“Timeless”)

- Committed Owner, committed designer with knowledge of cutting edge technology
- Team not fully integrated but able to use “traditional” delivery methods to achieve extraordinary results

## Result?

- One of first platinum projects.
- Success more than justified Owner’s investment
- Set the standard for others – a “classic”
- We learned a lot.

# Turner-NY Green Buildings Completed

The Solaire: **GOLD** Certified

- Location: Battery Park City, NY
- Construction value: \$88 Million
- 27-story, 293 apt residential bldg
- Completed 12/2003



# History of Green Building - Phase 2

## The Solaire (“Experience and Continuity”)

- Committed Owner / Developer
- Committed designer
- Committed builder working as part of team
- “Benevolent Despot” mandating standards

Result?

- Certified above required levels
- Cost premium 14% (but compared to what?)

# What's Going on Here?

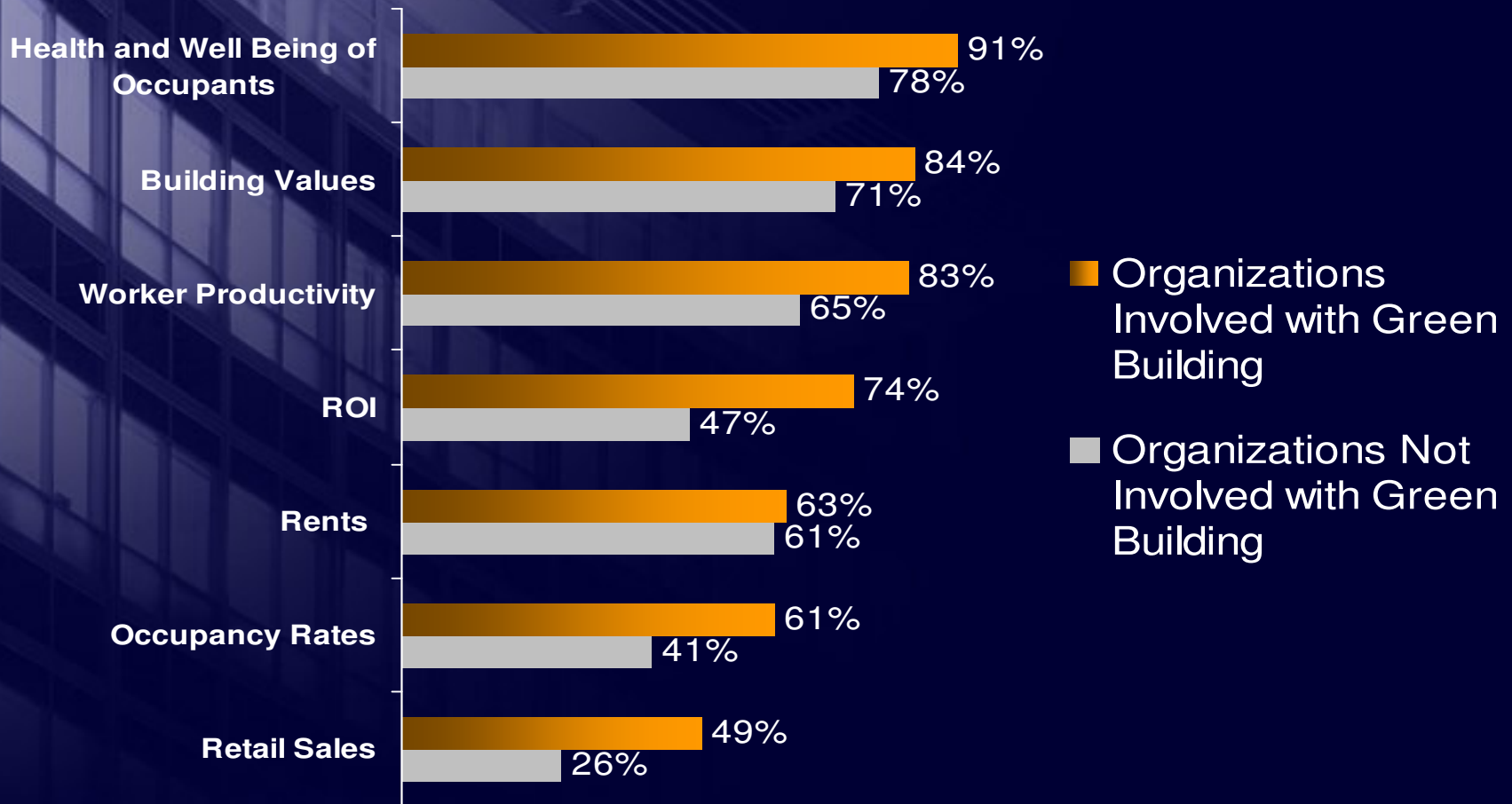
## Projected Growth of Green Building

Turner Green Survey – 2004

- Surveyed 719 building owners, developers, architects, engineers and consultants
  - ◆ 94 percent said they expect their Green workload to increase somewhat or substantially over the next three years

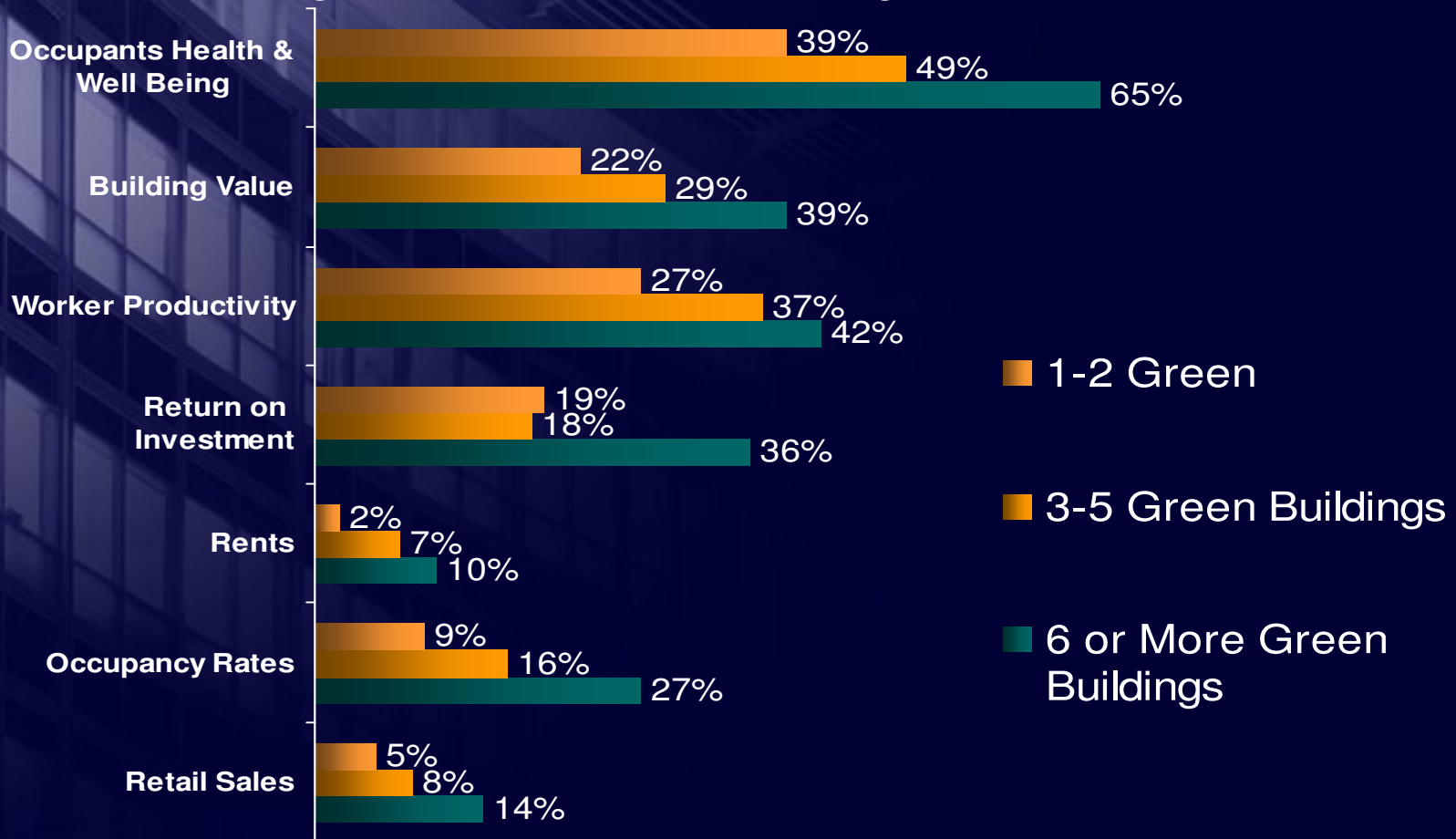
# Benefits of Green vs. Non-Green Buildings

Percent of Executives Saying Green Building Benefits are Higher



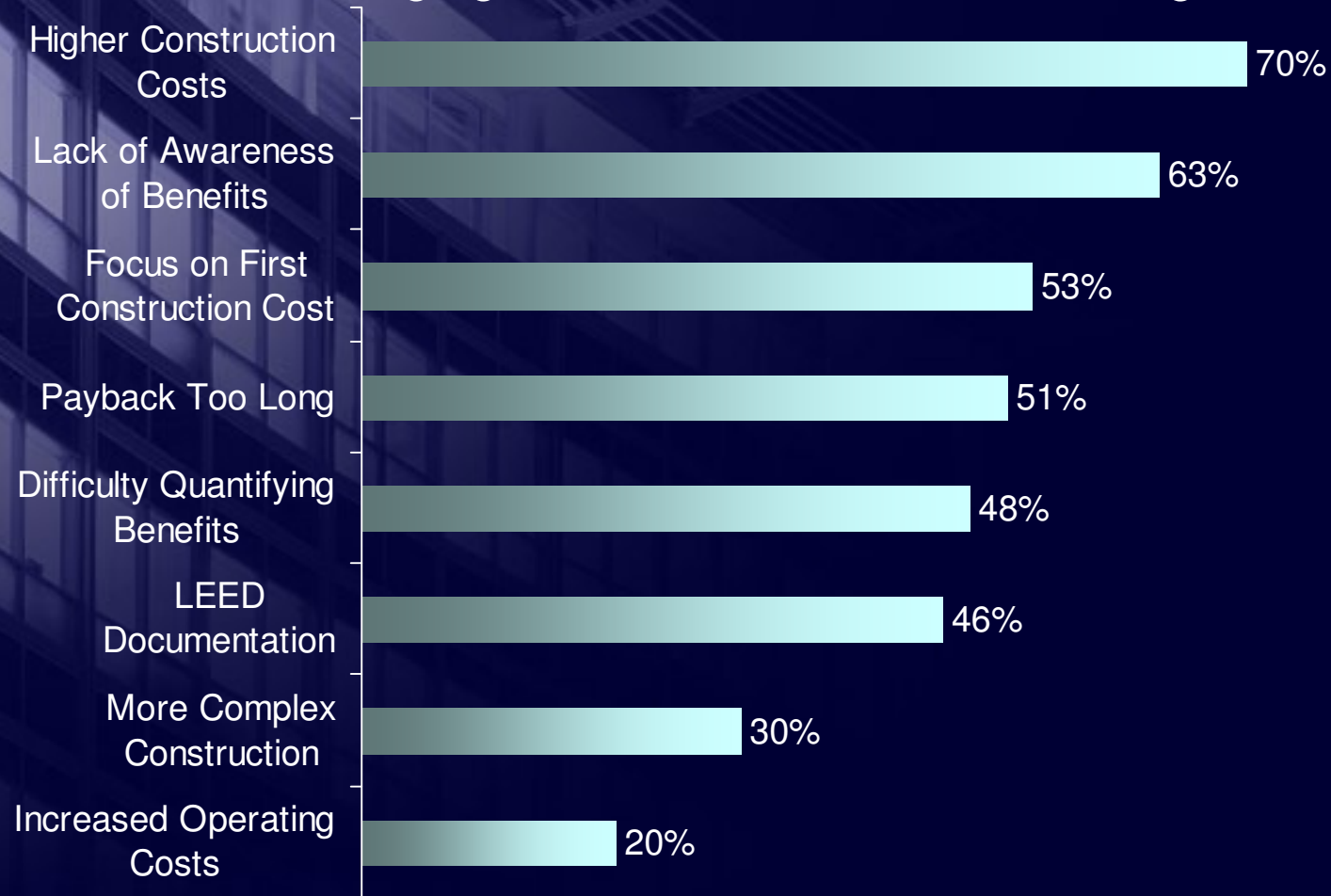
# Green Building Benefits: Experience Matters!

Views of Green Building Benefits by  
Number of Organization's Green Buildings



# Perceived Obstacles to Green Buildings

## Factors Discouraging Construction of Green Buildings



# Cost Premium per Capital E Study (33 Buildings)

Level of Green Standard	Average Green Cost Premium
Level 1 – Certified	0.66%
Level 2 – Silver	2.11%
Level 3 – Gold	1.82%
Level 4 – Platinum	6.50%
Average of 33 Buildings	1.84%

# Turner-NY Green Buildings Completed

The Verdesian: **Platinum** Certified

- Location: New York, NY
- Construction value: \$73 Million
- 25-story, 253 apt residential bldg
- Completed 02/2006



# Turner-NY Green Building Under Construction

The Visionaire: Seeking **Platinum** LEED 2.2

- Location: Battery Park City, NY
- Construction value: \$195 Million
- 33-story, 500,000 sq.ft residential bldg
- Anticipated completion: 06/2008



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# History of Green Building - Phase 2b

## The Verdesian, The Visionaire

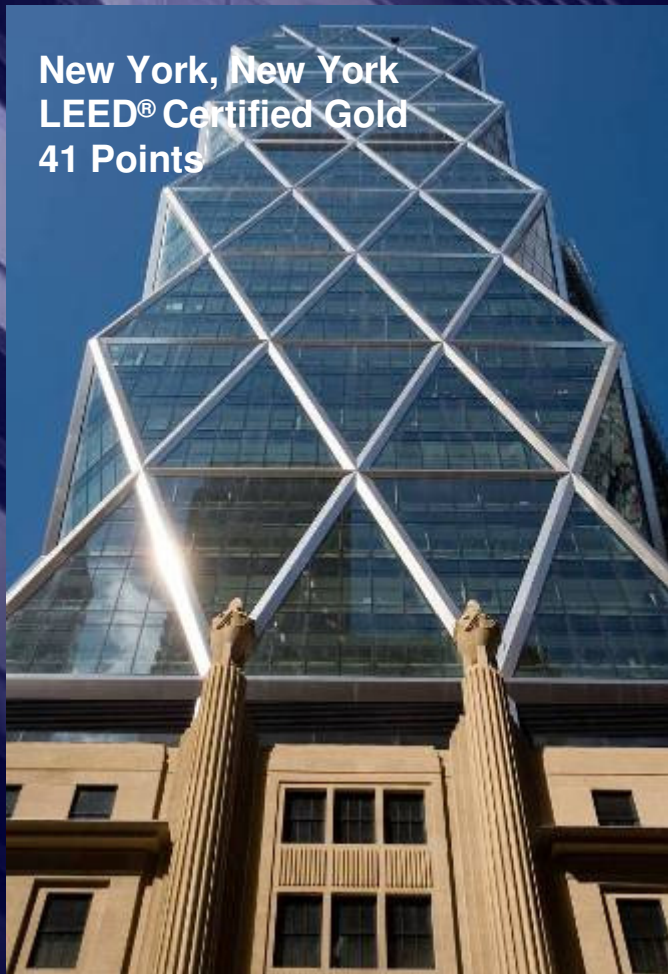
- Same team as the Solaire
- Subsequent projects continue to excel as experience grows
- Maturing market helps

Result?

- Certified above required levels
- Cost premiums reduced

(The single biggest driver of increased costs is lack of experience)

# Hearst Headquarters



- 75% of construction waste was reused or recycled
- 50% of wood from sustainably managed forests
- Diagrid structure uses 20% less steel
- Highly reflective roof reduces urban heat island effect
- The "low-E" glass coating allows for internal spaces to be flooded with natural light while keeping out the invisible solar radiation that causes heat

# History of Green Building - Phase 3 Hearst Tower (“The Next Generation”)

- Commercial Owner committed to excellence and willing to say “yes” exceeds goal by hiring experienced team.
- Experienced design team
- Experienced builder

Result?

- Certified above goal with minimal first cost increase and rapid payback.
- First cost premium >2%

# 1180 Peachtree



- Water-management system
  - ◆ Decreases storm water by covering half of the roof with absorbing vegetation
- Use of recycled material
  - ◆ concrete, steel, glass, curtainwall, drywall and ceiling tile
- Minimization of transportation costs and impact by using local materials
- Attention and alternatives to the off-gassing of Volatile Organic Compounds (VOCs) found in adhesives, sealants and carpets

# History of Green Building - Phase 3b

## 1180 Peachtree (“Standard Practice”)

- Committed Owner/Developer seeks to attract top of the market
- Insists on high efficiency operations
- Builds efficiency into pro forma
- Insists on LEED Certification for all buildings believing LEED = Class A

Results?

- One of first LEED-CS Gold projects.
- Little or no cost “premium” for LEED certification.

# The State of the Green Market

- 2007 – The Year the Market “Got It”
- A shift from “cost” to “value”

# The Good News

- Misperceptions about cost are being replaced by accurate information
- Costs trending down, Value up
- The Market perceives the value of green buildings
- Developers follow the market
- LEED = Class “A”, Not LEED = Obsolete

# How Can We Help?

- Educate the Owner, Vendors, Ourselves
- Know Current Costs, Products
- Be Proactive not Reactive

# How is green building different? How is it the same ?

- Similar Means and Methods – but best practice
- Services the same – but best practice  
(estimating, procurement, logistics, project delivery, documentation, the benefit of our experience)
- It's what we deliver that's evolving (so far)

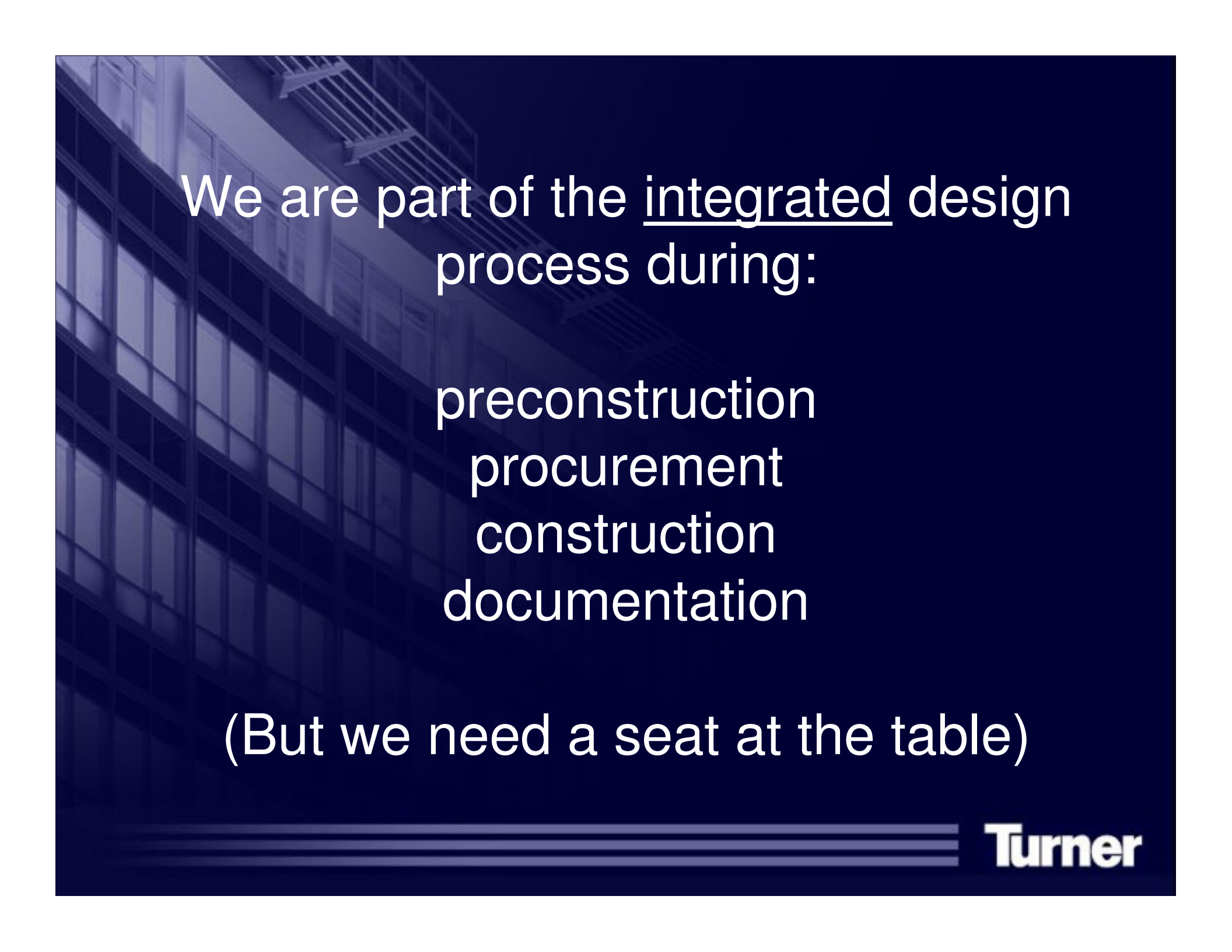


What is the Contractor's Role?

(Hint: We are not “just” the builder)



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We are part of the integrated design  
process during:

preconstruction  
procurement  
construction  
documentation

(But we need a seat at the table)



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# Where Are We Today?

ASHRAE 189 – Green written as code

Architecture2030 – Net zero emissions

Washington DC (a model for the future)

Green Building Legislation – 30 states, 100

Municipalities.

And growing...

# What does that mean for us?

Green building is not a value-added service.

Green building is a core competency.

We must evolve from being a company that delivers green buildings to being a sustainable company.

This is true for our entire industry.

# My Daughter Noura – Age 10

- My youngest daughter loves to travel. But she is a bit anxious about trying new things. So she always wants to go where we went last time. When dragged kicking and screaming to a new experience, she is more often than not delighted. And tomorrow that is where she will want to go.
- So, too, with green building: when it is truly “what we do” we will wonder what all the fuss was about.



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Any questions please send me an email  
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