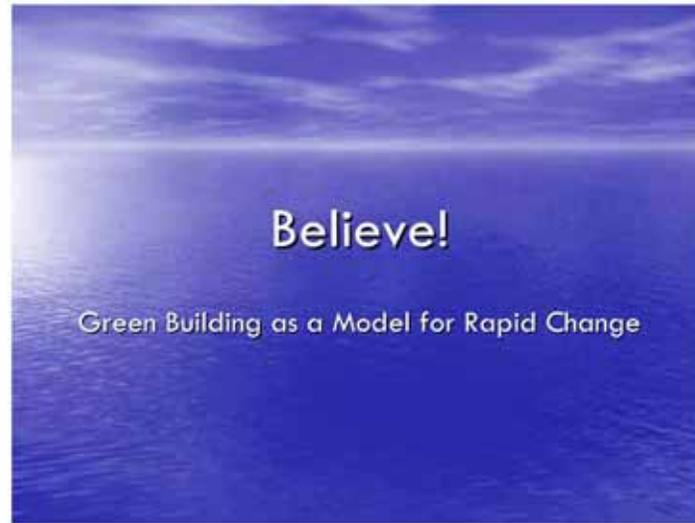


Potomac Watershed Trash Summit
World Bank - Washington, DC
June 14, 2007

Believe! - Green Building as a Model for Rapid Change
by Sandy Wiggins, Chair U.S. Green Building Council



As you see, the title of this talk is Believe! - Green Building as a Model for Rapid Change. This is the first time I've given this talk. In fact, it is the first time I've seriously examined the phenomenon of green building in a systematic way to try to understand why it has been so wildly successful. I was pushed into doing this by Tracy Bowen, Executive Director of the Alice Ferguson Foundation, and I want to thank her for doing that, as I've learned a lot in the process. Some of what I'm going to share is still forming in my mind as I stand here, so please bear with me as I explore this very important topic with you.

I hope the relevance of this exploration will be apparent to you all. Through my association with the Alice Ferguson Foundation over the course of the last year, I've had my eyes opened, literally, to an environmental and social issue of epic proportions... trash. It's an issue that most of us, me included, have filtered from our daily awareness. Until I was dragged around town by Tracy Bowen and her staff and made to look at it... piles of it tucked in the woods along roadsides, rafts of it floating in the eddies of local tributaries, streams of it running into DC's storm sewers... and until I rolled up my sleeves and pant legs and spent a day picking it up on the banks of the Potomac, I just didn't see it. I didn't understand it.

As Tracy has often reminded me, trash is the bottom-feeder of environmental concerns... an issue that is generally ignored by all, including the environmental community. But once your eyes are opened to it, as mine have been, it quickly becomes clear that trash isn't a bottom feeder... rather, it's the base of the pyramid. Grappling with and changing our relationship to trash is fundamental for solving every other environmental issue of our time, and a prerequisite for a sustainable society. That's why we are all here. What I realized as I prepared to speak to you today is that trash can also be a galvanizing issue. It touches everybody's lives, just like buildings. It's something we can all see and

understand, just like buildings. It's something we can all do something about, just like buildings.

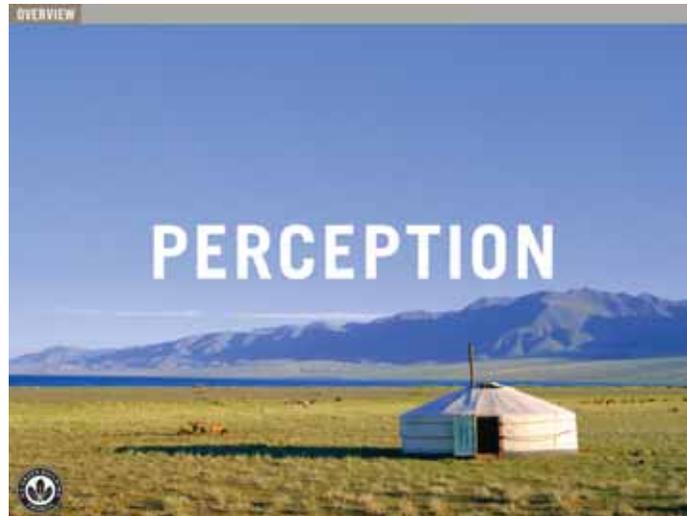
This summit is a stepping stone toward an ambitious vision: a trash free Potomac watershed by the year 2013. Now, I need your absolute honesty here - how many of you truly believe we can have a trash free Potomac watershed by 2013? (hands) Well, I do! The reason I know its possible is because I've spent the last seven years of my life immersed in what we now call Green Building. The timeline I'm going to talk to you about is from the year 2000 to the present, about the same amount of time we have to reach our vision for a trash free Potomac.

As Chair of the U.S. Green Building Council, I spend a lot of my time these days traveling back and forth across the country meeting with and speaking to folks engaged in my industry as well as to laymen and policy makers. What is clear to me is that Green Building has reached a tipping point. It is the basis for a profound and permanent shift in one of the world's largest industries, an industry that is the single biggest consumer of the world's resources, and an industry that has been hugely resistant to change, even when we recognized that change is necessary.



How did it happen? And how did it happen so quickly?

I'm going to lay out what I see as the drivers for this change – I've identified eight of them (so far) – and their approximate chronology, in the hopes that this story will inform your work this afternoon as you identify key strategies for action. I also hope that the story will ground you in the belief that we have the ability and collective intelligence to reach our 2013 goal.



At the beginning of the year 2000, just 7 years ago, this is pretty much what everyone inside (and outside) the building industry thought of as a “green” building. It was the purview of the fringe, and the environmental impacts and benefits of buildings just weren't being talked about. This yurt is, of course, a very sustainable building. But the reality today is quite different...



This is the Bank of America tower, which is rising right now in the Manhattan skyline – a LEED Platinum certified skyscraper. It is a building that begins to act like a species in an ecosystem, cooperating with its environment for the benefit of all. It draws water in from its skin and up from its roots just like a tree and then uses that water for its internal processes like flushing toilets and make-up in its cooling towers. When it's done with the water, it cleans it, and the water it excretes is as clean as the rain that first fell on it. It breathes in the dirty Manhattan air, cleans it before feeding it to its occupants, and exhales air cleaner than it breathed in, actually helping to clean its environment. Its being developed by one of New York's preeminent developers and its principal occupant is one of our nation's largest companies... some yurt!

As I lay out the drivers that got us here, be mindful that their unfolding was not part of some grand plan. Often we came perilously close to “blowing it.” But passion and fortune worked in happy harmony. We now have the benefit of hindsight and the opportunity to leverage what we know for even more rapid future change. Look for the opportunities to create and capitalize on parallel phenomena to drive the Trash Free Potomac agenda



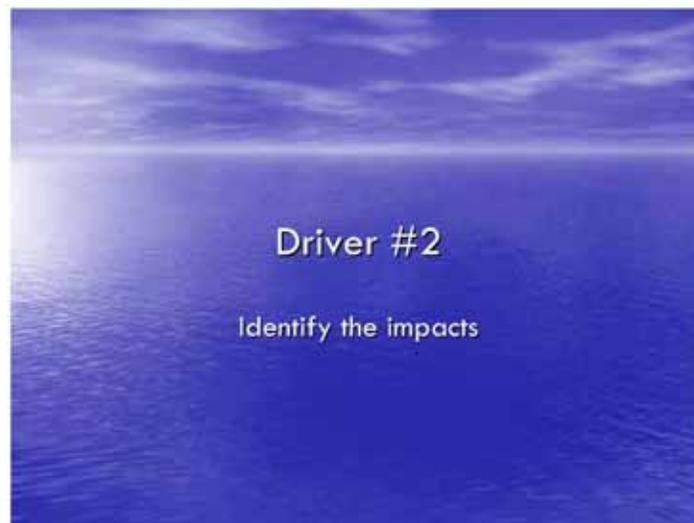
CONVENE ALL THE STAKEHOLDERS

While the Green Building movement has now percolated into almost every layer of society, at the heart of this change is the U.S. Green Building Council, an organization that began 14 years ago when three friends got together (probably in a bar if I know them) and decided they needed to do something about their growing awareness of the environmental impacts of their chosen profession. From its outset, USGBC was conceived as a forum to bring all of the constituencies of the building industry together to dialogue and reach consensus on what should be done.

The power of this move – including everyone – cannot be underestimated. Even those constituents whose economic interests were at risk, who were liable to push back hardest at the imminent changes, were welcomed and heard. Over time this would prove to be a cornerstone for USGBC’s success. Unlike traditional environmental groups that trade in resistance, litigation, and mistrust, which only serves to separate their camp and their opponents’ camps, in USGBC there are no camps.

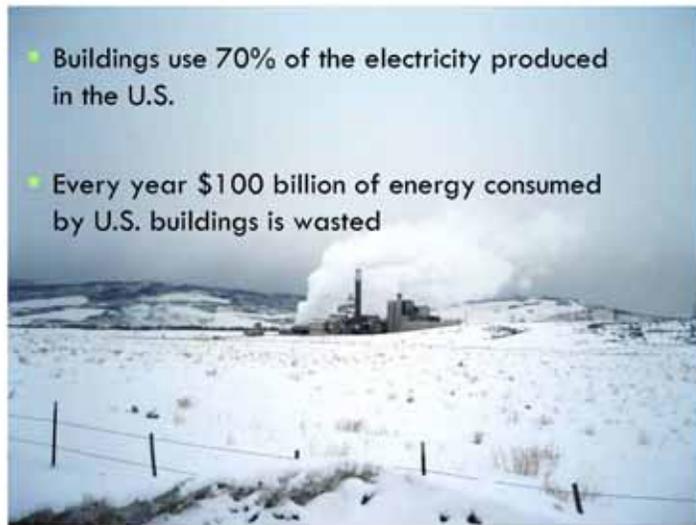


In the room today we have policy makers, administrators of public agencies, NGOs, waste haulers, public works managers, concerned citizens and many others. USGBC was and is the convener of the dialogue, just as the Alice Ferguson Foundation has convened all of you as stakeholders around the issue of trash. That was the first key driver or principle for this transformation... from the beginning, it's been collaborative, inclusive, and market based.



IDENTIFY THE IMPACTS

In spite of that brilliant starting concept, almost nothing of apparent significance happened to the building market for 7 years. However, the small but growing green building community was in the background digging in and developing a better picture of the real environmental impacts of buildings. That was the second key driver... identifying the impacts and quantifying them in some meaningful and memorable way. For example:





You've got to love the name on that dumpster!

Sometime around the year 2000 I began hearing these figures. Although I had been thinking about environmentally responsive design since 1996, it wasn't until then that the full impact of what I was doing with my own life hit me. Simple and memorable facts raise awareness and propagate quickly through the environment that you are trying to change.



ESTABLISH A SYSTEM FOR MEASUREMENT AND REWARD

After 6 years, at the end of 1999, USGBC had only 264 members. (Members in USGBC are companies, organizations, governments, or institutions). During those early years, there was a lot of disagreement, even infighting, about what constituted a green building. There was also a lot of what we now call "green washing" going on... people making exalted claims about how green their buildings were because they managed to address some single environmental issue like energy consumption or use of virgin materials.

What became clear was that there needed to be a way to assess the environmental performance of any building. We needed a standard that everyone could agree on and a measure that could be used to reward people who did better. So, in 2000, following the first of many coordinated volunteer efforts and with some financial help from the U.S. DOE, USGBC introduced the consensus based LEED Rating system to the market. (Leadership in Energy & Environmental Design). This innovation was the third great driver and it began to catalyze change for several reasons.

a common language



First, it created a common language for the industry to talk about what an environmentally responsible and responsive building really was. It was holistic and each credit in each category raised awareness and opened new inquiries as people in the industry began to speak it.



It's a language that is now becoming recognized by many people outside the industry. How many of you have heard of LEED? (hands) We expect to be able to pick up a box of animal crackers and quickly assess how many calories, how much fat, carbohydrates, and sodium it contains.



LEED

What is the LEED System?

LEADERSHIP in ENERGY and ENVIRONMENTAL DESIGN

A leading-edge system for certifying **DESIGN & CONSTRUCTION** of the greenest buildings in the world

Scores are tallied for different aspects of efficiency and design in appropriate categories.

For instance, LEED-NC (New Construction) is assessed in detail for its:

1. Site Planning
2. Water Management
3. Energy Management
4. Material Use
5. Indoor Environmental Quality
6. Innovation & Design Process

Green Facts

LEED-NC (New Construction)	55
LEED-NC (New Construction) - Silver	50
LEED-NC (New Construction) - Gold	45
LEED-NC (New Construction) - Platinum	40
LEED-NC (New Construction) - Platinum Plus	35

The language of LEED provided us all with a way to quickly understand the same sort of information about our buildings.



"In experienced hands the LEED standard delivers better results than any other green building accountability tool known in the US. In 2006, Harvard will see its first LEED Gold certifications completed at no added cost to the building project."

Secondly, it provided a system of accountability for project teams. Without LEED and the pressure of achieving the goal of certification by a third party, it was just too easy to be sloppy or give up when it seemed too hard.



Most importantly, it delivered immediate and measurable results.



And those results were replicable from one building project to another.



And it provided a system of reward. Providentially, the creators of LEED chose a medal system like the Olympics to signify achievement. Certified, Silver, Gold, Platinum! These are symbols of achievement that have created healthy competition among competitors to do better.

With the introduction of LEED to the building industry, we were also able to create an early market transformation model designed to capitalize on the leaders in the industry.



This model is focused on building practices and is important for you to take note of because it has changed dramatically as we uncovered other, more powerful drivers. It's a model that has not been perfect. But it has been effective, and the key to its effectiveness was the creation of a system to measure and reward success as people in our industry strived to change.



ADDRESS CONVENTIONAL ECONOMICS

Predictably, the next driver for change had to do with what I'll call "conventional" economics", which in the building industry translates as project first cost. Conventional

economics are of paramount concern to almost everyone. It's what's driving the trash conversation among many of you right now.

As soon as LEED hit the street, the industry started to complain. They complained about how hard it was to learn and about the added work needed to validate compliance with LEED. The learning curve and the additional documentation work required for certification added cost to projects. LEED also required project teams to perform tasks that were not standard industry practice like computer energy simulations and building commissioning. Those tasks added even more cost, and few people understood their value.

This was a critical juncture for green building. The industry is not traditionally a place you'd look to find environmentalists who would do the right thing for its own sake. Buildings achieving LEED certification needed to be brought on line in order to ascertain the payback and return on investment for the additional money that was being spent, but few people were ready to spend that additional money.

By the end of 2002 there were only 38 LEED certified buildings, but those buildings and others that pre-dated LEED were good enough to begin to suss out the kind of performance data that justified the effort and cost of green building. Additionally, some project teams were learning to use computer modeling in an iterative fashion to inform their designs, which allowed them to integrate and optimize systems to develop high performance green buildings at little or no additional first cost. Combined with the practice of commissioning, these buildings also had significantly reduced operating costs.



Studies like this one commissioned by the state of California addressed this head on and helped the industry and their clients, the building owners, understand that high performance buildings could yield real bottom line benefits for little or no additional cost.

**Average
Bottom Line
Savings**



**GREEN IMPROVEMENTS PAY FOR
THEMSELVES IN 3 YEARS**

(ANNUAL RETURN ON INVESTMENT IS 25-40%)

The William and Flora Hewlett Foundation
Merle Park, CA
LEED-Gold

WORLDWIDE NATIONAL GREEN LEED CASE STUDIES

**Case Study
Brewery Blocks,
Block 4**

Gerding/Elden
Development Co., LLC
Portland, Oregon
Commercial Office
LEED-CS
Pilot Project



85%
leased
in one year—at above
market rates

21.5%
energy performance
improvement
(with anticipated annual
savings of \$58,700)

25%
water use reduction
(including no permanent irrigation
systems and a 25% reduction in
stormwater leaving site)

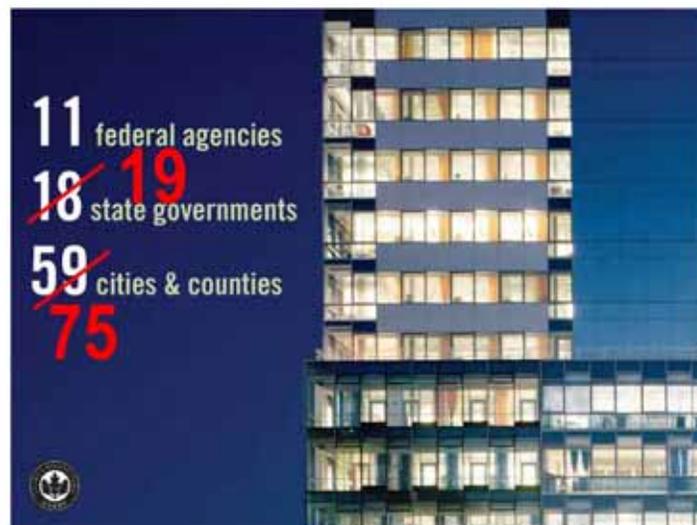
Numerous local awards

Whatever the system you are trying to influence, analyzing the conventional economics and promoting the economic benefits associated with change are critically important. As developers of green buildings started to understand the bottom line benefits, the word got out. Green building made good economic sense, and some people started paying attention.



ADOPT PUBLIC POLICY

Some of the people who paid attention to this information happened to be policy makers and few enlightened administrators of public agencies. They began what has now become a chain reaction of public adoptions of LEED and other green building standards. Implementation of public policy associated with green building was the next major driver for transformation. Public adoptions of LEED and other green building policy accelerated change by establishing civic leadership and by greatly increasing the inventory of high performance buildings from which the industry could learn.



You'll see cross-outs in many of the slides coming up. Things are changing so fast now in our world that it is very difficult for me to keep up.



The federal GSA, perhaps the largest developer in the world, was an early leader and continues to be a key partner for market transformation.

California.

Executive Order

Gov. Schwarzenegger requires all new & existing state-owned facilities to be LEED Silver

95% of greenhouse gas emissions occur during operational lifespan

Some states, like California, became early leaders. Cities quickly followed, and today are leading the charge:



USGBC
SUSTAINABLE CITY INITIATIVES

Chicago.

Chicago
The city adopted "The Chicago Standard" to establish a LEED benchmark for all new city-funded projects, guidelines for private developers, and fast track permitting.

USGBC
SUSTAINABLE CITY INITIATIVES



USGBC
SUSTAINABLE CITY INITIATIVES

New York.

New York, NY
Following the success of high-profile private LEED projects, in September 2005 the city passed Int. No. 324-A requiring LEED Silver for all city owned new construction and renovations over \$2 million

USGBC
SUSTAINABLE CITY INITIATIVES



USGBC
SUSTAINABLE CITY INITIATIVES

Austin.

Austin, TX
Early adopter of municipal sustainability initiatives (1989)

Legislation passed in 2000 requiring LEED Silver rating for all municipal buildings

USGBC
SUSTAINABLE CITY INITIATIVES



I'm pleased to say that Washington, DC is now among these cities, having recently enacted the country's first policy to require that both newly developed public AND private buildings achieve LEED certification.



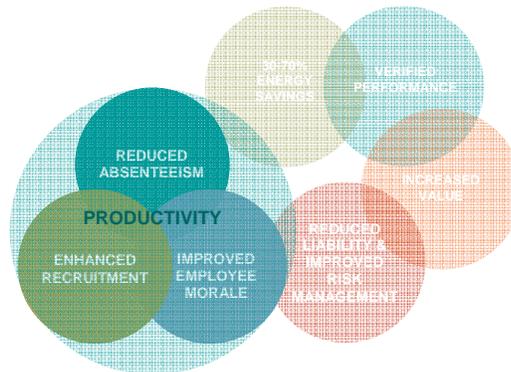
DISCOVER THE HUMAN BENEFITS

As the inventory of high performance, environmentally responsive buildings grew, new stakeholders... the building occupants and their professional consultants... began to uncover an unexpected benefit of green buildings... that was that these buildings were improving the health and performance of the people who used them. This was first documented in a report commissioned by the state of California and released in 2003 that showed that students who were educated in green classrooms (classrooms with natural daylight, views to the outside, lots of clean fresh air, and no off gassing of indoor pollutants from construction materials or furniture) were performing dramatically better on standardized tests. Subsequent studies in green office environments, retail environments, and health care environments have shown that people are healthier, have fewer absences, are more productive, and are happier as evidenced by lower job turnover.

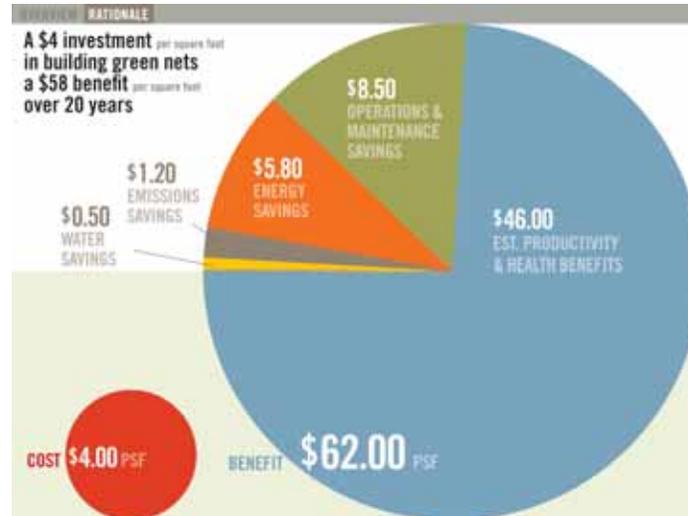


As more and more companies and institutions began to witness these benefits, human health and performance began to eclipse conventional economics as the key driver for the market shift toward green building.

Improved Bottom Line.



What's more, employers began realizing that this phenomenon had an enormous impact on their bottom line. As any business person knows, the single biggest number on their income statement is people. Even a modest increase in performance or retention has a big bottom line benefit.



Today this trend is driving the decision making process of Fortune 500 companies, hospitals, school districts, homeowners, and every other building user you can imagine, greatly accelerating market demand.

Documenting the benefits of change that accrue to human health and well being is a powerful driver.



IT'S ALL ABOUT THE PEOPLE

As exciting as this all seems, even with all of these drivers working together, the market penetration of green building was still only about 6% two years ago. That's when the leadership at USGBC began to wake up to an idea that is now driving the shift to green building at breakneck speed. Here it is.

Green building is not about the buildings. It's about the people.



It's the people who are changing... architects, engineers, developers, builders, tradespeople, financiers, building users, building managers, insurers, real estate agents, product manufacturers, and the list goes on. In the case of trash, it will be the people who need to change... policy makers, solid waste managers, recycling managers, storm water managers, transportation authority workers, public works officials, law enforcement officers, waste haulers, retailers, and the list goes on.

Buildings are just the artifacts that we trade in, make our livings through, alter in various ways to reduce environmental impact, etc. The fundamental increment for change is not a building... it is the individual human choice. What we realized is that green building was acting as a ladder of awareness that millions of people involved in the industry were starting to climb. Here's what I mean:

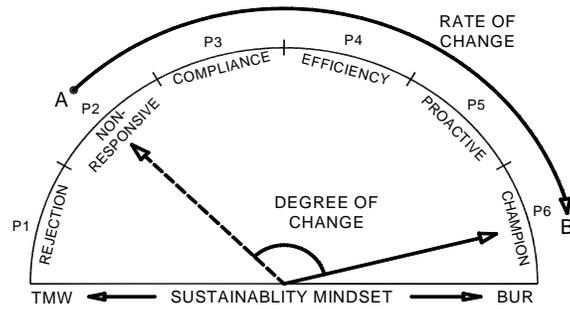


Green Building gets people climbing the ladder of awareness



Many people are jumping on the bottom rungs of the ladder today. They are attracted by the business development opportunities... green building is hot!... or by the cool stuff we're using in green buildings like PV and geothermal heating and cooling. But no matter where they start, they have to climb. As they climb they learn, and at some point they begin to undergo a shift in mindset. They begin to see the world in a fundamentally different way, and their behavior begins to change in every area of their life. This shift is now being studied to try to further understand its dynamics:

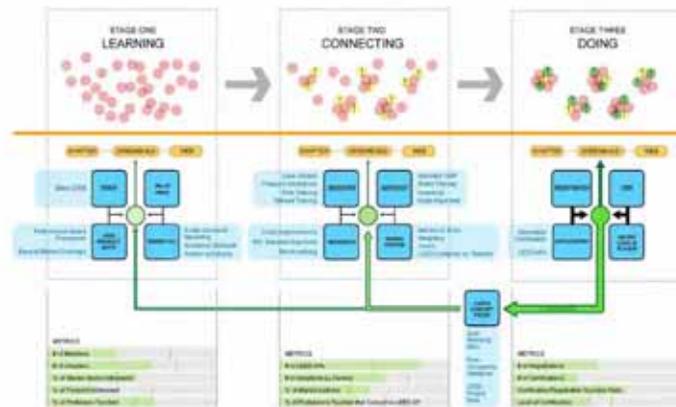
Change Model



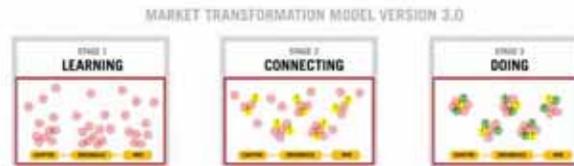
Source: Pivotal Experiences and Championing Sustainability in the Building Industry
 Josette Plaut, 2006

As a result of our understanding of this driver, we've begun to retool everything, even our Market Transformation Model. What you see here is a new schematic for the continuous evolution of LEED.

Market Transformation Model (MXM)



This looks complex, but what's really important about the model is what's happening above the orange line:



It's all about the people.

In response to our awareness about this driver, we recognized that we needed to create a different kind of common language - one directed at focusing the efforts of the thousands of people engaged in this work.

a common language



That language has taken the form of a clearly articulated vision and guiding principles - criteria for decision making - that anyone of those thousands can use to guide their efforts.

VISION

Buildings and communities will regenerate and sustain the health and vitality of all life within a generation.



USGBC will pursue robust triple bottom line solutions that clarify and strengthen a healthy and dynamic balance between environmental, social, and economic prosperity.



PROMOTE THE TRIPLE BOTTOM LINE

USGBC will take responsibility for both revolutionary and evolutionary leadership by championing societal models that achieve a more robust triple bottom line.



ESTABLISH LEADERSHIP

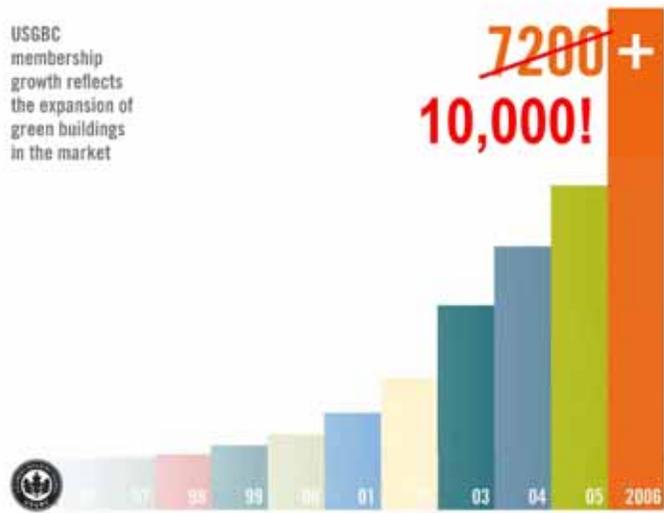




There's another important phenomenon that evolved as a result of this driver – It's all about the people. Concurrent with the introduction of LEED... spontaneously, diffusely...grass roots organizations began to spring up around the country that were populated by industry professionals who cared about the issues being addressed by green building and who cared about creating change in their home towns. Many of these organizations became chapters of USGBC.

Early in the development of chapters we didn't recognize how powerful and important this spontaneous eruption was and so nearly missed the opportunity to leverage their appearance. Fortunately, they wouldn't let us overlook them, and we are now focused on building the strength and capacity of chapters as the front door for USGBC – the entry point for people who are getting on the ladder. Change happens locally. Accelerated change happens through the passion and action of bottom up, grass roots movement supported by top down public policy and civic leadership. That's the engine driving the green building shift in a nutshell.

Before we measured success by buildings... number of green buildings, square feet of green buildings, dollars spent on green buildings. These are still important metrics, but now we measure success differently. We measure it in the number of people who have stepped onto the ladder through their member companies, as green building professionals, or the army of volunteers and active participants in the USGBC community:

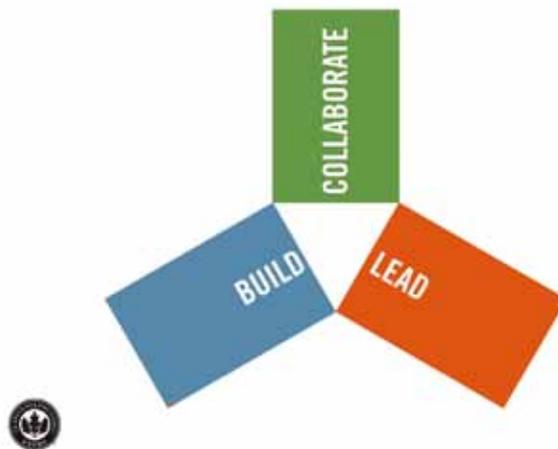


LEED knowledge
 expert faculty
 practical resource
 LEED knowledge
 webinars charrettes
 LEED application & implementatic
 advanced courses
 Greenbuild
 web catalog

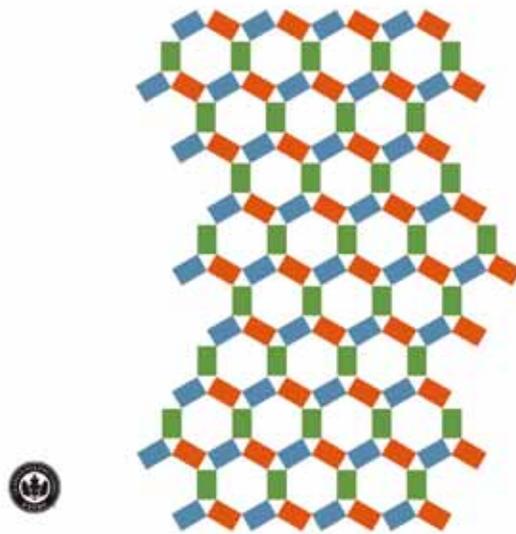
99,000
~~92,000~~



Many of those volunteers are members of the 70 USGBC chapters now spread across the country. They are working together to change their communities,



and USGBC has become the connective tissue binding them together in an organic network that is having a profound impact on the building industry.



About a year ago, I realized that something else was happening – that is that this diverse and distributed network comprised of thousands of people was influencing broader societal change.



You can hardly pick up a magazine or newspaper these days without seeing it – something about the greening of America. Climate change is on the tip of every tongue. All of you non-building industry folks have heard of LEED. These thousands of people climbing the ladder aren't just green builders. They are people like you and me who care about what's going on in their communities and sphere's of influence. They teach their children, vote for their local public leaders, talk to their neighbors, serve on their local school boards and planning commissions, and make countless decisions in their personal and professional lives. In doing so, they have helped to catalyze this massive shift...



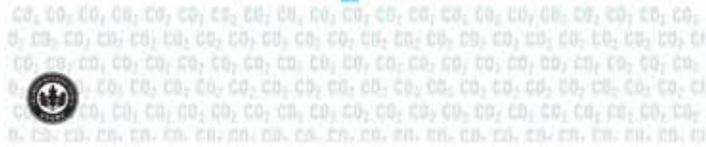
All of the drivers I've identified so far are important, and I believe that they are synergistic as well – meaning independently they could never leverage as much change as they can together. But the overarching driver - the one that enables this kind of sea change – is understanding that everyone wants to make the world a better place, that they want to lead more meaningful lives, that they want to do well BY doing good, and that they are ready and willing to change if you can give them the tools to do so.



RESPOND TO PUBLIC AWARENESS

The last driver for change that I've been able to identify is our ability to adapt and respond to changes in public awareness. Right now, it's the Green Tsunami... the broad societal shift. A key focal point for that shift is climate change, which is being recognized as the single most pressing problem facing the human family. As we did early on, we've identified the impact of buildings, which turns out to be astonishingly large:

Buildings account for **48%** of U.S. CO₂ emissions



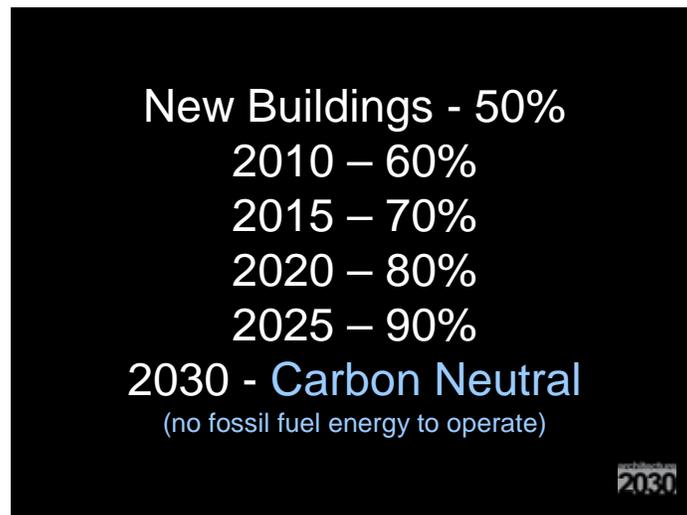
In response, we've upped the ante in LEED so that even a base certified building has to reduce its carbon footprint by 50% over conventional practice.



And we've joined with other organizations in efforts like the 2030 Challenge.



Here's the timeline. We are absolutely confident that this is achievable.



We believe it's achievable because of everything we have witnessed over the last seven years. To put the picture all together for you, I want to do a quick retrospective of the rapid change that's occurred in this brief time frame... a timeframe, again, that is about the same as the one you are grappling with in the Trash Free Potomac initiative:



USGBC THEN AND NOW 2000-2007

THEN

- What's a LEED AP?
- 264 MEMBERS
- 0 SF of LEED Buildings
- Testing 1st Rating System
- CONFUSION
- SELLING GREEN

NOW

- 39,000 LEED APs
- 10,000+ MEMBERS
- 1,000,000,000 SF
- LEED NC, CS, CI, EB, ND, H
- ALIGNMENT & LEVERAGE
- RESPONDING TO GREEN



Context-2000

- Almost no media (limited to science journals)
- Scientific confusion
- Green buildings - oddities
- Early adopters – the fringe
- LEED filling a vacuum
- The mantra: "costs too much, too hard"



Context-2007



- Mass media – 10,000+ hits per month
- Scientific agreement
- Green Buildings - global solution
- Who's using - GE, Walmart, Goldman Sachs
- Competitive landscape – the Green Tsunami
- LEED = Business As Usual

USGBC Then and Now 2000 (Strategic Goal Areas)



- | | |
|------------------|-----------------------------|
| • Org excellence | • 10 Staff, <100 volunteers |
| • Education | • 1 course |
| • Community | • 0 chapters |
| • LEED | • NC pilot |
| • Research | • 0 |
| • Advocacy | • Internally focussed |

USGBC Then and Now 2007 (Strategic Goal Areas)



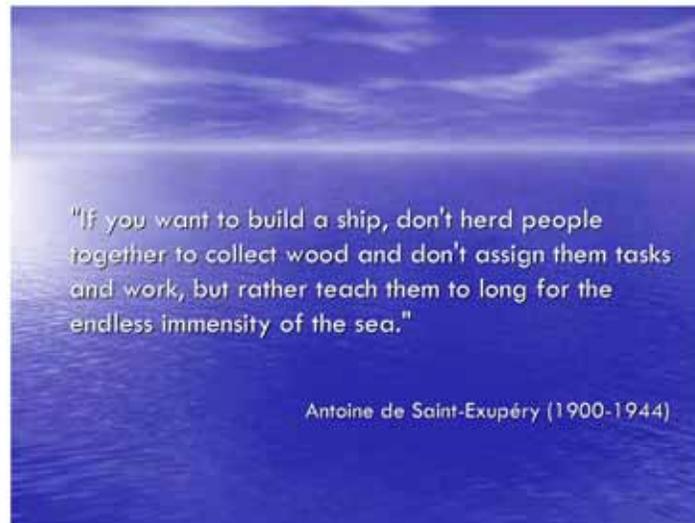
- | | |
|------------------------|---------------------------------|
| • Org excellence | • 100 Staff, >10,000 Volunteers |
| • Education | • Hundreds of offerings |
| • Community | • 8 regions, 70 chapters |
| • LEED | • Many rating systems |
| • Research | • \$Million leverage budget |
| • Advocacy | • National, State, Local |
| • CLIMATE | • 2030 Challenge, CCI, Pew, WRI |
| • INTERNATIONAL | • WGBC, LEED open source |



This astonishing growth has had astonishing impact. I hope you see how each of these drivers can be applied to the implementation of the Potomac Trash Treaty and the achievement of our 2013 goal.



Overriding these drivers is a mindset that we all need to hold if we are going to reach that goal. It's expressed in this quote by Antoine de St. Exupery...



We need to hold the vision of our desired future, and we need to infect everyone we meet with that vision... then get out of the way!



And of course, we need to believe.