Sustainable Design as Design

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Quarterly

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Commitment to sustainable design is fundamentally a change management issue

The 2030 Challenge established by the non-profit Architecture 2030 tasks the global architecture and building community with implementing innovative sustainable design strategies toward the goal of slowing and reversing the growth of greenhouse gas emissions. As collaborative problem solvers, designers are uniquely positioned to be the catalyst that prompts the public and private sectors to embrace this challenge. But we must adapt our traditional models to improve the way buildings are designed, constructed, and operated.

This topic is not new to the pages of DesignIntelligence. However, it is time for our profession to balance rhetoric about this challenge with visible and real actions. The time for talk and pontification is past. We must act.

As we engage in these difficult economic times, sustainability within the design profession is our leadership moment. It offers us the opportunity to be visionaries and champions of the built environment. The marketplace already demands sustainable solutions. Codes and policy increasingly require it. Perhaps most important, local communities and the next generation are searching for answers to environmental issues that the built environment can provide.

> In a true integrated design culture, ideas come from everywhere. This is an evolutionary step that can be a challenge for professionals who came of age in conventional design culture. Integrated design demands collaboration and idea sharing. No longer can select team members to come to charrettes, watch others drive the process, assign tasks, and then return to the comfort and safety of their desks.

Environmental data can be dissected in any number of ways to tell any number of stories. What it consistently reveals is an alarmed public seeking solutions to our vast overuse of resources. An April CBS News poll found that 49 percent of U.S. adults believe environmental conditions will be worse for the next generation. A recent AP-Stanford University Poll asked, "If nothing is done to reduce global warming in the future, how much do you think it will hurt future generations?" Sixty-three percent responded with top box scores of "a great deal" or "a lot." A CBS News/New York Times poll revealed that 70 percent of adults feel global warming should be "one of the highest priorities" or a "serious priority" for government leaders.

As Architecture 2030 founder Ed Mazria unequivocally says about meeting the 2030 Challenge, "If the architecture and design professions don't do this, nobody will."

With so much focus on the environment, how can the design profession offer focused help? With so many new technologies and innovations to master, how do we evolve as professionals to meet these challenges? At a moment in time when industry, business, and creative arts are embracing design thinking as the inspiration for their own change, how do we fundamentally change our thinking to embrace and assimilate sustainable design as design?

Case Brief

The simple answers are never easy. To change, we must commit: We must commit to evolving the current design process practiced at hundreds of firms by thousands of professionals to a method that assimilates sustainability as inherent to design excellence. If not already formalized, environmental stewardship should be a core value of every A/E/C firm. It is that simple.

Commitment not only in our rhetoric but in our actions is the only way the design community will achieve the goals of the 2030 Challenge.

Commitment to sustainable design is fundamentally a change management issue. As with all institutional change, change management is a strategic process to address, assuage, and ultimately overwhelm institutional traction within a firm. Currently, this institutional traction is conventional design practiced at firms founded decades ago by the outstanding architects of their day who now find their initials at the top of a firm's letterhead. It is time for a change.

The goal of firm leaders should be to move the conventional design process toward a collaborative model of integrated design with a focus on sustainable design that over time evolves seamlessly into the simple practice of design that is inherently sustainable.

It is possible to move a firm down this path and systematically advance its design culture to embrace sustainable design and the tenets of the 2030 Challenge.

Committing to the Case

Integrated design is the foundation for DLR Group sustainable design. Formally introduced in October 2007 at the annual meeting of the firm's principals, integrated design was presented as the process to produce true sustainable design. This commitment to be an integrated design practice of collaborative A/E professionals signaled a strategic shift on our design philosophy.

DLR Group is an interdisciplinary firm with in-house civil, structural, and MEP engineering professionals, and integrated design has been spearheaded by both the design and engineering leadership. This co-leadership is symbolic of the transparent and seamless collaboration that is the responsibility of all members of an interdisciplinary design team in an integrated design process.

In a true integrated design culture, ideas come from everywhere. This is an evolutionary step that can be a challenge for professionals who came of age in conventional design culture. Integrated design demands collaboration and idea sharing. No longer can select team members to come to charrettes, watch others drive the process, assign tasks, and then return to the comfort and safety of their desks.

This is an example of institutional traction that must be confronted. However, once this barrier is broken down and people are pushed to that initially uncomfortable place where they are forced to share ideas and provide input, the results can be transformative. This can be a primary benefit of integrated design. People blossom right in front of you. Ideas flow, passion burns brightly, and it's like adding new people into the creative environment of a firm.

Investigation and People of Interest

Application of an integrated design process to produce sustainable design may entail a fresh set of tools and technology. This requires firms to commit both human and financial resources. Design teams must be empowered to test, evaluate, and recommend the purchase of appropriate tools to activate integrated design. It's crucial to let the right people — the project architects and engineers responsible for design development — test these new technologies and associated tools.

The proliferation and power of technology tools, used in concert with building information modeling and other modeling platforms, are crucial to pushing the boundaries of sustainable design. Today, 3-D models created in BIM tools can collect information and accurately analyze the built environment to validate design ideas. Powerful analysis engines such as IES-VE, GBS, and Ecotect energy modeling software can quickly produce meaningful results including energy analysis, daylighting and lighting studies, utility costs, code analysis, and life cycle cost studies.

It is impossible to forecast how technology will enhance the ability of a design team to advance sustainability one, five, or 10 years from today. We only know it will. Then, as now, it will remain the role and responsibility of the designer to use the tools at the disposal of the team to guide an iterative design process to meet the needs of the client, advance the boundaries of design, and meet 2030 benchmarks.

Once a firm begins advancing toward an integrated and sustainable design model, it is targeting and ultimately changing the behavior — the institutional traction — of its entire design staff. Therefore, we must understand and allot time for each audience to progress through a traditional technology adoption life cycle. Those proven audiences are:

- **Innovators**   (risk-oriented, embrace new technologies)

- **Early adopters**   (younger, tend to be leaders)

- **Early majority**   (more conservative but open to new ideas of influencers)

- **Late majority**   (older, fairly conservative)

- **Laggards**   (oldest, very conservative)

These groups exist in every firm. Each progresses through a cycle of awareness, understanding, acceptance, and adoption at different rates. Groups may occupy different phases at any single moment in time. Think about your current design team, your department, or your entire office. You can visualize people in each of these groups and where they are in the adoption of any new technology.

Do not become dismayed with obstinacy or rejection by members of your team. This is not reflective of failure on the part of those leading the charge. It is simply a part of the process when leading change and overcoming institutional traction. As a rule of thumb, if it's not painful, then perhaps it's not real change.

Understanding the audiences as well as their needs and desires is vital as a firm advances on a path toward sustainable design. In many ways, the move from conventional design to integrated design and ultimately to a design culture that is inherently sustainable is a repeating spin cycle of technology adoption.

Leaders must keenly understand that change is a phased process. This is why it's essential to introduce new technology and tools in a cascading approach to each audience of the technology adoption life cycle.

A key tactic to drive change is activating the innovators and early adopters within a design culture to carry the banner of change vertically though the firm. To engage these key groups within our firm, a formal presentation was developed that defined integrated design as practiced by DLR Group. The intent was to introduce a common language, approach, and process for integrated design.

As a team, the firm's national leaders for design and engineering delivered the presentation in every office. This office tour also provided a forum for the majority and laggard audiences in each office to address their concerns about the firm's commitment to an integrated design process.

The opportunity for staff to state their objections and question the leaders of integrated design was essential to the ultimate acceptance of the process. Integrated design represented the biggest shift in how the firm designed projects and serviced clients in its 40-year history. It had the potential to fundamentally alter the way DLR Group interacted with every audience involved with a project.

The tour's aim was to be a tangible symbol of the shift to integrated design. It was real. The firm had committed. We needed to make it clear that change was afoot and every design professional had to get on board.

Evidence

Modification of our core values was the first tangible evidence of the commitment to sustainable design and the aims of the 2030 Challenge. The firm added environmental stewardship as a core value, which conveyed the permanence of our 2030 commitment to staff. This commitment was further emphasized during annual business planning when each office pledged to apply the integrated design process on projects during the year.   Both intra- and inter-office integrated design committees were formed. Their respective roles were to champion integrated design vertically in their office and horizontally across the firm. Each had metrics to achieve and report at fiscal year end.

After careful consideration and fully aware of the change such a commitment would require, DLR Group formally joined with

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Architecture 2030 to adopt the 2030 Challenge on Nov. 24, 2008. On April 22, 2009, DLR Group became an initial signatory of the AIA 2030 Commitment Plan.

The commitment to AIA 2030 included submitting a sustainable operations plan for public and industry viewing. Also submitted was a formal sustainable action plan outlining the commitment and actions the firm would take toward the goals of Architecture 2030 and the 2030 Challenge.

The AIA 2030 action plan details principles to guide the firm as it moves, ultimately, to a design culture that is inherently sustainable. These principles include goal setting for energy efficiency, testing, optimizing energy efficiency, post-occupancy verification, adapting our own internal operations, and other tangible and measurable steps that lead to sustainable design and the goals of the 2030 Challenge. Four key steps provided evidence of the commitment to change:

1. Adding environmental stewardship as a core value

2. Establishing office metrics for application of integrated design

3. Formal adoption of the 2030 Challenge

4. Submitting the AIA 2030 Commitment

Action Plan

Throughout 2009 and into 2010, in the midst of a challenging and hypercompetitive marketplace, DLR Group senior leadership maintained its emphatic support of sustainable design. This support included ongoing, advanced BIM training in every office for design professionals; continuous testing, evaluation, and investment in new software tools; the formation of a green team network across the firm; and the introduction of a comprehensive intern development program.

Each office took action to promote and ingrain sustainable design locally. These efforts include innovation grants to research sustainable concepts, brown bag lunch forums, Green Weeks to drive awareness in an office, and other professional development programs.

The most significant professional development program at DLR Group is the firm's DLR University (DLRU). This is an annual retreat at the IslandWood sustainable campus on Bainbridge Island, Wash., in Puget Sound. In July, 50 DLR Group design professionals gathered at DLRU 2010 for a sustainable design charrette boot camp. This was both a test of the degree to which sustainable design had penetrated our design culture and, ideally, a clear benchmark of our progress toward sustainable design.

Applying DLR Group's integrated design process, six design teams had seven hours to develop, model, and test the energy use intensity of a school design to reach levels in accordance with the 2030 Challenge. Each team was tasked to redesign their school in one of six unique regional climate types: Pacific Northwest, desert Southwest, at elevation, Midwest extremes, frigid upper Midwest, and Mediterranean.

Through iterative design, each team produced sustainable designs that met the benchmarks of the 2030 Challenge. The outcome of DLRU was an understanding that sustainable architecture is design-driven. It is an integrated, collaborative process beginning with basic ideas of climate and site to help inform space and occupation. The message to attendees was that tools are in place for them to take sustainable design to the next level. Sustainability is no longer a nice-to-have feature. It's what we do.

Proof

DLR Group is on the path to a sustainable design culture. The proof that we are succeeding was born out of the firm's recent five-year strategic visioning process. This was a collaborative process, with every DLR Group office and employee-owner having an equal voice in setting the strategic course for the firm. Within each office, in multiple work sessions involving design teams, practice areas, and in office-wide charrettes featuring diverse groups of age, experience, expertise, and backgrounds, the concept of sustainability consistently rose to the forefront.

Today, "Lead the 2030 Challenge" is a formal goal of DLR Group's strategic firm vision. It's the activation of our commitment. It is proof that the firm has galvanized behind the efforts to advance sustainable design.

Sustainability is not merely a design benefit to sell to a client. It's reality. It's what DLR Group is about as a firm and the outcome of the design process for projects, for communities, and for our planet.

It's simple.

Steven McKay RIBA is a Managing Principal and the Global Design Leader of DLR Group. He guides the firm in fulfilling its vision to elevate the human experience through design and is involved in leading activities related to the firms design best practices and implementation of a consistent and rigorous language of design across all corners of the firm's global footprint. His ongoing involvement in the broader design community includes current and recent positions as a Senior Fellow and Advisory Board Member of the Design Futures Council; membership in the Architectural Advisory Council for the College of Design at Iowa State University; and the AIA Large Firm Roundtable Sustainability Sub-Committee and Seattle AIA Honors Awards Committee Chair. He is a Chartered member of the Royal Institute of British Architects, an International Associate of the American Institute of Architects and a LEED accredited professional who regularly presents and writes on topics of design excellence, culture and practice.