



The American
Institute
of Architects

THE BELL PROPELLED

A Progress Report on the Sustainability
Leadership Opportunity Scan



Building upon our legacy of leadership

The American Institute of Architects has provided the architectural profession with sustainability leadership for more than 40 years.

In 1973 the AIA Energy Committee became the Institute's earliest sustainability committee. In 1990 the AIA embraced a broader ecological approach to sustainability with the formation of the Committee on the Environment (COTE). And in 2013 the AIA reached another significant milestone: publication of the *Sustainability Leadership Opportunity Scan* (or "Scan").

Recognizing sustainability as "a mainstream global movement," the **Scan** identified opportunities to advance architects' unique role in influencing the future of sustainability in the built environment. Further, the Scan presented specific strategies and tactics to expand architects' sustainability leadership around four priority areas. By addressing the most significant global issues of our time, the Scan suggested, the AIA would

empower members to drive and meet market demand for buildings and communities that enhance individual and environmental well-being.

This report is part of a process to build upon, expand—and evolve—AIA's sustainability journey.

KEY FINDINGS AND RECOMMENDATIONS FROM THE SCAN

The Scan's recommendations effectively redefined sustainability for the Institute and spurred both organizational and strategic shifts in subsequent years.

First, the Scan identified four priority areas in which AIA and its members exert influence: energy, materials, health, and resilience. Energy and materials were further identified as "Core" issues central to the

architect's role in practice. Health and resilience were designated as "Emerging" issues—complex areas to which architects can contribute design leadership, isolate and define contributing factors, integrate solutions with other systems, and enhance their value to their communities. For each of the four priority areas, the Scan outlined broad three-year action plans for the Institute.

Second, the Scan addressed AIA's unique opportunity to promote sustainability leadership opportunities for all interested members, regardless of their experience. The Scan characterized this approach as "owning and propelling the bell." It encouraged the Institute to create multiple entry points for members to launch—or evolve—their own sustainability journeys.

CHARTING A PATH FORWARD

The Scan charted a path forward for AIA to implement strategies to address each of the four priority areas; to support bold action at the member, component, and national levels; and to expand sustainability partnerships, advocacy, and educational programs.

Our recent work with Architecture 2030, the BuildStrong Coalition, the National Institute of Building Sciences, the U.S. Green Building Council, and other organizations reinforce architects' leadership in the building sector. Innovative partnerships beyond the profession—including 100 Resilient Cities, the American Public Health Association, and the Insurance Institute for Business & Home Safety—position architects as partners in designing a better, more sustainable future. Our culture of partnership extends to federal agencies, too. We continue to collaborate with the Centers for Disease Control and Prevention (CDC), Department of Energy (DOE), Environmental Protection Agency

(EPA), and Federal Emergency Management Agency (FEMA) on tools, resources, and education for architects.

Since 2013 AIA has acted to improve building codes, expand resilience incentives, and defend critical federal programs and resources. In 2014 we introduced new [public policy and position statements supporting sustainable design, land use, and construction](#). Updated in 2017, these statements are reflected in our [statement of values](#).

The AIA has invested significantly to expand our educational offerings in each of the four priority areas. Supported in part by a Robert Wood Johnson Foundation grant, we introduced curated sustainability education at the AIA Convention 2014. Offered again in 2015, 2016, and 2017, these collections featured outstanding education and events relevant to energy, materials, health, and resilience in practice. In 2015 we partnered with AIA Seattle and Architecture 2030 to introduce the

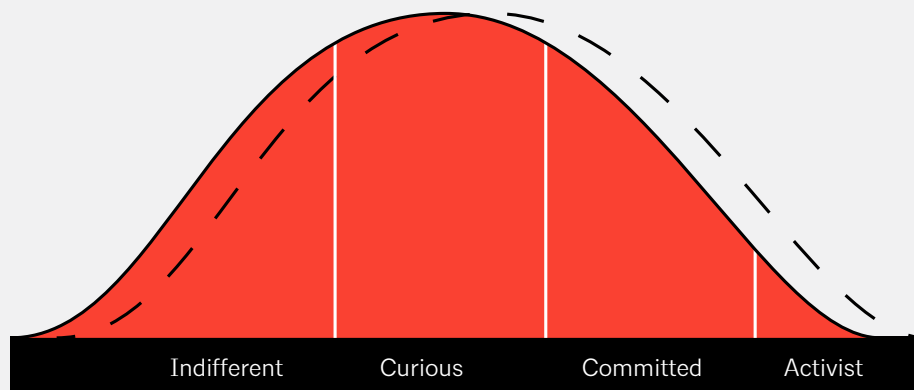
first of four online sustainability curricula: the [AIA+2030 Online Series](#). Subsequent series will focus on health and well-being, resilience, and materials optimization.

POWERED BY MEMBERS

Our efforts to promote sustainability leadership opportunities have been underscored by greater member engagement. At the local level, more than 65 communities have formed more than 150 interest groups to address active design, community resilience, urban planning, and other sustainability topics. In Texas alone, more than 250 volunteers were trained to assess more than 4,000 structures for safety and habitability following Hurricane Harvey. In sum, thousands of member-hours fuel national, regional, and local sustainability initiatives.

AIA Knowledge Communities (KCs) have been critical drivers of this movement. KCs provide a platform to apply abstract sustainability concepts to real practice challenges. For example, the Historic Resources

Own and propel the bell





Committee—which advocates for building preservation and reuse to reduce waste, cut carbon emissions, and preserve the character of communities—hosted a conference on whole-building life cycle assessment at Taliesin West in 2015. Of the 21 member-led KCs, at least five have added sustainability criteria to their awards program, and 12 actively share sustainability content online or at conferences. Those include the Academy of Architecture for Health, Academy of Architecture for Justice, Building Performance Knowledge Community, Committee on Education, Regional and Urban Design Committee, and—most conspicuously—COTE.

Since its creation, in 1990, COTE has provided an important forum for members to communicate with one another and to amplify their voices. Its monthly newsletter has broadcast sustainability efforts from across the Institute to 11,000-plus members since 2015. More recently COTE launched an [Advocacy Network](#) to promote policy and urge continuation of vital federal programs and resources, including EPA’s Energy Star program and the DOE’s Building Technology Office. Letters to EPA and DOE were signed by 775 and 654 firms, respectively.

BY THE NUMBERS

42

local COTE groups

33

disaster assistance committees

22

health and well-being committees

18

active design committees

18

2030 Commitment roundtables

11

building performance committees

7

resilience and climate adaptation committees

6

materials committees

Shaping practice through our priority areas

The following sections provide a look back at where we started with each priority area, an assessment of our impact, examples of initiatives and activities undertaken since 2013, and a snapshot of current leadership opportunities.

Reducing energy use and combating climate change

WHERE WE STARTED

The AIA has a long history addressing energy issues. In the 1970s we focused on energy-efficient building design to address an ongoing energy crisis. Over time the focus has evolved to developing tools and resources for architects to combat climate change by reducing greenhouse gases generated in the built environment. AIA adopted the **2030 Challenge** in 2005 and introduced the **AIA 2030 Commitment** four years later. In 2013 the AIA published *Deep Energy*

Retrofits: An Emerging Opportunity in partnership with Rocky Mountain Institute.

OUR IMPACT

AIA has continued to advance the role of architects in reducing energy use and greenhouse gas emissions, with a focus on established metrics and measurable performance. Further, we have encouraged the profession to address the fact that the built environment accounts for the majority of human-caused carbon emissions. Our new tools and resources—including 2030 Commitment enhancements—have made it easier

BY THE NUMBERS

473

firms are signatories to the AIA 2030 Commitment (as of January 25, 2018)

1,300+

purchases of AIA+2030 online education

9.3 billion GSF

reported by AIA 2030 Commitment signatory firms since 2013

The leadership opportunity identified in the Scan was to “build on the AIA’s energy platform, align its efforts, and ‘supercharge’ the Institute to rapidly scale up the profession’s impact and opportunities.”

for architects to combat climate change, improve their bottom line, and commit to a zero net carbon future.

WHAT WE'VE DONE

In 2017 the AIA Energy Leadership Group spearheaded the development of the *AIA Commentary on Climate Change Mitigation*. The **Commentary** laid out the imperative for the Institute and its members to combat climate change through education, energy modeling, and policymaking. This effort formed a basis for the AIA's 2017 **value statement on climate**

change, which detailed the principles underlying AIA's approach to reducing carbon in the atmosphere. Together these statements on climate change reaffirm our commitment to private-sector leadership and actions that drive toward a zero net carbon future.

The AIA 2030 Commitment helps signatory firms track progress toward the **2030 Challenge** goal of carbon-neutral new construction and major renovations by 2030 and fosters a firm-wide culture of sustainability. New features—including a mentorship

program, peer-to-peer support network, and online database—make joining and participating in the Commitment easier. The **Design Data Exchange (DDx)** is a proprietary confidential database designed to streamline the collection, aggregation, and analysis of firms' project data specific to predicted energy performance. It was developed in partnership with dedicated members, the DOE, EPA, and Architecture 2030. Since 2013 **the program has grown** from 274 signatory firms to more than 470 today.



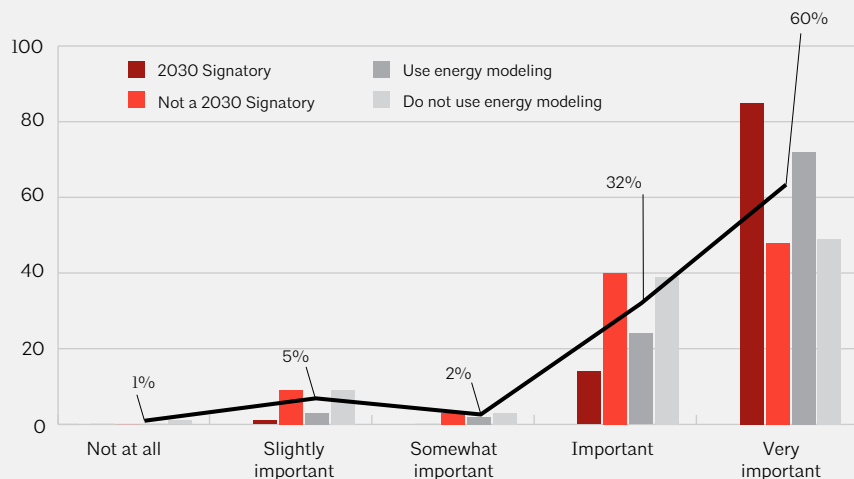
Connect the importance of energy modeling to achieving energy efficiency outcomes.

Throughout this report we have culled insights from AIA's 2016 Sustainability Trends Survey to identify opportunities for continued sustainability leadership. The survey will be administered again in 2018.

Overwhelmingly, architects and clients agree that energy efficiency is important. Half of all architects report some engagement with energy modeling, a critical tool for predicting—and reducing—energy use in buildings.

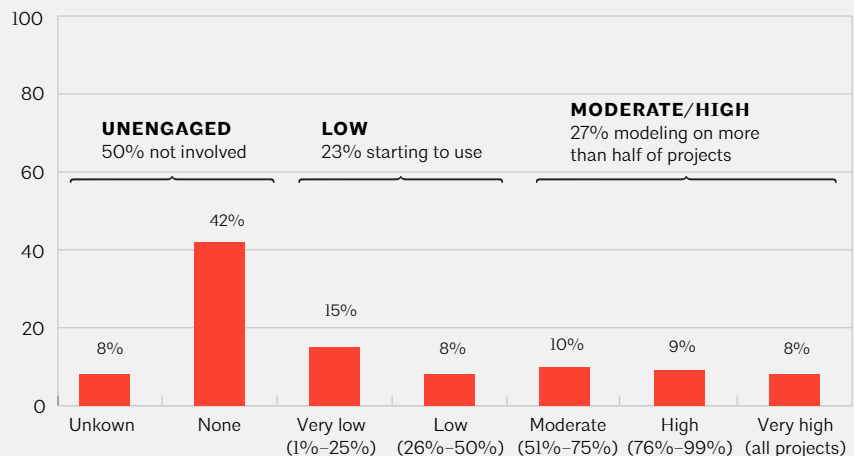
Nearly all respondents found energy efficiency important

% of all members reporting importance of energy efficiency (n=391)



Half of architects have some engagement with energy modeling

% of projects using energy modeling (n=391)



“The 2030 Commitment’s structure offers two key benefits to smaller firms. First, it applies a rigor to our work and provides access to great information that can inform our design work. Second, it places us on the same playing field as the ‘big guys’ in our business, since we’re all working toward the same targets.” —Stacey White, AIA, mode associates

Firms are increasingly incorporating the early iterative use of energy modeling—whether in-house or through consultants—to meet or exceed energy performance goals on projects. However, there is room to educate clients about the benefits of modeling, including both initial cost and overall life-cycle savings. Since 2013 the AIA has published numerous resources to help architects seize energy-related business opportunities, including the 10-course *AIA+2030 Online Series* and *Deep Energy Retrofit RFP Guidelines*, developed with the Rocky Mountain Institute and the Building Owners and Managers Association. In 2018 the AIA will publish an update to the *Energy Modeling Practice Guide*, which includes an introduction to available tools and resources.

Helping architects choose materials responsibly

WHERE WE STARTED

In 1991 the AIA Board of Directors challenged members to eliminate ozone-depleting refrigerants in their projects. Subsequent efforts to consider the impact of building materials on environmental and human health focused largely on single-attribute issues: recycled content, regional materials, and VOC emissions. As understanding of the life-cycle effects of materials

selection increased alongside more traditional performance, cost, and aesthetic aspects, architects began to seek more guidance about balancing the tradeoffs inherent in materials selection. In 2010 AIA published *Building Life Cycle Assessment (LCA) in Practice* to help architects understand and use LCA methodology as part of the design process.

The leadership opportunity identified in the Scan was to “take the opportunity now to build on the legacy of AIA’s early materials initiatives and demonstrate new relevance in an area that is increasingly important to clients, regulators, and design professionals.”

OUR IMPACT

As the universe of information about building materials’ composition and life cycle expands, the AIA has worked to map the materials landscape, understand the risks and opportunities for architects, and engage building product manufacturers in proactive conversations.

“The core of Hellmuth + Bicknese Architects’ mission is to design in ways that lead to a positive and enriching future. The AIA’s ‘Materials Transparency & Risk for Architects’ white paper, and other tools being developed by the AIA Materials Knowledge Working Group, help us increase our ability to design using materials that improve the human condition.” —Ralph Bicknese, AIA, Hellmuth + Bicknese Architects

WHAT WE’VE DONE

The AIA established the Materials Knowledge Working Group in 2014 to inform the development of education and resources that help architects responsibly navigate the complex materials landscape, and increasingly consider the health and environmental attributes of materials in their design decisions.

Of immediate concern for architects are the associated legal and practice questions. AIA brought together a team of architects, legal counsel, and insurers to address these issues directly in 2015. The resulting white paper, *Materials Transparency and Risk for Architects*, covers the basics of materials transparency, the potential risk for legal exposure, and how to mitigate risk through client communication and coordination with consultants. It also explicitly cautions architects to stay within their training and expertise; the interpretation and assessment of ingredient disclosures is the purview of materials scientists and similarly trained professionals. Based on that effort, the AIA Contract Document *B503-2007 Guide for Amendments to AIA Owner-Architect Agreements* now includes model contract language related to materials transparency.

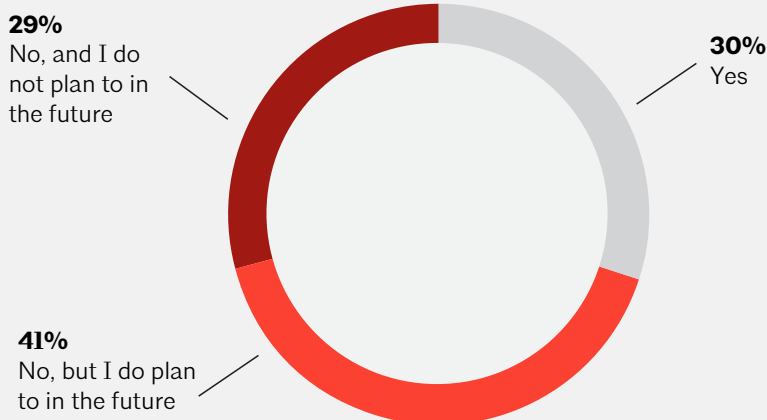


Drive members to materials transparency resources.

A majority of architects say that materials transparency is important, and more than 40 percent indicate that they will begin to use materials transparency resources in the future.

Large opportunity to expand audience for transparency resources

% of members referencing materials transparency information (n=391)



Recognizing the need for comprehensive applicable education, AIA partnered with AIA Seattle to pilot the five-part Materials Matter workshop series in late 2016 and early 2017. The [curriculum](#) gives participants an overview of materials science relating to human and environmental health, and provides guidance on how to consider materials' impacts in practice. After a successful pilot, the series is being presented by AIA Colorado, AIA Dallas, AIA Philadelphia, AIA Portland, and AIA Seattle for a second time. It is also being adapted into online AIAU courses.

The firm Arup teamed with AIA on a new process guide for project teams pursuing materials health goals. *Prescription for Healthier Building Materials: A Design and Implementation Protocol*, coming in 2018, will include strategies to increase buy-in from clients,

consultants, and the market. Case studies and sample healthier materials plans will outline various approaches for teams to reference in their work.

Designing for health beyond the hospital

WHERE WE STARTED

For more than two decades, AIA has supported efforts to demonstrate how the built environment impacts people's physical and mental health. Much of the early research was funded by the AIA Academy of Architecture for Health and focused on health outcomes in healthcare settings. Increased acceptance of the role social determinants of health—including access to healthy foods, a safe neighborhood, and a living wage—on how long we live shifted AIA's programs to include building- and community-scale solutions. In 2012 AIA funded three university research projects and published a

[policy guide](#) related to designing healthier communities. The next year AIA formed the multidisciplinary Design and Health Leadership Group to shepherd awareness- and market-building efforts related to design and health.

The leadership opportunity identified in the Scan was to play a role "in driving leadership for architects as part of the larger dialogue at the intersection of design and human health."

OUR IMPACT

AIA has collaborated with public health and built-environment professionals to position designing for health as more than designing hospitals. We've catalyzed new multidisciplinary research and started translating it for application in practice. Through our actions, we have contributed to changing how people communicate the health impacts of their work.

WHAT WE'VE DONE

Together with the [Association of Collegiate Schools of Architecture](#) (ACSA) and [Architects Foundation](#), we hosted the Value of Design: Design and Health conference in 2014. The event was keynote'd by Rear Admiral (retired) Boris D. Lushniak, MD, MPH, who was then-acting surgeon general of the United States. More than 100 design, health, and policy participants helped identify [six evidence-based approaches](#) designers can use to promote health and well-being in any project type.

We worked with ACSA again in 2014 to launch the Design & Health Research Consortium, a unique collaboration between architecture schools, public health schools and programs, and community partners. [Consortium](#) members build bridges between academia and practice by creating evidence-based design tools, conducting peer-reviewed research, and translating health outcomes for policymakers and the public. In late 2016, AIA, HOK, and the University of Florida team piloted focus groups to quickly iterate practice implications of cutting-edge research.

In 2017 AIA and seven partner organizations affirmed our [shared position](#) that where we live, work, and play are key determinants of mental and physical health. We challenged more than 450,000 individual members—comprising architects, urban planners, landscape architects, developers, and professionals from public health, parks, and green building—to take specific steps toward making health a primary consideration in land use, design, and development. The call to action has spurred collaborative programming with the partner organizations in several cities, including Washington, D.C., and Denver.

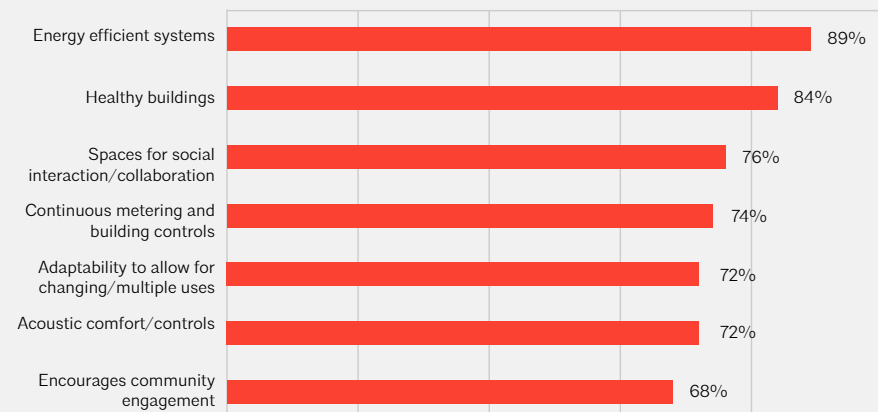


Empower architects to engage with clients on health outcomes.

Eighty-four percent of owners plan to include attributes of healthy buildings in projects by 2019; however, architects are not yet discussing health outcomes with clients on a regular basis.

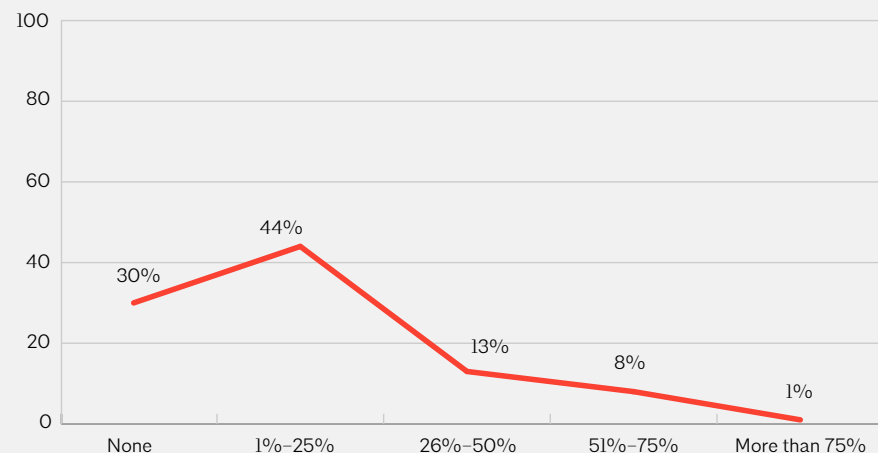
Attributes to be included in projects over the next three years

% of owners reporting that they plan to include the attribute in projects



Architects aren't discussing health outcomes with clients

% clients discussing health outcomes (n=354)





Fayetteville 2030: Food City Scenario, a 2016 AIA Regional and Urban Design award recipient.

"When the AIA identified evidence-based approaches to design for well-being, they called attention to the expanding body of research addressing the built environment's effect on occupant health. This data has enabled me to engage my firm, our consultants, and our clients in conversations to develop strategies for greater well-being in the buildings and spaces we use every day."

—Ashley Grzywa, AIA, Bonstra Haresign Architects

BY THE NUMBERS

100+

design, health, and policy experts attended the 2014 Value of Design: Design and Health conference

450,000

individuals called upon to collaborate across professions to promote healthier, more equitable communities under the Joint Call to Action to Promote Healthier Communities

\$72.9 million

in funding received by Design & Health Research Consortium schools to support practice-relevant research linking design and health outcomes



AIA CEO Summit participants discuss resilience issues.

From reactive disaster assistance to proactive resilient communities

WHERE WE STARTED

The AIA has been involved in disaster response and recovery since 1972. In 2005 the AIA formalized the Disaster Assistance Program to ensure that AIA and our members are prepared to assist communities affected by natural and manmade disasters. But response is just one part of the built environment's disaster cycle. Architects have important roles in mitigation, preparedness, response, and recovery to create resilient and adaptable communities. By 2013 the AIA recognized the need for resilient communities to address not only natural disasters, but also the exacerbating impacts of population growth, environmental degradation, and climate change.

The leadership opportunity identified in the Scan was “to transition to promoting a proactive resilient design role for architects.”

OUR IMPACT

Through our Resilience & Adaptation initiative, we have begun to transform the role of architects from primarily providing reactive disaster assistance to actively leading community resilience efforts. This includes advocating for land use and building codes to reduce future loss and injury; incorporating changing environmental, social, and economic conditions into planning and design; and creating structures that have the flexibility to accommodate shifting needs throughout their service life. We have promoted architects' unique capabilities and encouraged members to sharpen skills necessary to address the interrelated challenges of resilience.

WHAT WE'VE DONE

As a platform partner to the 100 Resilient Cities initiative, we work with local AIA components to center the conversation about resilience on shocks—hazard events typically associated with large-scale disasters such as hurricanes, earthquakes, and

floods—and stresses—gradual and perpetual disturbances such as sea level rise, drought, and population shifts that often reduce a community's ability to recover when shocks strike. Our website features dozens of resources, tools, and guides to help architects handle potential **changes in our climate**, articulate **qualities of resilience**, and design buildings and communities that can withstand **shocks and stresses**.

One resource, the *Disaster Assistance Handbook*, serves as a **go-to guide** for architects, built environment professionals, municipal government officials, and others involved in disaster mitigation, preparation, response, and recovery. Another resource, our Resilience Network, was created in 2015. The **easy-to-join** forum provides a platform for AIA members to exchange ideas, opportunities, and research related to hazard mitigation, climate adaptation, and community resilience. Both resources emphasize the importance of a cross-sector, interdisciplinary approach to confronting the complex

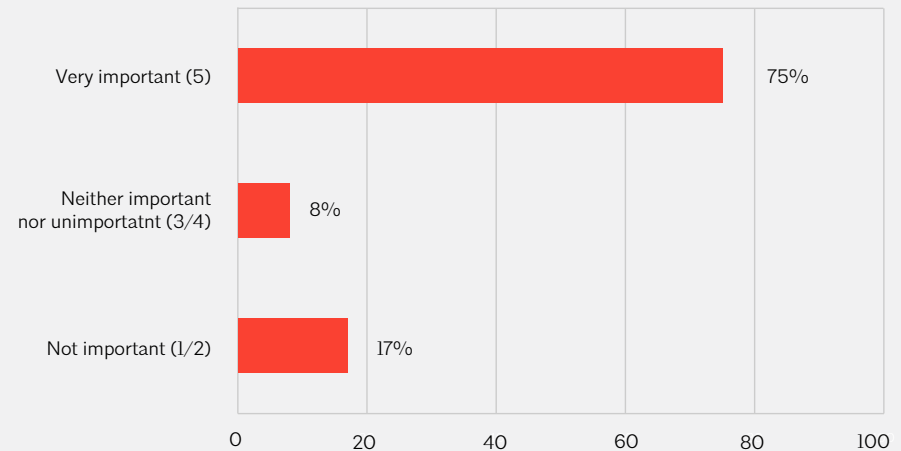


Empower members to recognize and integrate qualities of resilience in their projects to create longer-lasting adaptable buildings.

Seventy-five percent of architects believe it's very important for buildings to be designed to withstand shocks and stresses, and 24 percent of members incorporated it on more than half of their projects. Only 13 percent are completely unengaged, suggesting an audience open to greater adoption.

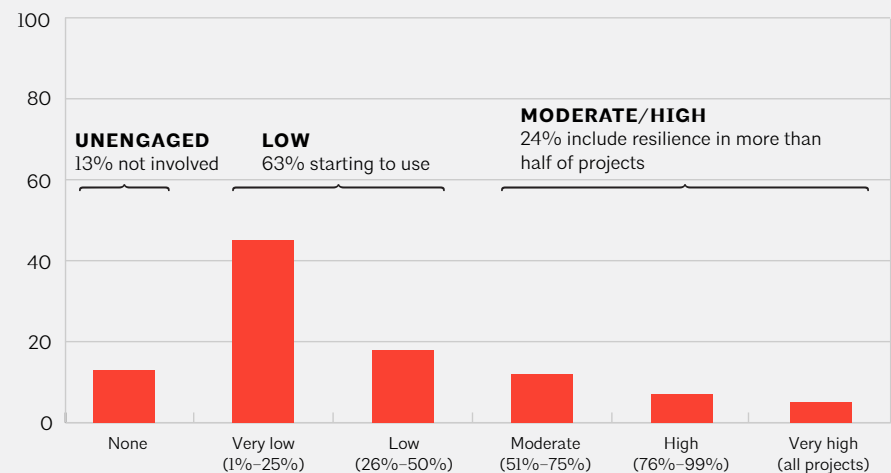
Three-fourths of architects indicate resilience to be important

Base: Total respondents n=391



Resilience curve poised to move quickly

% of projects with resilience characteristics (n=391)



issues that often prevent communities from being resilient and adaptable.

In 2014 we co-authored the landmark Building Industry Statement on Resilience with the National Institute of Building Sciences and CEOs of more than two dozen design and construction industry associations. The [statement](#), now with 44 signatories, recognizes that contemporary planning, design, construction, and operational techniques can make our communities more resilient to threats including

hazards, environmental degradation, climate change, and population changes. Signatories commit to making our communities safer through advocacy, direct disaster response, and education within the industry.

At the White House Resilient Building Code Summit in late 2016, the AIA published a report on industry [progress](#) since the statement. *Preparing to Thrive* highlights more than 40 new initiatives to support the statement's goals, including research on the economic

benefits of resilience initiatives and advocacy for strengthening building codes. During the [summit](#), we also committed to developing a 10-course online resilience curriculum for architects. Our Resilience Education Working Group engages innovative architects, insurers, and representatives from FEMA and the General Services Administration (GSA) to produce educational content related to risk reduction, hazard mitigation, and climate adaptation in new and existing buildings. The first course will be released in 2018.



Continued leadership at the cutting edge

It's important to acknowledge how the Committee on the Environment's strategic and practical leadership and guidance has continually challenged and redefined what sustainable design is and can be for AIA and its members. Since the Scan, COTE has worked to expand the reach of AIA's sustainability programs and modeled paths to integrate the four priority areas.

One of the most high-profile, well-respected, and comprehensive expressions of sustainable design is the COTE Top Ten Awards program. Since 1997 the Top Ten has recognized projects that showcase the holistic integration of great design with exemplary performance: You can't have one without the other.

The COTE Top Ten Awards provide valuable insights into industry trends and design best practices, much of which COTE has captured in two reports. *Lessons from the Leading Edge* (2016) is a comprehensive, comparative examination of the COTE Top Ten award recipients from

1997 to 2015. It catalogs enduring and evolving design strategies, and offers insights into how to spur wider industry adoption of sustainable design. *The Habits of High-Performance Firms* (2017) focuses on multiple-award recipients, capturing the best practices that combine to place sustainability at the center of a firm's culture.

In 2017 COTE revamped the COTE Top Ten Measures to reflect an expanded definition of sustainability, including community, ecology, water, and wellness. Because the new criteria emphasize both actual performance and design intent, the COTE Top Ten Plus designation now denotes projects with exemplary performance and post-occupancy lessons. The updated criteria also apply to COTE Top Ten for Students, launched in 2014 to encourage faculty and the next generation of practitioners to incorporate sustainability in the studio. In 2018 the program is being offered in conjunction with Architecture 2030 as *AIA COTE Top Ten for Students: Innovation 2030*.



MEASURE 1

Design for integration



MEASURE 2

Design for community



MEASURE 3

Design for ecology



MEASURE 4

Design for water



MEASURE 5

Design for economy



MEASURE 6

Design for energy



MEASURE 7

Design for wellness



MEASURE 8

Design for resources



MEASURE 9

Design for change



MEASURE 10

Design for discovery

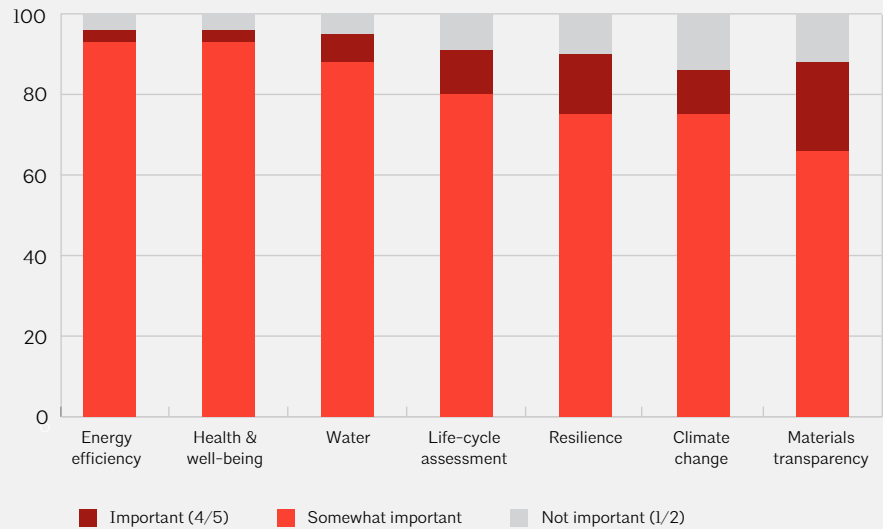


Expand our suite of tools and resources to meet existing demand.

Architects overwhelmingly agree that many aspects of sustainability are important to them and their practice.

Members feel that sustainability is important

Importance of sustainability areas (n=391)



Looking forward

Sustainability is not an endpoint, but rather an ongoing cycle of identifying challenges, developing solutions, and taking action. Our work is not yet done; leadership opportunities around energy, materials, health, and resilience persist. As adoption of sustainability practices increases, the Institute will provide deeper and more diverse practice-based education, research, and tools to support our members.

At the same time, members are interested in a broader array of sustainability aspects than we specifically address. Many of these issues—including sustainable water use, zero net carbon, and social equity—are complex and require integrated systems-based solutions. They also represent expanded opportunity for members.

As the suite of sustainability services that architects can provide increases, AIA will advocate for opportunities to match those skills to market demand. New architectural service offerings such as deep energy retrofits, design analysis, performance evaluations, building systems research, post-occupancy evaluation, and policy-related work expand business opportunities firms can pursue. They also help to deliver stronger value to clients with long-term operating savings, healthier and more resilient buildings, and increased attraction and retention of tenants.

What will remain constant, however, is the Institute's enduring commitment to equipping architects with the tools needed to meet the sustainability challenges of today—and those of generations to come.