AIA Best Practices:
Sustainable design: An ethical imperative

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Summary

The technological advances of the 20th century's industrialized economy did considerable harm to the world's natural environment. A good deal of this harm can be attributed to the design, construction, and operation of buildings. To provide context for discussing the ethical imperative for sustainable design, this paper will first touch briefly on the AIA Code of Ethics and how it connects to the profession's other regulatory influences. It will then describe the intent behind the 2018 amendments to the Code of Ethics, what they mean to the practice, and how they relate to the architect's established standard of care. It will conclude by exploring the implications and expectations that these new ethical standards create for the profession.

Topic overview

The technological advances of the 20th century's industrialized economy did considerable harm to the world's natural environment. Among these harms, atmospheric greenhouse gas production has reached a level that is changing the earth's climate and threatening human life.[1]

A good deal of this harm can be attributed to the design, construction, and operation of buildings. Among the many environmental impacts from the architecture and construction industries, it is an established fact that building energy use presently accounts for 39% of all global carbon dioxide emissions.[2] The carbon emitted by the construction of buildings, also known as "embodied carbon," accounts for an additional 11% of CO_2 emissions.[3] But in addition to that, the spread of persistent and bio-accumulative toxins throughout the world's ecosystems, the depletion and pollution of water resources, the displacement of communities, and the denigration of bio-habitats can all be attributed in some part to the design, construction, and operation of buildings.

The American Institute of Architects and its members, cognizant of these harms and committed to transforming the practice of architecture, have long embraced "green building" as a desirable expertise. But even as this knowledge has become more desirable, and the expertise more valuable, proponents of sustainable design are still regarded as a special interest group or a design sub-discipline associated with but not included in an architect's conventional services. With the 2018 amendments to the AIA's Code of Ethics and Professional Conduct, this relationship has been changed. Sustainable design is no longer an optional or specialized expertise but is now part of an AIA member's ethical obligations.

To provide context for discussing the ethical imperative for sustainable design, this paper will first touch briefly on the AIA Code of Ethics and how it connects to the profession's other regulatory influences. It will then describe the background of how the 2018 amendments to the Code of Ethics came to be, what they mean to the practice, and how they relate to the architect's established standard of care. It will conclude by exploring the implications and expectations that these new ethical standards create for the profession.

Architecture: A highly regulated profession

Architecture is a highly regulated profession. Contract law governs our professional service agreements, U.S. states and municipalities have authority over architecture as a licensed occupation, and codes and standards regulate much of what is constructed.

Every U.S. state has a licensing board and enabling acts that define the conditions of licensure and the practice of architecture. The laws that create state licensing boards often include rules of professional conduct for architects. These rules define an architect's duties, but also include provisions against such unethical behaviors as misrepresentation and conflicts of interest. Furthermore, these laws give state licensing boards the authority to take disciplinary actions against architects who violate rules of conduct, including the power to suspend or revoke their licenses, fine, or criminally prosecute.

Codes, standards, and policies influence an architect's practices inasmuch as they regulate design choices and construction practices. For example, increasingly stringent energy efficiency standards are being adopted by state and local governments to address the link between building energy use and greenhouse gas production. These regulations impact how architects design their projects within those jurisdictions.

But in many ways, an architect's obligations are greater than what is defined by laws and codes. The disciplines that have come to be understood as "green building" or "sustainable design" and, more recently, "resilient design" arose from a sense of duty on the part of architects and are not by and large compelled by regulation. A state's "stretch" energy code, a municipal "green building" zoning ordinance, or the requirements of an environmental impact report aside, the laws that regulate architecture generally focus on life safety issues and set only minimal environmental performance standards that insufficiently address climate change.

Regulations describe what an architect must do. What an architect should do, however, is a question of ethical principles. For AIA members, these principles are described in the AIA Code of Ethics and Professional Conduct.

The AIA Code of Ethics and Professional Conduct

The sense of duty and civic responsibility that is inherent to the profession can cause architects to consider choices that—although legal—they may not regard as ethical. For example, in some states it is legal for architects to design solitary confinement prison facilities or execution chambers, but is it ethical?[4] Is it ethical for architects to work for developers whose projects destabilize neighborhoods through displacement or gentrification? The essays and examples abound.[5]

As questions of principle or ethical importance to the professions arise, the AIA Board of Directors frequently responds by issuing public statements. The AIA's Directory of Public Policies and Position

Statements,[6] approved by the AIA Board of Directors, communicate to the architecture, engineering, construction, and development industries, policymakers, and the general public what the Institute collectively believes at any point in time. As statements of value, they also provide guidance to AIA members as to what the Institute believes they should do. These statements range from creating an "office culture" that promotes "optimism, respect, sharing, engagement, and innovation" to universal respect for human dignity.

Each Position Statement has an approval date, and the process of reviewing and updating these statements involves the AIA Board of Directors based on input from relevant subject matter experts as well as AIA components/chapters and other relevant AIA stakeholders. The Directory also states that these policies are "binding on AIA Components," meaning no Chapter can take a position that "nullifies or contravenes" them.

Add to this, the AIA's own website which, as of this writing, proudly features a section titled "Where We Stand: Climate Action":

"As a profession, we have the responsibility to prioritize and support effective actions to exponentially decelerate the production of greenhouse gases contributing to climate change. Our goal, as set forward by AIA and partners like Architecture 2030, is net-zero emissions in the building sector by 2050."

Although statements such as the above may serve to inspire the actions of individual AIA members, they do not compel their professional conduct. Parameters of professional conduct for AIA members are contained in the AIA Code of Ethics and Professional Conduct.[7]

The AIA Code of Ethics and Professional Conduct

The AIA Code of Ethics is a unique document of precise wording and specific purpose. It is organized into two parts: a Preamble that describes the Code's terms and applications, followed by six sections referred to as "Canons," defined in the Preamble as "broad principles of conduct." Each of the Canons contains Ethical Standards, or aspirational goals for professional performance and behavior. Some standards include Rules of Conduct, which are considered mandatory. Alleged violation of a Rule of Conduct can be reviewed by the AIA National Ethics Council. Members found in violation of a Rule of Conduct could be subject to "disciplinary action by the Institute" that could include termination of membership.

The AIA Code of Ethics gets to the essence of what the members of this professional society have agreed that an architect should do, and why. It charges AIA members with the "highest standards of professionalism, integrity, and competence." It creates an elevated set of Ethical Standards that are worthy of a profession that has earned the public's trust.

Upon closer reading of the AIA Code of Ethics, much of it seems reasonable and familiar. There is significant overlap between it and the laws that regulate the practice. But the difference between architectural licensing laws and the AIA Code of Ethics is significant. State laws set thresholds of professional competence and convey licensure in exchange for assurance of public safety and welfare. An architect must meet these thresholds in order to legally practice. The AIA Code of Ethics, however, describes professional commitments that extend beyond threshold competencies. They indicate how AIA member-architects are bound in principle to serve a greater public good that extends beyond the goals of their commissioned projects. Service to this greater public good is not required by law. It is compelled by the AIA Code of Ethics.

For example, Canon II, Obligations to the Public, includes an Ethical Standard that states: "Members should be involved in civic activities as citizens and professionals." Canon IV, Obligations to the Profession, compels members to "promote the dignity and integrity of the profession." Even though it is not illegal to disdain civic activities or to denigrate the profession, according to the AIA Code of Ethics this type of conduct is unethical for an AIA member.

The last of the Canons, Canon VI, Obligations to the Environment, is where the ethical practice of architecture and environmental responsibility intersect.

The 2018 Amendments to the AIA Code of Ethics

The AIA Code of Ethics was amended in 2018. This was significant in itself because amendments to the Code are exceedingly rare. Unlike the AIA's Public Polices and Position Statements, the Canons of the Code of Ethics are considered permanent and immutable. Amending the Code of Ethics, unlike the policy and position statements, is not subject to regular member or Component input. It can be done only through by the AIA Board of Directors, which may look to the AIA National Ethics Council and the AIA Office of General Counsel for input and advice

The 2018 amendments were also significant because they reflected fundamental changes that the profession of architecture was experiencing and how the AIA believes its members should respond to those changes.

To appreciate this, we must first refer to the Code of Ethics as it existed in 2017. The 2017 Code had a version of Canon VI, Obligations to the Environment, which stated:

"Members should promote sustainable design and development principles in their professional activities."

This version of Canon VI had three Ethical Standards (E.S.), each of which essentially restated the points of the Canon: E.S 6.1, Sustainable Design, E.S. 6.2, Sustainable Development, and E.S. 6.3, Sustainable Practice.

One of the strengths of the AIA Code of Ethics are the Rules and commentary that follow many of the Ethical Standards. The Rules of Conduct, as previously stated, are mandatory. The commentary sections, although not part of the Code, elaborate upon how the Rules are to be applied. This combination—the standard, the rule, and the elaborating commentary—makes an Ethical Standard actionable, enforceable through the Rules of Conduct that may appear in conjunction with the Ethical Standards, and more applicable to the everyday practice of architecture.

In the 2017 Code, Canon VI had no such rules or commentary. Although the adoption of this Canon was clearly in response to a deepening understanding of the relationship between architecture and the degradation of the world's ecosystems, the Ethical Standards as written at the time were so ambiguous that they had little influence over the members.

The 2018 Amendments address that deficiency. Canon VI has been rewritten entirely. The prior phrase "Members should promote sustainable design" has been replaced with a directive to members to regard their Obligation to the Environment as an ethical responsibility. The operative phrase immediately following the Canon's title, Obligations to the Environment, now states:

"Members should recognize and acknowledge the professional responsibilities they have to promote sustainable design and development in the natural and built environments and to implement energy and resource conscious design."

And although the ambiguous phrase "sustainable design" remains, the Ethical Standards (E.S.) that follow provide clear and actionable directives.

- E.S. 6.1, "Energy Conservation," asserts that members should set "ambitious goals for greenhouse gas emission reductions with their clients for each project." Implicit in this standard is recognition of the fact that building energy use produces greenhouse gas emissions that contribute to climate change. Designing buildings and spaces in a way that improves energy efficiency is now, in fact, part of an AIA member's ethical Obligation to the Environment.
- E.S. 6.2, "Water Use," provides that "Members should optimize water conservation in each project." Protecting the supply and quality of water as well as the continued viability of watershed resources is now explicitly referenced as an aspect of an AIA member's ethical Obligation to the Environment.
- E.S. 6.3, "Building Materials," maintains that members' selection and specification of building materials must be done with knowledge of the environmental impacts of their choices. Explicit in this standard is the recognition that building materials can contain "toxins and pollutants" that can be detrimental to both human and environmental health, and that reducing "waste and pollution" are also now part of a member's ethical Obligation to the Environment.
- E.S. 6.4, "Ecosystems," requires members to "consider with their clients" how each of their projects will both impact natural habitat and promote human and environmental health. This broad and ambitious Ethical Standard essentially makes it unethical to work in absence or ignorance of sustainable design principles.
- E.S 6.6, "Climate Change," puts the AIA on record on the matter of buildings and climate change. This standard explicitly states that architects have an obligation to design in a way that both anticipates and adapts to climate change impacts (resilient design) and mitigates the causes of climate change (sustainable design) for the benefit of environmental, economic, and human health.

Each of these six new Ethical Standards uses the words "Members should" instead of "Members shall," indicating that AIA regards them as aspirational. But to give Canon VI an enforceable component, the 2018 amendments also include a Rule:

"Rule 6.501: Members shall consider with their clients the environmental effects of their project decisions."

With the addition of Rule 6.501 and the word "shall" to Canon VI, its strictures are unambiguously mandatory.

A second related 2018 amendment to the AIA Code of Ethics also appears in Canon II: Obligation to the Public. Here, a new Ethical Standard, E.S. 2.4 is titled "Environmental Equity and Justice." This Standard clearly establishes that the many intended benefits of sustainable design are part of the Members' Obligations to the Public. These benefits—often referred to as "externalities" in that they do not flow only to the projects' owners, but instead, extend to all members of a community or society—are the benefits that are

usually the most difficult to quantify. Now members must advise their clients that they are ethically bound to produce "a built environment that equitably supports human health and well-being and is resistant to climate change."

Like E.S. 6.1—6.5, Ethical Standard 2.4 also includes a Rule:

"Rule 2.401: When performing professional services, members shall make reasonable efforts to inform their clients of the potential environmental impacts or consequences the Member reasonably believes may occur as a result of work performed on behalf of their clients."

Again, the addition of the word "shall" makes the strictures of E.S 2.4, Environmental Equity and Justice, unambiguously mandatory.

How and why these changes were made

In 2017, at a convention of the AIA New England Regional Committee on the Environment (COTE) in Burlington, Vermont, one of the keynote speakers challenged the attendees to look closely at the AIA Code of Ethics and determine whether the case for sustainable design was adequately framed as an ethical imperative. Consensus held that it was not. A steering committee of AIA Vermont and AIA New England COTE members was formed. This group worked with the AIA National Ethics Council and the AIA Office of General Counsel to draft a set of proposed amendments that were ultimately delivered to and approved by the 2018 AIA Board of Directors.[8]

What do these changes mean to the practice?

The AIA Code of Ethics has always held that an architect's responsibilities extend beyond matters of contracts and laws. Through the work that they do, architects are obligated to the communities they live and work in, to human health, and to the welfare of future generations. As established by the AIA Code of Ethics in 2018, architects must also practice with full knowledge of the relationship between their work and the greater world; to design in a way that mitigates the detrimental environmental impacts of their work, reduces the degree to which buildings contribute to climate change (sustainable design), and anticipates and mediates the inevitable impacts of an already changing climate (resilient design).

These disciplines are no longer sub-specialties within the practice of Architecture. All AIA members are now ethically obligated to design sustainably and resiliently.

Ethical imperatives for sustainable and resilient design

The ethical imperative for sustainable design

The ethical imperative for sustainable design—design that mitigates the negative impacts on the world's ecosystem of human activity associated with building construction and occupancy—is based upon what advocates have always maintained is an architect's obligation to the environment. With the 2018 amendments to Canon VI, the American Institute of Architects has concurred.

One can barely imagine threats to public health and safety more profound than the set of conditions that fall under the AIA Code of Ethics Canon VI:[9] elevated levels of greenhouse gases leading to increased global temperatures and climate change, sea level rise and flooding, infrastructure failure, contamination of

freshwater aquifers, depleted groundwater resources, persistent and bio-accumulative toxins pervasive in the ecosystem linked with numerous chronic diseases and acute health concerns, competition and conflict over a diminishing supply of natural resources, loss of biodiversity and habitat, and permanent damage to ecosystems.

The dimensions of sustainable design are best described by the theory of the "triple bottom line."[10] Originally coined by John Elkington as an evaluative tool for business accountability, it has come to succinctly describe what conditions must be present for a society's successive generations to theoretically achieve equilibrium with the "natural" environment. Those conditions are environmental stewardship, economic viability, and social equity, or what is commonly referred to as "people, planet, and profits." An architect's ethical obligation to sustainable design intersects with all three of these conditions.

To the extent that the architecture, engineering, construction, and development industries contribute to environmental degradation, architects, then, are obligated to make their practices and their work more environmentally responsible and reflective of the AIA Code of Ethics.

To the extent that architects specify products, the profession also has an obligation to alter its practices in support of truly sustainable economic systems. Economic systems that depend on the ready availability of "free" natural resources without regard to the impact of extraction or manufacturing, or that do not account for the burdens that commercial activity may place on parties that receive no benefit from these activities (external costs) are not sustainable. A "closed-loop" or "circular" economy in which "waste" becomes a fuel and the extraction of new resources is minimized is economically sustainable.

A society in which all its members do not share equally in all its benefits is inequitable and not sustainable. The profession of architecture creates jobs, employing people who are (ostensibly) active in their local communities. Architecture also facilitates the creation of affordable and safe housing and other public facilities, and enables a city or region's overall economic development activity. Therefore, architects can contribute to advancing social justice through their hiring practices, through advising or influencing the decision-making of their clients, and through supporting reinvestment in their own communities.

The ethical imperative for resilient design

The ethical imperative for resilient design—design that anticipates and adapts to the impacts of a changing climate and associated extreme weather—is based on what advocates have always maintained is an architect's obligation to the public. With the 2018 amendments to Canon II, the American Institute of Architects has concurred.

The vastness and diversity of the U.S. landscape and its climate zones make charting or predicting the variety of possible climate impacts a daunting task. Sea level rise and storm surges are major concerns in the heavily populated and low-lying cities of the East Coast and Gulf of Mexico. Decreased water availability and increased hurricane activity threaten the Southeast. Rising average temperatures and catastrophic flooding impact the quality of life in much of the Midwest. Drought and increased warming cause wildfires of unrecorded proportion in the Southwest.[11]

But whatever the specific climate change impacts, certain social and systemic disruptions are likely to be constant: Power and other public utilities will be interrupted, people will be displaced and put in harm's way, property damage will occur, and professional liability claims against builders and architecture and

engineering teams will arise. The profession of architecture should be prepared for these known and, to some degree, foreseeable disruptions. And to the extent that utility failure, human displacement, and property damage are certainly threats to public health and safety, architects have an ethical obligation to work to mitigate the impacts of these clear and present dangers.

Without meaning to frame the enormity of resilient design in professional liability terms, an allegation of failure to anticipate building failure caused by a changing climate deserves careful professional and legal consideration. A 2019 report[12] published by the Conservation Law Foundation and the Boston Green Ribbon Commission provides an opinion on potential liability of design professionals for "failure to adapt" with great clarity.[13] One of the principles cited in the report is that of "foreseeability," or the ability of a party being blamed for damages to have anticipated that such damages could have occurred. Whether liability is proven will of course depend upon the facts and circumstances of each case.

Architects' training prepares them for resilient design. The principles of the Resilient Design Institute[14] should sound reasonable and familiar to any licensed practitioner. For example:

- Resilient design anticipates interruptions, and redundant power generation, water distribution, and transportation systems are more resilient. Areas of refuge in buildings—places where backup power generation provides heat, electricity, and telecommunications, and where supplies of clean water and food are available—can address many of the social and systemic impacts that climate change will cause.
- Simple, passive, and flexible systems are more resilient. Operable windows and passive ventilation, for example, will still provide fresh air and occupant comfort after the power goes out.
- Renewable resources like solar and wind energy coupled with backup battery power are more resilient than those that require complex distribution networks, continuous maintenance, and fossil fuels.

Along with previously mentioned published statements such as "Where We Stand: Climate Action" and the AIA Sustainability Initiative's "Qualities of Resilience" outline,[15] these 2018 amendments to the AIA Code of Ethics are clear indicators of how the AIA believes the practice must fundamentally change. However, to licensed practitioners in a profession as highly regulated as architecture, and connected so directly to the financial prosperity of its clients, fundamental changes in the practice also present new risks—risk that may be seen as an impediment to progress.

Sustainable and resilient design and the Architect's Standard of Care

Architecture is certainly not a new practice. Even the most current benchmarks of architecture as a profession in the United States—the founding of the American Institute of Architects in 1857, the adoption of laws regulating the practice in Illinois in 1879, and the formation of the National Council of Architectural Registration Boards in 1919—occurred more than a century ago.

By this assessment, the emergence of "green building" as a school of thought—as supported by organizations such as the United States Green Building Council in 1993, the launch of the LEED Rating

System in 2000, and the founding of Architecture 2030 and the 2030 Challenge in 2006—can be considered relatively new for a profession that is in its second century.

An architect driven by a sense of responsibility to the world's ecosystems, and now compelled by the AIA Code of Ethics to the same, must often balance the principles of sustainable and resilient design against their client's directives. And the fact remains that an architect's contractual obligations to their clients can create professional liability issues. Without the authority of their clients to do so, architects can feel that "new" ideas—however ethically substantiated—present risks to their practices.

When assessing the risk to an architect of an action or decision, the legal concept used is the architect's Standard of Care. This legal concept, which can evolve and change over time, is litigated in case law and is explicitly stated in, among other contracts, AIA Contract Documents:

"The Architect shall perform its services consistent with the professional skill and care ordinarily provided by architects practicing in the same or similar locality under the same or similar circumstances. The Architect shall perform its services as expeditiously as is consistent with such professional skill and care and the orderly progress of the Project."

As fixed as the principle of the Standard of Care may be, however, the body of knowledge an architect must maintain in order to practice within the Standard of Care at any point in time is constantly changing. This is why architects are required by the AIA, and by the vast majority of state licensing bodies, to earn Continuing Education Units.

An architect can confidently and effectively work to meet the needs of both their clients and the world's ecosystems if the same cautions and best practices that apply to any body of specialized knowledge are observed. Putting expertise in sustainable or resilient design to work should not expose the practitioner to new or unmanageable risks if best practices are followed. Examples of such best practices include, but are not limited to:

- **Avoid the use of imprecise contract language.** There is no common definition of the term "sustainable design." Contract language that says the architect will design "sustainably" or design a "sustainable building" or a "resilient building" or a "healthy building" increases the opportunity for unmet expectations and exposes the practitioner to interpretations they may not have intended.
- **Avoid guarantees of project performance.** A fundamental rule of architects' risk mitigation is to avoid making contractual guarantees. This caution has myriad applications. Architects should not guarantee energy reduction thresholds or cost savings associated with increased energy efficiency, since the reality of measurable outcomes depends on factors beyond building design and administration of the contract documents during construction. Similarly, architects should not guarantee that a given occupiable floor will remain above a given storm surge elevation or that undesirable substances or chemicals will not be present in the completed construction. This admonition is particularly important when third-party certifications or compliance incentives are involved. An architect should be wary of guaranteeing that—for example—a specific level of LEED certification will be achieved.

- **Write explicit and objective standards into the Owners' Project Requirements.** Several versions of Owners' Project Requirements[16] (OPR) exist in the marketplace. AIA G612–2007, the "Owner's Instructions to the Architect," is similar. Use of these documents presents the architect with an opportunity to discuss sustainable or resilient design goals, strategies, and outcomes before design begins. These documents allow architects to distinguish project goals from contractual requirements, further mitigating their risks. Statements like "we agree to work together to the best of our abilities towards achieving net zero energy" is a far more objective and defensible than a performance guarantee.
- **Do not represent yourself or your firm as having expertise that you do not have.** This is especially true regarding resilient design. An architect may wish to claim expertise with resilient design, but climate data analysis and its application is typically well beyond an architect's capabilities. Recognizing that predictive weather impact data is the product of highly specialized experts, tasks such as interpreting a storm surge impact map and drawing recommendations from it should be contractually performed by consultants who are appropriately qualified and independently insured.

The point of these cautions is not to shirk an architect's responsibilities. The intent is to create a "safe space" in which architects can advance and promote sustainability and resilience while delivering services under contract. By communicating effectively and aligning expectations with clients and all team members, architects can fulfill their ethical obligations to designing sustainably and resiliently while simultaneously managing their professional liability risk.

Questions that arise as to what an architect should do with knowledge of the presence of hazardous substances in the building materials they specify illustrate this point.

Case study: Material transparency and risk for architects

Beta versions of the U.S. Green Building Council's LEED Rating System v4 released in 2014 proposed one credit that could be earned by specifying products that had manufacturers' documents disclosing a "full chemical inventory of the product," and another credit that could be earned by specification of products that contained "no Benchmark 1 hazard" substances.[17]

These disclosure documents—such as the HPD Collaborative's "Health Product Declaration"[18]—list not only the chemicals and substances used in a building product, but also their potential human health impacts. When architects read disclosure documents that indicate a product's ingredients are a "probable human carcinogen" or have "clear evidence of having adverse developmental toxicant effects," the question becomes: If architects specify these materials knowing that they contain hazardous substances, is the architect being negligent?

To address this question, in 2015 the AIA brought a small task group of its Materials Knowledge Working Group together with lawyers, members of the design professionals' liability insurance industry, and members of the AIA's Contact Documents department. In April 2016 an AIA Sustainability White Paper entitled "Materials Transparency & Risk for Architects" was published.[19] This white paper described best practices and cautioned that, if observed, would allow the practitioner to advocate for and advance materials

transparency in the course of providing professional services without incurring unexpected or indefensible professional liability risk.

Chief among the recommended practices was to clearly explain to the client the intent behind obtaining disclosure documents and to reach agreement on whether this practice would be appropriate for a client's project.[20] Once decided, these principles of agreement should be documented in either meeting notes, a preliminary project narrative, or in clarifying statements in the owner-architect agreement. Another recommended practice was that any questions from a client about the possible human health impacts of a substance in a building material should not be answered by the architect, but instead referred to professionals with more specific knowledge, such as a Certified Industrial Hygienist (CIH) or a toxicologist.[21]

Expectations and aspirations

The 2018 amendments to the AIA Code of Ethics are reflective of fundamental changes that the profession of Architecture is experiencing, and they indicate how the AIA's membership should respond to those changes. The individual practitioner and the practitioners' firms have different but complementary roles in this transition of knowledge and practice. Both must adapt to the evolving understanding of the relationship between architecture and the world's ecosystem, but each have fundamentally different roles.

The Practitioner's Role

To practice ethically in the 21st century, individual architects must regard themselves as participants in an approximately $17 trillion global architecture, engineering, and construction industry. The knowledge, expertise, and reputation of the members of the American Institute of Architects give them significant influence on this impactful industry.

But to truly be effective in reducing the impact that the AEC industry has on the world's ecosystems, to reduce building energy use and associated greenhouse gas production to the levels required to mitigate climate change, to prepare the citizens of the world for the unavoidable impacts of severe and unpredictable weather, or, in other words, to uphold the profession's ethical obligations to the environment and the public, the practitioners' role must change and adapt significantly. These changes include:

- **Going beyond code compliance.** In 2018, the AIA released a groundbreaking report entitled "Disruption, Evolution, and Change: AIA's Vision for the Future of Design and Construction."[22] Literally a call to leadership, this document argues that the definition of "health, safety, and welfare"—the fundamental curricula of an architect's continuing education—must change to include "the growing bodies of knowledge in resilience, equitable design, and advanced building performance." And with this holistic knowledge, architects must become broadly capable of designing buildings and spaces that do not depend on building codes to set baseline performance standards. Architects must adopt the principles of net-zero energy and net-zero carbon emissions as a practice baseline regardless of the requirements of the building codes in the relevant jurisdiction.

- **Understanding and mastering embodied carbon.** By some estimates, between now and the year 2050 the carbon emissions caused by the fabrication and transportation of building products and the energy expended in building construction itself (referred to as "embodied carbon") will be responsible for carbon emissions almost equal to the emissions from building operations.[23] And unlike operational carbon emissions, embodied carbon cannot be reduced through energy efficiency improvements. Currently, the practices of architecture and construction are far from achieving a mainstream understanding of how to evaluate and manage embodied carbon by design. However, one online resource, developed by Architecture 2030, and called the Carbon Smart Materials Palette, provides "attribute-based guidelines for designing low/no embodied carbon buildings and specifying low/no embodied carbon products."[24]

- **Engaging the client community.** The two new Rules in the 2018 AIA Code of Ethics referenced above—one in Canon VI, Obligation to the Environment, and one in Canon II, Obligation to the Public—both contain imperatives that have bearing on the behavior of every AIA member. They both indicate that members shall discuss the potential environmental impacts of a project with their clients. Not discussing environmental impacts with clients is now unethical. This is the clearest and most enforceable aspect of both amendment sections. The upfront conversation with new and potential clients about sustainable and resilient design will take very different forms depending on the client and project type; but this is the nature of effective advocacy, and it is something successful AIA members are very capable of doing.

- **Designing for ethical outcomes.** The question "what criteria will be used to evaluate the success of this project?" is compelling. Creating a good preliminary project narrative before design begins presents an opportunity to ask and address this kind of question. ASHRAE (formerly the American Society of Heating, Refrigerating, and Air-Conditioning Engineers) recommends that a document called the Owner's Project Requirements (OPR)[25] be developed in pre-design phases to detail "the functional requirements of a project and the expectations of how it will be used and operated." Capturing these criteria in a document as part of an architect's basic services is an excellent practice and sets the stage for successful post-occupancy evaluation. Ethical outcomes can be included in an OPR. They may not be as easy to develop as quantifiable performance metrics, but design objectives such as making a project equitably accessible, enhancing the existing public realm, providing areas of public refuge in the event of extreme weather, or using building products that do not contain carcinogens or Benchmark 1 hazardous substances are the kind of ethical and achievable outcomes that architects should strive to deliver.

- **Thinking (and acting) outside the project.** When architects step outside their practice "box" and choose to influence the world beyond the scope of their projects, much good can be achieved. First, the architect as advocate is not directly answerable to contracts or agreements. Granted, the provisions of the AIA Code of Ethics and their local licensing board's Rules of Professional Conduct are still very much in place, but the actions of an advocate are generally not subject to scrutiny for errors or omissions. Second, the architect as an advocate has opportunities to influence the built environment on a potentially much greater scale than any project may allow. The architect who advocates for sound public polices, like the adoption of more stringent building codes or "zero codes," can create or support broad changes that reinforce the profession's ethical imperatives and extend beyond the reach of a practitioner or firm. Finally, effective advocacy puts the practitioner in a very positive public light. Making strong and clear statements of principle on behalf of our fellow citizens in a public forum as a practicing architect elevates the profession.
- **Becoming part of the design paradigm shift.** In 2019, the AIA Board of Directors ratified a resolution that presaged profound change to the Institute itself. Among the most noteworthy of the resolution's recommendations was adopting the AIA Committee on the Environment (COTE) Top Ten Measures as the AIA Framework for Design Excellence,[26] the criteria by which design excellence will be judged. Based on the AIA COTE Top Ten Toolkit, a resource developed by the volunteer members of the 2018 National COTE Advisory Group, the Framework is comprehensive in its description of what the ethical practice of Architecture in the 21st century entails. It is indicative of a design paradigm shift in the practice: an integrated design approach that insists that beauty is inseparable from performance criteria and social responsibility.

Another Best Practice contributed by Andrea Love, AIA, entitled Incorporating sustainability into practice: A value proposition for firms, goes into the nature and impacts of this paradigm shift in greater detail.

The firms' role

Architectural firms are created to organize and sustain the resources needed by licensed practitioners to deliver professional services. As corporate entities, even the smallest firms may have directors and by-laws, or adopt policies and positions that are independent of the beliefs and ethical obligations of individual practitioners. As such, with the role of the practitioner being one of radical adaption to the demands of ethical practice in the 21st century, the AIA member firm must provide resources to the practitioners to facilitate their evolution and growth. The AIA member firm should:

- **Prioritize corporate ethics.** Corporations are certainly not people; but they are created by people and owned and run by people who—in turn—imbue corporations with values, explicitly or not. To effectively support the ethical practice of architecture in the 21st century, AIA member firms must adopt and promulgate ethical corporate principles that reinforce those of the practitioners. Having such principles serves multiple purposes: It tells current and potential employees a great deal about the firm, can help foster a corporate culture that would reinforce many of the imperatives of the AIA Code of Ethics, reduces risk, and could draw clients with similar values to the firm. The example set by the AIA itself of posting values statements, including "Where we stand: climate action" on its website,[27] is worthy of emulation. The International Living Future Institute's JUST program,[28] a voluntary social equity disclosure tool for organizations, and the United Nations' Sustainable Development Goals (SDGs) for Business[29] are also excellent benchmarks for corporate ethics.
- **Engage the resources of the AIA.** The AIA 2030 Commitment is one of the Institute's most forward-thinking and meaningful programs. It is a project-based reporting platform that uses a flexible and individualized database called the Design Data Exchange (DDx), developed in cooperation with the U.S. Department of Energy, to measure a firm's progress, track project performance, and provide access to other actionable information so that the AIA and the participating firms can track designed energy efficiency and carbon reduction. In place since 2010, the AIA 2030 Commitment signatories shared data on 2.6 billion square feet of project work in 2015 alone. Signing the Commitment to work towards net zero energy across the firm's entire design portfolio annually and tracking their progress to realizing net-zero by the year 2030 gives AIA member firms a resource with the potential to transform their practice. Additionally, the Institute's online continuing education platform, AIAU,[30] has recently updated curricula that are highly relevant to the transforming the practice. These include the AIA+2030 series oriented towards improved building energy performance and a new online certification program on resilience and adaptation.
- **Make sustainability everyone's job.** The architecture firms in which sustainable and resilient design principles have been thoroughly integrated throughout the entire organization are exemplary. Most firms, however, can be well-served by creating a position such as a "Director of Sustainability" to signal to their clients and markets that the topic is a high priority. Ultimately, the Sustainability Director's highest calling in a firm is to engage as many staff members as possible in sustainable and resilient design.

Desired outcomes

The obvious and overarching desired outcome of these practices is an improved quality of life for current and future generations coupled with their harmonious coexistence with each other and the earth's natural systems. But considering this compelling new alignment between sustainable and resilient design and an architect's 21st-century ethical responsibilities, there are also desired outcomes specific to AIA members and the practice of architecture.

Elevate knowledge

As practitioners deepen their knowledge of how architecture can protect and improve human, community, and environmental health, and the profession is seen more clearly as having a role in the creation of these positive outcomes, the variety of skill sets architects will need on their project teams will grow. This paper has already touched upon the knowledge that toxicologists, industrial hygienists, and other public health professionals could contribute to addressing desired outcomes on some projects. Additionally, some engineering firms are expanding their civil engineering capabilities to include climate change impact analysis, disaster-resistant master planning, and economics. Project design teams that include ecologists, marine biologists, hydrologists, and other earth and natural scientists are also becoming more common.

Architects will need to learn when, why, and how to integrate such diverse expertise into effective project teams. At the same time, architects will need to continually advance their own professional knowledge to increase the value they bring to their clients in a way that is consistent with their training, legal and ethical obligations, and core capabilities. Above all, AIA members will need to be open to change and cognizant of the influence that innovation, research, collaborative working, and technological progress will have on the future of the practice.

Practice with purpose

The myriad fundamental changes today's practitioners face also create new opportunities. The new amendments to the Code of Ethics are perhaps an indicator of how the practice can continue to improve. If all architects honored their ethical obligations to the environment, to human health and well-being, to the quality of life in every community, and to the dignity and prosperity of all people, the practice would be transformed. It would be more focused on research to drive evidence-based design, more connected to advocacy and influencing public policy, more collaborative and interdisciplinary, and ultimately more useful—and effective—in a changing world.

Achieve sustainability and resilience

As evidenced by the 2018 amendments to the AIA Code of Ethics, by the AIA's 2016–2020 Strategic Plan, and the many policy and position statements previously referenced, becoming a leader in global sustainable and resilient design is a goal that the AIA has adopted and imparted to all its members.

What is also at stake is the sustainability and resilience of the practice of architecture. Should the AIA and its members attain success towards these goals, it will change the way the public understands the profession. When measurable ethical outcomes in architecture become more prevalent and recognized, and when the members' ethical obligations to the environment and the public become more evident in each practitioner's actions and work, the profession itself will become more meaningful—and more sustainable—in the 21st century.

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This article corresponds to:

Architect's Handbook of Professional Practice, 15th edition Unit 1 - The Profession
Chapter 10 – Design Project Management
Section 05 – Design Phases