



Climate Action Playbook

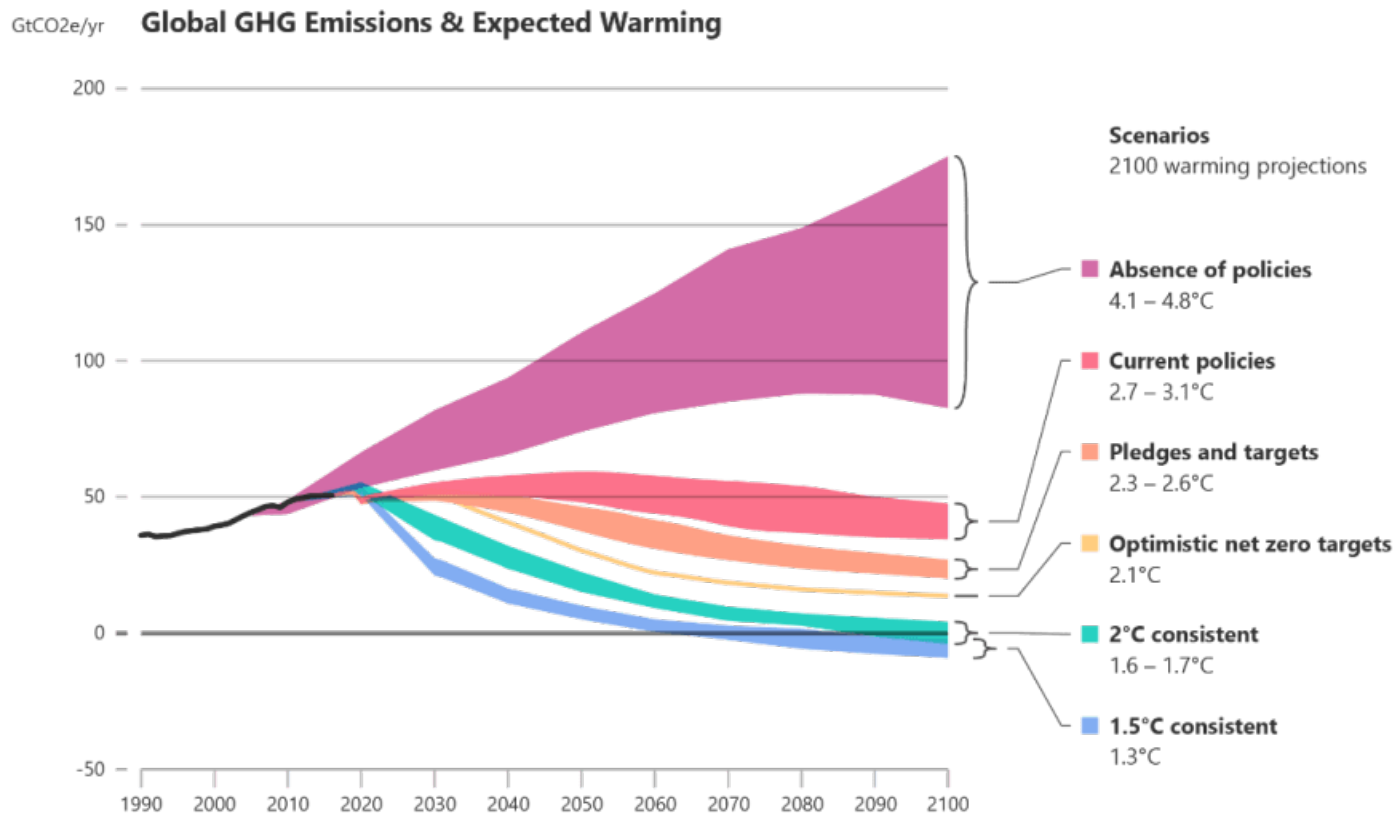
2024

Introduction: Understanding the current landscape

Because almost 40% of U.S. greenhouse gases can be attributed to the building industry (according to the [Global Alliance for Buildings and Construction](#))—including materials in the manufacturing processes for concrete, metals, and polymers, etc.; the construction process; and operational processes such as heating, cooling, and lighting—architects have the ability and responsibility to lead the change our society needs to simultaneously help mitigate as well as adapt to the impact of climate change. As designers of the built environment, the architectural design community must lead the world in decarbonizing buildings and associated construction and manufacturing processes. At the same time, we must ensure that existing and new developments have the capacity to adapt to changing conditions, withstand hazards, and recover rapidly from disruptions. This is well within the capacity of the architectural design community, and it's time to act.

Considerable reductions in greenhouse gas emissions are needed to prevent the worst consequences of global warming from coming to fruition. According to [IPCC's Special Report](#), preventing more than 1.5°C of warming would give society the best chance at avoiding the kinds of environmental tipping points that likely mean the end of Antarctic ice sheets and unchecked sea level rise, the deterioration of productive coral reefs, and irreversible flooding of low-lying coastal cities. Forces impacting the built environment—climate change, environmental degradation, population growth, and migration—are evolving rapidly and demanding innovative solutions.

Climate change is the ultimate “wicked problem” in which global inaction will yield long-term instability over weather events, resource distribution, heat stress, soil productivity, and biodiversity. As parts of the planet become increasingly unstable and uninhabitable, an unprecedented scale of climate refugees will reshape the political and social realities of society.



Global GHG Emissions & Expected Warming. As this graph notes current global initiatives are not tracking towards the lowest projections of warming. Even the lowest projections noted here have sweeping ecological and human consequences.

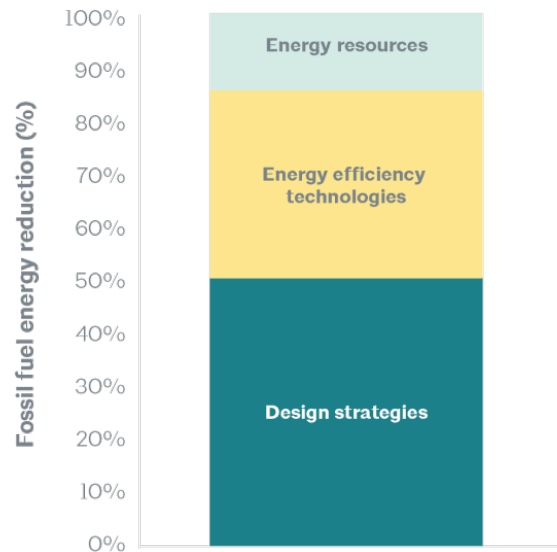
Architects have an unprecedented opportunity to be part of creating a safer and more sustainable world for generations to come by designing to **mitigate** greenhouse gas emissions and **adapt** to changing conditions. AIA’s [Climate Action Plan](#) outlines a plan for how firms can address this challenge. As a complement to that mission, this Climate Action Business Playbook offers a set of accessible recommendations and best practices for anyone wanting to meaningfully integrate climate action into their practice.

Climate change mitigation

Greenhouse gas (GHG) emissions trap heat in the atmosphere causing global warming. Carbon dioxide (CO₂) is the most prevalent of these gases, released through the built environment by the burning of fossil fuel for manufacturing building materials and through building energy consumption in addition to countless other human activities. More potent greenhouse gases than carbon dioxide, such as methane and refrigerants used in mechanical equipment, exacerbate the problem by leaking into our atmosphere and further promoting global warming.

Two general terms are typically used to categorize building industry emissions: operational carbon and embodied carbon.

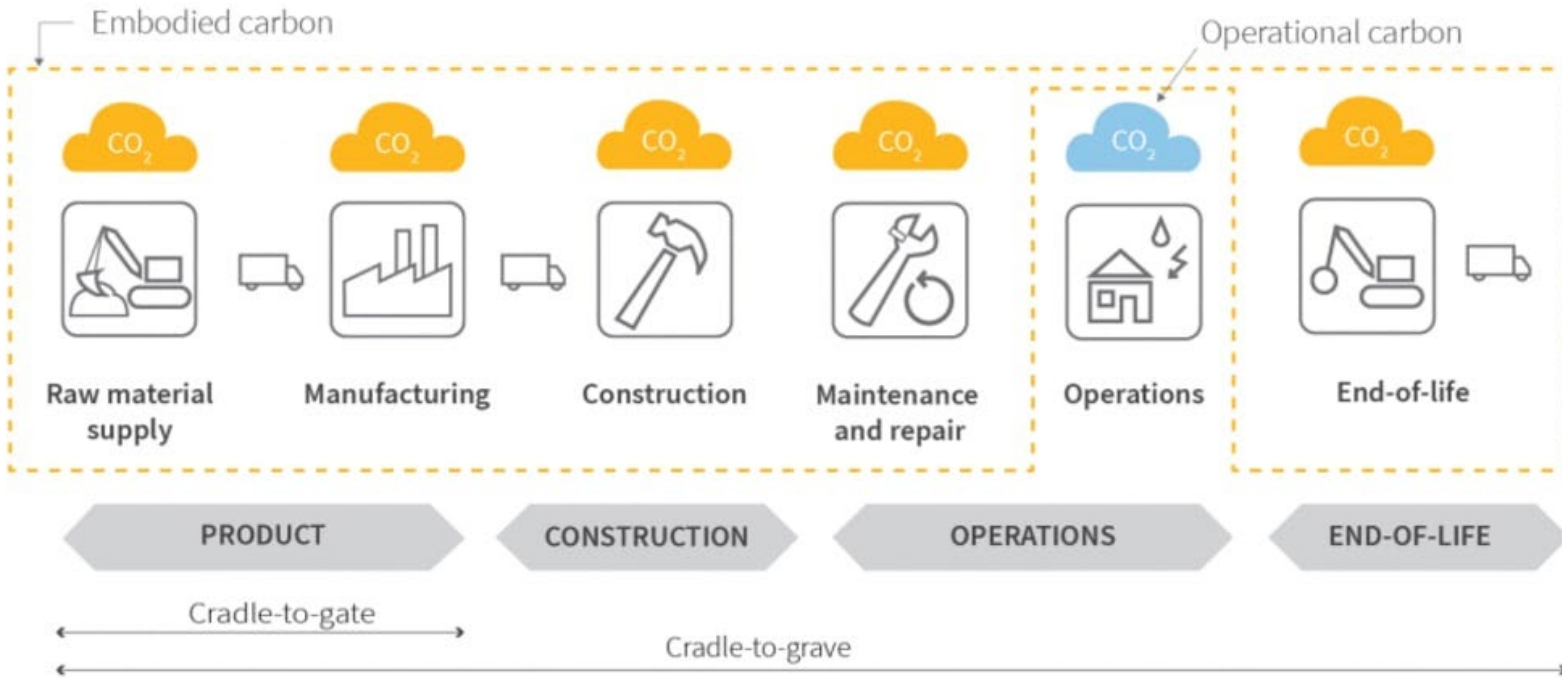
Operational carbon includes the greenhouse gas emissions that are released due to day-to-day building operations, including the grid emissions associated with building electricity consumption, as well as any emissions from on-site fossil-fuel equipment or district-scale production. Operational carbon is typically targeted by reducing building loads, designing high-performance envelopes, selecting high-efficiency building systems, electrifying mechanical systems, shifting peak demand to lower-carbon times of use, and procuring renewable energy.



Design strategies have the greatest impact on building energy use, and architects have the greatest impact on design strategies early in the design process.

Embodied carbon is more wide-ranging, accounting for all the emissions along building supply chains, from material extraction, transportation, manufacturing, and end-of life processes, as well as emissions associated with refrigerant leakage and the construction process. Emissions from embodied carbon are typically targeted by designing to reduce material quantities and substituting low-carbon building materials or products.

With these two categories of emissions in mind, designers are well-positioned to make a substantial difference in mitigating climate change and wield their influence in the design process to bring clients, design partners, manufacturers, and contractors along in this effort.



Climate change adaptation

Adaptation requires adjusting to current and future impacts of climate change in order to reduce vulnerability to its effects, such as extreme weather events, sea level rise, and wildfires. Humans and other species have continuously adapted to their environments throughout history, but the planet’s climate has been relatively stable, with more gradual changes over the past 12,000 years, leading to the development of civilization and settlements. As changes accelerate, the rate of adaptation must keep pace to reduce exposure to the adverse effects of global warming. The “[Future of the Human Climate Niche](#),” an article in the *Proceedings of the National Academy of Sciences*, describes how throughout history, humans have remained in a narrow subset of climates available on earth. Climate change will reduce these desired climates even more, causing migrations and other social impacts.

These effects are already being felt with higher temperatures ([the 12 warmest years on record have occurred since 1998](#)), sea level rise ([6-8 inches in the last 100 years](#)), wildfires ([11.4 million square miles are at higher risk](#)), as well as persistent flooding and intensifying hurricanes. Communities don't easily or fully recover from these events, in part due to the stresses that exacerbate the impact of the event, such as a growing wealth gap, lack of affordable housing, and aging infrastructure. Communities and building sites face a unique set of challenges due to the forces of acute shocks and chronic stresses. Shocks are the hazard events typically associated with large-scale disasters. Stresses are the gradual and perpetual disruptions that often reduce a community's ability to recover when shocks strike.

Shocks

- Infrastructure failure
- Hurricanes
- Earthquakes
- Wildfires
- Heatwaves
- Blizzard
- Health epidemics
- Flooding
- Tornadoes
- Acts of terrorism
- Civil unrest
- Dam failure
- Subsidence
- Liquefaction

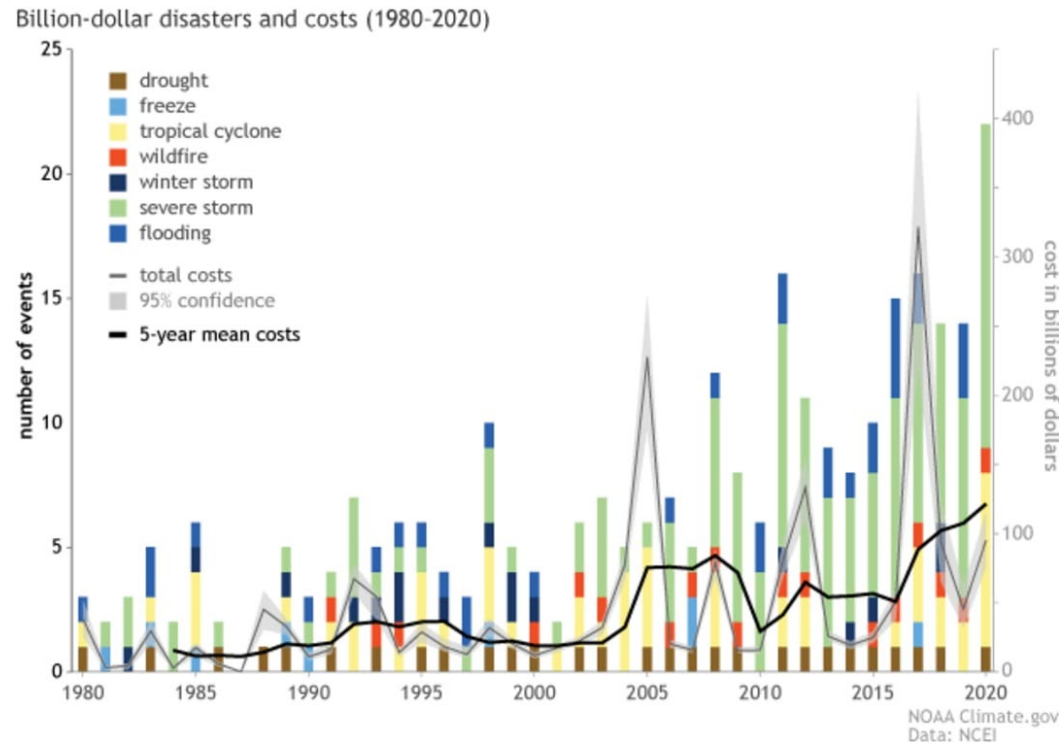
Stresses

- Affordable housing
- Aging population
- Environmental degradation
- Sea level rise
- Growing wealth gap
- Drought
- Species extinction
- Aging infrastructure
- Population growth
- Unemployment
- Melting polar ice caps
- Global warming
- Food scarcity
- Increasing populations

While a hazard event may be natural, a disaster is not. Disasters occur where hazardous events interact with human society, especially if that society lacks sufficient resources to prepare for or respond to hazards. Disasters kill an average of [60,000 people per year](#), although this number has dropped significantly because of improvements in living standards (including safer buildings) and effective response systems. The human impact of climate change also includes migration due to resource scarcity and competition for food, water, and fuel and the increased frequency and severity of disease outbreaks. Even with low-carbon emission scenarios, 190 million people worldwide [occupy land that is below projected high-tide lines by 2100](#) and will be displaced by rising sea levels. Climate migration has already begun and will impact the U.S. and its urban centers. The dollar cost of climate disasters is increasing—since 1980, the U.S. has

sustained [285 weather and climate disasters](#) in which the overall damage costs reached or exceeded \$1 billion, with 2020 breaking records in the number of hurricanes (30) and the extent of wildfires (10.2 million acres burned).

Adapting to climate shocks and stresses affects the built, social, and natural environments. Architects are uniquely positioned to balance the needs of complex systems to create resilient buildings and communities; prioritize issues to guide decision-making; protect health, safety, and welfare; and communicate a vision of the future with creativity and innovation.



Billion Dollar Disasters and Costs. Increases in population and material wealth over the last several decades are an important factor for higher damage potential. Source: <http://www.ncdc.noaa.gov/billions>

Call to Action

To meet this [climate] challenge, the industry needs to move beyond individual successes and commit to sustainability at all levels of organizations from management and operations, through project delivery. Individual champions within firms are not enough. The culture and shared vision within every firm must be based on a fundamental premise that sustainable design is integral to excellence in professional practice. Design culture must change and be held accountable in its system, processes, methodologies, and protocols.¹

It's time to show what architects can do. We have the ability to transform our practices to address climate change mitigation and adaptation on every project, with every client. Architects have the power to set ambitious performance goals and prioritize the decisions that accomplish them. We need to embody climate action in our own operations to demonstrate these principles to others. We can expand opportunities to share our successes with others and promote education and mentoring within our offices. We can advocate for the environment in our communities. We can support the creative freedom to explore new possibilities through research and practice. We must measure our progress toward a healthy, just, sustainable, and resilient built environment.

Architects can accomplish this by no longer thinking about climate action on a project-by-project basis but by embedding it across their entire portfolio. Rule 2.401 in the [AIA Code of Ethics and Professional Conduct](#) requires that “members shall make reasonable efforts to inform their clients of the potential environmental impacts or consequences associated with any work performed on behalf of the clients.” Cannon IV of the document outlines our “Obligations to the Environment” and addresses all aspects of the built environment, including energy and resource preservation, natural ecosystems, and climate change adaptation. Climate action is no longer a wish-list item but an essential part of our practices.

References

[1] Sustainable Performance Institute, *Strategic Sustainability Planning: Corporate Reports & Plans* toolkit

Climate Action Firm Resources



FIRM

Transform leadership & practice

Firms play a crucial role integrating climate action into their operations, from developing project teams to creating sustainability action plans with goals and deadlines. This section highlights the importance of leadership in spearheading the practice to be a more sustainable, climate action-minded one.

Architects are collaborative leaders and rely on a team to deliver projects that are healthy, low-carbon, equitable, and resilient. Educating your studio team and creating new internal resources can serve two purposes: gaining direct benefit from the task and engaging your team to connect the task to the larger goal of mitigating and adapting to climate change. Invite your team to join your efforts to build their skills and commitment to climate action.

Foundations

Realizing climate action requires commitment, strategy, and a measurable process for implementation. Every firm is unique in location, typologies, and structure, yet there are common principles that can be applied to every context. Leadership in climate action may manifest differently in small, medium, and large firms, but firms of all sizes grapple with applying principles with consistency across their portfolio of projects.

The key strategies used to implement change can be applied to every firm, at every stage of their evolution. The best practices below outline how to:

- make a commitment to incorporate climate action across the studio
- understand how well you are already performing
- get others to help, amplify, and sustain your goals
- create design teams that support climate goals
- develop the organizational approach and infrastructure to make it happen
- assign responsibility for implementing climate action goals

While your firm sets goals and identifies and prioritizes the changes to be made, it is important to consider the process through which you implement change. Firms truly institutionalize sustainability and resiliency by focusing on culture, systems, and processes to move from random acts to becoming a recognized leader in the industry. AIA's *Creating a Sustainability Action Plan that Works* is a great starting point to help describe company commitment, design approach, goal setting, reporting, and other operational activities. The *Climate Action Business Playbook* expands on the actions needed to incorporate climate change mitigation and adaptation in practice.

Best practices

Commit to climate action

Make a firmwide commitment that establishes a clear and compelling vision for climate action in management, operations, and collaboration so that all members of your team understand the goals and how their role supports achievements.

Firm leadership establishes a firm's direction and energy from project pursuits through design and administration. As architects marshal the creativity and courage necessary to tackle climate action, firm leadership must embrace and articulate their commitment in a vision and mission statement that inspires, energizes, and focuses your team on the goals and priorities. If firm leadership is not yet on board, staff can help make the case and lead from the middle to help leadership see the urgency and benefits of making a commitment.

Leadership (with staff engagement and participation) can put a plan in place to translate the vision, mission, and goals into concrete and tangible actions and behaviors for staff at every level in their daily work. Allow your commitment to diffuse into every aspect of the firm's operations, from day-to-day operations and human resources to procurement decisions and through all phases of the design process. Every firm will have a different approach. Establish a [company-wide strategy](#) to improve the firm's capabilities to plan for the future and understand the potential impacts of climate change on every project: the impact of buildings on the environment (climate change mitigation) and the impact of the environment on buildings (climate change adaptation).

Consider programs like the [AIA 2030 Commitment](#), the [AIA Materials Pledge](#), [Architects Declare](#), [SE2050](#), Climate Positive's [1.5°C Climate Actions](#), or [World Green Building Council's Net Zero Carbon Buildings Commitment](#) to help define and make public your firm's commitments.

Create a climate action plan with specific, measurable, attainable, relevant, and time-based (SMART) goals, and update it regularly so it is a living document that tracks progress and opportunities. Refer to [AIA's Sustainability Action Plan Guide](#) to help develop your plan.

Assess current practice

In design, it is helpful to start with a baseline inventory to understand and prioritize where to focus, and this is equally true in architectural practice.

Assessment helps people develop a shared understanding of why certain things are a priority and how they fit into the practice. One approach for self-assessment is to survey how employees think the firm is doing in terms of climate to unlock key priorities and concerns. An alternative is to host an open discussion about how performance targets are set and consider how team members contribute to climate action. Frameworks like the Sustainable Performance Institute's [SMART sustainability criteria](#) can serve as a reference, or firms can use [the free online version](#) of this framework. Collect the responses from the survey or discussion into [a report card](#) on the current practice: Is there a visible commitment in place? Are clear performance goals set for every project? Do team members have the skills and knowledge necessary to deliver high-quality services? Is the firm collaborative in building strong teams? Use these results to develop specific recommendations on ways your firm can improve.

Please refer to the Benchmark: Internal Diversity and Salary Review sub-section under Impact: Elevate All Voices for more detail on assessing staff equity, diversity, and inclusion and the AIA 2030 Commitment's Sustainability Action Plan for guidance on self-assessments.

Get buy-in

Create an intentional process that engages people in the change effort.

A top-down directive that dictates that the team take certain actions and meet certain metrics without facilitating buy-in is alienating and can result in increased resistance. Inclusive efforts accelerate innovation and adoption across a firm's operations, creating a culture of empowerment and innovation that is often necessary to meet sustainability and resilience goals.

Encourage multilevel, cross-disciplinary engagement from the beginning to allow for a process of gradual acclimation. While only a few people may know enough to set the goals and create the plan, include the entire team in critical conversations about values, concerns, commitment, and practical implementation issues. These are pivotal steps for seeking feedback and refining your plan so that it reflects the needs of your unique context and culture. For further strategic guidance, there are well-established [frameworks](#) for managing intentional change that will streamline your efforts and accelerate progress. One approach, of many, is John Kotter's book *Leading Change*.

Cultural shift

A company's culture enables it to adapt and more easily achieve challenging goals.

Management guru Peter Drucker said, "Culture eats strategy for breakfast." Ensure that your leadership behaviors align with espoused values and goals. Empower and listen to team members so that they are encouraged to take part in climate action efforts. It is also important to reinforce climate action messages in many ways to solidify your leadership's commitment. New norms like setting and tracking carbon and energy goals or product selection can be highlighted in tangible ways, like performance walls that encourage discussion or EUI title blocks on drawings. Take every opportunity to recognize exemplary behavior (in team meetings, staff meetings) so that goals become infused in the culture and reinforce the expectations and priorities. Introduce a way to celebrate progress, like a monthly recognition of a sustainability champion and their effort. The constant reinforcement of values, goals, and priorities throughout the workday helps keep people's focus on the desired outcomes until they become second nature.

Support the development of leadership skills at all levels to ensure that the mission and goals are communicated appropriately, each team member is supported as needed, goals are set consistently, and performance is tracked and achieved. Strong firm culture amplifies climate action, accelerates transformation, and makes the changes stick.

Consider ways to infuse sustainability and resiliency leadership in your studio. Is it a dedicated role or is it part of existing roles and embedded in design teams? Studio size, geographical location, project types, and culture will all influence the structure that will work best for you.



Centralized

This can be a first step, or for smaller firms, permanent. As sustainability becomes more entrenched, the purpose and responsibilities of this role also evolve.



Hybrid: Central + distributed

This network approach, where a central person (or team) leads strategically and supports leaders within different business units or office locations. This approach creates localized understanding and institutionalized feedback loops.



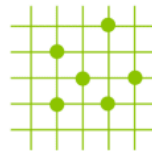
Centralized team

Especially in a mid/large firm, this approach intentionally brings together people from different roles to represent all the functions in the firm – management, business development, design, IT, business units, etc., as needed.



Integrated

In small firms, it's especially important that each person understands how to integrate sustainability, even if there are specific individuals who do specialized tasks, such as LCA analysis. For larger firms, this may be thought of as the ideal "end state" even if there are leaders who guide strategic sustainability development.



Distributed

This approach is especially fitting in larger firms that have multiple offices with distinct cultures or have grown by acquisition/merger. Here, you pick the people who will be most effective in the role to further the goals.



Decentralized & team based

In mid/large firms, having a fully decentralized model can be very effective and the distributed leaders become the "centralized" team which is also similar in some ways to Hybrid. This can be team based (especially if you have a stable "studio" model), business unit based, or location based.

Centralized distributed hybrid organizations. Source: AIA Sustainability Action Plan Guide

Align organization with goals

All firm activities should reinforce the firm's commitment to sustainability and resilience.

A firm's commitment can manifest in many ways to reinforce the priority, from management and operational activities, like onboarding and orientation materials, employee manuals, performance reviews, and professional development, to things that are more cultural, such

as a “day of service” to do environmental clean-up or a climate-focused event with clients. Refresh document templates, specifications, and internal standards to encourage dialogue and keep environmental targets visible. Maintain a social media presence that shares the firm’s resourceful, resilient, and regenerative approach.

Accountability

Accountability plays a key role in ensuring success and continuous improvement across your portfolio of work.

How will you know that every project team is taking the right steps? How will you know if a team is struggling? Putting processes in place to check in and monitor progress will help identify when support is needed and can preempt failure. This can happen through the use of quality control processes, management check-ins, milestone crit reviews, weekly meetings, and/or updates.

Climate action often demands architects test new processes, systems, and circumstances, often with unexpected results. Encourage team members to honestly share what they learn, what was unexpected or surprising, and what their next step will be. Giving people the confidence to correct a situation is a sure way to foster improvement.

High impact

1. Develop your firm’s [Sustainability Action Plan](#) (SAP) with clear SMART goals.
2. Join a commitment (such as the [AIA 2030 Commitment](#)) and share your progress and accountability.
3. Implement a small cultural change, like recognizing a sustainability champion each month.

Resources

1. Use the AIA [Sustainability Action Plan Guide](#) to think through how your sustainability values and aspirations can translate into a comprehensive approach that transforms your company’s entire portfolio.
2. Gain the Sustainable Performance Institute’s [SMARTsustainability criteria](#) certification to showcase your firm's commitment to improving the effectiveness of your organization and the performance of your projects.
3. Read the [Architects Declare](#) and become a signatory to the commitment.



Embody climate action in studio operations

Firms play a crucial role integrating climate action into their operations, from developing project teams to creating sustainability action plans with goals and deadlines. This section provides key actions including energy reduction plans, procurement procedures, and more.

Sustainable and resilient operations provide continuity during shocks and stresses. In a rapidly changing world, it is critical to plan ahead for disruption in order to survive and thrive, drawing upon foresight, strategic planning, and creativity to prepare, react, and quickly adapt to a wide range of disruptive events. Consider how weathering a disaster might impact the firm either positively or negatively. A good reputation and a quick return to business allows the firm to provide uninterrupted services, reduce revenue loss, and may even lead to more commissions.

Foundations

Climate action is a motivation to establish economic stability, environmental responsibility, and social equity at the heart of your practice

A firm's commitments, plans, policies, protocols, and daily functions provide a testing ground for innovative ideas and a platform for wider application with clients who are also business owners. Architects can reinforce sustainable and resilient operations whether part of a two-person team or 600-person office, improving the carbon footprint and business continuity of the practice by trying out actions in-house before convincing others. While these actions will demonstrate your studio's skills and commitments, it will also positively impact your studio's operational costs and ability to remain functional after a disruptive event. Firms can support operational changes in three categories: community fabric, procurement, and collaboration.

- **Community fabric.** Firms must balance a host of considerations when selecting an office space: proximity to current and future clients, the needs of employees, access, transportation, utilities (including capacity), and the cost of operations. But they should also consider the ability to link to low-carbon transportation options and right-sizing their office footprint to adapt as more employees begin to shift to a hybrid mode of work. Another consideration is officing in a historic or existing building and/or in an underserved community. The location and design of your studio also signals the firm's values and principles. An office that operates sustainably, with public-transit options, daylighting, airflow, and regenerative materials, illustrates its commitment to performance to its clients. A hazard and climate risk assessment will illuminate potential hazard events at the office location. Structure vulnerability assessments depict the impacts a given hazard scenario can have on the building itself. Offices may provide shelter-in-place in the event of an earthquake, tornado, or storm. Location considerations also include adjacencies and proximity to other high-security zones/targets or hazards.
- **Procurement.** Energy, water, and materials are resource streams that architects regularly manage on design projects, but these management principles can be applied to our own offices as well. Focusing on energy and water efficiency, developing procurement standards for products, maximizing waste diversion from landfills, and tracking consumption are ways to benchmark and make progress toward sustainable operations.

- **Collaboration.** The 2020 COVID-19 pandemic offered a vivid demonstration of how to conduct business without daily physical interaction. Remote operations reduce the carbon emissions incurred in commuting to the office, travel, client service, project pursuits, and jobsite visits (e.g., www.openspace.ai or [Autodesk Construction Cloud](https://www.autodesk.com/products/construction-cloud)). It also offers employees valuable flexibility.

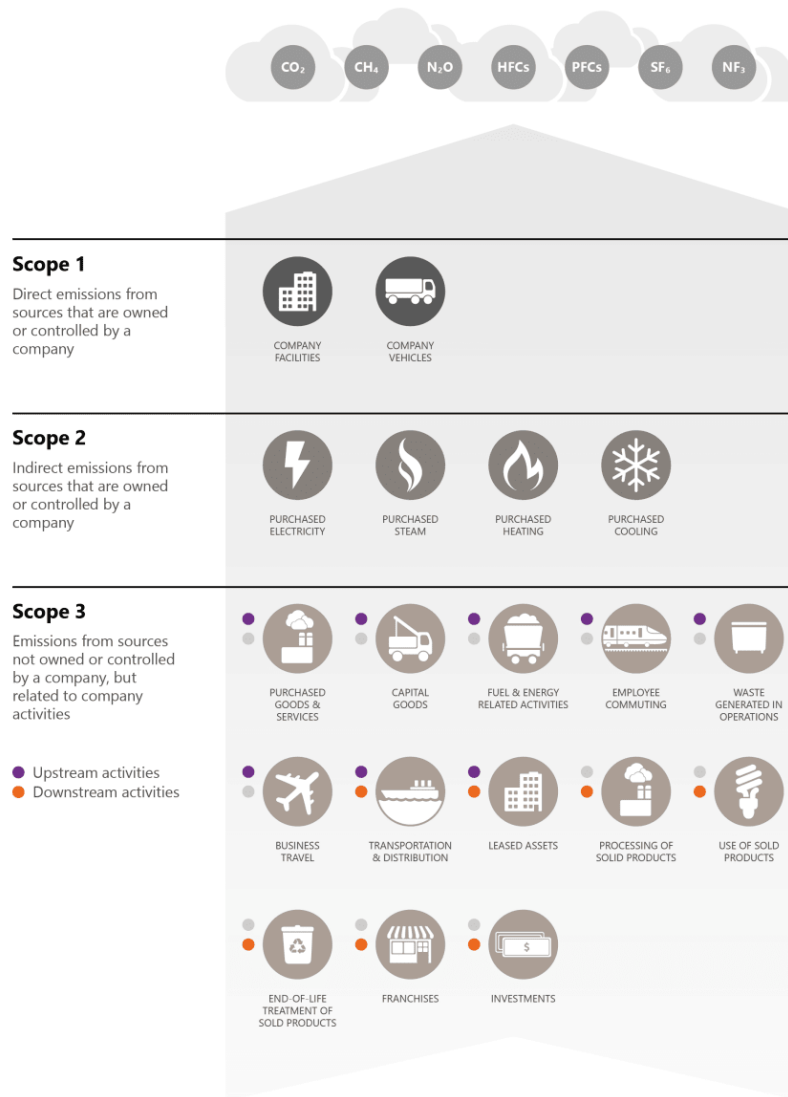
Best practices

Benchmark: Plan to reduce the firm’s negative impact on the environment—and the environment’s negative impact on the firm.

Facility operations (whether owned or leased) include energy and water consumption, waste management, purchasing, and travel. Track progress and modify future decisions based on the results. Balance the changes that are visible and reinforce culture, such as an energy dashboard, with changes that are less visible but have greater impact, such as buying a heat pump or adding LEDs.

Study your own hazard risk and create a Business Continuity Plan to manage sudden and slow-moving disasters. AIA has developed the AIA Business Continuity Guide for architects, providing best practices and resources to help firms become aware of vulnerabilities, remain open and profitable during disruptions, and expand their services, incorporating lessons from firms that have been affected by natural and manufactured hazards.

Identify a team in-house or hire a consultant to perform a [GHG emissions inventory](#). Estimate office-related emissions.¹ Benchmark the firm’s environmental footprint and create a plan for continuous improvement to meet specified targets, documenting these goals in the firm’s sustainability action plan. [Learn how](#) to purchase carbon offsets for remaining emissions [from a trusted nonprofit](#), or work with an accredited conservation group to replant and sequester carbon in your community.



GHG Inventory Scopes of Emissions

Right-size the office and optimize commute and travel

Location: Consider an office location near transit, bike lanes, or other low-carbon options. Consider walkable locations with access to other daily needs. Think about embedding offices in proximity to employees, clients, or long-term project sites.

Give employees the flexibility to work from home when projects and assignments allow. The shift toward more working-from-home options may mean each employee comes in a few days per week, allowing the office to transform into a collaboration hub or hybrid with fewer individual workspaces and more conference seating. This may allow office footprints to shrink or provide better access to daylight, outdoor space, and other healthy amenities. The amenities of the Big Tech office may also shift in favor of quiet focus areas, outdoor patios, or lockers for hot-desk workstations.

Interaction: New technology allows even jobsite visits to take place virtually, reducing the need for regular, in-person reviews on-site. For example, interactive technology can be used to share live video, audio, and optional hologram on a jobsite, while the design team participates remotely.

Consumption: Determine when in-person travel is necessary or virtual meetings are more efficient. Develop and share guidelines for essential travel that ensure employee safety, reduce carbon emissions, and stay within an overall carbon budget. Offer clean transportation/commuting incentives for all staff; for example, pay for a monthly public transportation pass, or give equal funds to staff who bike or walk to work.

Measure: Be sure to track progress. For example, LMN's carbon footprint for office and transportation is 1-2% of annual energy use of one year's worth of projects in design. If you look at cumulative projects, the carbon footprint is much less than 1/10 of 1%.

Implement an office energy audit and reduction plan

A holistic review of current performance can offer a starting point for reducing your building's energy consumption. Frameworks for existing buildings like [LEED Operations and Maintenance](#) can provide a place to start.

Benchmarking consumption: Use utility bills and/or energy monitoring, at the circuit or plug level, to document energy use. Develop a communication plan to share this data with studio team members. If possible, prominently display a dashboard to communicate real-time energy use to occupants. Using a communication strategy, announce gains and losses relative to the firm's reduction goals.

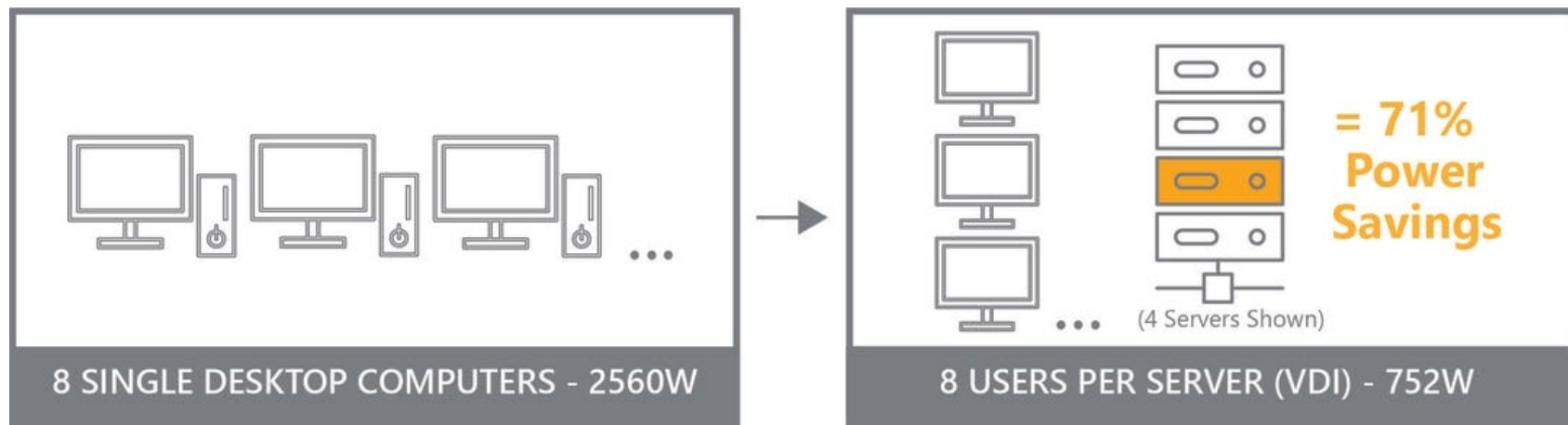
Resiliency: Redundant systems may be necessary depending on the firm’s location and risk tolerance. For example, business continuity may require an energy backup system—a more sustainable option is a photovoltaic (PV) array and battery backup as an alternative to gas-powered generators.

Mechanical: Plan for officewide electrification and refrigerant management. Improve office thermal controls, establish setpoints, and clearly communicate seasonal standards. Determine if and when space heaters can be used and tied to personal occupancy sensors for auto-off control.

Lighting: Plan for LED conversion and add vacancy sensors for lighting. Provide task lighting paired with reduced overhead/ambient lighting. Utilize controls/shades to manage glare and direct heat gain and enhance access to daylighting by reconfiguring workstations or installing light shelves.

Smart sensors and controls: Using smart devices to control thermal, lighting, and other internet-of-things (IoT) can not only help you reduce resource consumption, but also help collect data to inform your operational efficiency strategies moving forward.

Equipment: Ensure that appliances and equipment are rated for energy efficiency. Incorporate sensors or timers to ensure auto shutoff for noncritical equipment after hours. While AEC firms cannot consolidate computing needs to the same density as other industries due to simulation and graphic-intensive resource needs, opportunities still exist. Refer to the New Buildings Institute [Plug Load Best Practices Guide](#) for more guidance on how to drive down the consumption of office buildings.



Server v Desktop Energy Comparison

Business procurement processes

Location: Where possible, purchase from locally owned or disadvantaged business enterprises. Request delivery options that reduce impact, such as no extra packaging or combined delivery schedules. **Internal communication:** Clearly communicate to the studio team the impact of normal operations compared to the changes introduced. For example, track the number of single-use plastic cups going to landfill from the studio. Information can be a powerful persuasion tool for change.

Consumption: Set standards for purchasing low-waste/recycled/sustainable office supplies, food and drinks, and cleaning supplies. Make certain that visitors to the office also understand the guidelines to reduce food packaging for lunch-and-learns, etc.

Use permanent dishes, mugs, and glasses instead of disposable paper or plastic to reduce waste. Provide or ask employees to bring their own water bottles and provide filtered drinking water to cut down on single-use plastic. When reusable options are not possible, use compostable products.

Office cleaning products can present hazards to staff, visitors, and the environment due to residue or accidental spills, and they may adversely affect people with sensitivities and allergies. Alter purchasing requirements for cleaning products and change cleaning regimes to improve indoor air quality.

Many government agencies require certification that the architecture firm is compliant with the Solid Waste Disposal Act, procuring only items that contain the highest percentage of recovered materials practicable.

The EPA offers [a helpful resource](#) to help identify and procure more sustainable products.

Materials library management

Consumption: Consider replacing product binders by using resources such as [Material Bank](#) for samples plus a transparency database like [mindful MATERIALS Library](#) and [Sustainable Minds Transparency](#). Consider signing on to the A&D Materials Pledge. Maintain materials transparency resources such as Environmental Product Declarations (EPDs) and Health Product Declarations in a shared digital reference file.

Note: Using a service such as Material Bank is eco-friendly due to combined shipping of multiple products and returning them to be reused when no longer needed.

Interaction: Require vendors to take back materials and samples no longer needed. Also, consider donating items to local schools, community centers, etc.

Reduce, recycle, reuse, and compost

Consider demountable interior partitions and reconfigurable furnishings for future flexibility. Consumption right-sizing: Be thoughtful about what resources are truly needed and eliminate waste and overlap. For more information on a whole systems approach to societal use of materials and eliminating waste, see USGBC's [TRUE](#) certification program.

Reduce: Manage magazine subscriptions, eliminate single-use utensils/plates/cups (including waste from catered lunch-and-learns, office events, etc.). Experiment and implement technology to go “paperless.”

Recycle: Offer bins for recycling separation consistent with your municipality's or waste vendor's guidance, and create signage and training to help people separate properly. The [Zero Waste Design Guidelines](#) provide an excellent toolkit for designing for improved waste collection.

Reuse: Look for seemingly small initiatives, which can add up and promote a sustainable culture. For example, turn the backside of nonsensitive prints into notepads and donate oversized prints and samples to schools or art centers.

Compost: Provide collection bins in break rooms and subscribe to local compost pickup service. Store compost in freezer between pickups for easy management. If enthusiastic, explore onsite composting options, and offer employees soil from on-site composting or use it in a staff garden. The [Zero Waste Design Guidelines](#) provide an excellent toolkit for designing for improved waste collection.

Negotiate a green lease

Green leases help overcome the split incentive issue around energy. Recently, green lease leaders are focusing on the resiliency aspect (such as aerosol management). For more information, visit the [Institute for Market Transformation](#) for resources and information on property owners who already participate in green leases.

Human health & well-being

Prioritizing human health begins with reassessing how business functions are performed. The design or redesign of the office offers the chance for firms to assess programmatic needs for collaboration, meetings and individual work, improved air quality, natural light, physical activity promotion, reduced physical contact with systems controls, and elimination of toxins such as VOCs.

Interaction: Our own offices, just as our work for others, should include human health and well-being strategies, such as improving indoor environmental quality and the human experience. For example:

- Integrate [biophilic design elements](#) and promote access and views to the outdoors. Understand the beneficial [economics of biophilia](#) derived from healthier and happier staff with greater productivity and lower absenteeism.
- Improve daylight and calibrate indoor lighting color and timing to respond to the time of day, promoting circadian cycles and human health.
- Install sensors to monitor air quality. This can also tie into the ventilation system to save energy by minimizing ventilation when spaces are unoccupied.
- Adopt a framework such as [Fitwel](#) or the [WELL](#) Building Standard to advance health and well-being.

Develop programs that promote health and wellness for staff and their families: health care, fitness, and smoking cessation incentives. Work with your firm's human resources department to consider offering flex time to allow for family business, doctor's appointments, or community service time. Organize group events, such as fun runs or bike rides, meditation, planting days, or other events with health and environmental benefits.

The resilient office

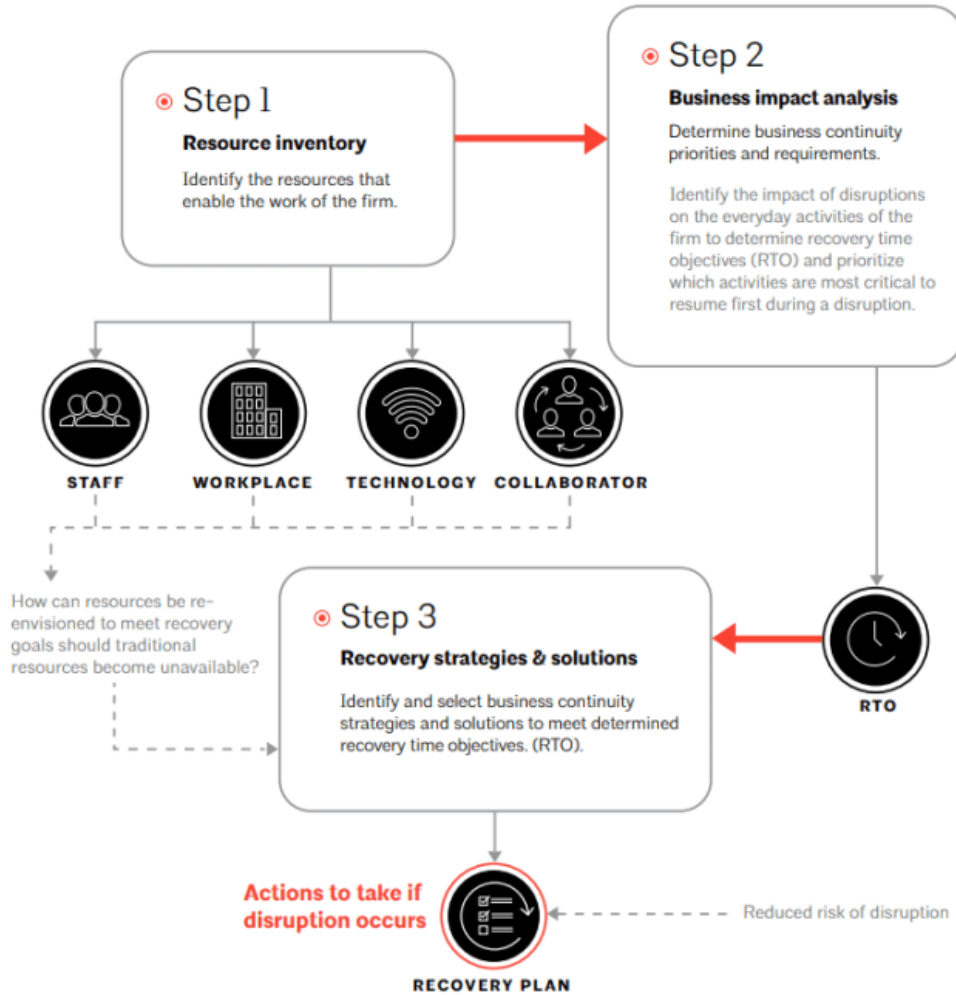
Hazard risk reduction includes reducing the negative impacts of climate change on the firm. Perform a building/facility vulnerability assessment (see [Course 5](#) in [AIA Resilience and Adaptation Online Certificate](#) series). Create an emergency preparedness plan and a business continuity plan (refer to the [Architect's Guide to Business Continuity](#)) to create an actionable plan for facing uncertainty. Share these plans across the practice and communicate that not preparing for climate change could leave the practice vulnerable and irrelevant, while preparing could revitalize the firm and help it endure through the challenges of the coming decades. Having a business continuity plan reduces risk and makes a business more desirable to staff and less likely to be left behind.

Recognize the cost of interruptions from shocks and stresses: Is the office subject to floods, fires, earthquakes, or infrastructure stresses such as power failures and gridlock? Identify vulnerabilities and compare the cost of continuity of operations features (backup power, potable water storage, supply storage) versus the productivity losses when events strike.

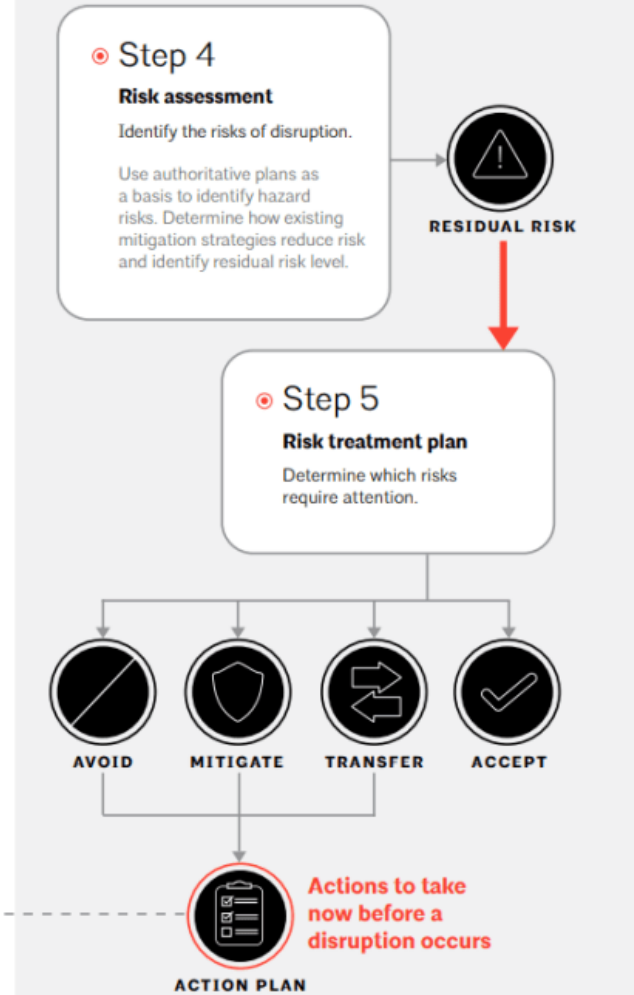
Large offices might consider a decentralized model, with a main hub and satellite offices, to manage risk. Therefore, if one location goes down, another location can remain up and running. This redundancy builds in a measure of duplication but may have long-term benefits.

Business Continuity Planning Process

Steps 1-3: Prepare for recovery



Steps 4-5: Reduce risk



Architect's Guide to Business Continuity

Recognize the cost of interruptions from shocks and stresses: Is the office subject to floods, fires, earthquakes, or infrastructure stresses such as power failures and gridlock? Identify vulnerabilities and compare the cost of continuity of operations features (backup power, potable water storage, supply storage) versus the productivity losses when events strike.

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archimania office. A rehab of an existing building, which incorporates climate mitigation and adaptation principles to maintain continuity of operations.

High impact

1. Create a business continuity plan that outlines the potential hazards in your community and specifically for your office location(s). Describe how the firm will manage risk and recover from disruption.
2. Benchmark energy (or carbon, if possible), water usage, and materials consumption. Display a running tabulation of efforts to reduce use (dashboard or spreadsheet).
3. Based on results from the benchmark, establish targeted policies for decarbonizing office operations. These may include project travel guidelines and electrification plans.

Resources

1. Consult BuildingGreen's [Carbon Offsets and How to Select Them](#) for a primer on how building owners can utilize carbon offsets to combat the impact of embodied carbon.
2. Learn more about USGBC's [LEED for Operations and Maintenance](#) accreditation for existing buildings' operations.
3. Take the [AIA Resilience and Adaptation Online Certificate Program](#) to explore concepts of mitigation, resilience and adaptation, technical design application, and design process application.



Communicate key principles

Firms play a crucial role integrating climate action into their operations, from developing project teams to creating sustainability action plans with goals and deadlines. This section shows that communicating your firm's climate actions can help drive business by showcase goals and achievements to both internal and external audiences.

Investors increasingly care about climate risks but are often concerned about how adapting to climate change or net-zero buildings will affect project designs, schedules, and budgets. Preparing for these conversations with examples from your own portfolio can allay fears

and show that sustainability and resilience can be innovative yet practical, transformative yet on budget, systematic yet on schedule. Leverage data to show incremental progress toward goals, and develop examples to show how your firm has implemented resilience measures for clients and is prepared to design for the next disaster.

Foundations

Highlight your firm's commitment to climate action by collecting and sharing performance data and narratives that articulate your values and vision.

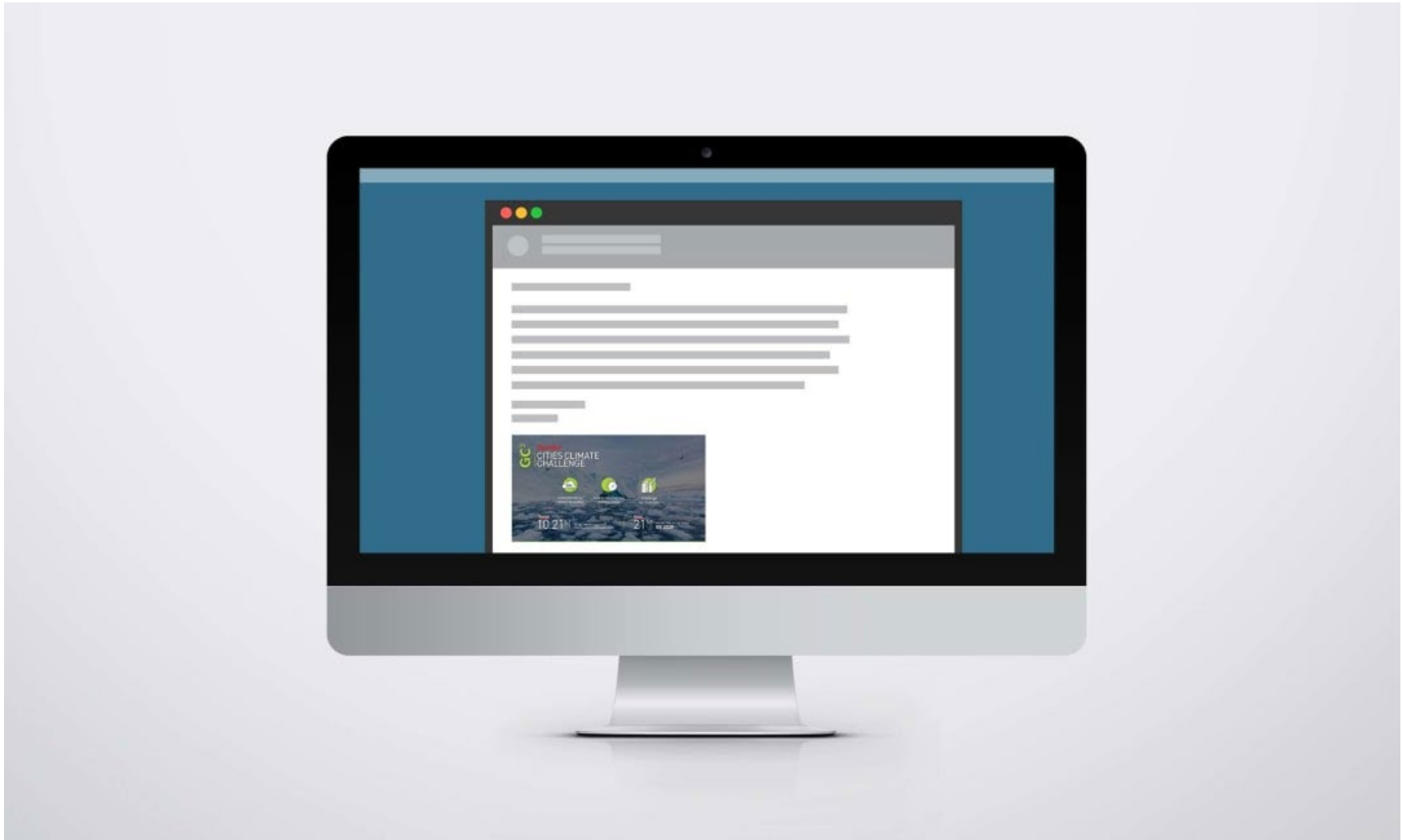
Everyone in your firm should be able to articulate your values, vision, and commitment through consistent communication. Make your mission evident in everything you do. Market your personnel's sustainability credentials on websites, print materials, presentations, etc. Promote the benefits of sustainable and resilient design to clients. Clarify your firm's message to highlight your commitment to climate change action and climate change adaptation.

1. Leverage performance data from your [Design Data Exchange](#) (DDx) and other sources to quantify the power of your work when talking to clients.
2. Create and share materials that link project and climate narratives with design data that will appeal to your client. What stories and images can you share that illustrate a sustainable and resilient future for their project?

Best practices

External communications: Update marketing materials (website, collateral, proposals, public presence, etc.) to include the firm's sustainability and resilience approach, accomplishments, relevant case studies, and performance data.

Design easy-to-understand presentations/data. Highlight performance data in presentation materials for clients. Leverage data, statistics, and project performance metrics along with anecdotes to tell compelling stories for business development opportunities and to make a case for increased scopes or new types of work. Positive owner, user, or community outcomes from post-occupancy evaluations are great stories to share.



Gensler Email Signature 2020. Describes commitment to carbon neutrality, measures metric tons of carbon saved from portfolio impact, and reminds sender and receiver of the firm's targeted goal for carbon reductions by 2030.

Incorporate storytelling elements in your media outreach—human stories combined with relevant datapoints motivate change. Data is great but diagrams are better—create graphics that distill performance measures into clear and persuasive points. Share lessons across platforms: social media, videos, blogs, and formal press releases. Introduce performance metrics into every story published about a project.

If you are an AIA 2030 Commitment signatory, AIA offers badges you can add to your website and social media accounts to celebrate your milestones in the program.

Recognition and awards: Celebrate your success through awards submissions to AIA, [COTE Top Ten](#), chapter, and local sustainability programs.

The [Framework for Design Excellence](#) was adopted in 2019 as the Institute’s standard for assessing project performance and design excellence. The toolkit and COTE Super Spreadsheet can track performance indicators and metrics throughout design and help project teams develop target goals. The Super Spreadsheet is used for award applications by some programs and components, so it can also support documentation for submissions.

Share your stories with other architects, policy makers, and the public to expand understanding of the built environment’s role in sustainability and resilience and to gain traction for related strategies in your work (for example, overcoming policy barriers like multiuse zoning restrictions). Use your knowledge to engage with the community and potential clients, becoming a trusted partner in issues that affect sustainability and resilience throughout the community. Work with clients to present at conferences or local meetings to strengthen collaboration and elevate the work.

Project pursuits: When pursuing projects, as part of your firm’s “go/no-go” decision-making process, include sustainable design and performance aspirations of the project as another metric of the evaluation criteria.

These criteria could set a threshold for performance that aligns with your firm’s goals and aspirations. Articulate firm values as guidance during project pursuits, and, if feasible, identify project types that most align with your firm’s values. Firms can incur steep opportunity costs by pursuing and accepting projects that are not in alignment with firm values.

As part of the evaluation for climate action during project pursuit, ask questions such as:

- Will this project contribute positively or negatively to the firm’s climate action portfolio?
- Does the project negatively impact basic requirements for climate change adaptation?
- Does the client, scope, and budget support a performance target aligned with the firm’s own goals?

- Will this project support and expand our technical proficiency?
- While it may seem daunting to turn down work, using your go/no go list can be a business development opportunity by:
- preserving your staff energy to put toward highest and best use
- aligning values so that you and your client are on the same page for design solutions and avoiding problem projects
- honing and communicating your in-house expertise, using conferences to highlight the projects

In project pursuits, provide potential clients with meaningful information on hazards and vulnerability, design opportunities for mitigation and adaptation, community functions, or other considerations that might have an impact. There is also an opportunity to align sustainable and resilient goals to what the clients value, including marketability, occupant health and well-being, and first and life-cycle cost savings, among others. The Climate Action Appendix to the AIA Message Book has resources, [How to talk about architecture with clients and the public](#), for this. Even if the team is not selected, these suggestions may resonate with the client and contribute to a better environment. The following chapter of this report extends this guidance to cover sustainability language in project contracts.

Marketing and business development staff: Firms that can quantify their performance and correlate those successes and lessons learned with strategies and articulate their approach to continuous improvement will differentiate themselves and be more competitive.

Additionally, aligning project delivery with climate goals will open new potential scopes (or extended contracts) like building vulnerability assessments, post-occupancy evaluation, or carbon analysis.

Maintain a business development list that links hazard risk with project opportunities in your geographic or practice area: low-to-high-density development patterns, investment zones, transit-oriented development, updated flood insurance rate maps, code changes that affect existing buildings, etc. Leverage your work to identify new project opportunities. Encourage the marketing team to earn sustainability credentials and/or get involved with sustainability and resilience efforts. This provides them the tools to convey the firm message in a more meaningful and substantive way.

Internal communications: Organize internal communications to support the cultural shift toward climate action.

Examples include:

- Develop templates for design teams to maintain accurate current design data and share with the entire studio.

- Develop a standard template for holding and documenting discussions with clients about hazards, risks, project performance goals, and risk-reduction strategies. Outline the sources of information that are available for categorizing hazard risk but also the client’s appetite for managing those risks.
- Develop the resources for necessary for materials transparency by exhibiting good product examples and culling poor choices from materials libraries.
- Showcase potential climate strategies in lunch-and-learns or weekly meetings, extending invitations to consultant partners or clients. Discuss the potential benefits and drawbacks and the different ways the solution might be deployed.
- Create performance walls to highlight project metrics for the studio.
- Keep solutions and metrics visible to reinforce the firm’s values and priorities.

High impact

1. Develop [client talking points](#) to outline the costs and benefits of sustainability and resilience so that every member of the firm can present information more easily. The AIA Message Book Appendix and [ROI](#) pages also have resources for this called [How to Talk About Architecture with Clients](#).
2. Include climate mitigation and adaptation information on your website and external marketing materials, including leadership, affiliations, and commitments.
3. Create standard narratives and design data on climate commitments and accomplishments to include in proposals.

Resources

1. Part of the AIA 2030 Commitment program, the [Design Data Exchange](#) (DDx) is a tool to track firms' progress towards meeting 2030 carbon goals.
2. Explore the [COTE Top Ten](#) awards, the industry’s best-known award program for sustainable design.
3. Use the [AIA Framework for Design Excellence](#) that represents the defining principles of good design in the 21st century, seeking to inform progress toward a zero-carbon, equitable, resilient, and healthy built environment.

Climate Action Portfolio Resources



Goal setting: Aim high

Portfolios are key interventions for firms to embody steps for climate action. This section emphasizes goal setting as a way for designers and architects to engage all stakeholders and establish targets and priorities.

The social, economic, and environmental impact of an individual project can be significant, let alone a portfolio of work. Can an improved design process change the “business as usual” model across a firm’s portfolio of projects? The process begins with establishing clear goals. While architects may be familiar with making sustainable design decisions, such as optimizing orientation for climate, we may be less prone to creating standard decision-making processes to minimize carbon over the life of the structure. Design studios should establish processes to prioritize goals for the project, including carbon emissions (operational and embodied), healthy environments, materials, water conservation, waste diversion, and resilient and equitable design, among others, that might be unique to its context.

Foundations

Every project program, climate, and context will vary. Ensure that the design process includes an “opportunities and constraints” analysis to thoroughly understand environmental and contextual priorities for the project. Based on the analysis, establish key metrics and target values that are reasonable as well as aspirational. Aim high and create a process to help you achieve the targets. Take time to engage with and better understand the problem; jumping into solutions too quickly can obscure key opportunities.

Introduce standard protocols, including sustainability kick-off meetings at the outset of a project and intermittent workshops and charrettes where goals can be established and continuously reviewed. Raise relevant questions with the design team, such as can the project survive rapid ice-melt scenarios? Can it provide a haven during a storm event and remain livable during a recovery period? Can it drive down and sequester more carbon than it emits in its construction and operations? Can it support the community in a meaningful way?

Design studios should refer to available tools provided by AIA and others to help guide the design process, including the [AIA Framework for Design Excellence](#), the [Resilient Project Process Guide](#), and the [Architect’s Guide to Building Performance](#). Although various key performance indicators (KPIs) may be relevant for any given project, below are short descriptions of key criteria to attaining carbon-free, healthy, resilient, and equitable built environments.

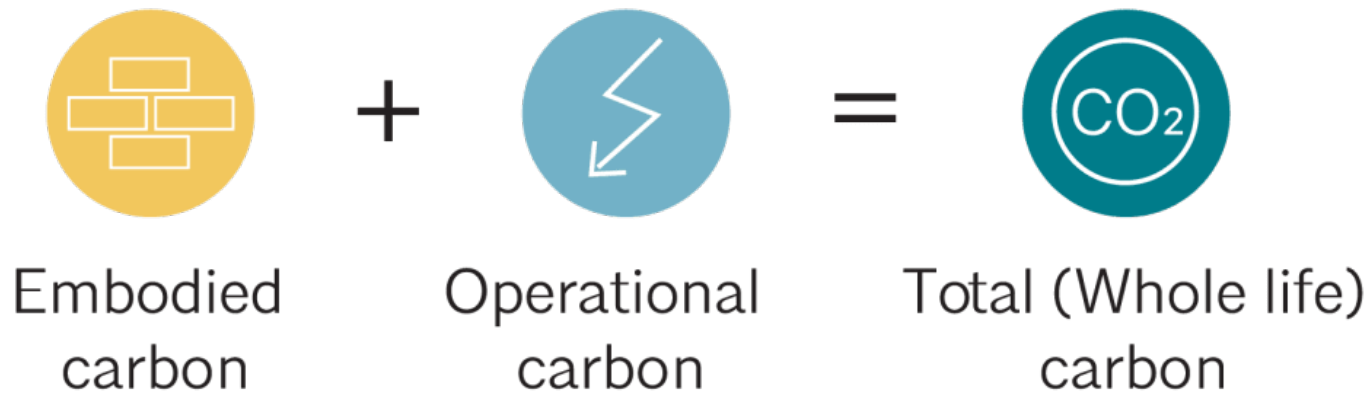
Zero-carbon

Carbon emissions from buildings can be placed in two categories: operational carbon and embodied carbon. Operational carbon includes the emissions attributable to building operations associated with heating, cooling, lighting, equipment, etc. Operational carbon is estimated by converting building energy end uses to carbon emissions measured in CO₂e (carbon dioxide equivalents). Annual average carbon emission factors for fuel sources and regional electricity grid mixes can be obtained through local utility companies or national research institutes, such as NREL and US EIA. The [Greenhouse Gas Equivalencies Calculator](#) provides a simple method of conversion

with less regional specificity. Reducing operational carbon begins with reducing energy use intensity (EUI) in kBtu/ft²/yr and eliminating combustion by electrifying buildings.

Embodied carbon, on the other hand, includes emissions attributable to the processes across the whole supply chain needed to build a building. This includes the emissions it takes to extract, transport, manufacture, construct, maintain, demolish, recycle, and dispose of building material, as well as other fugitive emissions leakage such as refrigerants. A methodology called life cycle assessment (LCA) is used to estimate embodied carbon of materials selections. Critical metrics for embodied carbon include the percentage of adaptive reuse, whole building embodied carbon per floor area (typically kgCO₂e/m² or kgCO₂e/ft²), or kgCO₂e per quantity of individual products.

The [Embodied Carbon Benchmark Study](#) and [Baseline Report](#) by the Carbon Leadership Forum provide a starting point for setting goals across your project portfolio. For related design and procurement tools, visit [Building Transparency](#) (EC3 and Tally).



AIA-CLF Embodied Carbon Toolkit for Architects Figure 1: Total (whole life) carbon

Healthy

Designers who take a comprehensive approach to material characteristics and impacts improve the health of people and the planet. Optimizing material use and recognizing the impacts of extraction, production, and transport are essential to climate action. Commit to joining the [AIA Materials Pledge](#) to support human health, social equity, ecosystem health, climate health, and a circular economy. Tools like the International Living Future Institute's [Living Building Challenge \(LBC\) Red List](#) can provide guidance for eliminating the most toxic products across your portfolio.

Resilient

The hazards that may affect a project over its service life shape the design choices. Designers who understand risk and vulnerability can improve performance against climate hazards such as flooding, increasing temperatures, intense precipitation, high winds, and other shocks. Develop resilience and adaptation goals for your portfolio of projects, and consider how each new project can address these concerns and create greater value in an uncertain future. AIA has many resources on resiliency, including “[What architects need to know about hazard and climate risk.](#)” which can be used as a reference.

Equitable

Every single project, even a single-family residence, can address issues of social justice. Every built environment we design has the potential to impact community values, repair social and environmental legacies of injustice, reduce demand on utilities, moderate microclimatic conditions, and create neighborhood amenities. Consider the broader social and economic systems and establish portfolio-scale goals for impact.

We can start at home by deploying strategies to make our firms more equitable. [Guides for Equitable Practice](#), developed by the AIA in partnership with University of Washington and University of Minnesota, can help you understand the necessary steps to get there.

Best Practices

Establish expectations during the contractual phase

Write minimum sustainability or performance requirements into your contract language.

Use AIA contract documents and guides to assist in drafting contract language. The sample language in AIA's document [E204-2017 Sustainable Project Exhibit](#) covers key terms like sustainable objectives, sustainable measures, sustainability plans, sustainability certifications, sustainability documentation, and certifying authorities to help your firm clearly articulate and bound your scope of

services. AIA also provides a [Guide for Sustainable Projects, Document D503-2020](#), which gives detailed guidance on developing contracts that manage risk and help protect the interests of owners, architects, and contractors when engaging in sustainability topics in their work.

In addition, AIA's [Integrated Project Delivery \(IPD\) Guide](#) contains a process-focused reference to contractually engaging in IPD and covers how this operates contractually. Alternatively, the [ANSI Consensus National Standard Guide for Integrative Process](#) provides additional detail and trusted guidance for folding IPD into your project team.

Balance competing priorities

Learn to prioritize based on potential climate consequences when climate goals are in conflict.

Sustainability and resilience goals may not align perfectly: A resilient design may encourage armoring the building envelope with steel and concrete, but a low-carbon solution of wood-stud framing may not withstand high-wind loads. Conflicts between sustainability and decarbonization targets may also occur; for example, spray foam insulation may provide high insulative value and an air barrier but has higher embodied carbon than other options. Quick back-of-the-envelope calculations can help inform these climate trade-offs. As firms understand the impact of decisions now and over the life of the structure, document the selections, rationale, and references so that the process and lessons learned become embedded in your design approach.

Set clear targets

Run “opportunities and constraints” analysis on all projects to help define unique contextual requirements prior to establishing project goals.

For example, understand climate change impact for a region: Is it higher ambient temperatures, coastal flooding, or frequent storm events that will impact design decisions? Are there opportunities for passive design strategies? Establish expectations for better building performance across projects. This can be done first with the entire design team and then with the client and other project stakeholders. Catalog goals to share with other project teams and prominently display them during internal reviews and presentations. Refer to the goals and tracking mechanisms when making key decisions. Find common ground between climate action goals, sustainable design goals, efficiencies, and other project aspirations.

Agree on a set of target metrics that are used consistently across projects for internal tracking purposes. These may include design parameters, such as:

- typical wall R-value, typical roof R-value
- typical window U-value, typical window SHGC
- full building electrification (true/false)/heating fuel source/cooling fuel source/DHW fuel source

Some key target metrics addressing climate change and sustainability that should be included in most projects are listed below. Of course, each project will have its unique set of goals that will vary widely.

Energy & carbon emissions:

- predicted operational energy use intensity (pEUI in kBtu/ft²/yr)
- predicted operational carbon emissions (kgCO₂e/ft²/yr)
- embodied carbon (global warming potential, kgCO₂e/m²)
- eliminate combustion systems
- electrification feasibility
- low-GWP refrigerant feasibility
- grid context

Resource preservation:

- potable water use reduction/elimination
- adaptive reuse of existing buildings/material
- recycled/post-consumer products use
- Occupant health & well-being:
 - thermal and visual comfort
 - minimum fresh-air requirements
 - healthy material selection criteria
- biophilic design

Resiliency & adaptation:

- prevent disruption of critical building systems and operations as required by the building function (based on potential local climate change–induced threats)
- passive survivability (continued building operations beyond disruption through passive methods)
- amplify community assets

Several resources can act as a primer and provide context for firms just beginning to integrate sustainable design practices. AIA’s [Framework for Design Excellence](#) provides pertinent guidance for crafting specific goals and targets around energy, water, resources, well-being, and more. AIA’s [Architect’s Guide to Building Performance](#) provides an introduction that firms can use to integrate simulation and modelling into the design process. Aspirational frameworks like the [Zero Code](#) can provide useful context about how to design beyond code compliance. Further, benchmarking tools like [AIA’s 2030 Design Data Exchange \(DDx\)](#), [Zero Tool](#), and [Energy Star Portfolio Manager](#) can help firms set targets across their projects to compare building performance goals and progress across a portfolio of projects.

Engage & cultivate buy-in with all stakeholders

Every project can achieve more when team members buy in to the vision and goals and when they have established trust and mutual accountability.

Every project has its ups and downs, and challenges can be harder when shooting for aggressive climate and performance goals. Using workshops and team meetings to communicate and build the trust while working on project delivery is important.

Some key instruments to help team buy-in:

- Use sustainability kick-off meetings, workshops, or charrettes to engage with the team early in the design process to discuss sustainability, performance, and resiliency goals.
- Conduct workshops to provide unique project context, clearly defined goals, and priorities, and create processes to achieve such goals.
- Assign clear responsibilities and regularly engage with team members to keep everyone abreast of sustainable design status.
- Create a project process roadmap that identifies sustainable design activities that should happen at each major design, construction, and occupancy phase.
- Align sustainability and resiliency goals with client’s general aspirations for the project, such as marketability, quality product, and total cost to ownership (TCO) using life cycle cost assessments (LCCAs)
- Clearly communicate these goals and alignments with the client and other stakeholders.

AIA's [Integrated Project Delivery Guide](#) contains an extensive reference to engage a multidisciplinary design team in an integrated process approach. Moreover, AIA's [Framework for Design Excellence, Design for Integration](#) subsection provides complementary guidance for use at the individual project level.



Create climate-focused design teams

Performance-based design can only be successful if you align consultants with your goals.

Design teams achieve success when every member is engaged in building performance goals. Architects often develop longstanding relationships with engineers, landscape architects, and other consultants. Seek their expertise in setting design goals across the firm's portfolio. Discuss ambitious versus achievable goals and establish a range of acceptable values for key metrics for projects with different scales and budgets.

Develop expectations for your consultants that match your firm's enhanced climate action standards. Identify partners with the new skills and technologies that you need, whether it is in assessing existing buildings, energy modeling, life cycle analysis, climate projections, or other specialties. If those services are not readily available in your community, work with existing partners to determine if they are willing to embark on the journey together or find new consultant partners to help fill in the gaps. Groups like [SE 2050](#), for structural engineers, can help you find consultants whose values and commitment are aligned with these goals. Help the design team understand the urgency of climate action, the criteria for improvements, and the areas in which you need their support, and seek out consultants that share your values. Some markets may be more difficult to find partners focused on high performance, but architects can establish reliable standards to clearly describe expectations. Include consultants in your educational efforts, co-develop performance goals, and challenge them to develop innovative solutions to mitigate GHG emissions and adapt to future climate conditions. Use an [integrated design process](#) to optimize design and building systems. Invite consultants to share the top thing they are excited about on a project and their top concerns. Ask tough questions and develop a rapport with design partners so that each person can learn from and support the others. Ensure that contracts, scopes, and fees create the conditions that are conducive for success. Assign responsibility for accountability fairly

Advocate to clients

Understand the client's interests and connect to climate solutions that address their concerns. Architects can educate and inspire the client and help them understand the implications of their decisions on the community and the world. Develop examples and key talking points to aim for better performance like the [ROI of High-Performance Design](#) or Blueprint for Better's [talking points](#).

- **Value:** Increased user satisfaction, lower operating costs, leasing/sales differentiator, superior indoor environment, ability to withstand disruption, and overall better product in a competitive market.
- **Risk:** Interruptions to productivity, damage and repair costs, poor performance in a competitive market.
- **Responsibility:** The [AIA 2020 Code of Ethics and Professional Conduct](#) requires members to promote sustainable design and development to their clients.

High Impact

1. Run “opportunities and constraints” analysis to define unique contextual requirements and goals.
2. Facilitate goal setting session(s) and prioritize goals with the design team, clients, end-users, and other project stakeholders to get buy-in and develop a template to collect consistent information related to climate goals.
3. Establish target service life standards across your portfolio. Focus on decarbonization strategies in design across the project portfolio. Key performance indicators (KPIs) may include:
 - predicted energy use intensity (pEUI)
 - predicted operational carbon emissions (CO₂e) based on electricity grid mix and on-site renewable energy opportunities
 - estimated embodied carbon (kgCO₂e/m²)

Resources

1. Explore the [Integrated Project Delivery Guide](#) for introductory principles of integrated project delivery (IPD) and how to apply them to your practice.
2. Lean on the [Guide for Sustainable Projects, Document D503-2020](#) to identify and learn the many legal and contractual issues with sustainable design and construction practices.
3. Use the [AIA Framework for Design Excellence](#) that represents the defining principles of good design in the 21st century, seeking to inform progress toward a zero-carbon, equitable, resilient, and healthy built environment.
4. [AIA-CLF's Embodied Carbon Toolkit for Architects](#) provides a 360 view into embodied carbon in the built environment, why it matters, and strategies to reduce it.
5. Use the [AIA Resilient Project Process Guide](#) to identify the points in which resilience and climate adaptation goals can be layered into specific design solutions.
6. Explore the AIA [Architect's Role in Creating Equitable Communities](#), a resource that provides frameworks for actionable tools, tactics, and strategies offer a means to understand their extent of agency
7. Consult the [ROI of High Performance Design](#) to get equipped with talking points on the value of sustainable design and to convey the value you bring as a sustainability leader.
8. [International Living Future Institute's Living Building Challenge \(LBC\) Red List](#) represents the “worst in class” materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem that are prevalent in the building products industry.



PORTFOLIO

Measure Progress & Success

Portfolios are key interventions for firms to embody steps for climate action. The second step after setting goals is measuring the progress, which can be supported by tools like roadmaps and dashboards along the way.

Project delivery is the lifeblood of any practice. One critical action is to align your project delivery process with your goals to ensure consistency and develop a firm-specific method for success. This is a practice-level activity tied to management, collaboration with consultants, business development, organizational infrastructure, and processes such as quality control and use of tools and templates.

Foundations

A firm's overall success in delivering high-performance and sustainable projects depends on establishing key metrics, continuous monitoring of those metrics, and improvement of the design processes and key performance indicators (KPIs). Lessons learned and, more importantly, continuous tracking and measurement of KPIs across a studio's portfolio will allow the studio to build upon the successes of past projects. KPIs and performance design processes can and should be bespoke to each studio based on project types and geographical location. Creating processes that give design teams time to explore alternative design solutions in the early phases can help streamline your process.

A firm that continuously learns from its projects is more competitive and delivers higher value to its clients. Internally, it is critical to create formal processes that can capture lessons learned during your projects. Externally, it is important to actively maintain relationships with past clients so that you can conduct follow-up calls and post-occupancy building visits to monitor performance. Learn what works and what does not work and adapt. Apply feedback from previous designs in your new work. Some firms have leveraged early experiences into business development opportunities, which demonstrates the value of extending your contract scope post-occupancy.

Use select elements from readily available third-party rating systems (e.g., [Leadership in Energy and Environmental Design](#) (LEED), [WELL Certification](#), [Living Building Challenge](#) (LBC), and others) and AIA's Framework for Design Excellence to create your firm's own measures of success for all projects. Use tools such as AIA's [2030 Commitment Database DDx](#) to document performance metrics for your projects. Implement simple best practices on all projects as part of your firm's evolving standard of practice. Track the impact of your projects to social, environmental, and economic vulnerability across your portfolio.

Create a sustainability action plan. For guidance and inspiration refer to the AIA article "[Creating a Sustainability Action Plan that works!](#)" You can also refer to this [AIA Dropbox repository](#) of plans by other firms.

Best Practices

Collaborative process

Performance-based design can only be successful if you align your consultants with your approach and goals.

Ensure that contracts, scopes, and fees create conditions conducive for success. Seek out teams with high-performance partners. If you have co-created a project roadmap, covered in more detail below, you are on your way to better collaboration through an integrated design process that optimizes the integration of both disciplines and building systems. Successful collaboration turns a group of people into a highly functioning, invested team who trust each other and are committed to mutual success. This does not happen accidentally but can be achieved by intentionally building trust and connection from the first kick-off meeting.

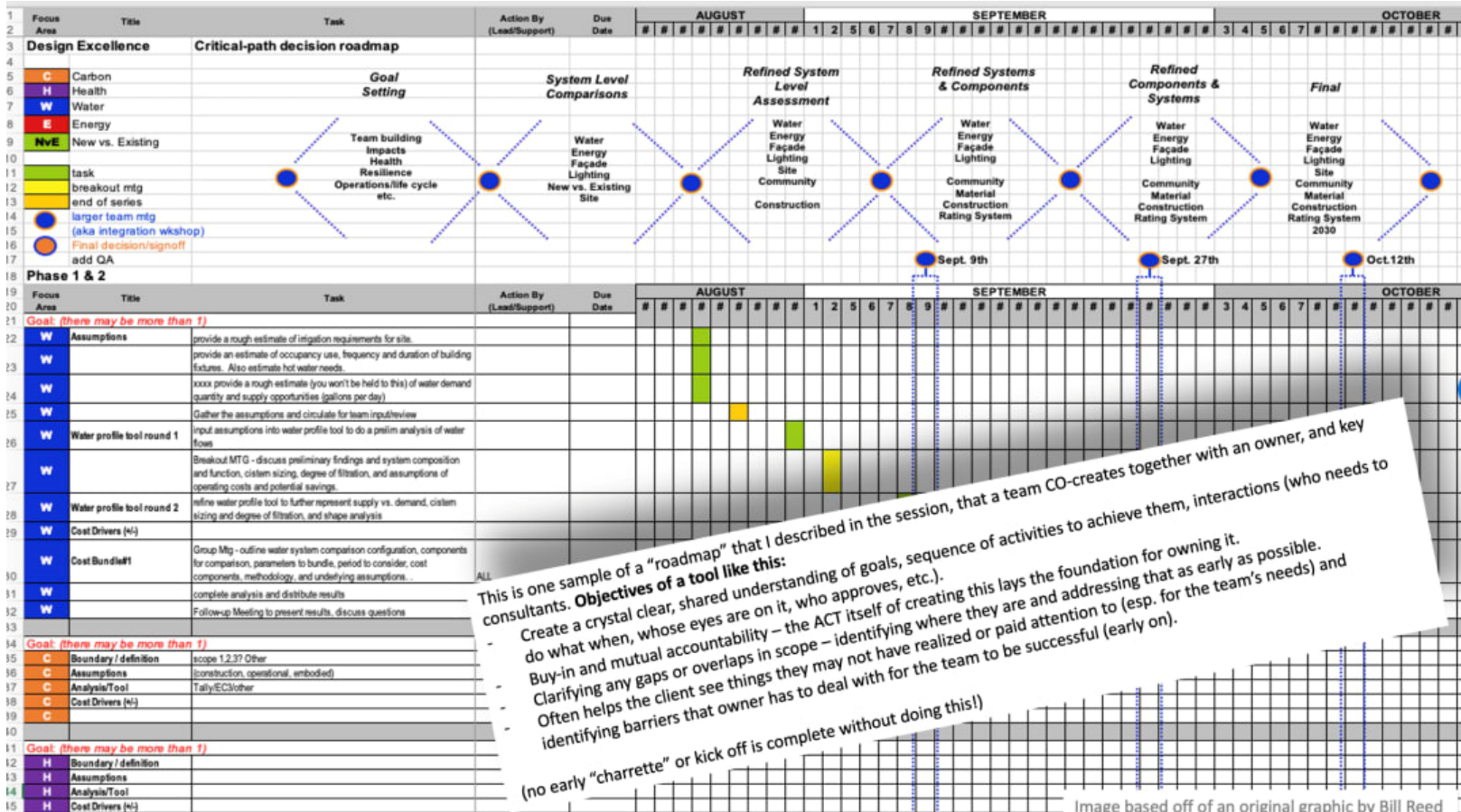
In an early kick-off meeting, facilitate a short exercise inviting people to share (either anonymously or not) the top thing they are excited about on the project and the top thing they have concerns about. This can be one way of achieving this trust.

Document the process by spending time on storytelling and growing the investment of the project team in the narrative and goals. Ask tough questions and develop a rapport with your design partners such that each party can learn from and support the others. Value others' input and engage with analysis; focus on translating analysis into clear design decisions. The book [*The Partnering Solution*](#) by Bill Ronco provides practical agendas and strategies to incorporate into meetings to achieve this result.

Project process roadmap

Co-create a project roadmap to coordinate everyone on the team

Create a roadmap template for teams to clarify the sequence of activities to reach critical path decisions. The effort to make the template project-specific and unique can be part of an early project workshop or charrette and ideally includes the client and key consultants. In this activity, the team will map out the relationship between the project goals and the sequencing of steps needed to execute analysis and resolve critical path decisions throughout the design process. Focus on systems integration and optimization. Include key design team members to help shape these interacting workflows. Show the key points for intervention and change.



Create mechanisms to ensure the design intent is translated into reality: commissioning planning, material specifications and submittals, etc. Integrate sustainability actions into BIM parameters and schedules, QA/QC processes, and templates for meeting agendas. Differentiate between projects pursuing third-party certification and minimum best practices on every project.

Designate a champion

An individual champion is needed to be a catalyst even though the whole design team will need to be engaged for the process to succeed.

Assign a person at any level to be responsible for identifying key points for coordination, providing team-wide updates and structure, and tracking project metrics and reporting back.

Firm dashboard

Create a dashboard for projects to keep track of progress across your firm's efforts.

This could be a simple Excel spreadsheet, a custom online database, or tied into the firm's formal ERP database (e.g., Deltek Vision).

Create an accessible place to declare project goals to help teams keep track of progress. For example, firms using Autodesk Revit might devote a portion of the software's "Starting View" to document project-specific items like micro-climate data and the current pEUI. This could also include goals selected from the [Framework for Design Excellence](#). The result would be a centralized location all team members see daily.

Internal project reviews

Self-assess design projects using the [AIA Framework for Design Excellence](#), [COTE super spreadsheet](#), or other internal metrics.

Invite staff not involved in the project to attend internal project reviews. Explore missed opportunities and unpack the decision-making processes that led to the outcomes.

Lessons learned and project close-out

Share lessons learned before every new design phase and at project close-out.

Document these lessons learned and aggregate them across projects to help see trends and locate points of intervention. Focus on the pathway to the project's climate goals and what opportunities and obstacles remain. What worked/what did not work? Where could teams have pushed further?

Give project managers time and space to document projects at close-out to have a clear record of project metrics and report on lessons learned. Update contract templates to support sustainability goals among consultants and contractors. Similarly, update assets (e.g., standard detail library) to weed out underperforming conditions, such as thermal bridging or outdated materials specifications. Collate post-occupancy evaluations and key lessons learned on every project. Document successes as well as failures.

Post-occupancy

Include post-occupancy evaluation in proposals or contracts to set clear expectations for the process.

Establish a plan for post-occupancy understanding of occupant behavior and performance, exploring opportunities to engage BIM data, on-site sensor networks, or occupant surveys. Stay engaged after occupancy—set a standard for frequency of check-ins. Seek out feedback loops to continually learn from built work and operations. Pair new project kick-offs with post-occupancy evaluations of the same building types so occupants' feedback offers a tangible outcome.

Sustainability standards

Successful firms have established internally driven explicit priorities, standards, and best practices rather than solely reacting to client demand.

What can be accomplished even if it is not requested by the client? It is important to establish high-performance design and specification standards, maintain them, and use them consistently.

The [AIA Framework for Design Excellence](#) can be used as a reference to update project delivery processes and design standards across energy, resources, well-being, water, ecosystems, and more. In terms of energy and well-being, design standards can include best practices for minimizing or eliminating thermal bridging, solar gain, or other energy-related strategies. At the portfolio level, set minimum envelope performance criteria, maximum allowable solar gain, fresh air requirements, maximum window-to-wall ratio, minimum equipment performance (chiller), minimum lighting performance (efficiency), etc.

Update specifications to target lower embodied carbon and healthy materials using the [AIA Materials Pledge](#), [2030 Palette](#), [EC3 tool](#), [mindful MATERIALS](#), [Declare](#), etc. Start with high-impact and high-volume architectural materials like concrete, steel, rebar, aluminum, glazing, and insulation. Examples include adding specification language requiring substitute cementitious materials in your concrete mixes, eliminating the most carbon-intensive petroleum-based insulations, requiring procurement of certified wood (i.e., FSC), and pursuing alternative or natural refrigerants. The [Carbon Leadership Forum](#) provides useful sample specifications that can be used as a starting point.

In terms of water and ecosystems requirements, work with your landscape designer and civil team, if applicable, to shape standards around water capture, retention, and treatment, and set standards for irrigation requirements and native and drought-tolerant plantings. Refer to the New Buildings Institute's [Quantifying the Water-Energy Nexus at the Building Scale](#) guide to understand the links across project aims.

Performance-based design

Bring the discipline of performance metrics and accountability into your practice, enabling you to reduce energy and carbon and be more competitive in pursuing work.

You cannot improve what you do not measure! Begin energy modelling and life cycle assessment in-house or hire a consultant to support these tracking efforts and provide input throughout the design process. If hiring a consultant, include these team members in early charrettes and concept development to get quick feedback early on in design.

If detailed modelling is not possible, use order-of-magnitude rules and calculations to inform design decisions. Use energy benchmarking (EUI), life cycle costing (\$), or embodied carbon benchmarking (kgCO₂e) to provide a high-level view of the project goals, progress, and trade-offs. Third-party certification programs can help teams prioritize what to analyze and what targets to aspire to.

High Impact

1. Develop a project process roadmap and a method to track against the roadmap.
2. Ask questions about building performance against hazard events as part of your standard post-occupancy evaluation. Check in with projects regularly to measure the success of adaptation measures or accelerating problems.
3. Refresh sustainable design specifications.
4. Identify a sustainability champion for each project to track sustainability goals and progress.

Resources

1. Part of the AIA 2030 Commitment program, the [Design Data Exchange](#) (DDx) is a tool to track firms' progress towards meeting 2030 carbon goals.
2. Download the [Carbon Leadership Forum sample specifications](#) to help establish recommended product specific LCA reporting data requirements.
3. Use the [AIA Framework for Design Excellence](#) that represents the defining principles of good design in the 21st century, seeking to inform progress toward a zero-carbon, equitable, resilient, and healthy built environment.

Planning for Change

Integrating Resilience Measures

As the climate changes, the environmental factors impacting our buildings are becoming stronger, outpacing adaptation efforts. A big part of climate action is adaptation planning—making design decisions that allow adjustments to new patterns over time in addition to the costly weather-related events exacerbated by an already changing climate. Adaptation measures do not prevent climate impacts, but they do mitigate risks to people and the built environment. Firms that plan ahead to reduce negative impacts and take advantage of emerging opportunities will be better prepared to meet changing design conditions; their projects are likely to have an extended service life and minimal repairs after hazard events, avoiding additional embodied carbon consumption.

Adaptation planning is a highly iterative learning process that recognizes risk and the role of failure and consequence in preparing for a more resilient future. The process outlines the optimal future conditions and the relationships between them, "[backcasting](#)" in order to systematically lay out the steps necessary to achieve the desired results.

The architect's role is to envision transformation in the built environment and plan how to adapt to dynamic shifts that are the result of climate change. Develop a firmwide approach to design projects to

keep pace with climate change. [AIA's Fundamentals of Resilient and Climate-Adaptive Design](#) describes eight foundational principles of design: Place-based, risk-prepared, equitable, precautionary, system-centric, ready, service life-focused, and adaptive.

Steps toward adaptation:

1. The first step in adaptation planning is **understanding the risks**. However, much of the information architects rely on is based on historic risks rather than present vulnerability or potential future impacts (e.g, use of Flood Insurance Rate Maps to establish flood insurance premiums). In the areas where you work, maintain reliable [projections on future climate change impacts](#), and document changes that are already being experienced in order to understand the magnitude of the climate problem.
2. The second step is **assessment**. Identify and prioritize investments to mitigate risks from anticipated climate change-induced hazards and focus on actions that reduce vulnerability to the events we are more certain about. Resilience to all hazards against all impacts is an impossible goal for buildings. Evaluate the effects that impact buildings and communities where you work. The perception of risk is often subjective, so being able to point to specific examples of hazard events that exceeded the design basis, or

projects that rebounded quickly after what could have caused substantial damage, helps clients and stakeholders recognize the impacts depicted by science.

3. The third step is to **design for the impacts** that are expected over the life of the building. Identify the systems that may become vulnerable in your climate zone, and consider how buildings might adapt, relocate, or be decommissioned when conditions warrant changes in access, use, or operation of the building. In every project, consider measures that promote passive survivability: Continuous operations during and after a climate event, natural ventilation, on-site renewable energy to power essential loads, and other options.
4. The fourth step is to **evaluate adaptation efforts regularly**. Evaluate whether conditions have changed and check whether assumptions remain valid. Calibrate your expectations about climate with observed and anticipated events. Both the built environment and the climate are in a state of constant change, so areas for development may shift and incentives may arise. Sometimes even a disaster creates the opportunity to effect change. Measure progress across your portfolio and recognize that there is not a clear endpoint to adaptation.

Design for flexibility

Design projects to accommodate change. Propose building systems that can be easily moved, reconfigured, or upgraded. Consider unprogrammed space that can serve a variety of functions over time. Design for [long life and loose fit](#). Design to simplify reconfiguration without creating waste. Propose a structural design that can better withstand environmental stressors over time. Planning for potential changes reduces the cost of future modifications; [AIA's Building's That Last: Design for Adaptability, Deconstruction, and Reuse](#) highlights benefits and examples as well as pitfalls to watch out for.

Clients may not be prepared to undertake climate adaptation measures as part of their initial development cost and defer implementing these measures until conditions worsen. For example, flooding may threaten a neighborhood in the coming decades, but initial project funding is limited. Options to accommodate changes might include designing a foundation that can be strengthened when protection is needed or designs with high ground-floor ceilings so that the ground floor can be elevated as sea levels rise over time. Neither of these options would be easy to implement without advance planning.

Design for multiple benefits

Propose solutions that reduce vulnerability and reduce GHG emissions. Solutions that offer immediate benefits and reduce long-term vulnerability will be the most attractive to clients. “Win-win” solutions are activities that enable economic gains while contributing to climate mitigation or adaptation (such as installing solar PV that reduces operating costs and reduces GHG emissions). “No regrets” solutions increase resilience by strengthening people or places, whether or not an anticipated hazard materializes (such as relocating

housing away from the floodplain and transforming lots into green space for the community). One example of multiple benefits from a single component is renewable energy, which can decarbonize the grid, provide local jobs to build equity, and maintain building operations after extreme events. Look for opportunities to incorporate these into every project.

Respond to community

Hazards are universal, but impacts are local. Every community has a different threshold for risk, a variety of resources for responding to hazards, divergent views about what risks should be prioritized, and other projects underway. Architects can look for synergies with neighboring developments to support adaptation planning. For example, Climate Ready Boston outlined how the development of new structures near flood-prone areas presented opportunities to construct individual buildings prepared for flood risk but also to raise funds for the construction of [community flood defenses](#).

Maintain awareness of issues in the community that affect vulnerability: The places where hazards hit over and over, areas of disinvestment, and new developments in high-hazard areas. Advocate for long-term planning to address these concerns and consider how your firm will handle projects in sensitive areas.

Develop equitable resilience strategies because people are not uniformly vulnerable to climate change. Adapting to climate change can lead the way toward more equal societies, but achieving this takes intention and planning. Opportunities are available across your portfolio to ensure climate mitigation and adaptation efforts are not concentrated in a single building type or neighborhood, ensuring efforts are focused on environmental justice.

Consider the community resources available to recover from a hazard event: Are there economic, resource, or infrastructure challenges to evaluate ahead of a forecasted hazard event, such as a hurricane? What might it mean for jobs or cultural ties if residents are forced to relocate (even temporarily) after a disaster? How can architects build in protection so that people and structures can shelter safely and recover quickly? Use stakeholder engagement to ensure that people from a wide variety of backgrounds are involved in adaptation planning, as in the [Rebuild by Design Competition](#) in New York following Hurricane Sandy.

Consider the worst-case scenario

There are places where climate change will overwhelm local resources and deplete economic capacity; architects can help the client to determine the environmental triggers for relocation or decommissioning so that these resources are not abandoned. Talk about climate change with your clients. Designing the future relocation or decommissioning of a building is a growing area of practice in high-hazard geographies.

The [National Park Service](#) includes adaptation options for cultural resources such as buildings: Modifying the structure to better withstand environmental stressors, relocating stationary resources, documenting the resource and allowing the location to be lost, and interpreting the changes wrought by climate as part of its timeline. Architects are integral participants in evaluating these options by elaborating the benefits and drawbacks of different solutions and defining the potential timescale for making decisions.

Resources

1. [Read National Climate Assessment 2018, Chapter 28: Reducing Risks Through Adaptation Actions to understand current research and projections of adaptation initiatives across the world.](#)
2. Explore the [Fundamentals of Resilient and Climate-Adaptive Design](#) to learn more about the eight principles to reduce harm and property damage, adapt to evolving conditions, and more readily, effectively, and efficiently recover from adverse events.
3. Learn from this practice [AIA guide: Buildings That Last: Design for Adaptability, Deconstruction, and Reuse](#) to implement design strategies for buildings and materials that last.
4. Use the AIA [Resilient Project Process Guide](#) to identify the points in which resilience and climate adaptation goals can be layered into specific design solutions.

Climate Action Impact Resources



Participate & Advocate

Impacts of climate action expand past your firm and its projects. This section outlines the need to engage external stakeholders, from community members, grassroots organizations, to local officials across each step of your design process.

Climate action is a dynamic and long-term process requiring many disciplines, agencies, and communities to work together to create transformative change in the built environment. Community engagement spurs climate action and overrides barriers, such as lack of knowledge about risks, impacts, and design solutions; concern about the effect on property values; extended permitting and regulatory processes; and incremental funding and financing. It is good to have a committed team of grassroots partners at regional and global levels involved to move a project forward and address questions as they arise.

Best Practices

Engage with the local community

Architects have a recognized voice on issues of public safety and can wield that power to raise awareness and influence decisions about health, safety, and welfare.

Engage in discussions that matter at the local and global level. Make a difference. Encourage involvement in the local community around social issues. One benefit in expanding your network of potential partners is that they may consider your firm for future opportunities.

There is a long list of potential partners that one can engage with for climate change mitigation and adaptation, either directly for a project or in practice. Immediate neighbors, local officials, and regulatory agencies are the standard stakeholders, but other groups may have an interest and be poised to support elements of an overall plan. These groups include nonprofits (community service providers, health facilities, historic districts, arts organizations, chambers of commerce), schools (K-12, community college, universities), environmental groups (land trusts, river alliances, and tourism groups), and other community organizations.

The best understanding of challenges to sustainability and resilience often comes from those who are most greatly affected. Social, environmental, and economic effects are often obscure to design teams who do not have long-term experience in a neighborhood. Architects can provide a launchpad for community-led solutions that result in authentic and collaborative work.

Engage with regional, national, and international communities

Participate with industry organizations and partners to stay abreast of critical issues pertaining to climate change.

Many platforms provide information on climate change research and design solutions and solicit examples from the field so architects can share their own project examples. Starting with your immediate architectural design community, work with [AIA advocacy](#)

[groups](#) engaged with the federal government. Individuals, practices, and communities have a voice at the federal level via AIA—exercise those rights.

Participate in national, regional, and local code reviews and dialogues, especially ones focused on carbon reduction, healthy environments, and resiliency efforts. The [International Code Council \(ICC\)](#) is one organization to get involved with, but there are many others, from state energy and resiliency agencies to local building regulatory departments, that advocate for adopting more recent codes or stretch codes, such as [Zero Code](#).

Support industry partners

Architects work within an ecosystem of interdependent disciplines to deliver our projects, creating opportunities to support each other as we navigate toward the future.

Each discipline faces its own unique challenges and brings its own opportunities: architects, consulting engineers, manufacturers, building officials, and others.

Within the architectural design community: Collaborate on creating continuing education resources related to sustainability and resiliency. Rally to support good projects and help share knowledge with the wider AEC community. Develop good working relationships with industry partners and seek their advice and help. Share your expertise locally, nationally, and internationally through papers, articles, conferences, blogs, and social media.

Within the engineering community: Participate in continuing education on topics of mutual interest. Develop partnerships with engineers around sustainability and resilience for collaborative solutions. Share your project success stories and invite them to share theirs. With manufacturers: Request product Environmental Product Declarations (EPDs) and Health Product Declarations (HPDs), adding your firm's voice and commitment to the growing effort around material transparency as the norm and incentivizing manufacturers to drive down the carbon footprint of their products. For reference, [Living Product 50](#) has a list of manufacturers that have committed to material transparency. Ask product reps to provide continuing education on topics of sustainability and resilience.

With contractors: Understand the standard building practices in your area and research low-carbon alternatives. Integrate sustainable practices in your contract documents and be open to contractors' suggestions about cost and performance.

With building officials: Discuss changes to energy codes or beyond code elements. Provide links to research on low-carbon alternatives. Offer your services through the [Safety Assessment Program](#) and volunteer service to evaluate buildings and infrastructure in the aftermath of a disaster event.

Industry partners are not limited to the few listed above; planners, climate scientists, insurance agents, and many others can all play a crucial role in climate action.

Support community partners

If traditional solutions are not evident, help others see the possibilities. Join local organizations and main street groups to get a local picture of environmental priorities and opportunities. Participate in local building, zoning, and historic commissions to advocate for climate action in design. Serve on nonprofit boards to help build consensus around climate action and expand your own knowledge of a subject.

Engage with local architectural and design education institutions to promote environmental sustainability, resilience, and adaptation to climate change as part of the design curriculum. Provide guidance and information to help local institutions. Work with students to share your experience and to discover new approaches to problems. Volunteer or teach at schools to educate future designers. Provide information on studio competitions, such as the AIA COTE Top Ten for Students.

[The IAP2 Spectrum of Public Participation](#) illustrates a range of citizen participation models. True community ownership of a project is achieved through collaboration rather than consultation. Try to deepen the level of citizen engagement on every project beyond the standard methods and allow participation to influence design.

IAP2 Spectrum of Public Participation



IAP2’s Spectrum of Public Participation was designed to assist with the selection of the level of participation that defines the public’s role in any public participation process. The Spectrum is used internationally, and it is found in public participation plans around the world.

INCREASING IMPACT ON THE DECISION					
	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Provide pro bono services

Firms can share their design expertise and leadership through public service.

Pro bono architectural work can help fledgling organizations smartly plan for growth, assess strategies for sustainability, and be aspirational with their new buildings. Firms can also benefit by exploring new services or ideas and earning a reputation in sustainability within their local and professional communities.

AIA's [Ethical Standard 2.2](#) encourages all AIA members, their firms, and state and local components to provide pro bono services as part of their contributions to the architecture profession and the Institute and in service to society. Architects have a wide range of expertise—from marketing and administration to architecture and design—that can make a positive impact in our communities.

The first step is to identify the firm resources available for community service—is it 1% of employee time, or more? Does the firm hold an annual Day of Service or spread it throughout the year? AIA has a checklist for pro bono services, including a [contract for pro bono services](#).

Advocate for climate action

Advocacy and outreach can exercise your firm mission and raise your firm profile.

Join environmental organizations to provide input into federal, state, and local laws, standards, and codes that have climate implications. Develop relationships with policy makers over time so that when task forces or other action groups are formed, you may be asked to participate or provide expertise.

Leverage and keep current on [AIA Advocacy](#) efforts. AIA has a robust advocacy program that provides resources and tools to firms to understand climate priorities and connect to resources, educational events, and trainings. Follow AIA advocacy events to reshape and serve the profession. Participate in AIA efforts such as the [AIA State and Local Government Network](#). Engage in sustainability and resilience education at your local AIA component. Join your local AIA Committee on the Environment (COTE). Join local component sustainability committees or groups (COTE, health focus groups, materials, high performance, Building Enclosure Councils, etc.). Presenting at forums or conferences elevates discourse and raises the firm's profile, is a form of networking, and helps grow the business.

High Impact

1. Think globally, act locally: Find volunteer and advocacy opportunities with your local government.

2. Create a wider stakeholder group for every project, and encourage real decision-making power.
3. Participate in local sustainability and resilience organizations, such as your state or local AIA chapter's COTE, codes committee, or government advocacy committee.
4. Join the [AIA state and local government network](#).

Resources

1. Learn about [AIA Advocacy](#) efforts as the voice of architecture to legislators at the federal, state, and local level.
2. Explore the Guides for Equitable Practice Chapter 8: [Engaging Community](#) to learn the fundamental principles of community engagement and how to use specific methods to engage community equitably in the design process.
3. Browse the [AIA Citizen Architect Handbook](#) to gain insight into the important role architects play in advancing public policy and methods that encourage greater civic engagement by architects.



IMPACT

Sustain Research & Innovation

Impacts of climate action expand past your firm and its projects. This section promotes the value of research and innovation within a firm, with opportunities brimming with external partnerships, integrating new data tools, and posing your firm as a leader in knowledge and resources.

Climate change is a complex problem, and climate action demands innovative thinking to learn and adapt. Architecture is constantly evolving to keep up with new codes, standards, technology, materials, construction methods, and ways of thinking. Your firm cannot deliver the best value to clients without keeping up on innovative technologies, research, and best practices.

Foundations

Make innovation and curiosity a part of your culture. Large firms may have the resources to dedicate staff and budget for these activities, offering research fellowships, experimenting with technology, and maintaining exceptional materials laboratories. Smaller firms can be nimble in their approach to innovation, testing assemblies through “hands-on” experimentation in the field, aligning the entire project team, and developing unconventional solutions that can be shared with others. [These examples](#) prove that innovation does not require a huge investment and can occur within every firm.

Give employees the creative freedom to explore new possibilities. Encourage designers to “pilot” new ideas and later institutionalize what works. Live outside your comfort zone and continually explore innovative ideas.

Best Practices

Centering innovation internally

Develop internal research and create development opportunities or programs that center on climate mitigation and adaptation.

Allocate work hours that staff can use for innovation and creative project pursuits. Sponsor a research fellow internally or from a local university to raise the bar and nurture enthusiasts.

Convene design innovation sessions. Like design reviews, these are open dialogue sessions where people are encouraged to think creatively. This turned into a “futurist” group forum at Lake|Flato where participants thought about future trends and how architects can future-proof design work to maintain relevance.

Create an open-ended innovation “wall” (physical or virtual) where everyone can post/share new ideas, materials, and findings and get new ideas flowing. Vet ideas by experimenting on yourself before recommending strategies to your clients and their projects.

Thought leadership

Tap into the experience and innovation that distinguishes your firm to answer the big questions on people’s minds.

Thought leadership can promote your firm's relationship within the larger community (local or global). This can help your firm become the recognized leader for innovation within your community so that when questions and opportunities arise, the community will come to you for solutions.

Whose ideas can enrich your thinking on climate action? Seek out relationships with people with insights from related fields, academia, or science to consider questions that cross disciplines, and share your own ideas and obstacles. Consider forming an ad hoc advisory council for your firm.

Conduct research

Project work can offer opportunities to explore possibilities and test innovative ideas if architects ask thoughtful questions, pursue answers, and develop insights.

For example, use an adaptive reuse project to look beyond the standard preservation questions: What neighborhood forces shaped the response to the environment? What potential hazards threaten the building now? What is the remaining service life of the major assemblies? How can elements to be removed be repurposed within the building or in other applications? These questions support a richer design process and lead to better design, not only on an individual project but as a template for future projects.

Leverage the input of consultants not just for project work but as colleagues to explore innovative ideas together. Carefully document research results and ensure ease of staff access. Finally, share knowledge and publish research results to create positive change.

Collaborative innovation

Collaborations with clients produce valuable work while cultivating deeper relationships across the team.

Seek out partnerships (internal, academic, etc.) to support research or creative thinking. Apply for external grants (federal, state, utilities, government laboratories, foundations, and agencies such as [Oak Ridge National Laboratory](#) or [EPA](#)) to secure funding available to help your clients. Get ahead of your clients so that you can pitch them innovative work and scope before they ask for it.

Practitioners and academic institutions can partner on projects to produce well-rounded research. Partnerships do not need to be exclusive to architecture schools and can include organizations specializing in human health, behavior, ecosystems, and more. Many opportunities exist around artificial intelligence, virtual reality, augmented reality, 3-D printing, and fabrication laboratories. Project work may even result in broadening the services offered by architects—for example, expanding global information systems technology to include more community datasets, which may provide additional layers of information during project planning.

Finally, publicly share research to achieve maximum impact. Find an outlet to publish the work and host the material on your firm's website. [RELi](#), the resilience rating system managed by U.S. Green Building Council, was created from a research project at Perkins + Will.

Leverage technology

Firms should embrace technology in meaningful ways in all facets of practice.

Doing so will result in improved operations, deliverables, and the built environment. From early energy analysis tools to post-occupancy survey and monitoring devices, technology can be used to challenge assumptions and validate predicted results. To this end, many firms have promoted "design technology" as something analogous to its own discipline within the practice, thus formalizing the process of keeping abreast of industry-wide innovation, testing, and implementation and providing staff training to maximize the value of technology to the firm and the benefit of the client. For more information, read the book [Architecture Design Data: Practice Competency in the Era of Computation](#) by Philip G. Bernstein.

Explore new tools. Most software companies offer a free trial period, and this can be used to test the ease of use, direct applications to projects, and the accuracy of the results to see what your office might integrate into the design process.

Create a library of resources

Create a comprehensive and current library of resources related to the hazards and impacts in the regions where you work.

Photographs, scientific reports, and news stories underline the accelerating impacts and the need for action. Maintain a library of elegant or unique solutions to common problems such as flooding, seismic activity, or wind uplift. When a new project faces these challenges, review these precedents as a starting point or benchmark. Look for unconventional applications: For example, blast-resistant windows are often used as windstorm-resistant windows in critical facilities.

Research may be tax deductible

The R&D tax credit applies to companies developing new and improved processes and products.

Since its inception, it has been extended 15 times and has been expanded in its definition and application. In 2004, a revision to the code included a "Four-Part Test" to help define qualifying activities, costs, and industries. For more information, visit the [IRS website](#) or consult a tax consultant, and review the AIA article "[Do You Qualify for R&D Tax Credits?](#)"

High Impact

1. Institute an internal R&D program or establish hours that firm members can use to conduct research that advances the firm's approach to designing for climate.
2. Host design innovation sessions to encourage out-of-the-box thinking.
3. Connect with your state or local university's institutional research office, architecture school, building science department, urban planning department, etc.

Resources

1. Take the AIAU course, [AIA 2030 Signatories: Secrets to success for medium-sized firms](#) to hear stories and lessons learned from firms on achieving these phenomenal goals.
2. Join the [AIA Technology in Architectural Practice \(TAP\) KnowledgeNet community](#) to learn from collective thinkers on the deployment of computer technology in the practice of architecture.
3. Look to the case study of Oak Ridge National Laboratory's [Building Technologies Research and Integration Center](#).



Elevate all voices

Impacts of climate action expand past your firm and its projects. This section emphasizes the need for equity in each step of the design process, from soliciting diverse voices and perspectives to integrating equitable practices into firm operations.

Social equity is a critical component of environmental sustainability and community resilience for all. High-performance firms make equity the centerpiece of their decision-making, using inclusionary practice to guide their mission and values, human resources, and

project decisions. Architects aim to make the world better, and working toward a more just, equitable, diverse, and inclusive world is essential to success. Developing these values also helps support sustainability and resilience against climate challenges.

Foundations

In practice

While women and people of color are present in greater numbers in many schools of architecture, there is a noticeable drop-off in diversity in the profession of architecture. A staggering 91% of registered architects in the U.S. are non-Hispanic whites, with the fall-off from the profession well documented over time.¹

Numerous professional barriers continue to plague the advancement of diverse voices, from having fewer opportunities, not being credited for their ideas, or having an experience of being mistrusted, valued less, and othered. Including diverse voices in the office and on project teams can broaden the vision and better respond to community needs, often increasing cooperation. This is a social impact investment in people that generates environmental benefits and financial returns.

In projects

Beyond architectural practice, it is also well documented that people of color commonly face higher risks and greater burdens from the impacts of climate change.² Unequal participation among races in decision-making processes in communities and neighborhoods compounds inequality and often prevent people of color from fully contributing to climate-related planning, policymaking, and implementation.³

Disasters expose inequality because they do not affect everyone equally: For people forced by geographic segregation to live in flood-prone or other high-risk locations due to lower rents and real estate prices, a disaster is not an unexpected danger but a continuation of everyday harm.⁴

Climate action can help the public mitigate and adapt to a changing climate, and a resilient architectural practice can address the social changes that are needed to reduce disaster risks. A project team can involve community stakeholders in the design process to rethink siting, massing, public spaces, and services and discuss additional steps to unpack and address systemic racism and inequities that can be reinforced by the process of building buildings. For more information on how to engage a community, please reference the [Engaging Community chapter](#) of the AIA Guides for Equitable Practice. In architectural practice, this means recruiting, mentoring, and retaining people with a variety of backgrounds. Surround yourself with people who think differently than you do. Leverage the unique strengths and skills of everyone. Channel your work, influence, and relationships to make positive change in two ways:

- Actively implement inclusionary practices in firm structure.
- Work to elevate and address systemic racism in projects by considering the social and economic impact of projects.

AIA’s [Guides for Equitable Practice](#) and AIA’s [equity, diversity, and inclusion resources](#) offer extensive guidance on topics of equity across architectural practice and projects. On specific projects, refer to the AIA Framework for Design Excellence’s [Design for Equitable Communities](#). Sign up for AIAU’s [Design for Equitable Communities](#) education course.

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Best Practices

Show your commitment

Explore certifications like Just or B Corps that show your commitment to transparency and justice.

Disclose internal data to voluntary disclosure programs such as the Just Transparency Label and the NAACP Diversity and Opportunity Report Card for the Sustainable Building Sector. These programs highlight transparency of information regarding social justice and equity and act as a baseline to track improvement.

Benchmark: Internal diversity and salary review

Gather internal statistics to understand diversity within your staff and identify discrepancies in salary, leadership, and senior positions, or benefits.

Examine trends in staffing over the last 10 years to better diagnose and identify pathways to improvement. Consider timing of promotions, compensation, and access to firm resources.

Consider hiring a consultant to conduct an assessment of your firm's policies and culture that would include a survey and committee creation, and facilitate anonymous feedback from your staff. See AIA's Equitable Practice Guides for more information. Explore creating a justice, equity, diversity, and inclusion (JEDI) committee to bring together staff to advance these changes, but only if it has power, safety, and formal resources to execute along with its findings and vision. Please reference [6 Essential Steps to Creating a Diversity, Equity & Inclusion Committee at Your Company](#) guidance.

Recruit diverse staff

Actively seek out more diverse candidates for your job openings.

The National Organization of Minority Architects (NOMA) has a great job database for recruitment. As these candidates come on board, give them a platform to voice their concerns or link them to a community of equity minded individuals. Anonymously survey your staff to provide a litmus test for understanding retention. Listen to the concerns of diverse staff and work to address any outstanding cultural norms or barriers.

Get involved in the local community (schools, universities, professional associations, government) as a way to identify longer-term recruitment pathways and potential employees early on. Foster relationships with historically black colleges and universities (HCBUs) by providing ongoing value and support over time and offering resources and interviews. Participate in mentorship programs that serve diverse groups, such as [ACE Mentor Program](#), [Project Pipeline](#), [Hip Hop Architecture Camps](#), etc. To support and nurture female staff, engage in discourse and mentorship through organizations like [Girl UNinterrupted](#), [WELD](#), [She Builds Waves](#), and [Madame Architect](#).

Identify architecture schools in your area with a highly diverse student body, and recruit new employees from these schools. Spend the time to build trust between your firm and university groups by showing sustained interest and support over time rather than one-off engagements that may not provide students with lasting value.

Mentors and champions

Develop a mentorship program pairing all new staff members with experienced colleagues to help make positive progress.

No one has ever mastered architecture on their own; having someone to turn to for guidance, advice, and experience is a tremendous asset for emerging architects. Mentorship is not a one-way system—find positive ways that younger architects can influence older colleagues in sustainability, social justice, and other issues.

Facilitate a mentorship program that aims to give staff space to convey grievances without fear of retribution, and seek to understand if staff are perceiving discrepancies in opportunities, treatment, trust, value, credit, scrutiny, and all other dimensions that contribute to inequity in firm culture. Please reference [Mentorship as a Tool for Growth, Inclusion, and Equity](#) for tips on how to approach mentorship more equitably.

Encourage mentors to go beyond passive advice-giving to their mentees and instead act as their advocates. Helping staff identify someone who is prepared to take an active advocate role on behalf of their mentee and able to call out discrimination can be essential to fair advancement and promotion.

Develop diverse project teams

Evaluate the diversity of your teams and develop relationships with minority- or women-owned firms (M/WBEs) for your consultant teams.

Identify skills that are missing in your area (energy modelling, sustainability consulting, vulnerability assessments), and work with diverse business enterprises in related fields to provide those services.

Trainings/workshops

Provide firmwide training on topics of anti-racism, discrimination, implicit bias, and other critical and informative topics that will help build trust and set priorities for reshaping the fabric of the business to support a more equitable business and design community.

These sessions can act as a level-setting exercise to help staff of different backgrounds and experiences get a sense of other perspectives and educate themselves on these critical priorities.

Develop a framework for equity and impact

Consider how equity can be centered and addressed across your portfolio.

Throughout the design process, examine how the project can improve conditions for marginalized residents, those experiencing structural racism, and those without resources to handle a disaster event.

- Consider the social impact of project decisions by evaluating criteria that cannot be expressed in quantitative terms: Does this project enhance safety during a hazard event? Will it enhance community strength? Does it provide services without consideration of income/race/gender/ability? Does it help the community develop for the future?
- Assess the economic impact of projects in your community by comparing financial returns: Will it reduce overhead and increase stability? Will it lead to community displacement and gentrification?
- Question the design prompt—siting, massing, program, occupants—and work toward a more equitable design framework and pathways for decision-making.

Certification resources can provide a starting point for integrating these processes across your portfolio. Key resources include: [NOMA](#), [SEED](#), [NAACP Environmental and Climate Justice Program](#), [NAACP Centering Equity in the Sustainable Building Sector](#), [LEED Checklist for Social Impact](#), [AIA Materials Pledge](#), and [LEED Equity-focused pilot credits](#) (Social Equity within the Supply Chain, Social Equity within the Community, Social Equity within the Project Team, Inclusive Design, and Integrative Process for Health Promotion).

Community engagement

Engage community participation experts and people within the community to help lead conversations about design and programming equity.

Be willing to cede control and learn from the sidelines in these settings. Use the outcomes of these sessions to confirm that communities’ concerns are being treated seriously and incorporated into the project vision. Explore co-benefits and assess for maladaptation: Can multiple community uses be accommodated by the project? Will the new project create unintended negative consequence for the community, such as displacement?

In public-facing projects, people may want to engage but are physically unable to participate due to work or child care schedules, language barriers, physical abilities, or lack of access to technology. To avoid this issue, offer multiple options for engagement to reach as many community members as possible. Please refer to AIA’s guide on [Engaging Community](#) for more information.

High Impact

1. Establish a framework for considering the social and economic impacts of projects along with environmental impacts.
2. Establish a JEDI¹ committee and tackle racism through an internal training program and education series.
3. Run a survey in your firm to find challenges/opportunities (litmus test of firm culture/equity practices).

4. Establish a pro bono program as one way to enhance JEDI.

Resources

1. Learn from the [AIA Guides for Equitable Practice](#) on how to make the business and professional case for ensuring that your organization meets the career development, professional environment, and cultural awareness expectations of current and future employees and clients.
2. Take AIAU's [Design for Equitable Communities: AIA's Framework for Design Excellence](#), a self-paced course that includes perspectives from planners and architects on how to create more equitable places through design processes and strategies.
3. Browse through [AIA's equity, diversity and inclusion resources](#), showing steps that are being taken to advance racial justice and equity in our organization, in our profession, and in our communities.



Expand Education

Impacts of climate action expand past your firm and its projects. The success of your staff in turn means the success of your firm. This section stresses the importance of ongoing education by way of staff development and training.

High-performance firms are committed to staff development, training, and education. Return on investment is high when you invest in your people. Continuing education is motivating, so support and encourage people in extracurricular activities.

Foundations

Incentivize sustainability accreditations and certifications by offsetting the cost of dues, exam fees, and continuing education, and consider those qualifications in promotion requirements. Traditional lunch-and-learns and continuing education presentations are materials-based pitches provided by manufacturers to promote their suite of products. Develop an AIA CEU (continuing education unit) program focused on climate action that fills gaps in understanding of sustainable processes, resilient systems, equity, and healthy materials. Invite colleagues from other firms to join you. Ask tough questions about climate and carbon impacts, environmental product declarations, social impact, and the circular economy.

Best Practices

Start with onboarding

Every new employee, no matter their role, is an opportunity to build or reinforce your climate action commitment.

It is critical that all employees buy in to the vision and have a shared understanding of how your firm's commitment manifests in daily practice. Onboarding provides opportunities to reinforce this message: employee handbook, orientation training, and mentorship programs.

Jumpstart learning

Offer resources, such as study materials, paid time for studying, and covering exam fees, to staff interested in increasing their building performance knowledge and pursuing sustainability credentials.

Organize lunch-and-learns and internal education series for trainings and professional development. Create a platform where internal resources and knowledge can be shared. Commit to send staff to conferences and other continuing education events where they can learn about the current thinking in sustainable and resilient design. Exposure to what other firms are doing can be both informative and inspirational. A few possible options to get started are listed below:

1. [AIAU sustainability and resilience courses](#)
2. [AIA+2030 series](#)
3. [AIA Materials Matter Series](#)
4. [AIA Resilience and Adaptation Series](#)
5. [AIA Designing for Health Series](#)

6. [BSA Embodied Carbon Series](#)

Knowledge-sharing

Share knowledge in a way that is meaningful for your practice, your clients, and your community.

Firms of varied sizes or cultures share knowledge in different ways. Some create a space to share information, lessons learned, and takeaways about sustainable design and climate. This can be as simple as a file location that everyone can access or an integrated intranet site within the communications tools that the firm is already using (i.e., KA Synthesis, Slack, Teams, Yammer, etc.). Others also build it into existing meetings or activities where ideas can be shared person to person. Develop internal subject matter experts (SMEs) who can help support learning across the office and in the wider community.

Enhance skills

Train staff to use performance analysis tools, such as energy and daylight modeling, to inform design.

Distributing and enhancing climate analysis, hazard and risk assessment, vulnerability assessment, and building performance simulation skills across staff members enables all project teams to utilize these tools in their projects. This will elevate performance for more projects and the firm's portfolio. More architects are using some analysis tools in-house, rather than relying solely on outside consultants, to get quick feedback on design decisions. With advances in technology, firms can incorporate software add-ons to enhance the design process.

Train staff to communicate the business case for climate action. If more designers in your firm can speak confidently about sustainability and resilience topics, projects across your portfolio will have opportunities to implement high-performance systems and strategies. The AIA education series includes many training resources for this: AIA+2030, AIA Resilience & Adaptation Certificate Series, AIA Materials Certificate Series, AIA Designing for Health Series, and Embodied Carbon 101.

Understand the climate

Build a project reference guide that is all about climate.

Research climate parameters at the start of every project and share them with the client. Resources listed in the [Framework for Design Excellence](#), such as the free software program Climate Consultant, can automate this research by generating presentation graphics. Climate presentations can cover current and expected climate impacts for the service life of a building. Emphasize the risks that the design should respond to as well as opportunities for emissions reduction. Ask questions about the desired performance level. Challenge

your consultants to deliver innovative solutions. Leverage your role and voice in all the critical decisions that affect climate. The guide can include references such as Green Building Advisor, Carbon Smart Materials Palette, WBDG, and others. Include a standard list of resources related to common hazards and risks.

At a minimum, the project reference guide should ask the following questions:

- What are the climate projections in the place where you are working?
- What are the vulnerabilities stemming from those projections?
- How can design mitigate and adapt to these vulnerabilities?

Cross-disciplinary experience

Give staff opportunities to explore across disciplines.

Rotational programs can give people, especially younger staff, the chance to intentionally explore new roles and expertise, which can help them see connections and the bigger picture. This is one of the inherent benefits of a small firm that can be applied by large firms to gain a holistic view of the project portfolio and design roles.

Climate co-benefits

The world is a complex and interdependent system; promote climate action by helping people understand how their decisions will contribute to a safer and better world for future generations.

Be creative—the co-benefits of sustainability and resilience are many, so use your intuition and think through what stories and concepts will appeal to your clients. Concepts like the [social cost of carbon](#) seek to translate carbon emissions into its equivalent future harm in monetary value to help people better understand the implications of their decisions. Organizations like the [World Bank](#) use the term to help explain the parallel objectives that can be achieved between climate action and other development objectives, like resilient communities or greater mobility.

The AIA Framework for Design Excellence also includes guidance on this and connecting principles in the Design for Integration measure. A few examples include:

- climate change adaptation and mitigation (resiliency, emergency preparedness, passive survivability)
- well-being (health, productivity, desirability, wellness, safety)
- community benefits (public space and services, job creation, limiting pollution)

- what motivates your clients and how does sustainability serve their goals?
- social equity, justice, diversity, and inclusion

In terms of climate co-benefits with cost, there are myriad approaches that are cost-neutral and cost-saving, particularly in owner-occupied spaces where a payback period is acceptable. Work with your client to help them think long term, explore public incentives, and value the benefit of their environmental credentials as a market differentiator. Industry research, such as that published by the [RMI](#), can be helpful in showing the cost implications and return on investment of emerging technology.

High Impact

1. Create a thorough onboarding process to reinforce climate action.
2. Offer a continuing education series focused on climate action.
3. Build a project reference guide with climate mitigation and adaptation resources.
4. Support staff efforts in external engagement (conferences, committees, etc.).
5. The AIA education series includes many training resources for this: AIA+2030, AIA Resilience & Adaptation Certificate Series, AIA Materials Certificate Series, AIA Designing for Health Series, and Embodied Carbon 101.

Resources

1. Explore the [AIA+2030 Online Certificate Program](#) is a robust course series that traverses topics ranging from passive systems and load reduction to high performing building systems and renewable energy.
2. Learn more in the [AIA Materials Matter Series](#) about materials selection to make the best product decisions for projects, people, and the environment.
3. Take the [AIA Resilience and Adaptation Online Certificate Program](#) to explore concepts of mitigation, resilience and adaptation, technical design application, and design process application.

Glossary

B-Corps

B Corporations certification can be earned by businesses that meet high standards of verified social and environmental performance, public transparency, and legal accountability.

Capacity

The combination of all the strengths, attributes, and resources available to an individual, community, society, or organization, which can be used to achieve established goals. [IPCC]

Carbon offsets

A mechanism that compensates for new project-specific greenhouse gas emissions.

Cascading effects

Events that occur as a direct or indirect result of an initial event. For example, if a flash flood disrupts electricity to an area and, as a result of the electrical failure, a serious traffic accident involving a hazardous materials spill occurs, the traffic accident is a cascading event. If, as a result of the hazardous materials spill, a neighborhood must be evacuated and a local stream is contaminated, these are also cascading events. [FEMA]

Change management

Process through which people are engaged in the creation of any change that they will be taking part in; can be used for largest buy-in.

Climate action

Stepped-up efforts to reduce greenhouse gas emissions and strengthen resilience and adaptive capacity to climate-induced impacts. Refer to UN SDG Goal 13, [Climate Action](#).

Climate adaptation

Resiliency; the work of preparing for the climate impacts that will inevitably occur. The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. [IPCC]

Climate change

A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. [IPCC]

Climate mitigation

The intent to change the trajectory of climate change by reducing emissions.

COTE

[AIA Committee on the Environment](#)

Operational carbon

Greenhouse gas emissions that are released due to building operations.

Embodied carbon

All the greenhouse gas emissions along building supply, from cradle to grave.

DDx

Design Data Exchange

Disaster

Severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery. [IPCC]

Exposure

The presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets in places that could be adversely affected. [IPCC]

Frequency

A measure of how often an event occurs during a unit of time (common units of time are one year, or 100 years).

Greenhouse gas emissions (GHG)

Gases that trap heat in the atmosphere, contributing to the greenhouse effect and global warming.

Hazard

A potential source of danger caused by a naturally occurring or human-induced process or event with the potential to create loss.

Hazard mitigation

The lessening of the potential adverse impacts of physical hazards (including those that are human-induced) through actions that reduce hazard, exposure, and vulnerability. [IPCC]

JEDI

Justice, equity, diversity, and inclusion.

Passive survivability

The ability of a building to maintain reasonable, basic functionality after an event, specifically an event that includes an extended power outage.

Probability

The likelihood that the hazard's potential to cause harm will be realized.

Recovery

Activities necessary to rebuild after a disaster. Recovery activities include rebuilding homes, businesses, and public facilities; clearing debris; repairing roads and bridges; and restoring water, sewer, and other essential services. [FEMA]

RELi

[Rating Guidelines for Resilient Design and Construction](#)

Resilience

The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions. [IPCC]

Response

Activities to address the immediate and short-term effects of an emergency or disaster. Response activities include immediate actions to save lives, protect property, and meet basic human needs. [FEMA]

Risk

The potential for an unwanted outcome resulting from an incident, event, or occurrence, as determined by its likelihood and the associated consequences. [DHS]

Secondary hazard

Secondary hazards are the result of an initial event. For example, heavy rains can bring flash floods; forest fires can bring mudslides; earthquakes can cause fires; and tornadoes can take down power lines.

Shocks

Sudden events that impact the vulnerability of the system and its components.

Stresses

Long-term trends that undermine the potential of a given system or process and increase the vulnerability of actors within it.

WGBC

[World Green Building Council](#)

Vulnerability

The degree to which a system is susceptible to, and unable to cope with, adverse effects. [IPCC]