SUSTAINABILITY ACTION PLAN 2020

ATKIN OLSHIN SCHADE ARCHITECTS

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EXECUTIVE SUMMARY

As part of signing onto the AIA 2030 Commitment in January 2020, Atkin Olshin Schade (AOS) Architects developed a Sustainability Action Plan (SAP). This is a statement of our firm's commitment and approach to sustainable design, and an actionable strategy for developing best practices, evaluating progress, and communicating our values to clients and peers. The SAP provides a custom roadmap for AOS Architects to:

- Prioritize energy performance, carbon reductions, and resilience in our work, with the goal of moving our entire project portfolio towards carbon neutral buildings, developments, and major renovations by 2030.
- Transform our approach to sustainable design and our working process to be holistic, data-driven, and firm wide in order to meet 2030 Challenge targets.
- Measure the carbon impacts of our design decisions, assess progress across our firm's portfolio and in relation to our peers.
- Advocate for sustainable design with clients, consultants, and our peers.
- Train firm employees at all levels, and develop a robust culture of knowledge sharing and continuous learning.
- Track firm operations with the goal of achieving carbon neutral operations by 2025.

Michael Schade, AIA, LEED AP BD+C
Principal

BACKGROUND

The Anne d'Harnoncourt Sculpture Garden at the Philadelphia Museum of Art layers a one-acre green roof over a subterranean parking garage, which manages the site's stormwater runoff while offering visitors an intimate connection with the landscape.

BACKGROUND

A firm-wide survey was conducted in May 2020 to assess the firm's design values and aspirations, existing design practices and office operations, as well as the risks and opportunities for improving sustainable design outcomes.

This plan was developed from the lessons of that survey and through dialogue with both firm and project leadership. The writing of this plan also coincided with the COVID-19 global pandemic. Emerging lessons from unexpected changes in our operations and improving resilience in general have also informed our thinking here.

AOS Architects' SAP is a public-facing document that will be available on the AIA website, and will be updated every three years.

LEARN MORE

Joining the 2030 Commitment: What to Expect

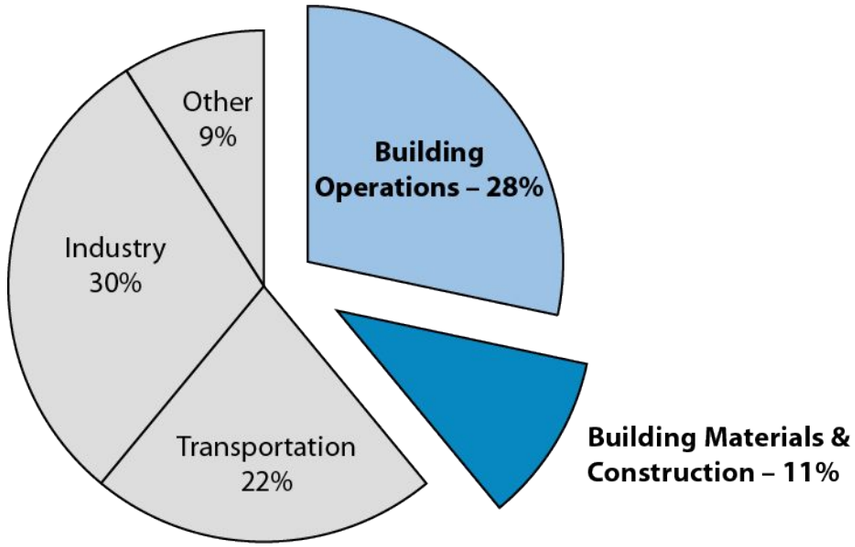
2030 Design Data Exchange: Sustainability Action Plan

AOS Architects 2020 Sustainability Survey

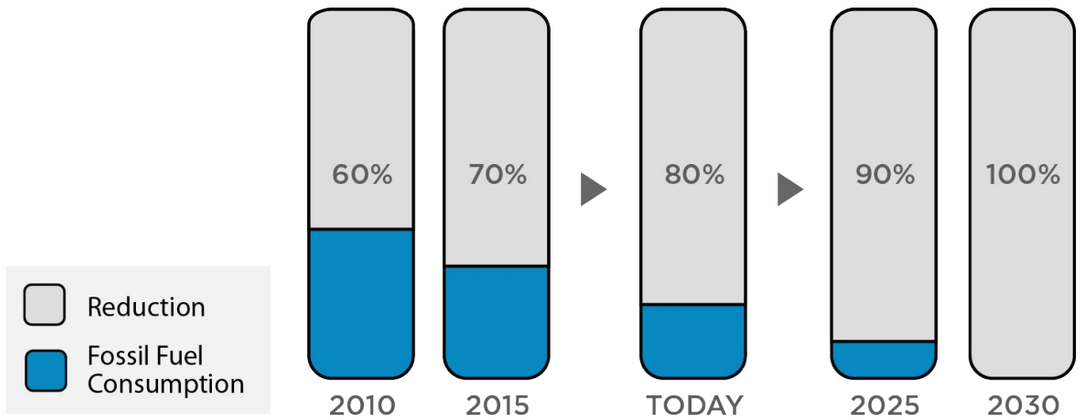
COMMITMENT

Designed in partnership with members of the Kewa Pueblo, the Wa-Di Housing Development in Santa Domingo, NM, integrates design strategies such as passive solar heating and mixed-use shared spaces to provide a multi-generational community with affordable housing that honors their cultural heritage.

Global CO_2 Emissions by Sector



2030 Challenge



COMMITMENT

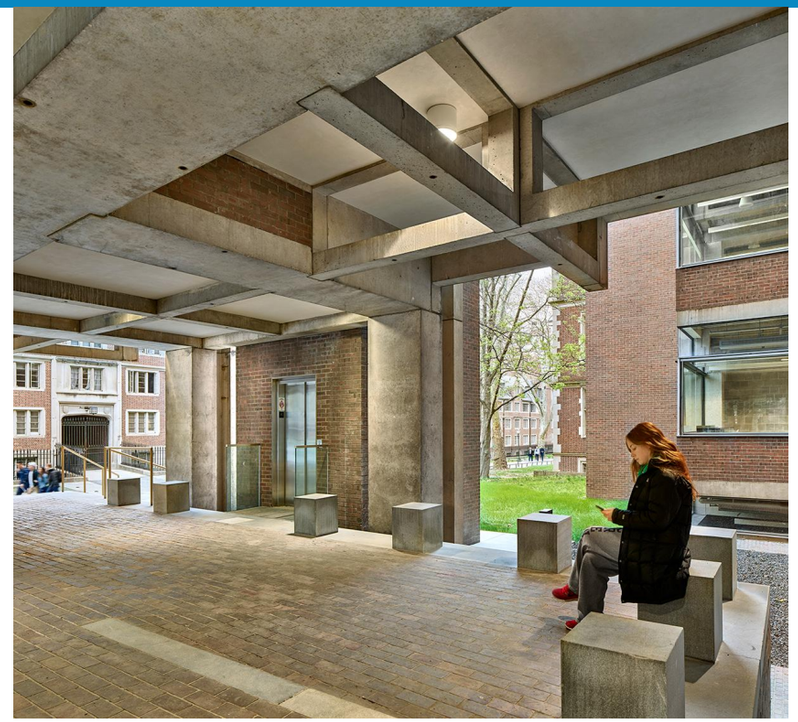
The urban built environment is responsible for 75% of the annual global greenhouse gas (GHG) emissions that cause climate change; building operations and construction alone account for 39%.

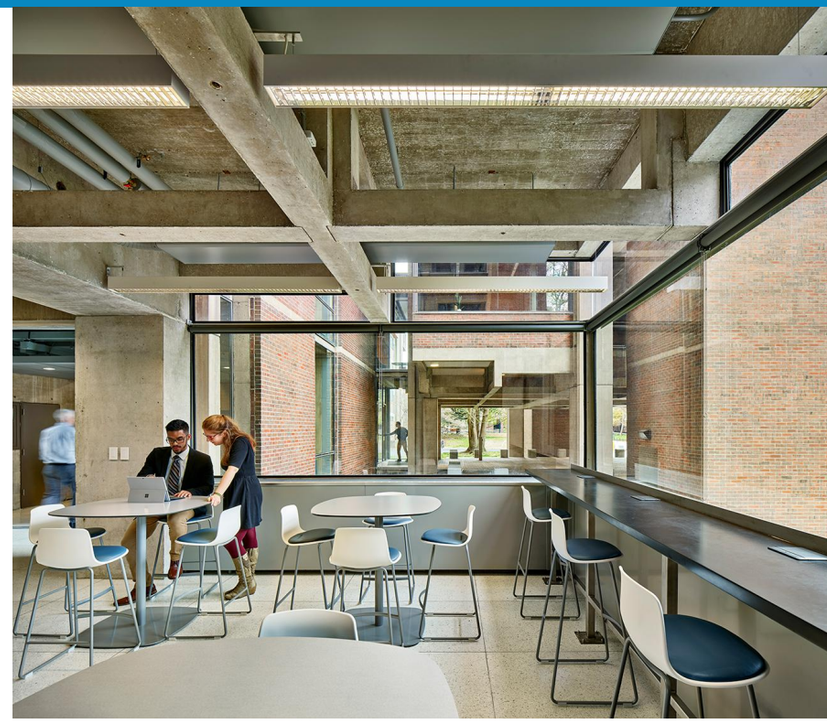
We recognize a responsibility to take resolute action on climate change and demonstrate leadership through our work. AOS Architects is fully committed to prioritizing energy performance, carbon reductions, and resilience in design, toward the goal of carbon neutral buildings, developments, and major renovations by 2030.

Joining the AIA 2030 Commitment strengthens our longstanding dedication to cultural and environmental sustainability, and lends greater clarity to our mission of using design and planning to provide life and purpose to new and existing buildings and the communities they serve.

LEARN MORE

Architecture 2030: The 2030 Challenge





SUSTAINABLE DESIGN OBJECTIVES

1. REDUCED EMISSIONS THROUGH PRESERVATION & ADAPTIVE RE-USE

On many fronts, the greenest building is one that is already built. Preserving and re-using existing buildings, which are often located on central sites, avoids a considerable portion of the embodied carbon emissions associated with equivalent new construction, building materials, and site development, as well as associated transportation emissions over the life of the project.

Richards Medical Research Laboratory
University of Pennsylvania, Philadelphia, PA

High-performance glazing and mechanical systems, as well as a new space layout that requires fewer air changes have given new life to the Richards Medical Research Lab, Louis Kahn's icon of modern architecture.

Phase 2, **LEED CI Silver**
Phase 3, **LEED CI Gold**

SUSTAINABLE DESIGN OBJECTIVES

2. LASTING VALUE THROUGH HIGH-PERFORMANCE DESIGN

Low- and no-cost passive design strategies - like thermal envelope, controlled solar gain, daylighting, and natural ventilation - combined with efficient MEP systems and on- or off-site renewable energy resources, yield new buildings and major renovations that prioritize human comfort and dramatically reduce operational emissions and expenses for the owners and communities they serve.

Siler Yard Arts + Creativity Center (above)
Santa Fe, NM

Designed to a net-zero standard, efficient mechanical equipment and onsite renewable energy production from rooftop photovoltaic panels will significantly reduce utility costs for low-income residents.

North Philadelphia Law Center (left)
Community Legal Services, Philadelphia, PA

The courtyard at the North Philadelphia Law Center provides all spaces with access to controlled daylighting and natural ventilation, minimizing the building's reliance on artificial light and mechanical cooling.
LEED Gold

3. INCREASED RESILIENCE THROUGH CARBON-SMART CONSTRUCTION

Thoughtful approaches to renewable materials, supply chains, and methods of construction can minimize cost, dramatically reduce carbon footprints, and support local labor and regional manufacturing. Designing buildings to be durable assets and to anticipate inevitable change, eventual deconstruction, and the re-use of their components ensures that they can support the institutions and communities they are a part of, for generations to come.

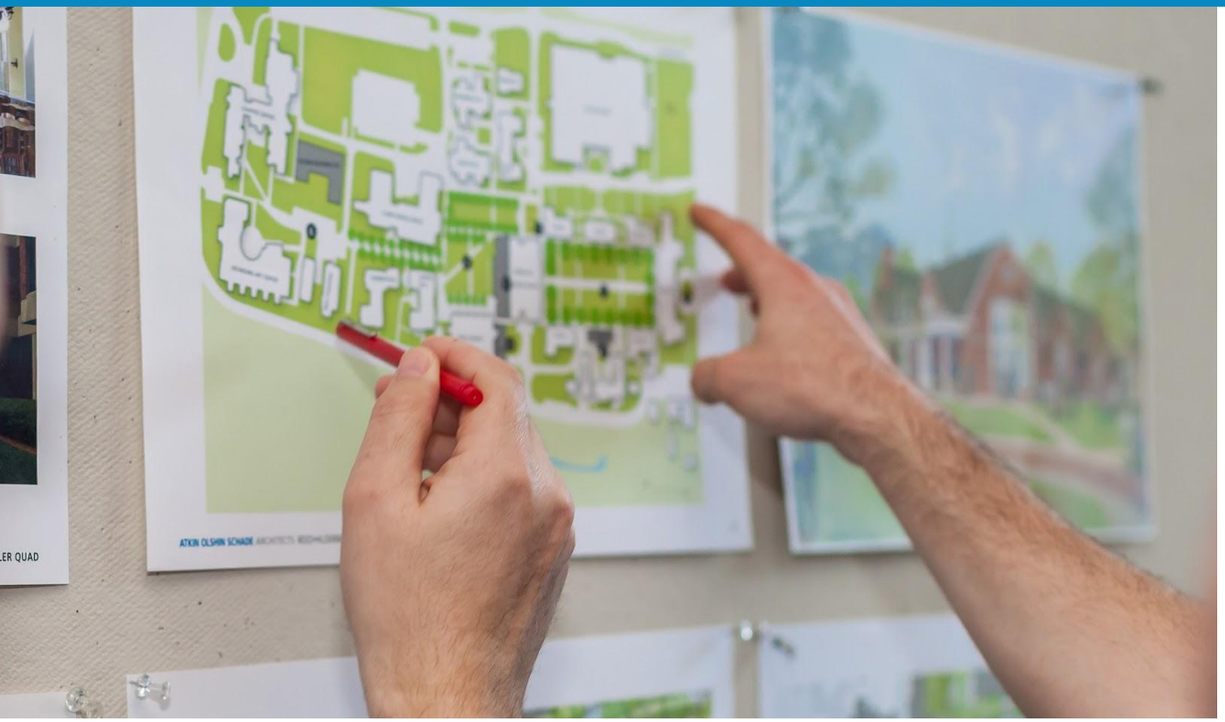
Santa Fe Fire Station No. 2 (above)
Agua Fria, NM

The design for Fire Station No. 2 includes a mass timber roof structure oriented to accommodate both solar hot water and photovoltaic panels, while deep overhangs shade windows from intense high-desert sun.

Owe'neh Bupingeh (left)
Ohkay Owingeh, NM

New and renovated homes in the pueblo incorporate locally sourced materials and traditional construction techniques like adobe and mud plaster, supporting local labor and strengthening settlement patterns and cultural activities that are centuries old.

APPROACH



APPROACH

To achieve these ambitious sustainability objectives, it will be necessary to transform our design practice in a way that is:

HOLISTIC

Achieve total carbon reductions through an integrated approach to addressing operational carbon, embodied carbon, and carbon associated with transportation of building users.

DATA-DRIVEN

Use baselines, strong targets, iterative modeling, and regular reporting of project data to evaluate our design decisions and measure progress towards carbon reduction targets.

FIRM-WIDE

Apply new sustainable design processes to all projects, so that we can collectively learn, share, and apply lessons learned across the firm's project portfolio and to future work.

This will be a journey.

Outlined below is a design process that will fully apply to all AOS projects within 3 years. We will immediately begin using this process to target and achieve energy use reductions in new projects beginning in 2020. By 2021, we will begin to incorporate embodied carbon targets and reporting.

1. ESTABLISH BASELINES & TARGETS AT PROJECT START

2. INTEGRATE PROJECT TEAMS & DESIGN PROCESSES

3. INTEGRATE DESIGN & CONSTRUCTION CONSERVATION STRATEGIES

4. INTEGRATE CLEAN, EFFICIENT TECHNOLOGY & CARBON SMART MATERIALS

5. OFFSET REMAINING ENERGY DEMANDS & EMBODIED CARBON

6. EVALUATE, TRACK, & REPORT

1. ESTABLISH BASELINES & TARGETS AT PROJECT START

Metrics are key to a data-driven design process. Targets for energy use and embodied carbon are calculated as percentage reductions from established baselines for similar project types. All projects should set firm targets for:

- Predicted energy use intensity (pEUI) using the Zero Tool, or a target lighting power density (LPD) for interior remodels not involving HVAC.
- A project carbon budget, expressed in kgCO2e.

2. INTEGRATE PROJECT TEAMS & DESIGN PROCESSES

A holistic approach to sustainable design entails sharing project targets and engaging all consultants and project stakeholders in collaboration, early and throughout the project delivery process. Tools for this include:

- Owner Project Requirements (OPR) to establish and communicate project objectives, basis of design (BOD), and commissioning requirements with all parties.
- Design workshops or green charrettes, particularly with MEP consultants to advance creative solutions for energy and water efficiency, and with structural engineers for reducing embodied carbon.

LEARN MORE

ZERO Tool
An online calculator developed by Architecture 2030 to find energy reduction baselines and targets for existing buildings and building designs.

2030 Palette
A free, comprehensive online library of building materials and design guidelines that address sustainable design strategies at various scales.

Carbon Smart Materials Palette
A material and technology library that supports Life Cycle Assessments and Environmental Product Declarations, while providing insight into materials with low embodied energy.

Embodied Carbon in the Built Environment – A Primer
A publication summarizing resources, metrics, and actions to address embodied carbon in design and construction.

Countdown on Carbon: A Mandate for the Design Profession
A list of guidelines and actions for firms to consider that lower overall embodied energy of a construction project.

Climate Positive Design Toolkit
Material and design guidelines to increase carbon sequestration and reduce carbon footprints.

3. INTEGRATE DESIGN & CONSTRUCTION CONSERVATION STRATEGIES

Early design decisions have the greatest impact on building energy use and embodied carbon. Strategies to pursue first include:

- Connected, transit-oriented, dense, and/or urban infill sites.
- Preservation, adaptive re-use, minimizing the amount of new construction.
- Building form and orientation, thermal envelope, daylighting, window/ wall ratio, solar shading, natural ventilation, and other low- or no-cost passive design strategies.
- Choosing mass timber, earthen building where possible, and eliminating or optimizing the amount of concrete, steel, and aluminum used in building core and shell.

4. INTEGRATE CLEAN, EFFICIENT TECHNOLOGY & CARBON SMART MATERIALS

To compliment and further advance carbon reductions achieved through initial design and construction conservation measures:

- Integrate right-sized, high-efficiency MEP systems and advanced controls.
- Advocate for building electrification for occupant health and to eliminate all on-site burning of fossil fuels.
- Specify healthy, renewable, low-carbon and/or carbon sequestering interior materials.

5. OFFSET REMAINING ENERGY DEMANDS & EMBODIED CARBON

After exhausting efficiency and reduction strategies, pursue renewable energy resources and carbon sequestration strategies:

- Incorporate on-site and/or off-site renewable energy production to meet the remaining energy demands.
- Use site and landscape design strategies for carbon sequestration and reduction.

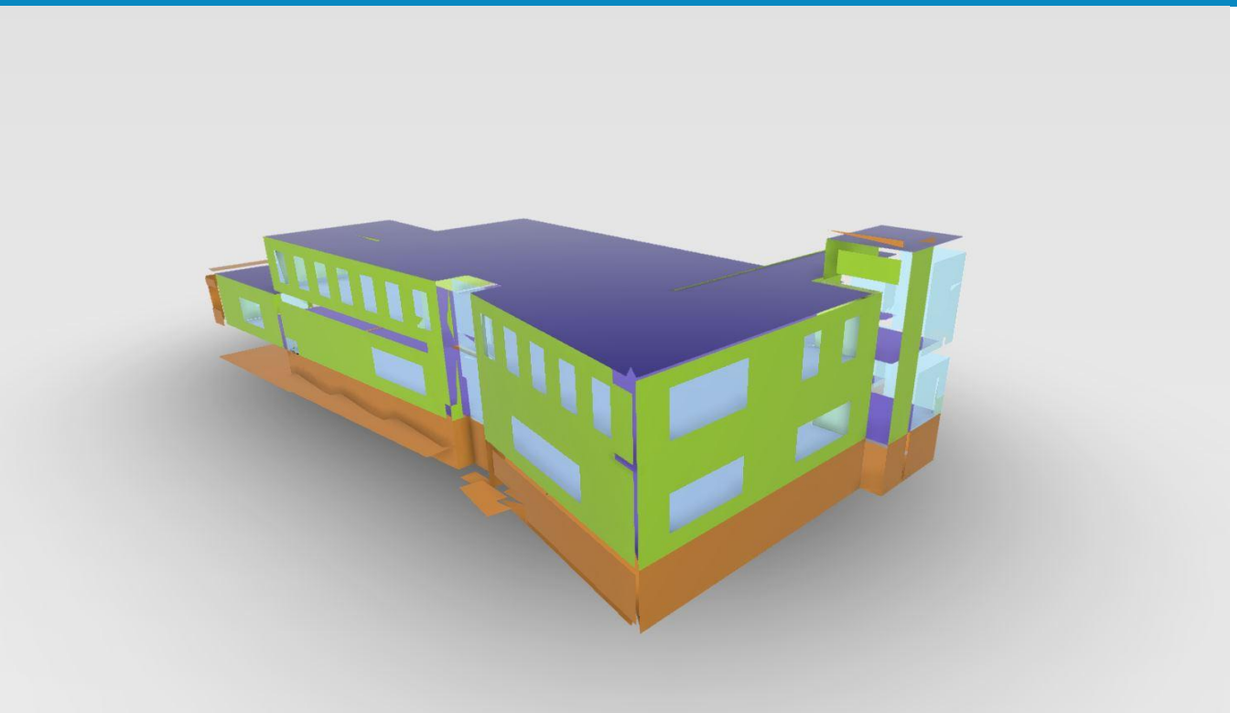
6. EVALUATE, TRACK, & REPORT

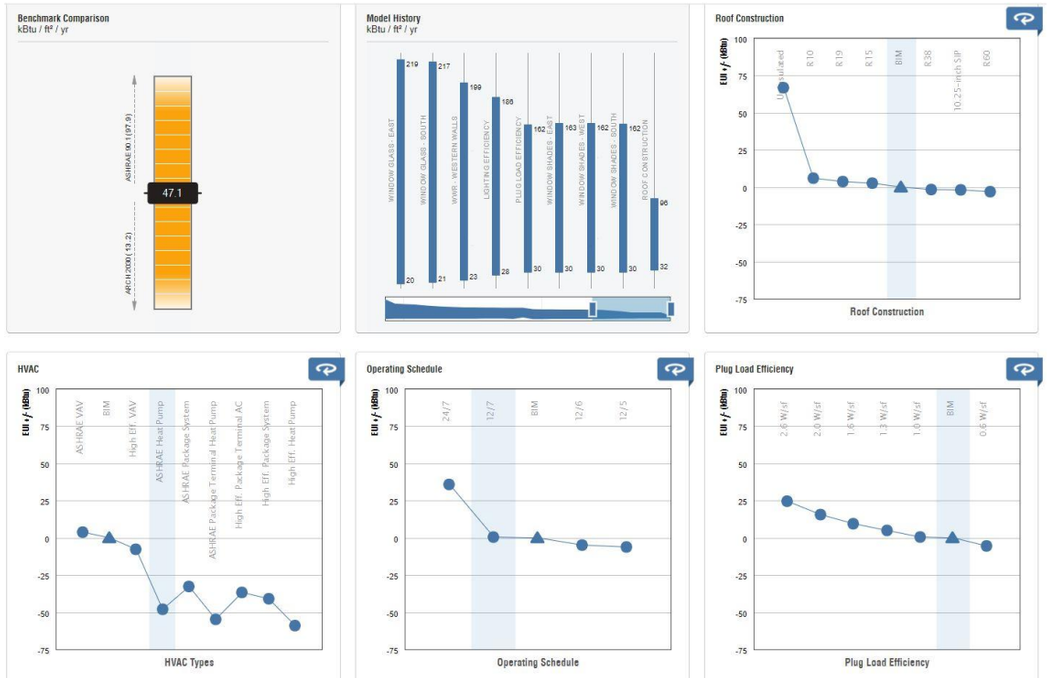
Engage in early and iterative modeling to understand the interactive effects of design decisions and assess progress toward meeting energy use and embodied carbon targets. This includes:

- Energy modeling for design and compliance.
- Conducting a whole building life-cycle assessment (WBLCA).
- Reporting designed performance to the Design Data Exchange (DDx).
- Verify targets are being met through commissioning, ongoing monitoring, and during construction procurement.

EVALUATION

Through selective restoration and high-performance renovations, the University of Pennsylvania's Richards Medical Research Laboratory, originally designed by Louis Kahn, was transformed to an efficient lab space.





EVALUATION

You cannot manage what you do not measure. We recognize that there is tremendous value in evaluating the impact of our design decisions and assessing our progress towards the energy targets we set – on the project level, across the firm's portfolio, and in relation to the work of our colleagues nationally.

EVALUATING OUR CURRENT PROJECT PORTFOLIO

To better understand our current portfolio and begin measuring progress, we are currently entering pEUI for all current projects, regardless of design phase, into the Design Data Exchange (DDx). All 2020 projects will be submitted before the March 31st, 2021 reporting deadline.

ENERGY USE AND CARBON REDUCTION GOALS

Although we do not anticipate a 100% success rate initially, our explicit goal is to meet or exceed 2030 Challenge targets for energy use for every project - currently an 80% reduction in fossil-fuel GHG-emitting energy consumption from regional average. As we begin to measure embodied carbon, we will pursue a 40% reduction from baseline for all projects.

Progress will be measured by improvement over our 2020 project portfolio, and how close our projects come to meeting or exceeding these targets. We aim to complete multiple projects with carbon neutral operations by 2023, and achieve carbon neutral construction in projects by 2025.

EVALUATION & REPORTING

We currently have the means to conduct early design phase energy modeling and simulation for energy efficiency, thermal comfort, photovoltaics, and lighting. Design decisions can be iteratively assessed relative to EUI targets established at project start. Within the next year, we will advance our ability to conduct whole building LCA early and throughout the design process.

Key project metrics - pEUI and carbon budget relative to target values - will be transparent within the firm and across project teams, and will increasingly become a critical dimension of design excellence at AOS Architects. Project and/or sustainability leads will be responsible for continuously evaluating and reporting project data to the DDx annually.

We will expand our engagement with energy and green building consultants for advanced modeling for code and/or certifications, as well as to pursue greater insight and collaboration in effective carbon mitigation throughout the design process. We will work closely with builders and owners to verify that design targets are being met during construction, procurement, and post-occupancy, and advocate for commissioning and monitoring.

LEARN MORE

Autodesk Insight 360
Revit-integrated software that allows for energy modeling and data-driven building performance analysis.

Tally
A Revit plugin that tracks the environmental impact of materials, allowing for easy Life-Cycle Assessments.

Embodied Carbon in Construction Calculator (EC3)
A benchmarking and assessment tool focused on reducing supply-side emissions.

Renovations and new buildings at Los Poblanos Historic Inn & Organic Farm in Los Ranchos de Albuquerque, NM, preserve the century-old ranch and support the business's practice of sustainable agriculture.

ADVOCACY

ADVOCACY

The path to solving the worst impacts of climate change runs through the building sector. Individual firms can lead by example, but we must also amplify the impact of our commitment. Among clients, consultants, and the profession at large, it is crucial that we help develop a culture that supports our work, and advances the broader decarbonization of the built environment, resilient design and planning, and other climate actions.

SUSTAINABLE DESIGN IS GOOD DESIGN

We already have the right clients for highly sustainable projects. Just as we already do for thoughtful and beautiful design, we will advocate for and pursue aggressive energy performance, decarbonization, and resiliency goals on all projects, regardless of budget.

- Show clients the benefits of reduced operational expenses and project carbon emissions alongside upfront construction costs
- Use the AIA Framework for Design Excellence to facilitate conversations with clients and the communities we serve about the value of sustainable, resilient and inclusive design
- Promote our design and thought leadership through firm communications, published articles, and examples of our work

CULTIVATE A SUSTAINABLE DESIGN NETWORK

Our success in achieving 2030 goals will depend in part on a network of mutual determination and learning that includes green building, MEP, and structural engineering consultants, as well as peer architecture and planning firms. It is our responsibility to develop new relationships, and encourage existing team members to up their game as we improve ours.

- Identify and engage experienced green building consultants in each practice region
- Strongly encourage the leadership of peer architecture, engineering, and interiors firms to join the 2030 Commitment, and the SE2050 Commitment for structural engineering firms
- Join and actively participate in a local AIA Committee on the Environment (COTE)

LEARN MORE

AIA Framework for Design Excellence

Join the AIA 2030 Commitment

SE2050 Commitment

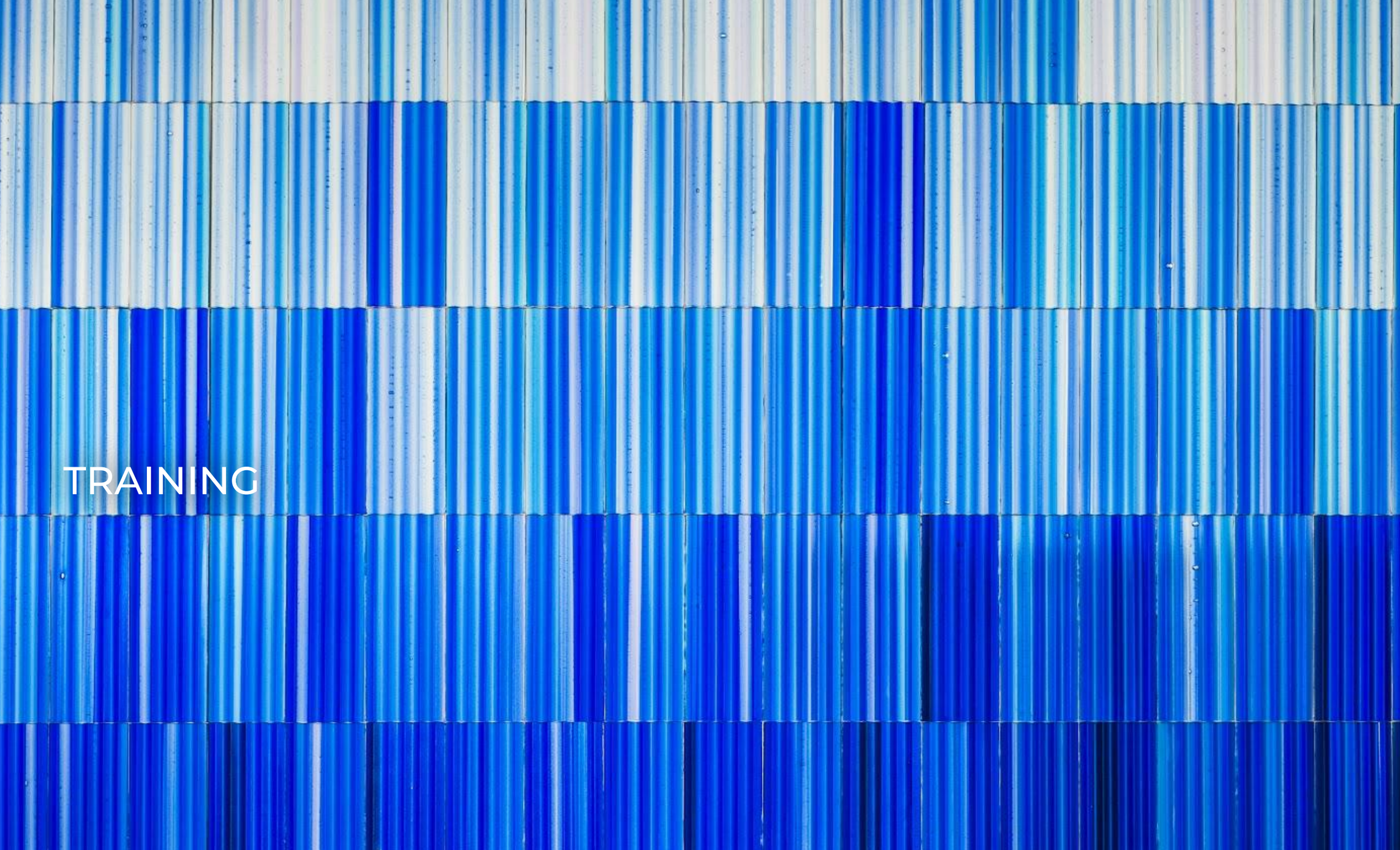
AIA Philadelphia COTE

AIA Albuquerque COTE

CREATE CHANGE WITHIN THE PROFESSION AND THE INDUSTRY

By showing what is possible and within reach, we can advocate for the profession, the industry, and regulation to take urgently needed action on climate.

- Demonstrate design excellence and thought leadership through AIA and other design awards, as well as lectures and speaking engagements at conferences
- Specify healthy, renewable, low-carbon or carbon sequestering building materials, and pressure manufacturers for transparency and environmental product declarations (EPD)
- Advocate for improved building codes and climate policies at the local and national level, including natural gas bans and net zero requirements for new construction, mandated energy retrofits for existing buildings, and mass timber code allowances.


TRAINING

6 TRAINING

Transforming our sustainable design practices will be a firm-wide effort. AOS Architects is committed to supporting our staff with the knowledge, training, and resources they need to be successful in our commitment to meeting 2030 Challenge targets.

The goal of our program is to successfully address the training needs of firm employees at all levels, and to create a robust culture of knowledge sharing and continuous learning

ALL-STAFF TRAINING

The director of sustainability and leads in each office will organize regular all-staff training sessions and discussions dedicated to new design processes, essential energy use and decarbonization topics, and lessons learned from projects in the office.

Important external training resources include the AIA+2030 Online Series and other AIAU courses associated with the 2030 Commitment. Additional webinars and training opportunities will be shared regularly.

ADVANCED TOOL & SOFTWARE TRAINING

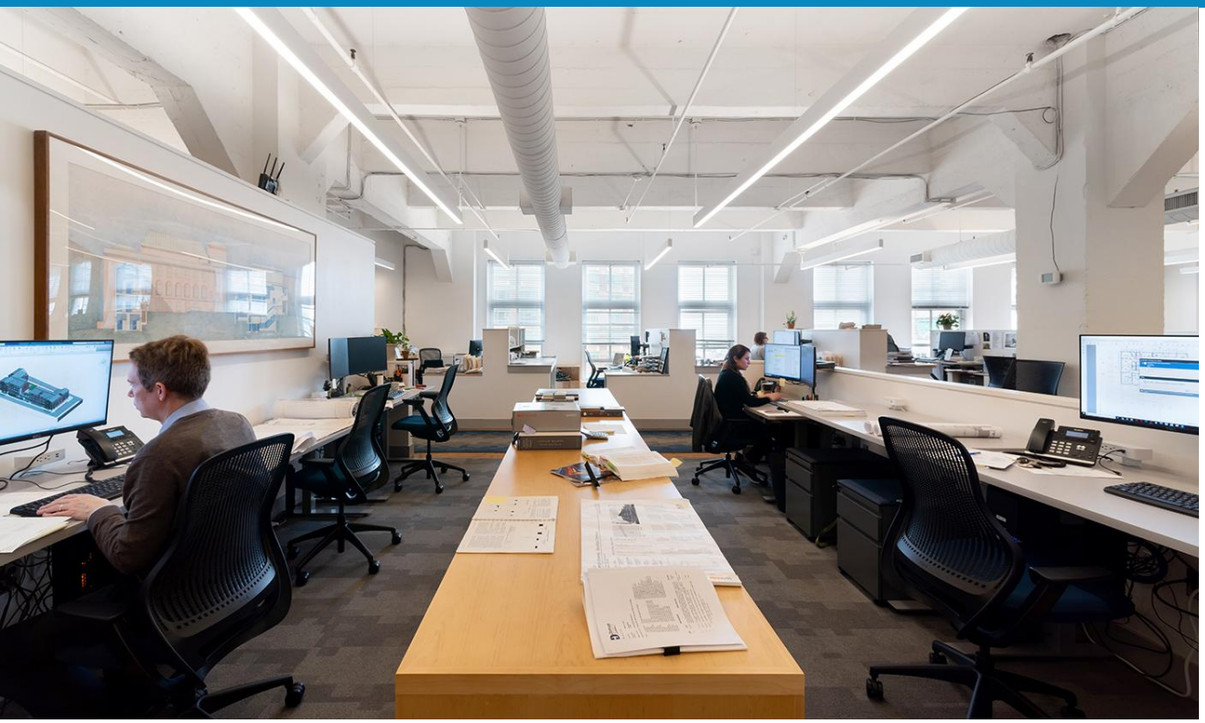
The firm will provide sustainability and project leads with necessary DDx, energy modeling, and LCA software training. This group will follow-up with regular check-ins to share resources and lessons learned, and to formulate methods for mentoring other project team members.

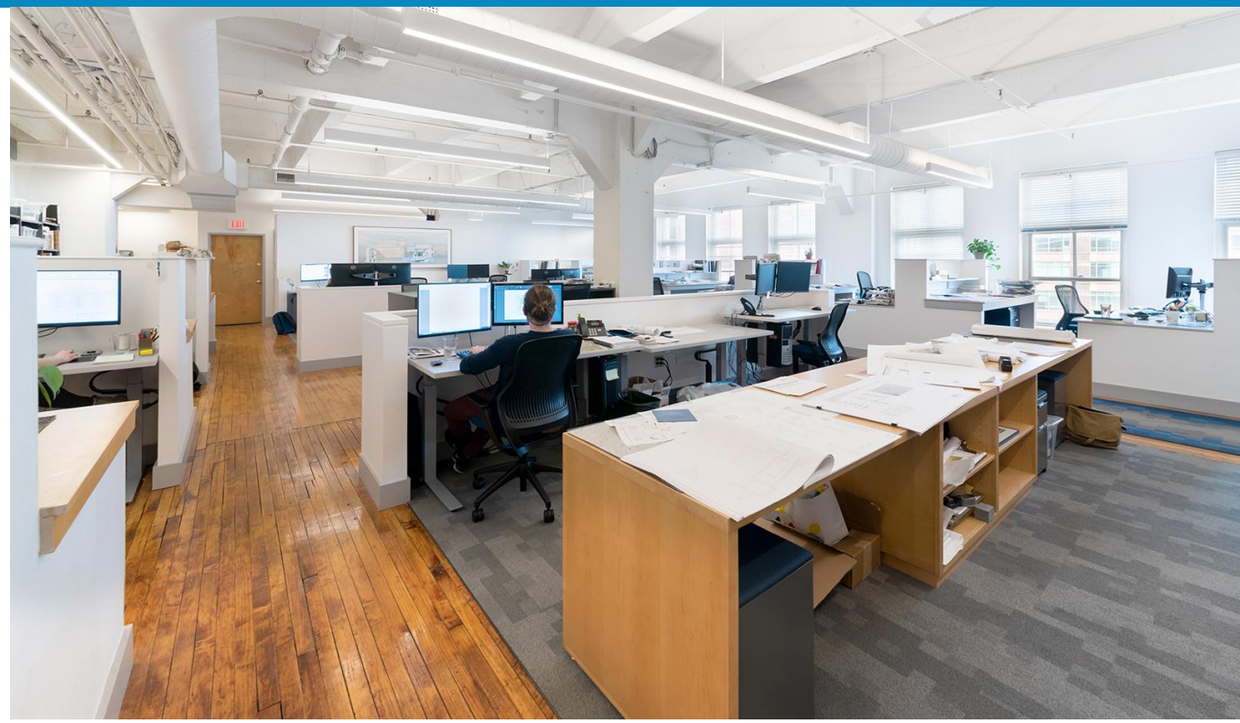
CREDENTIALING & CONTINUING EDUCATION

All employees, and especially registered architects, are strongly encouraged to pursue lectures, webinars, and conference training on energy use, decarbonization, and resilient design and planning for continuing education credits. The director and sustainability leads will work to identify and share the best opportunities. More specialized training related to sustainability within our areas of practice, such as sustainable housing and preservation, environmental justice for tribal communities, etc. is also encouraged. AOS will support employees in pursuing LEED, WELL and other professional certifications, with the goal of achieving 50% of firm employees with LEED credentials by 2025.

OPERATIONS

House in the High Desert is a climate-adapted design with adobe thermal mass, a rainwater collection system, and windows oriented for maximum solar exposure in winter and shading in summer.





OPERATIONS

It is meaningful for us to demonstrate our commitment to reducing GHG emissions through all aspects of how we do business. The measure of these actions may be small relative to that of our entire project portfolio, but they are impactful at the local level, and foster sustained awareness of and advocacy for climate action among our employees, consultants, and clients.

As part of our 2030 Commitment, we will begin tracking and auditing our firm's carbon footprint on an annual basis, with the goal of achieving carbon neutral operations and zero waste by 2025.

We intend to advance our sustainability mission and reduce emissions from our firm's operations in the following three key areas.

LEARN MORE

Australian Architects Declare: Guide to Going Carbon Neutral

1. TRANSPORTATION

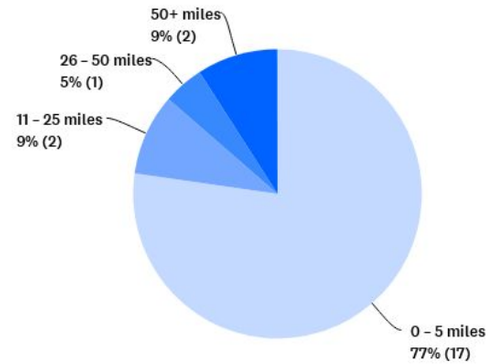
Transportation is responsible for more than 25% of US GHG emissions annually, and is potentially a significant contributor to our firm's carbon footprint.

Our Philadelphia and Santa Fe offices are both in walkable urban neighborhoods, and we currently reimburse employees for commuting by nearby mass transit. More than 85% of firm employees walk, bike or take public transit to office; 45% never travel to the office by car.

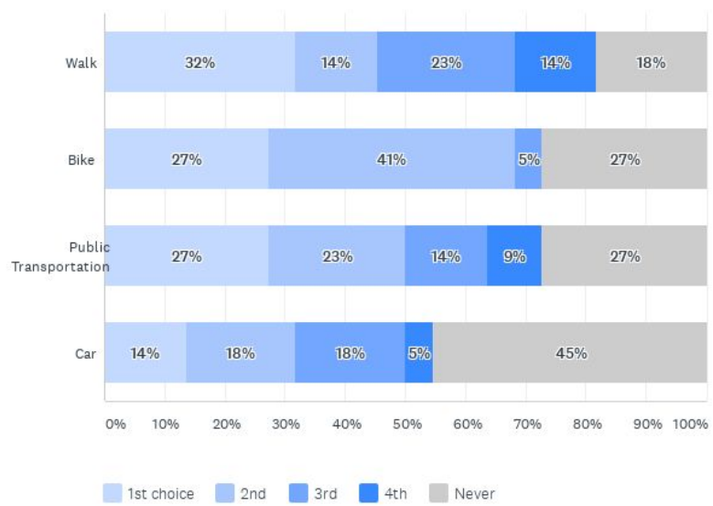
We commit to reduce our transportation emissions as follows:

- Minimize project-related air and motor vehicle travel by using virtual meeting platforms whenever possible.
- Further reduce commuter transportation through flex and remote work policies.
- Continue to encourage and/or incentivize employees to use alternative transportation through transit reimbursement, and providing bike storage, showers and changing areas.
- Minimize transportation related to errands and deliveries by combining local trips and online supply orders.

Q3 What is the length of your commute to the office (in one direction)?



How do you commute to the office?



2. ENERGY USE

Because we rent approximately 7,500 square feet of office space in aging and less-than-efficient buildings, energy use drives a significant portion of our overall emissions. Both offices have already been upgraded to have nearly all LED lighting. Our Philadelphia office has also installed occupancy and daylighting sensors.

We commit to reduce emissions from building operations as follows:

- Track and routinely audit utility use at both offices (electricity, gas and water).
- Perform and/or advocate for efficiency upgrades to building envelope, systems, equipment, and controls - including electrification, programmable thermostats, occupancy sensors, and low-flow plumbing fixtures.
- Reduce plug loads by upgrading desktops computers and servers to laptops and cloud-based servers when and wherever possible. Install plug load controls and select ENERGY STAR certified computers, copiers, printers and appliances to replace equipment that is more than 5-10 years old.
- Purchase renewable energy or renewable energy credits (RECs), as well carbon offsets for onsite fossil fuel use.

3. MATERIALS

Our firm uses software to track and bill all printing, which greatly reduces unnecessary paper use. Both offices have eliminated the use of single-serving bottled water and recycling programs are in place for paper, glass, plastics, and metals.

We commit to reducing our material use and waste stream as follows:

- Further reduce printing by encouraging the use of pdf software for drawing markups, and phasing out printed marketing materials and business cards.
- Order office supplies from local suppliers whenever possible.
- Purchase environmentally friendly cleaning supplies, and select paper and paper products with a minimum of 30% recycled content.
- Eliminate the use of disposable plastic cutlery and styrofoam food containers.
- Institute and/or advocate for office or building-wide food waste composting.
- Refuse unnecessary product literature and samples from manufacturers, and inquire about take-back programs for materials that are no longer needed.
- Donate and/or recycle all no longer used office electronics, furnishings and supplies.

ATKIN OLSHIN SCHADE ARCHITECTS

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