



SUSTAINABILITY ACTION PLAN

A ThoughtCraft Architects™ Publication

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At ThoughtCraft, we believe it is our professional responsibility to hold ourselves to high standards regarding our design process and impact to the environment. We also acknowledge that the act of building itself is inherently destructive throughout the supply chain. The urban built environment is responsible for 75% of annual global Greenhouse Gas emissions, with buildings alone accounting for 39%.

We endeavor to design durable buildings that stand the test of time, flexible projects that may be re-purposed, and universally designed spaces that aid all people throughout the human lifespan. By addressing ways in which we can improve our process and measure our impact, we can help to protect our clients, communities, and our Earth.

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Commitment

At ThoughtCraft, careful consideration and appreciation for natural resources and the well-being of humans are central to the design of our projects. Through a more intentional approach we are committed to lessen our impact on the environment by increasing the effectiveness of our sustainable practices.

Since 2005 ThoughtCraft has been focused on smart development, forever homes, historic preservation, and innovative commercial and institutional spaces. With the growth of our firm, we are focusing more resources on increasing the rigor of sustainable practices and measuring our impact.

ThoughtCraft is a signer of the AIA 2030 Commitment. As a signer we have pledged to work toward carbon neutral buildings and report our projects to the AIA 2030 Design Data Exchange (DDx). This standardized reporting framework allows the architecture community to collectively track progress toward carbon neutral buildings. We are working to integrate these goals throughout our design process and the use of sustainable building performance software, such as Cove.tool. The intent of the AIA 2030 program is that all new buildings, developments, and major renovations be carbon neutral by 2030.



Mission

Creating spaces for connection through thoughtful architectural design.

Our name reflects our mission to create thoughtful and well-crafted architecture that enhances the human experience. We balance innovation and spirited exploration with logic and precision. **Our goal is to create sustainable solutions that encourage a dialogue between the past and a better future.**



Vision & Goals

ThoughtCraft Architects is determined to integrate sustainable practices through every step of our process. By identifying areas we fall short, and outlining goals for the future, we have a clear understanding of the path ahead. Going beyond today's standards, we strive to think forward and anticipate the needs to come.

We see sustainability as a holistic approach. Sustainability goes beyond the environmental impact. ThoughtCraft Architects designs to improve the quality of life for the occupants of the projects, as well as the surrounding community. Designing thoughtful places will promote long lasting buildings that improve the quality of life and community.

Sustainability that adds value. Through our work we will conserve resources and reduce the projects lifetime carbon footprint. By incorporating sustainable practices at the onset of a project, the design decisions can be more integrated, and provide a bigger impact to the long-term cost savings and less impact to the environment.

We view the approach to sustainability as an ongoing process. Through continuing education in house, and with the accumulation of certifications, we look forward to expanding our knowledge base. Internally led bi-monthly sustainability meetings promote knowledge sharing and accountability within our firm. Participating in sustainability seminars will expose us to prominent green products and leaders in the field. Building codes continue to evolve to meet the demands of our climate. We plan to anticipate these developments by setting goals beyond the current standards.



Action Items | 2023 - 2024

	Immediate (within 1 year)	Short-term (current to 3 years)	Long-term (3+ years)
External Design Process			
Publish SAP on website to share with our network	●		
Maintain relationships with our clients and their buildings to gain insight on operations, management, and performance		●	
Conduct post-occupancy evaluations (1-2 years) for at least 25% of our projects to gather data on building systems performance, occupant comfort, and successes or failures of other sustainable efforts that can then inform future projects			●
Engage in proactive sustainability conversations with clients and trade partners. Set goals early, even when our clients do not have sustainable aspirations	●		
Collaborate with professionals in our field that are sustainability minded and help us accomplish our goals for energy and carbon reduction through the 2030 Commitment	●		
Internal Design Process			
Develop a stronger understanding of energy modeling (covetool) by integrating into our design workflow	●		
Develop a portfolio of precedents, both our own and regional, to illustrate the current state of sustainable projects and use them as benchmarks to build off of		●	
Eliminate Living Building Red List materials from our specifications products by publishing list internally and adding to check list for a project team member to verify we do not have any of these in our projects	●		
Integrate energy modeling tools as part of our standard design process so that EUI is tracked at each phase of design		●	
Bi-weekly sustainable education internal meetings and knowledge share	●		
Compile results from post-occupancy evaluations into an internal database for a reference on parameters such as pEUI, GHG / energy source, post-occupancy EUI analysis			●

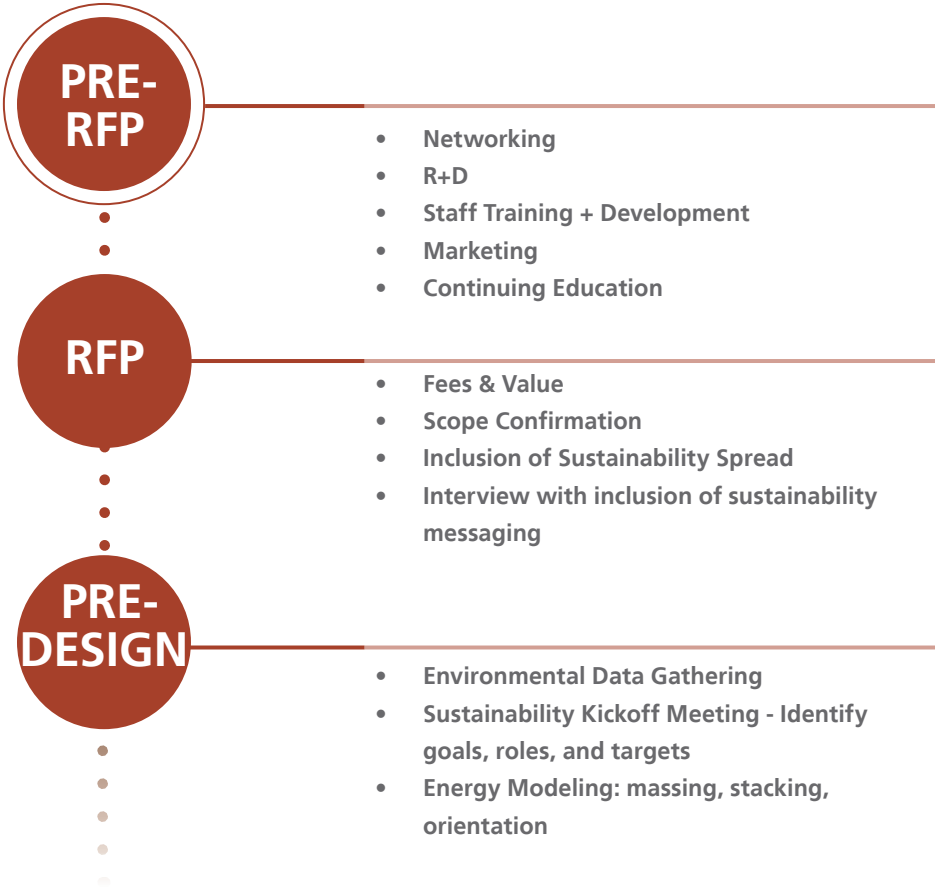
Design Approach & Process

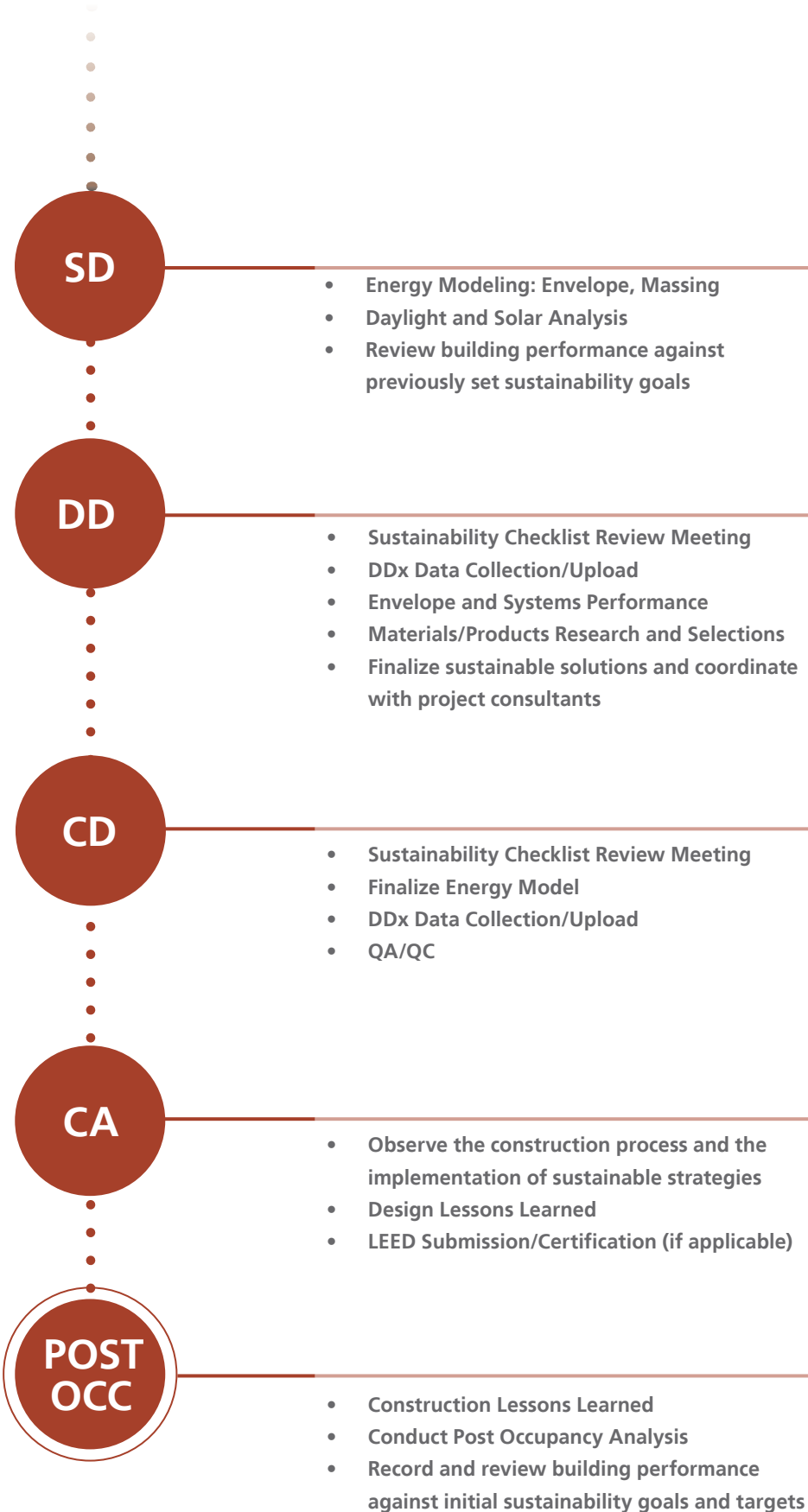
Our team is committed to implementing active and passive sustainable strategies to our projects. We are working to continually educate ourselves and our clients in the environmental impact of each project.

Goals Incorporate sustainable practices and thoughts through the entire lifespan of a project, from design charrette to post occupancy evaluations.

Strategies Reducing the carbon impact of our projects is a top priority. Through utilizing traditional strategies with new digital tools, we believe the impact will be as beneficial for the client as it is for the environment. Beyond the mainstream sustainable practices, we want to continue to promote healthy environments within the surrounding communities.





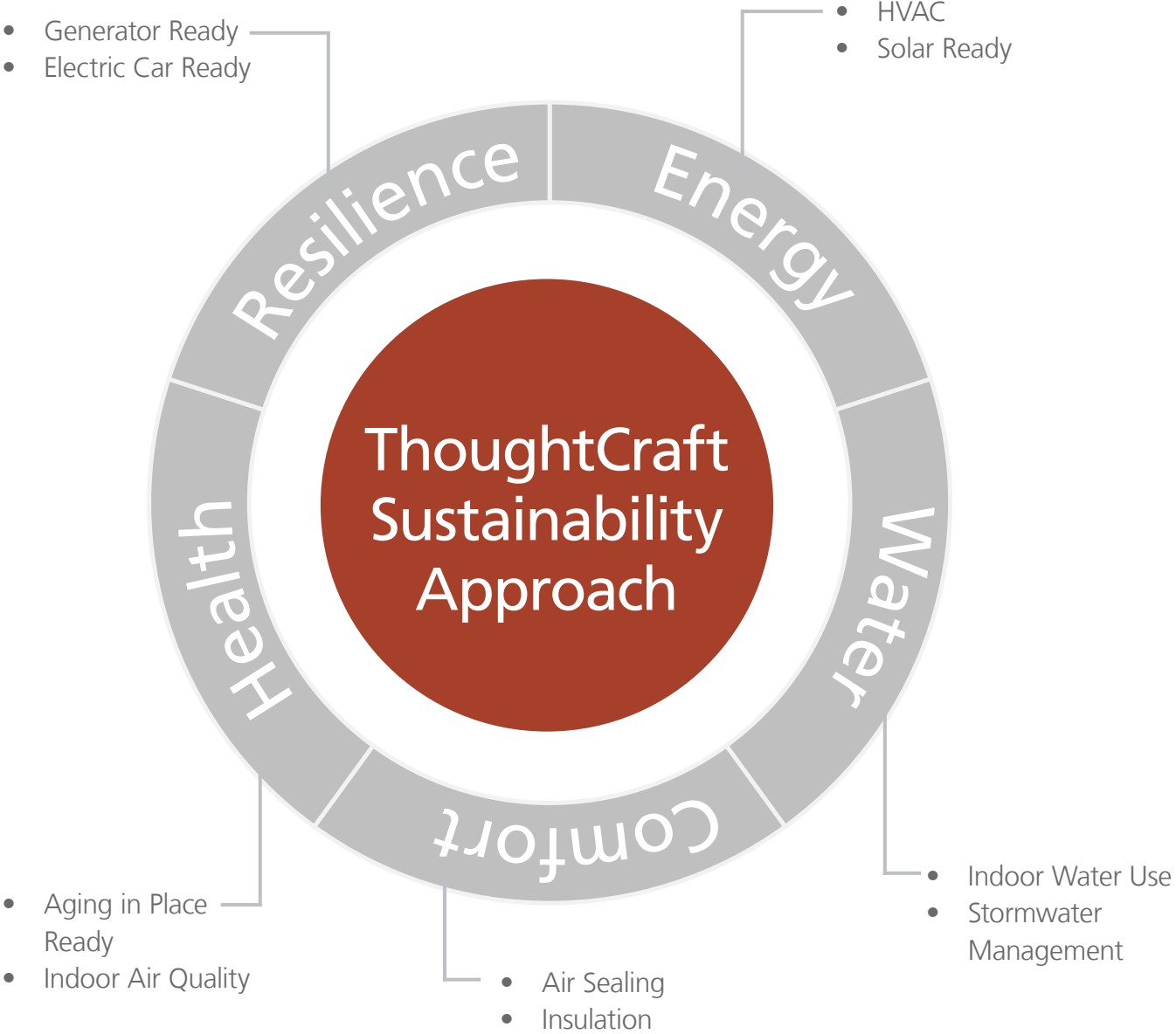


Current State of Our Practice

We approach every sector with unique sustainability goals catered to project scale and needs. Through anticipating the sustainable practices of the future, we strive to make architecture that is adaptable and prepared for changes that may come.

A few notable project mentions are:

- [Hayden Building LEED Homes Multifamily PLATINUM Certified](#)
- [Massachusetts Historical Commission Preservation Award](#)
- [Leadership in Mass Timber buildings & Accelerator Grant](#)



Current Practice Standards

Energy:

Heating and Cooling

- Engage with consultants and contractors as soon as possible after project inception to define energy goals and opportunities.
- Use of VRF systems, and mini-split systems whenever possible; 18-SEER variable speed Dx units with high-efficiency air handlers at minimum.
- Embrace building automation systems to optimize output and modulate demand.

Fuel Source

- Promote all electric systems and strategies; reduce the use of gas.

Renewable Energy

- Assessment and use of solar and geothermal where possible.
- Specify install of 3/4" metal conduit with pull string from roof to electrical meter location along with a CAT cable from meter to Internet modem in preparation for future rooftop solar panels. This allows solar to be essentially "bolted on" without the expense of opening walls and ceilings later.

Water:

Indoor Water Consumption

- WaterSense labeled fixtures.
- Assess rainwater harvesting for use in toilets and irrigation.

Water Heating

- Hybrid heat-pump water heaters with recirculation, or integrated packaged units.

Stormwater Management

- Reduce impervious surfaces, use permeable pavers when possible.
- Reduce off-site flow and Nitrogen and Phosphorus nutrients through use of rain gardens, bioswales, silva cells, and other filtering / retention methods.
- Reduce erosion caused by flow through use of rip-rap & level-spreaders.





Comfort:

Air Sealing

- Assess the air-barrier system approach in during design (integral to panel, taped sheet-good, peel-n-stick system, mastic, fluid-applied, etc.)
- Enlist 3rd-party for blower door testing (min. target of 2.5 Air Changes), and duct blasting testing (specify mastic only sealing). In addition to reducing HVAC demand, a well-sealed envelope provides exceptional thermal comfort for people.
- Enlist 3rd-party rater for homes and multifamily projects to review air sealing and insulation installation and other program aspects.

Insulation

- R-19 walls, R-45 roofs (designed to a minimum 20% above code).
- Window U-factor of 0.29 or less.
- Continuous insulation when possible and modeling shows value.

Health:

Ventilation

- Provide fresh air through passive and/or active strategies (fresh air intake / make-up, ERV, strategically placed operable windows).
- Assess control options for indoor air quality monitoring including CO2.

Building Science

- Work with exterior consultants when needed.
- Perform wall assembly analysis on all new systems to understand regional impacts, dew point location, and water mitigation strategies.

Product Impacts

- Reduce use of Red List products and chemicals that have damaging or toxic manufacturing processes.
- Substitute alternatives for vinyl products.
- Reduce foam insulations, use only where necessary, use alternatives to XPS when possible.



Resilience:

Universal Design & Aging in Place Ready

- Accessible entry without steps, accessible clearances and reaches.
- Full bathroom or convertible visitable half bath and convertible bedroom on ground floor.
- If two story home: elevator ready (pre-framed 5'x6' stacked closet)

Electric Car Ready

- Specify 240 volt capped outlet next to 120 volt outlet each side of garage.

Power Outage and Storm Ready

- Specify supplemental power source: 50-amp plug aside meter for movable generator or vehicle back-feed, back-up battery with solar, or other off-grid power generator.
- Sump pump in basement or crawl space to evacuate flood waters.

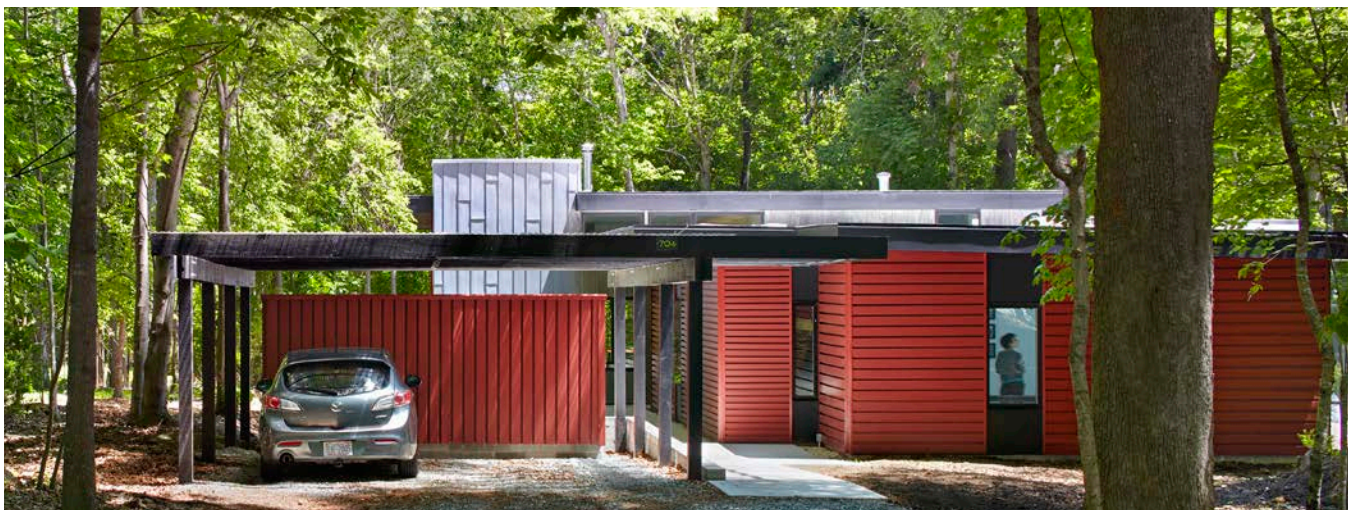
Education:

Workshops & Certifications

- Encourage our team to gain knowledge, expertise, and lead.

Knowledge Management

- Maintain reference library of sustainable building details in projects.
- Bi-weekly team sustainability meetings to share knowledge, educate about building science, and evolve our practice standards.

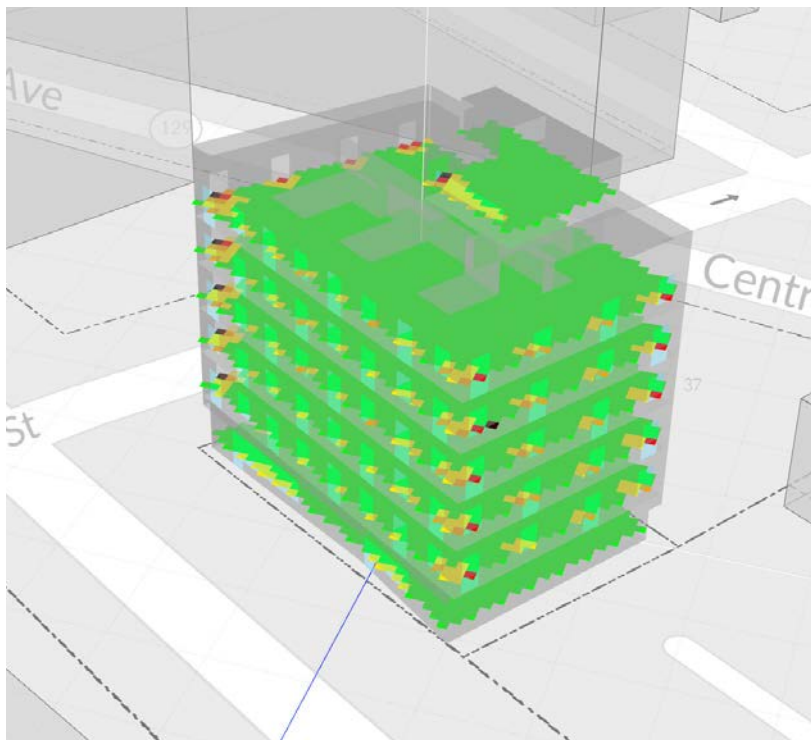


Performance Modeling Tools

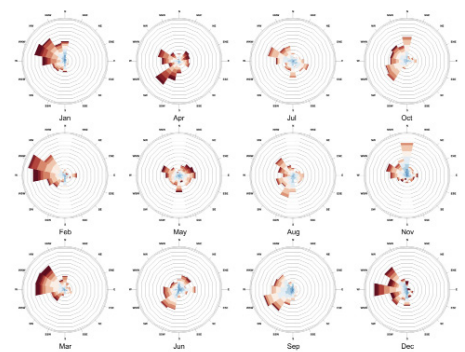
With the incorporation of performance modeling tools, we can more accurately depict the climate needs and goals for projects. Through simple massing in early design through final construction documents, we can run climate analysis, calculate projected EUI, and optimize the assemblies and equipment to provide energy savings and meet the evolving energy codes.

The process in practice. We have implemented Cove.tool for projected building performance and energy analysis. This tool provide us the ability to test and compare the energy impacts of assembly and system options early in the design process to help set goals with real-time data.

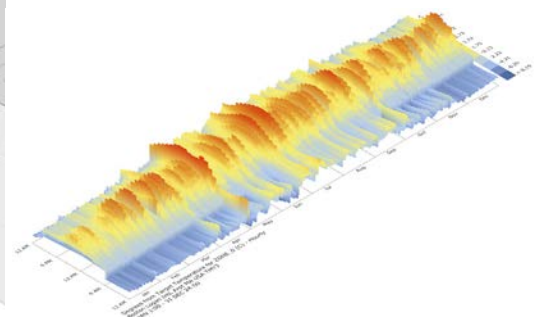
Oxford | a 30-unit, 6-Story Multifamily Building Analysis



Cove.tool 3D Analysis - Annual Sunlight Exposure & cooling load demand



Site Analysis - Annual wind patterns



Site Analysis - Annual adaptive comfort levels

Whole Building EUI Breakdown (kBtu / sq ft / yr)

Oxford | a 30-unit, 6-Story Multifamily Building Analysis

Minimum Code Standards



Projected Performance @ CDs

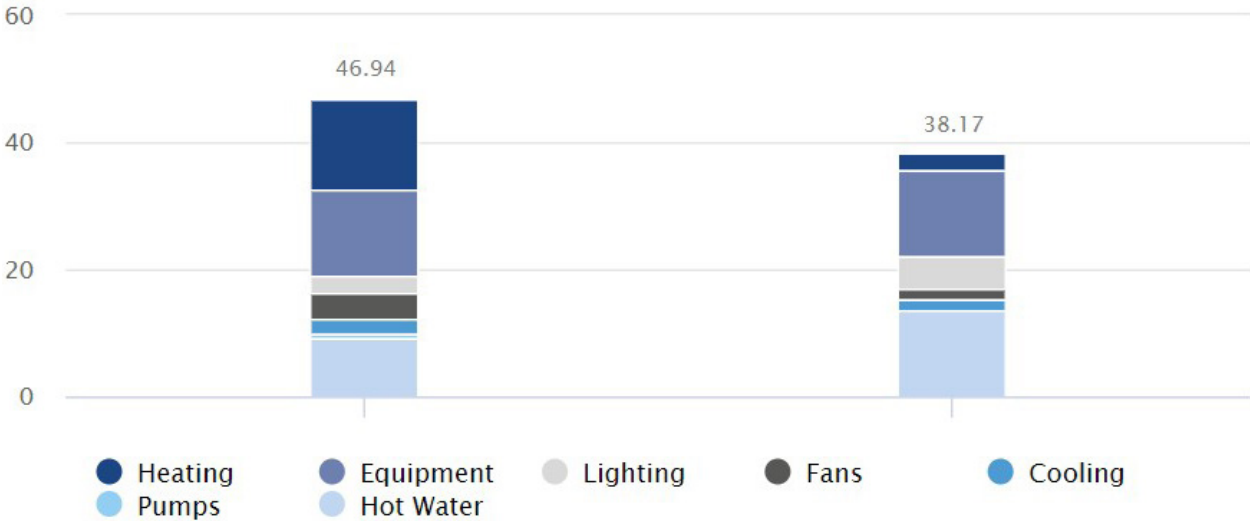


Apartments **46.95** kBtu/ft²/yr

EQUIPMENT.....	13.48
HOT WATER.....	9.29
HEATING.....	14.44
COOLING.....	2.14
LIGHTING.....	2.63
FANS.....	4.26
PUMPS.....	0.70

Apartments **38.16** kBtu/ft²/yr

EQUIPMENT.....	13.48
HOT WATER.....	13.51
HEATING.....	2.50
COOLING.....	1.59
LIGHTING.....	5.09
FANS.....	2.00
PUMPS.....	N/A



Future Outlook

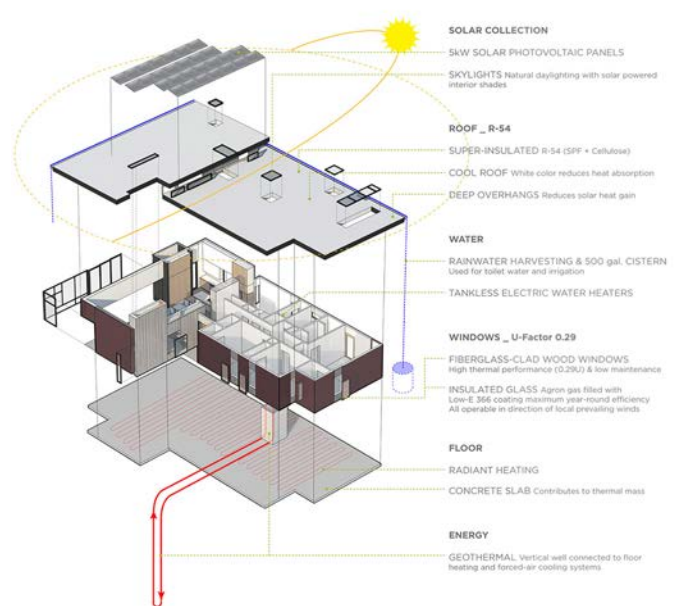
Since our inception in 2005, ThoughtCraft has endeavored to stay at the forefront of sustainable design. We achieved a LEED Platinum certified building in 2013, designed the largest Structurally Insulated Panel building in Boston in 2018, were the first to use rainwater harvesting for toilets in Orange County in 2014, and have implemented green roofs, passive orientation, solar panels, battery backups, geothermal, and countless other strategies in our projects.

We are now focused on leading our industry with Passive House strategies to reduce energy consumption and Mass Timber projects to reduce embodied carbon and emissions. We are also endeavoring to create our own 'product red list' to eliminate some of the worst climate offenders in our projects.

We believe the combination of passive house strategies, mass timber, and educated material choices will lead to long-term sustainable buildings.



Mass Timber Structure



Who We Are

ThoughtCraft is an award-winning full-service architecture and interior design studio. Our name reflects our mission to create thoughtful and well-crafted architecture that enhances the human experience. Our goal is to create sustainable places that connect people to their surroundings.

Informed by each clients unique character and vision, we follow a process that guides & inspires.

Co-founding partners Chris Johns and Jason Hart have deep roots - having studied at MIT and worked together in architecture since 1996. Our team approach and talent has garnered more than 25 prestigious design awards and has been showcased in more than 40 publications. We are focused on crafting living experiences that bring a sense of joy to your everyday.

To learn more visit www.ThoughtCraftArchitects.com or contact us at Studio@ThoughtCraftArchitects.com to schedule a free consultation.



Applied curiosity from thought... to craft.