Sustainability Action Plan

CDA CHRIS DAWSON ARCHITECT

Foreword

Spring 2025

In the summer of 2022, we signed onto the 2030 Commitment. This led to us learning how to energy model, researching a wide variety of sustainable design practices, learning about products that are better for inhabitants and their surroundings, and developing a plan to constantly strive for more sustainable design. That was 3 years ago. We can now reflect on how those first 3 years have gone: the challenges we had, our successes, and ways we know we can improve.

On the building design front, we seem to be on track with the majority of our plan elements. There were various standards we set for ourselves that seem to be on trend with architecture and the building industry at large. This includes the use of LED light fixtures for all lighting fixtures, products with little maintenance and long life spans, and even Energy Star appliances are becoming ubiquitous. Thermal bridges within our details were becoming more obvious and more frequently addressed. Resources such as BuildingGreen.com and the Declare Database have been utilized by the sustainability team to understand the nuances of our environmental and health effects from the choices we make in our product selection.

The journey has not been without its struggles though. The Energy Star label on appliances may be common, but its cousin, the Water Sense label, is more elusive. Fixtures meeting this standard are not nearly as easy to find, and fixtures that meet the standard *and* our high design aesthetic are almost nonexistent. Another label we've struggled to make a standard is that of the Forest Stewardship Council (FSC). We envision a world where all newly harvested wood can meet this standard, but it only seems readily available for hardwoods now, and usually only if you remember to ask for it. The FSC certified wood also tends to cost more than wood without the label, and can be challenging to "sell" clients when the benefit is not directly noticeable at the time of purchase.

CDA's contribution to the AIA Design Data Exchange (DDx) within the past three years has been a learning process. Initially, the understanding was that all projects on the database required energy modeling and we began plunging into the reality of doing this for several projects. Although we've learned tremendously from doing this, we are far from energy modeling every project that comes through our door. Energy modeling takes time, and should provide insight to the design. The idea of using the time and software to calculate all of our projects, including those that were not destined to make significant improvements after the energy modeling efforts, was daunting. Thankfully, the DDx allows architects to simply insert the energy code governing a project, if it is only meeting the minimum standards. This simple, yet overlooked, nuance to the DDx shall allow us to strive for including *every single project* we design within the database.

If there are two areas of success within our designs that we would certainly like to highlight though, it would be our effort to rehabilitate the existing built environment and to do so beautifully. From 2022 to 2025, 87% of buildings have been renovations or additions to renovations. We not only enjoy these design challenges, but understand the importance they play in reducing waste and lowering a design's carbon footprint. CDA has also won 6 Excellence in Design Awards from the AIA Central PA Chapter, and we pride ourselves in being a design firm. We understand that well-loved buildings last longer and these are typically the buildings that we design renovations for (instead of tearing them down).

Moving on to 2025, we intend to challenge ourselves further. The resources we've utilized to research and understand sustainable practices intend to become more prolific, and more widely used by the whole team. The elements which were initially easy to achieve have been ratcheted up, like applying Energy Star not only to appliances, but also to windows and doors. And now that we've familiarized ourselves with red list chemicals, we will try to avoid some of the typical offenders. We intend to improve upon the struggles we came up against in the past three years. And we've added more to our goals, including measuring our own carbon footprint.

This sustainability action plan outlines CDA's goals for the third year after signing the 2030 Commitment, continuing into 2030. It is broken into measures to take when designing the built environment and implementations we would like to visualize in our day-to-day operations. It will be revisited once again in 2028 to maintain its relevancy, to look back on our accomplishments, and to find where we need to continue improving.

Thank you for being a part of this journey with us toward a more sustainable future,

***William Aldrich**, CPHC*
Graduate Architect

***Chris Dawson**, AIA, LEED AP BD+C*
Principal

Building Design

When Specifying Materials

- × Utilize BuildingGreen.com for general guidance throughout our research process.
- × Utilize Informed Product Guidance for categorical product research.
- × Utilize the Declare Database for proprietary product searches.

In order to reduce **embodied carbon**

- × Determine products' manufacture location and favor those manufactured closer to the project site.
- × Where applicable, wood structures shall be preferred over steel or concrete.
- × Discourage the use of **HFC**s, *Hydrofluorocarbons*: XPS insulation, Spray Foam Insulation, etc.

In order to reduce **operational carbon**

- × Materials considered to be low in maintenance and have long life spans will be encouraged.
- × All applicable light fixtures shall be **LED**s, *Light Emitting Diodes*.
- × All standard sized hot water heaters shall be heat pump hot water heaters.
- × All applicable appliances shall be Energy Star certified.
- × All fenestrations shall be be Energy Star certified.

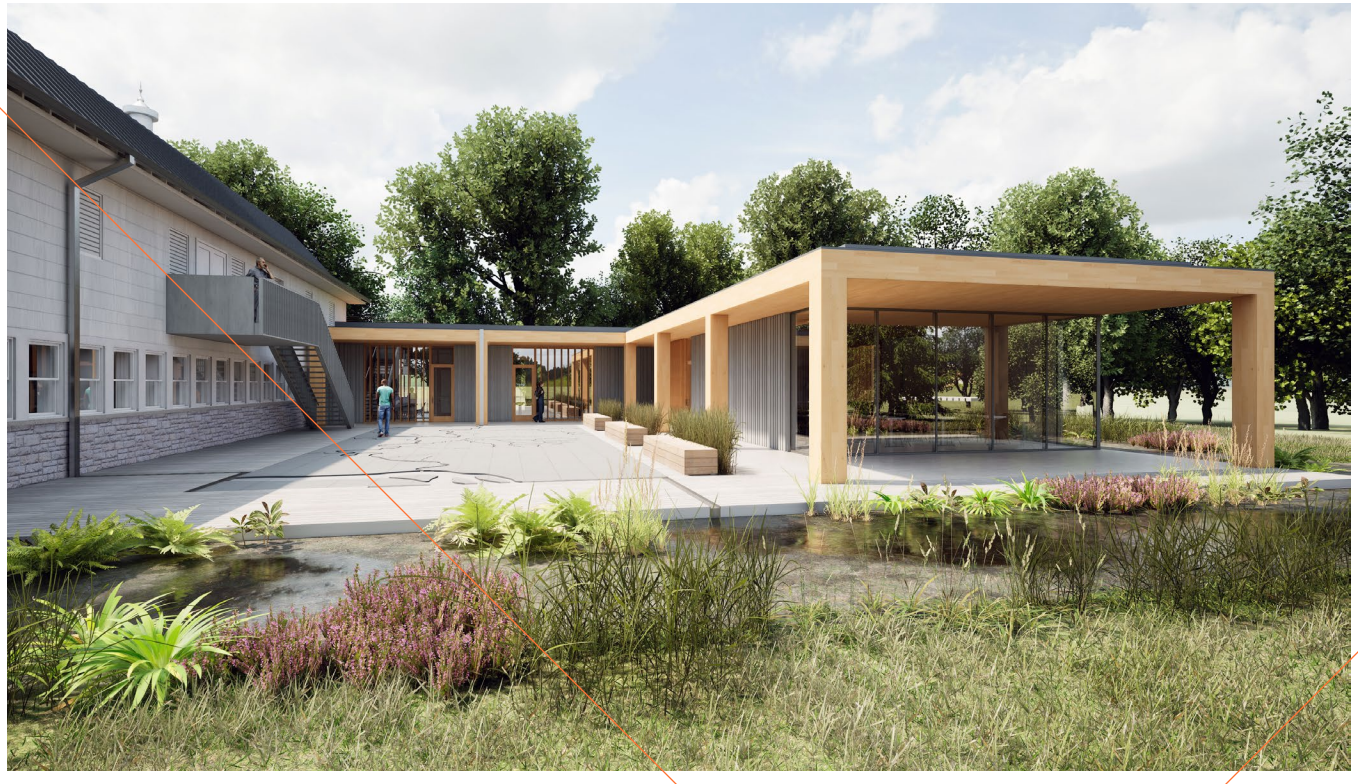
In consideration of **human health**

- × Fluid-applied interior materials shall meet the California Department of Public Health (CDPH) Standard Method v1.2 program for **VOC**s, *Volatile Organic Compounds*.
- × Discourage products with common Red List Chemicals, including:
  - **PVC**, *Polyvinyl Chloride*: Vinyl Siding, Luxury Vinyl Tile, PVC Pipe, Vinyl Window Frames, etc.
  - **PFAS**, *Perfluorinated & Polyfluorianted Alkyl Substances*: Metal Roofs, Paints, Carpets, etc.
  - **Formaldehyde**: Glues in Manufactured Wood Products, Caulks, Paints, etc.

To protect **nature and natural resources**

- × New plantings shall be considered non-invasive and native species will be encouraged.
- × Encourage wood products to be **FSC**, *Forest Stewardship Council*, certified, salvaged or reclaimed.
- × Discourage variances for exceeding impermeable coverage and encourage permeability when designing or replacing paved surfaces.
- × All applicable plumbing fixtures shall have a WaterSense label.

An environmental education center for a philanthropic Pennsylvania boarding school, conceptualized in early 2022, is a re-use of the existing center within an old milking barn. The designed renovation and addition includes the use of extra insulation, native landscaping, solar hot water, and on-site renewable energy to reduce operational carbon. We also reduced embodied carbon by re-using the existing barn and specifying timber for the structure and cladding of the addition.



Building Design *continued*

When Designing

× Utilize the **LEED** standard, *Leadership in Energy and Environmental Design*, to guide designs.

In order to reduce **embodied carbon**

× Encourage the use of existing buildings and minimize the disturbance of natural landscapes.
× Enhance every building's beauty and desirability to encourage maintenance for long lifespans.

In order to reduce **operational carbon**

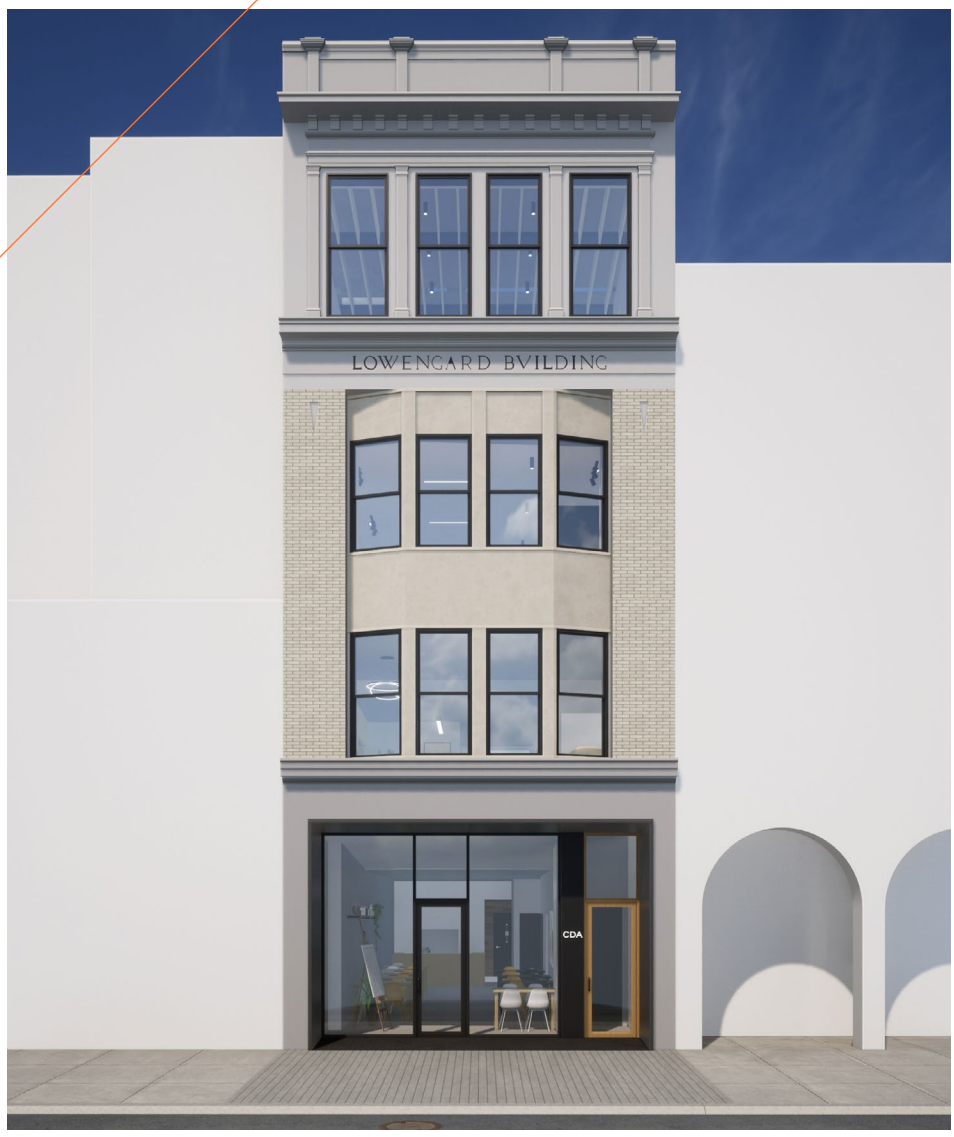
× Reduce or eliminate details with structure breaking the thermal envelope (thermal bridges).
× Encourage all-electric building systems, with the goal of only electric buildings by 2030.
  – Projects with fossil fuel connections should be prepared for electric systems in the future.
× Every energy modeled project shall target an 80% reduction in baseline **EUI**, *Energy Use Intensity*.
× Encourage the installation of electric vehicle chargers and bicycle equipment at public facilities.
× Certify at least 1 project under the Passive House Standard by 2030.
× Design at least 1 project to be net zero by 2030.

In consideration of **human health**

× Natural light shall be integrated into every living and public space.
× Certify at least 1 project to the WELL Building Standard by 2030.

Measure and Track

× Report all projects to the American Institute of Architect's (AIA) 2030 Design Data Exchange (DDx).
  – Projects that desire performance better than energy codes shall be energy modeled.
  – All other projects will be reported with their applicable energy codes.
× Calculate and track the percentage of renovations vs new builds.
× Count and use strategies to reduce embodied carbon on any project seeking a sustainability certification.
× Create sustainability overview sheets and graphics for every project that is energy modeled.



Our new office at 210 North 3rd Street, under construction at the time of this writing, is a renovation of a historic structure in downtown Harrisburg that has been empty for years. We currently intend to utilize all electric, highly efficient systems throughout including heat pumps for heating, cooling, and hot water. We will bring the originally designed light wells back to life and integrate daylighting controls to evenly light the spaces with little energy usage.

Firm Operations

Implement

In order to reduce **operational carbon**

- × Optimize digital file storage systems to reduce their size, clean project folders after completion.
- × Utilize a hybrid of in-office and remote to reduce individual employee traveling.

To reduce **consumption and waste**

- × Develop strategies to use 20% less paper, or better.
- × Optimize recycling throughout the office.
- × Find reusable replacements for typical single use items.

To continue building **awareness and leadership**

- × Include and advocate sustainability features in proposals.
- × Credit 30% or more of the firm with sustainability credentials by 2030.
  - – Leadership in Energy and Environmental Design Accredited Professional (LEEDap)
  - – Living Future
  - – Passive House
  - – WELL
- × Create a Just Label from the International Living Future Institute by 2030.

Record and Improve

In order to reduce **operational carbon**

- × Measure our carbon footprint.
  - – Track electricity usage within our office.
  - – Measure digital file storage consumption.
  - – Record our travel.
  - – Measure our waste.

To advocate for **employee health**

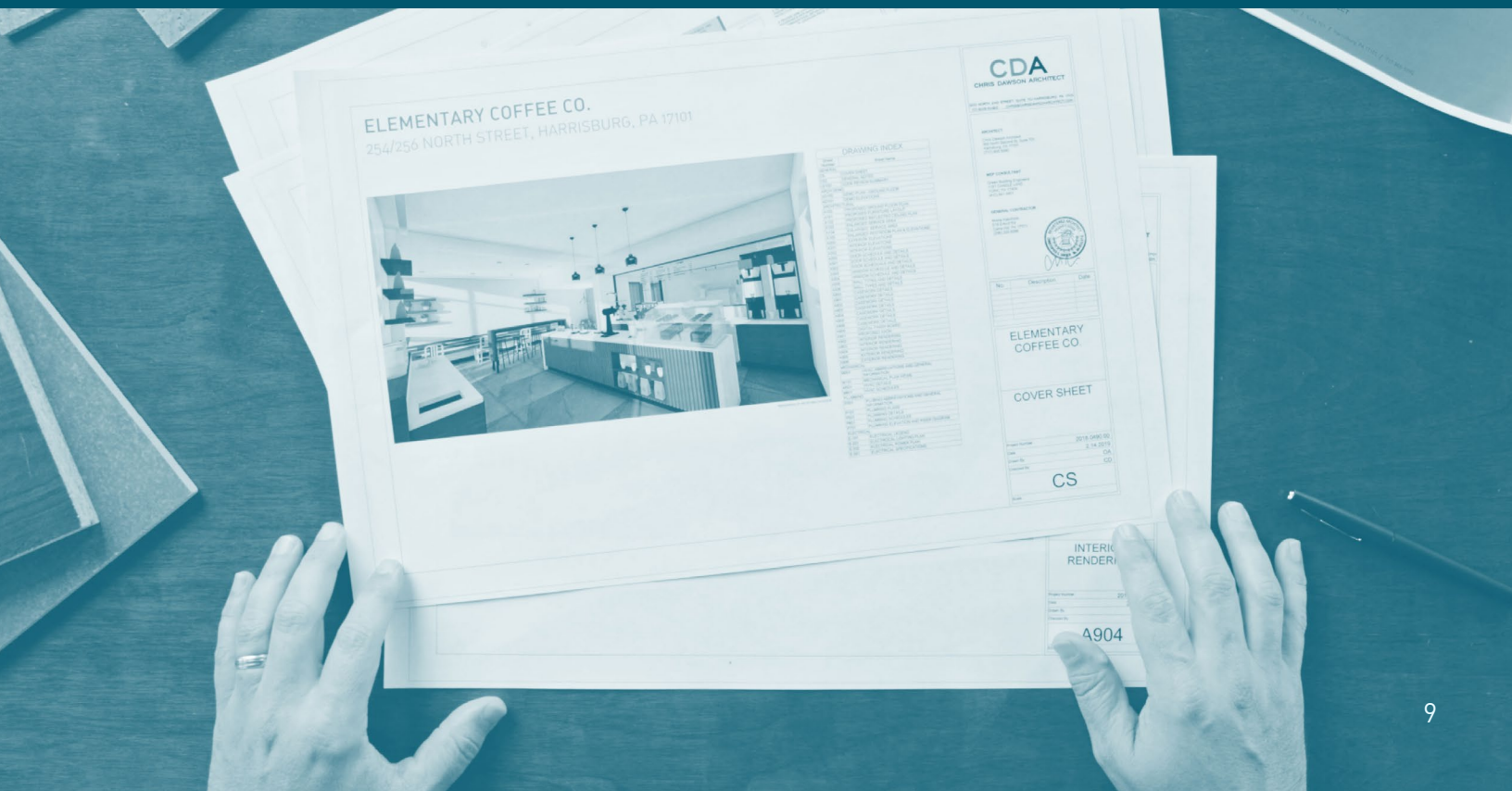
- × Monitor the air quality within the workspace.

Our Philosophy

At CDA, designing a more sustainably built world starts with designing beautiful places. Beauty is what makes a building well-loved, well-maintained, and long-lasting. Designing buildings that people love and cherish is fundamentally an act of sustainable design. We strive for it every day.

Practicing predominantly in the Northeast, where we have a rich, historic building stock, we believe that reusing existing structures and infusing them with new life is one of the most sustainable design acts one can undertake. Exploring the dialog between contemporary architecture and historic buildings has long been a thread in our work – in fact, at the time of publishing this plan, nearly 87% of CDA projects are renovations to existing buildings.

We are honored to join 1,100+ firms in committing to striving for carbon neutrality by 2030 and to dedicate our time to measure, track and deliver on green building pillars, no matter the project.



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