

Carbon Smart Building

Collective Impact Initiative from the Carbon Leadership Forum

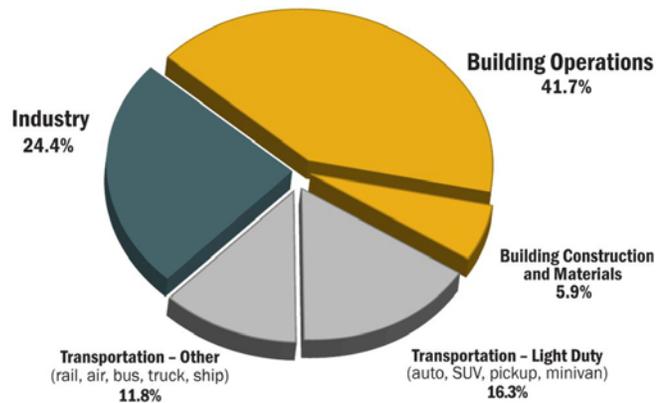
Storing Carbon in the Built Environment

Our Mission and Vision

We envision a thriving global building industry that safely stores billions of tons of carbon in the built environment every year and makes new and existing buildings carbon neutral in their operation. To realize this vision, we propose to lead the global building industry to transform the built environment worldwide from a carbon source to a carbon sink, by connecting network partners with diverse expertise to execute a coordinated strategy and action plans.

The Urgency of the Situation

Global CO₂ emissions are now at 37 billion tons per year and are rising toward levels that represent an existential threat. Buildings – their construction and operation – account for almost half of all greenhouse gas emissions (GHGs) in the United States, and approximately 40% of all global emissions. By 2050, over two trillion square feet of new construction and renovation will take place, and every new building is accompanied by a burst of CO₂ emissions from its construction and its construction materials. To avert climate disaster, as part of any global response to our climate challenge, we need to change how we conceive, design, construct, and operate buildings. This includes a more intense focus on embodied carbon emissions – emissions generated by the entire process of constructing and renovating buildings, including the materials with which they are built.



U.S. Energy Consumption by Sector

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Data Source: U.S. Energy Information Administration (2012).

What We Have to Achieve

We need to design and construct highly efficient new buildings, retrofit existing buildings, and use carbon as a significant material component in buildings. To do so requires a level of market transformation and system-wide collaboration beyond the capacity of any individual organization, business consortium, standards body, or policy maker. The solution requires a global collective impact initiative involving many partners, accelerating change in many different areas, from carbon analysis in buildings to supply chain evolution, and materials development to public policy, until building to store carbon becomes common practice worldwide.

Action Plans

The Carbon Leadership Forum worked with a team of over 30 building professionals to develop a set of comprehensive strategies to transform the industry:

1. **Launch the Carbon Smart Building Initiative to Accelerate Collective Impact.**
We'll make building projects that store carbon the industry standard, by connecting network partners with diverse expertise and shared passion to execute effective action plans.
2. **Secure Industry Commitments.**
We'll recruit leading companies, NGOs, and professional organizations to join the initiative, sharing information, tools, and action to transform the industry. Eight non-governmental organizations (NGOs) helped develop the overall plan (including the AIA, Architecture 2030, Athena Sustainable Materials Institute, Cradle2Cradle, Drawdown, the Ecological Building Network, the International Living Futures Institute, and the US Green Building Council).
3. **Improve Global Warming Potential (GWP) Analysis Methods and Tools.**
We'll make GWP analysis by building professionals accessible and credible at all stages of a project by developing a comprehensive, open-source Life Cycle Inventory (LCI) database to provide carbon footprint data for all high-impact building materials. We'll work with software companies to improve the tools used to design projects, manage project delivery and develop curricula to train professionals in conducting whole-building Life Cycle Assessment (LCA).
4. **Promote Lower-carbon Materials and Methods.**
We'll develop a Carbon Smart Materials Palette to create and maintain information about the relative embodied carbon impacts of high impact building materials and system designs, and to support and educate professionals in designing high-performance, carbon-storing projects.
5. **Promote Best Practices with Compelling Case Studies.**
We'll leverage and promote exemplary carbon-storing projects by creating a Low-Carbon Design Solutions case study development system, a Low-Carbon Design Solutions Library, and a Low Carbon Project Prize Competition.
6. **Develop Low-carbon Materials Supply Chains.**
We'll support industry-wide collaboration to achieve gigaton-scale storage of carbon in the built environment by re-engineering concrete, steel and other high-impact materials to be at least carbon-neutral, and ensuring structural wood comes from sustainably managed forests. We'll work for the overhaul of each material supply chain to make low-cost, high-performance low-carbon or carbon-storing options widely available.
7. **Engage State and Local Governments.**
We'll work with initiative partners (such as USGBC, AIA, Architecture 2030, etc.) to update LEED and model green building codes to address embodied carbon emissions in construction of new buildings and in retrofitting existing buildings, provide policymakers and technical staff in governments with analysis and language required to address embodied carbon emissions in current policies and new policies, and convene planners and policy makers from progressive state and local to create model legislation, codes, and material purchasing requirements.

Founding Partners

The Carbon Leadership Forum is currently engaged in recruiting Founding Partners, including leading corporations and NGOs in the building industry, to participate in designing, supporting and launching the Carbon Smart Building initiative in June 2018 at the annual convention of the American Institute of Architects.

This summary prepared for the Carbon Leadership Forum by Carbon Innovations.