THE ADVANCED BUILDING CONSTRUCTION
COLLABORATIVE

Buildings Sector Technology Innovation for Market Transformation

February 2022
Motivation: the buildings sector faces a confluence of critical challenges.

Catastrophic climate change is on the horizon; billion-dollar disasters increased 4X in the last 40 years.

A shortage of attainable housing is burdening millions of families and the economy; there is a deficit of 7M+ extremely low-income affordable housing units alone.

Labor productivity in construction has declined since 1968, in contrast to rising productivity in other sectors.
Advanced Building Construction (ABC) offers a powerful solution.

In short, ABC refers to retrofit and new construction solutions that combine:

- Energy-efficient building decarbonization
- Scalable, streamlined industrialized construction methods
Deep energy efficiency has substantial co-benefits.

- Reduced emissions
- Reduced maintenance
- Increased thermal and acoustic comfort
- Improved indoor air quality (with potential health benefits)
- Resilience, including passive survivability
Industrialized construction (IC) can help rapidly deploy energy-efficient, low-carbon buildings at scale.

- Only a small percentage of US construction uses industrialized approaches.

- Yet a large part of the $1.4T+ US market could incorporate IC methods, which can enable higher performance, faster deployment, reduced schedule risk, enhanced QC, and workforce benefits.

- IC can become a green jobs powerhouse and drive re-shoring of manufacturing.

But industry and the public sector must collaborate to achieve this!
**2050 Goal:** decarbonize the US building stock while improving affordability, resilience, and equity

### ABC Collaborative Mission

Bring together and catalyze constructive relationships among incumbent and emergent buildings sector actors to accelerate the scaling and mainstream adoption of ABC solutions while supporting—and leveraging—modernization of the US construction industry.

### 2030 Vision

#### Demand
- 3M+ net-zero carbon retrofits per year
- All new construction is net-zero carbon

#### Technology
- ABC is at least 25% of the market

#### Delivery
- Innovative business models, workforce training, and public sector/utility support unlock the market
The ABC Collaborative’s **core activities** incorporate and advance its **mission and strategic priorities**.
The **Market Scaling Engine** will help drive ABC transactions

<table>
<thead>
<tr>
<th>Demand-Side Services</th>
<th>Supply-Side Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Segments of Focus:</strong> MFH, SFH Portfolios, Hospitality</td>
<td><strong>Suppliers of Focus:</strong> Contractors, Manufacturers, Fabricators</td>
</tr>
<tr>
<td>• Portfolio-Wide Carbon Planning</td>
<td>• Product Certification</td>
</tr>
<tr>
<td>• Specify Products/Packages</td>
<td>• Risk Management</td>
</tr>
<tr>
<td>• Matchmaking</td>
<td>• Matchmaking</td>
</tr>
<tr>
<td>• ABC Demand-Side Investment Circle</td>
<td>• <strong>Technology Scaling Pipeline</strong></td>
</tr>
<tr>
<td>• Project Validation/Certification</td>
<td>• ABC Supply-Side Investment Circle</td>
</tr>
<tr>
<td></td>
<td>• Start-up formation</td>
</tr>
<tr>
<td></td>
<td>• Early-stage growth capital</td>
</tr>
<tr>
<td></td>
<td>• Corporate ventures</td>
</tr>
<tr>
<td></td>
<td>• Later stage growth capital</td>
</tr>
</tbody>
</table>

*Note: preliminary, subject to change*
The Collaborative supports technology scaling for ABC innovations.

Examples of ABC Start-Ups:

- **ICON**: 3D-printed housing enabled by robotics, software, and advanced materials.
- **Mighty Buildings**: 3D printing of high-quality, sustainable, modular homes using robotics and automation.
- **Dvele**: Efficient, high-quality, customizable prefabricated homes with a focus on healthy environments and resilience.
- **TimberHP by GO Lab**: Suite of carbon-sequestering wood-fiber insulation products.
- **CleanFiber**: Superior cellulose insulation made from recycling residuals.
- **Spray-R**: Cloud-enabled, automated robotic spray foam installation.
- **CarbonCure**: Solutions for manufacturing of sustainable concrete materials.
- **cocoon construct**: Retrofit envelope solutions including high performance façade panels, windows and HVAC for net-zero buildings.
- **Rheia**: Innovative HVAC distribution system with streamlined installation.
- **tkFabricate**: Integrated mechanical system equipment packages designed for streamlined retrofits of low and mid-rise multifamily buildings.
- **Hydronic Shell**: Innovative envelope-integrated HVAC system with superior comfort and undisruptive installation.
Working Groups provide a way to get involved in Collaborative activities.

The Collaborative Working Groups offer participants a range of topics and span a spectrum of approaches:

- **Participant-driven**
  - Integrated Systems and Manufacturing
    - Leads: MMC, Sto Corp., GAF
  - Codes, Permitting, Testing, and Accreditation
    - Lead: ICC
  - State Retrofit Programs
    - Lead: NASEO
  - Embodied Carbon
    - Lead: RMI

- **Collaborative-driven**
  - Workforce
    - Leads: RMI, NREL*, and Emerald Cities Collaborative*
  - Finance and Risk Management
    - Lead: RMI

Note: Working Groups subject to change

*Pending
Thank You!

advancedbuildingconstruction.org/contact