



## Press release

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### **Skanska USA Conceives Solution for Calculating Embodied Carbon in Construction Materials, Announces Transition to Open-Source Tool**

*Ground-breaking tool calculates carbon emissions embodied within building materials—democratizing data and providing transparency in pursuit of the Paris Climate Accord’s aggressive global carbon reduction targets*

**NEW YORK** — Skanska USA, alongside the Carbon Leadership Forum and partners in industry, today announced the creation of the Embodied Carbon in Construction Calculator (“EC3”) tool, a ground-breaking solution for calculating and evaluating the carbon emissions embodied within a wide array of building materials. The EC3 tool, which was initially conceived by Skanska and developed with C Change Labs, was jointly seed-funded by Skanska and Microsoft—who determined that a collaborative, open-source solution was the optimal path toward maximizing the impact of this groundbreaking tool in reducing global carbon emissions.

#### **The built environment’s embodied carbon challenge**

Two trillion square feet of buildings will be built or undergo a significant renovation between 2015 and 2050 worldwide, according to the independent non-profit Architecture 2030. Over the average 30-year lifecycle of a new building completed in 2019, roughly half of its carbon will come from embodied carbon—or the emissions associated with building construction, including extracting, transporting and manufacturing materials. Considering that materials used for construction are estimated to consume 75 percent of all new materials annually by volume, the case for reducing the carbon emissions embodied in building materials is clear.

Embodied carbon reduction is an imperative for Skanska in meeting its long-term carbon goals. Skanska is a signatory to the Paris Climate Accord which has set aggressive global emissions reductions. However, traditional assessments of a building’s emissions and life-cycle costs focus primarily on energy efficiency—or the operational carbon of a structure. Until now, due to lack of data or data too complex to evaluate, few tools or benchmarks were available to facilitate awareness of the embodied carbon opportunity—which is to reduce the carbon footprint of a structure even before it is made operational.

“It may not matter how efficiently we operate our buildings over time if we don’t immediately address the carbon embodied in what and how we build,” said Skanska USA Chief Sustainability Officer, Beth Heider, FAIA. “We have only a short time to actionably reduce carbon emissions as a society. With our benchmarking and the EC3 tool, we more fully understand the emissions footprint of how and what we build—and can chart an urgent course toward its reduction.”

## **Skanska: The EC3 tool initiator and co-creator**

Skanska USA's investment in addressing the embodied carbon challenge began in 2016, through its ongoing internal Innovation Grant program. Stacy Smedley, regional director of sustainability for Skanska's building operations based in Seattle, Washington, received funding to research and establish embodied carbon benchmarks in partnership with the University of Washington's Carbon Leadership Forum. These benchmarks set rough orders of magnitude around embodied carbon in building materials and verified the reduction challenge and opportunity.

Benchmarks in hand, Skanska partnered with software developer C Change Labs to develop a solution that would enable the building industry to easily access and view material carbon emissions data, allowing them to make carbon smart choices during material specifications and procurement. Initial development was jointly seed-funded by a second Skanska Innovation Grant, and by Microsoft, a Skanska client.

"At Skanska, we are proud to empower our people to address this need head-on, as in the case of Stacy Smedley as the initiator of the EC3 tool and the organization's relentless pursuit of this high-tech and low-carbon solution," said Heider.

In 2018, Skanska and the EC3 tool's co-creators determined that an open-source platform was the optimal path toward maximizing the impact of this groundbreaking tool in reducing global carbon emissions. To accelerate development of this solution, The Carbon Leadership Forum has and continues to incubate the project with strong leadership and financial support from the Charles Pankow Foundation, MKA Foundation, Autodesk, Interface and more than 30 other industry leaders.

"Until now, the building industry has not had a way to assess our supply chain through the lens of their carbon impact," said Smedley. "Not only does the EC3 tool leverage how we naturally plan and estimate our work, it allows us to build for a better society by empowering our industry to reduce its carbon footprint and create a more sustainable future."

## **Reducing carbon without increasing cost**

Announced today as a limited pilot, the EC3 tool is an open-source database of construction material information based on environmental product declaration (EPD) data, searchable by material performance requirements and design specifications; project location; and global warming potential. There are over 16,000 materials in the database, including concrete, steel and gypsum.

Using the EC3 tool, contractors, owners and designers can work together to examine data for common building materials and create an overall embodied carbon footprint for a project. This new method allows stakeholders throughout the entire construction ecosystem to understand the potential environmental impact of a project, which can lead to more informed decisions throughout the building process.

During the ongoing pilot period of the EC3 tool, participating development projects are realizing embodied carbon reductions of up to 30 percent. These emission reductions are achieved without significant additional financial impacts for piloting companies, and in most cases are cost neutral.

Visit [www.buildingtransparency.org](http://www.buildingtransparency.org) to pre-register for the tool's public release on November 19, 2019, during the Greenbuild International Conference and Expo in Atlanta, GA. Further information on the EC3 tool and the Carbon Leadership Forum is available at [www.carbonleadershipforum.org](http://www.carbonleadershipforum.org).

## **Skanska and sustainability**

Skanska is on the leading edge of green building practices, and the EC3 tool is the latest step in our sustainability journey.

Skanska is currently pioneering some of the most sustainable projects in the world, including The Kendeda Building for Innovative Sustainable Design—a project on the Georgia Institute of Technology’s Atlanta campus that is pursuing Living Building Challenge certification, the world’s most rigorous proven performance standard for buildings. The Kendeda Building includes a salvaged item for every 500 square meters of building GSF and will generate at least 105 percent of the energy that it uses. Skanska has participated in the construction of more Living Building-certified buildings than any other contractor.

Skanska has received prestigious sustainability recognitions from numerous organizations, including the Global Real Estate Sustainability Benchmark, which awarded the firm a top designation for the past two years. In 2019, Fortune featured Skanska in its annual “Change the World” list, citing the company’s work upholding “strict standards for environmental sustainability spelled out in the Paris Agreement climate accord.”

Please visit [usa.skanska.com/sustainability](https://usa.skanska.com/sustainability) for additional information on Skanska USA’s legacy and ongoing progress in building for a better society.

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*This and previous releases can also be found at [usa.skanska.com](https://usa.skanska.com)*

### **About Skanska**

Skanska is one of the world’s leading construction and development companies. In the U.S., Skanska’s core operations include building construction, civil infrastructure and developing self-financed commercial properties, which together generated \$8 billion in revenue in 2018. As a developer in the U.S., Skanska has invested a total of \$2.3 billion in commercial and multi-family projects. With U.S. headquarters in New York City, Skanska has offices in 28 metro areas with 9,000 employees nationwide. Skanska is an industry-leading innovator in both safety and project execution, and offers competitive solutions for both traditional and complex assignments to help build a more sustainable future for our customers and communities. Global revenue of parent company Skanska AB, headquartered in Stockholm and listed on the Stockholm Stock Exchange, totaled approximately \$20 billion in 2018.