



Carbon Analysis

Easier, faster end-to-end embodied carbon reporting for more sustainable infrastructure designs

From streamlining the end-to-end carbon reporting process, to offering new levels of data transparency within live design models, Bentley's web-based Carbon Analysis offers a suite of capabilities that make sustainability a more natural part of infrastructure design.

Using aggregated project data sourced inside or outside of Bentley applications, Carbon Analysis makes carbon reporting preparation faster and easier with functionality that includes auto-calculation of material volume and quantity data. With integrations with EC3 and One Click LCA, highly accurate carbon quantifications are generated with one click.

Beyond reporting, Carbon Analysis takes this data further by pulling the embodied carbon assessment data straight into the live design. Appearing as a simple, cloud-based heatmap within the 3D model, users can instantly see the impact that individual design elements have on their environmental footprint. Integrated workflows to optimize decarbonization are also built into the solution, rendering the process of making material changes—then seeing their impact in real time—a seamless part of the design and construct process.

AUTOMATED MATERIAL QUANTIFICATION AND GROUPING

Missing critical material data from your design files? Calculate quantity and volume data automatically within the solution to complete the data required for a carbon assessment. Gone are the days of approximations and estimates managed in spreadsheets. Capabilities to group materials are also included, adding to the ease of data preparation.

EASY REPORTING, EVERY TIME

Once data is prepared, all it takes is one click to generate a highly accurate embodied carbon assessment from lifecycle stages A1-A3 (product stage) through integrations with LCA calculators EC3 and One Click LCA. All data

is stored and saved through the lifetime of a design, so rerunning estimations becomes easier each time. Now, you have the data you need to make impactful changes before it's too late.

THE ITWIN® FOUNDATION

For many, siloed data has been the biggest obstacle in carbon estimation generation, requiring a highly manual end-to-end process that's time-consuming and costly. An iTwin is the open antidote to data silos, connecting data and people to enable the ongoing flow of design data using this infrastructure digital twin. An iTwin provides the unique ability to link all design data—regardless of source location or type (either generated with Bentley applications or third-party solutions)—and is central to enabling Carbon Analysis, from the highly simplified process of preparing and running carbon quantification to visualizing the embodied carbon in a 3D design.

CLOUD-BASED VISUALIZATION OF EMBODIED CARBON

Once a carbon assessment is generated, instantly see the A1-A3 embodied carbon as simple heat maps within individual design elements in the live 3D model. Changing materials in the design? Rerun carbon estimations with one click for up-to-the-minute embodied carbon visualization, then see the impact of those changes immediately. With the ability to explore more alternatives in design—and materials—without the risk of manual error-prone calculations, users can create more sustainable, higher-quality designs in less time.

INTEGRATED DESIGN WORKFLOWS

With Carbon Analysis, integrated workflows facilitate making improvements and optimizations for sustainability. Coupled with the ease of continuous reporting and ongoing carbon visualization, it's now possible to make impactful changes at any point in the design process.

SYSTEM REQUIREMENTS

MINIMUM: Intel or AMD 64-bit processor 1.0 GHz or greater, 2 GB memory, Intel HD Graphics 520 video.

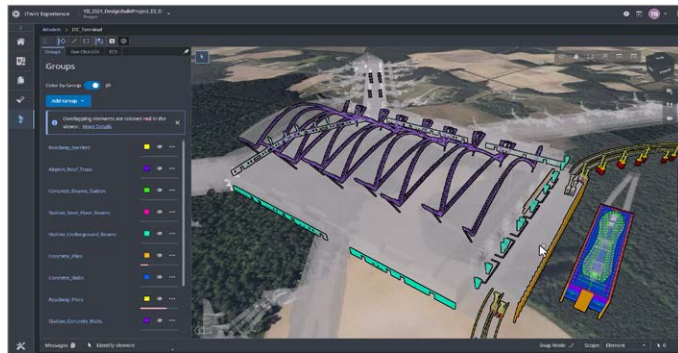
RECOMMENDED: Intel or AMD 64-bit processor 2.8 GHz or greater, 8 GB or more memory for improved performance for larger models, dedicated graphics card with minimum of 2 GB VRAM or more.

BROWSER COMPATIBILITY: Chrome, Firefox, Safari, Opera, or Edge.

Carbon Analysis At-a-glance

EMBODIED CARBON REPORTING

- ♦ Workflows to support embodied carbon assessment in lifecycle stages A1-A3 of infrastructure design projects
- ♦ Simplified grouping of common components for carbon reporting
- ♦ Configured element properties with seamless and automated material quantity and volume calculations
- ♦ Automated accounting creation based on configured groups and calculated properties
- ♦ Integrations with EC3 and One Click LCA



Embodied carbon grouping functionality

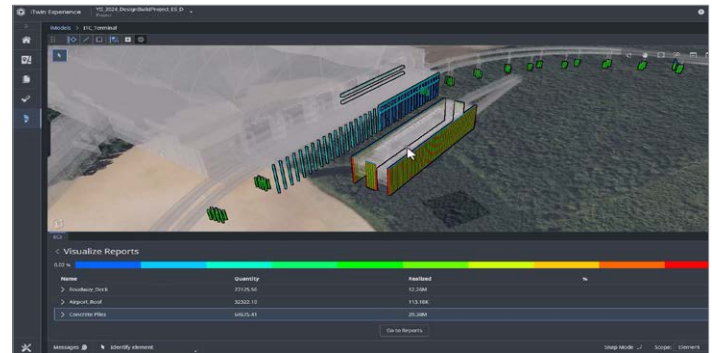
EMBODIED CARBON VISUALIZATION

- ♦ Web-based visualization of iTwins
- ♦ Heatmap visualization of EC3 carbon assessment within the iTwin

ITWIN FUNCTIONALITY

- ♦ Creation and management of iTwins within Bentley Infrastructure Cloud™
- ♦ Upload of BIM data from data sources inside and outside of Bentley, including independent software vendors, into iTwins

Carbon Analysis is a capability of iTwin Experience.



Embodied carbon in airport design