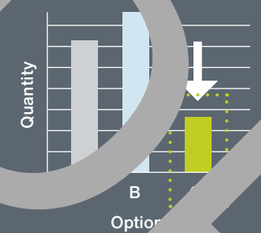
Carbon Reduction Strategies

Reducing the embodied carbon in our buildings can be done in several ways when incorporated into the decision-making process starting in design and extending through procurement and construction. The strategies to reduce embodied carbon can largely be summarized as follows:

USE LESS MATERIAL

Consider effect on total amount of material used in design decisions.

Example considerations:
- » Building shape
- » Floor-to-floor height
- » Column spacing
- » Architectural finishes vs exposed structure
- » Basement vs podium parking
- » System selection



SPECIFY LOWER CARBON PRODUCTS

Specify and select materials considering their embodied carbon.

Example considerations:
- » Concrete strength and steel grade
- » Envelope system components
- » Architectural finishes
- » Renewable products where possible

BUY LOWER CARBON PRODUCTS

Compete prospective suppliers to drive down embodied carbon and cost.

Example considerations:
- » Include embodied carbon in bid selection criteria
- » Require submission of EPDs
- » Review supplier-specific embodied carbon factors, such as manufacturing source (domestic vs international)
- » Encourage supplier collaboration in embodied carbon reduction efforts

Carbon Reduction Responsibilities

The process outlined in the Hines Embodied Carbon Reduction Guide involves contributions from the Hines Team, Design Team, and Contractor in order to achieve as much reduction as possible.

Hines

- Select Design Team with embodied carbon reduction experience, particularly the architect and structural engineer
- Distribute project-specific Owner Project Requirements (OPR) template, including embodied carbon reduction strategies, for consideration and discussion with design team
- Assist design team to Identify Baseline at Sche[illegible]Design using th[illegible]P B[illegible]ines Values [illegible]endix as a[illegible]t of [illegible]omparison throu[illegible] design and co[illegible]uction process
- Select G[illegible]ral Contractor and material bidders willing to assist in embodied carbon reduction

DESIGN TEAM

- Select Materials and Systems, Optimize Layout and Set Design Criteria with consideration of embodied carbon reduction and input from Hines
- Use material quantities and embodied carbon estimates to Identify Baseline
- Summarize material quantities and embodied carbon estimates at project milestones to monitor throughout design phases
- Implement Material-Specific Reduction Strategies to lower embodied carbon throughout design phases
- Include submission of [illegible]ill of Materials and [illegible]e III EPDs in project Sp[illegible]ifications
- Provide As-Designed Embodied Carbon Summary at completion of design using industry-average EPDs for comparison in Hines Embodied Carbon Database

GENERAL CONTRACTOR

- Implement Construction Stage Reduction strategies in transportation and construction activities
- Lead in Material Bidder Selection, including soliciting Base Bids and Alternate Voluntary Bids, for greater embodied carbon reduction and advise Hines on cost and schedule impacts
- Reconcile material quantities and embodied carbon estimates with design team
- Provide As-Built Embodied Carbon Summary with final Bill of Materials and Type III EPDs at project completion for the Hines Embodied Carbon Database