



City of Newton, Massachusetts Climate and Sustainability Team



MEMORANDUM

Date: April 7, 2022

To: Councilor Deborah Crossley, Chair, Zoning & Planning Committee
Members of the Zoning & Planning Committee

From: The Climate & Sustainability Team

RE: Embodied Carbon

CC: Member of the Embodied Carbon Working Group
Zachery LeMel, Chief of Long Range Planning
Cat Kemmet, Planning Associate
Jennifer Caira, Deputy Director

Councilor Crossley has docketed an item to amend Section 5.13 of the Zoning Ordinance to regulate embodied carbon. This item is up for initial discussion at the ZAP meeting on April 11. The docket item allows for use of this same item for future ordinance change to require reporting and reduction of embodied carbon, however this first ZAP meeting will be used just to give an “embodied carbon 101” presentation. After initial discussion, feedback and questions, draft ordinance language could be proposed at a future ZAP meeting.

Newton’s Zoning Ordinance currently includes sustainable development requirements for new construction and substantial reconstruction >20,000 sq ft. (section 5.13). Three of the requirements (section 5.13.4), one of which is embodied carbon, are currently listed as reserved.

Since last fall, a working group of three Newton residents with embodied carbon industry experience has been meeting with City staff from the Climate and Sustainability Team and the Planning Department to figure out how we could fill in this reserved section, to regulate embodied carbon only for large buildings subject to the Sustainable Development Design requirements.

Embodied carbon is the sum of greenhouse gas emissions associated with raw material extraction, manufacturing, and transportation for materials production and the emissions associated with the construction, maintenance, renovation, and end-of-life of buildings. Embodied carbon is estimated to account for over 11% of total global greenhouse gas (GHG) emissions. As buildings become more efficient in their operations, embodied carbon becomes

an even larger portion of building emissions: in high-performance buildings, 50% of the building's emissions in the first 10 years are estimated to be from embodied carbon.

Regulation of embodied carbon could be implemented through a variety of reporting and/or reduction requirements. For reporting, embodied carbon calculations and reporting can be done through a variety of software programs, many of which are already in use by architects and sustainability consultants. Reporting requirements are thought to have minimal costs. For reducing, materials with lower embodied carbon are also available at similar price points to standard materials. More information on costs and materials will be provided in the 101 presentation.

The current thinking of the working group is that any required embodied carbon analysis, reduction, and verification of steps taken would be the responsibility of the project development team, so as to not add review responsibilities to City staff other than to confirm that such a verification has been submitted.

In addition to giving an embodied carbon 101 presentation to ZAP, the embodied carbon working group and Climate and Sustainability Team plan to give similar presentations to the EDC and the Chamber's Real Estate group. After hearing feedback and questions from these organizations, the working group, Climate and Sustainability Team, and Planning Department will be in a position to provide draft ordinance language for ZAP to consider.