



## Civil/Structural Engineers

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# SE2050 Commitment Embodied Carbon Action Plan (ECAP)

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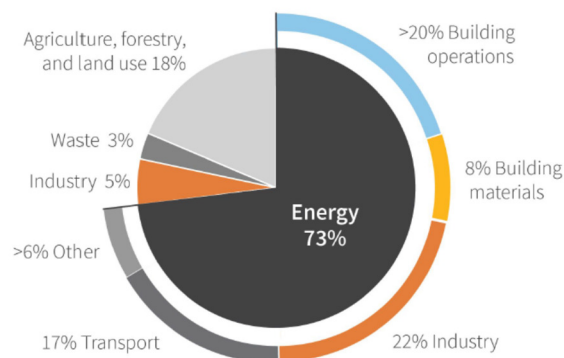
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## 1 Introduction

McNicolls And Associates Ltd (MAAL) is a Civil and Structural Engineering company based in the twin islands of Trinidad and Tobago, in the Caribbean. In the fight against climate change, efforts are intensifying against the planet's number one enemy – carbon dioxide. MAAL has committed to doing our part in the fight against climate change and is demonstrating leadership in the Caribbean region by signing onto the SE2050 challenge and committing to implement business practices which can help in the global reduction of carbon emissions.

Research has demonstrated and proved that the Caribbean nations are most vulnerable to the negative effects of climate change via a small percentage of global ocean warming. It is in this regard, the directorship of MAAL has decided to transform the company's ways of working so to do our part in the fight against climate change.

Embodied carbon refers to the greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials. Embodied carbon is a significant percentage of global emissions and requires urgent action to address it. Approximately 30% of all global carbon emissions are attributed to the building sector, with at least 8% resulting from the manufacturing of construction materials. Figure 1-1 below illustrates the global CO<sub>2</sub> emissions contributors by sectors.



**Figure 1-1:** <sup>1</sup>Global CO<sub>2</sub> emissions by sector. Adopted from the UNEP 219 Global Status Report and OurWorldinData.org based on data from Climate Watch, the World Resources Institute.

The Embodied Carbon that comes from extraction, transportation and manufacturing of raw building materials is a significant part of a building's life cycle and managing this emission contributor will have a significant impact on the global emission factor.

This Embodied Carbon Action Plan (ECAP) has been compiled in accordance with the SE2050 guidance. It has been written in checklist form with all requirements/electives outlined from the Program Requirements Guidance Document. This document will be updated annually to reflect targets achieved, changes to plans and lessons learned. This version is the first and as such some of the requirements have not yet been met. It is our intention to meet these all within the year 2022.

<sup>1</sup> <https://carbonleadershipforum.org/wp-content/uploads/2020/12/CLF-Policy-Primer-1-Fig-3-Global-CO2-emissions-by-sector-980x695.png>

## 2 Education Plan

SE 2050 Requirement	MAAL Action Plan	Date Achieved/ Planned Date
Distribute firm-wide announcement of your firm's pledge to join the SE 2050 Commitment.	The managing director will issue a bulletin to clients, contractors and employees highlighting MAAL's commitment to carbon reduction and SE2050	Q1-2022
Nominate an Embodied Carbon Reduction Champion for your firm.	The Managing Director, Tonee McNicolls is nominated as MAAL's EC Reduction champion	Q4-2021
Set a date within the first year to present the "Embodied Carbon 101" webinar to your firm. Include this resource into your orientation/on boarding programs.	The webinar will also be added to the on boarding activities for new personnel.	Feb 2022
<b>Education Elective</b>		
Distribute ECAP within your firm upon publishing.	To be distributed on completion and publishing on SE2050 website	Q1-2022
Share the SE2050 library of resources with technical staff.	The SE2050 website and resources are shared on internal intranet	Jan 2022
Minimum (1) employee attends a presentation or demo of an LCA-based tool used to calculate embodied carbon, such as Tally, Athena IEB, or One Click LCA.	Tonee McNicolls will attend the next available presentation	Q1-2022
Acquire and Present the document, "How to calculate embodied carbon" to all technical staff.	Document acquired.	Jan 2022
Have one representative of your firm (any employee) attend quarterly external education programs (e.g. webinar, workshop) provided by SE 2050, Carbon Leadership Forum (CLF), or other embodied carbon resources.	Tonee McNicolls will attend initial quarterly CLF education programs	Q1-2022

### 3 Reporting Plan

SE 2050 Requirement	MAAL Action Plan	Date Achieved/ Planned Date
Provide a narrative on how your firm plans to measure, track, and report embodied carbon.	Ongoing	April 2022
Describe the internal training for embodied carbon measurement you provided or will provide.	Ongoing. Education on EC measurement and reporting is currently ongoing. MAAL is developing a policy to include EC measurements as a project deliverable on all projects.	June 2022
<b>Reporting Elective</b>		
Submit a minimum of (2) projects with structural engineering services to the SE 2050 Database.	MAAL will submit data on selected projects	Q4- 2022
For a project submitted to the database, ask the Architect or Owner if the project has a carbon budget or if there are established project sustainability goals at the project kick-off meeting.	MAAL will incorporate this on the Conceptual Design checklist so to ascertain early in the project.	Ongoing

#### 4 Embodied Carbon Reduction Strategies

SE 2050 Requirement	MAAL Action Plan	Date Achieved/ Planned Date
Begin to track and record embodied carbon on all projects so to develop the firms baseline for Embodied Carbon reduction measurement.	MAAL is developing a EC measurement and tracking policy for all projects	ongoing
Set an embodied carbon reduction goal for the coming year and an implementation narrative. Qualitative goals focused on education are appropriate for the first year.	Following completion of ECAP, MAAL will set EC reduction goals for 2022.	Mar 2022
For second year's ECAP and beyond, provide a narrative about lessons learned about embodied carbon reduction in the past year. Describe successes and misses to help the program improve.		Q4-2023
<b>Reduction Elective</b>		
Create a project-specific embodied carbon reduction plan	To be implemented on at least one(1) design and build projects in 2022	Q3- 2022
Complete an embodied carbon comparison study during the project concept phase.	To be implemented on at least one(1) design projects in 2022	Q4- 2022
Collaborate with your concrete supplier to reduce embodied carbon in a mix design.	Preliminary discussions have been held Q1-2022	Q4-2022
Work with a contractor during material procurement to meet an embodied carbon performance criteria on at least (1) project.	To be implemented on at least one(1) design and build projects in 2022	Q3- 2022

## 5 Advocacy

SE 2050 Requirement	MAAL Action Plan	Date Achieved/ Planned Date
Describe the value of SE 2050 to clients. How can your design teams collaborate to reduce embodied carbon? Please attach any associated marketing materials	Ongoing	Q4-2022
Declare your firm as a member of the SE 2050 Commitment with boilerplate proposal language.	Ongoing. This will be included in all MAAL's proposals for work and company marketing brochure	Q4-2022
Share your commitment to SE 2050 on your company website	Ongoing. Website update scheduled for Q3 2022	Q3-2022
Share education opportunities with clients	Ongoing	Q4-2022
Start an embodied carbon community of practice or mentorship program in your office.	Ongoing	Q4-2022