



Fabrication's role in a world in emergency: reducing environmental impact by collaboration

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Abstract

The influence that engineers and designers have on improving the sustainability outcomes of construction projects is well documented, but less focus has been given to those further down the supply chain. Whilst the biggest impact on out-turn embodied carbon can be made at the conceptual and project definition stage, it should not be ignored that there is room for improvements throughout the project cycle. Projects are often passed to fabricators as a completed package: fully detailed with no room for influence and improvement by those making the object.

This paper will examine the benefits that can be extracted by the inclusion of makers and fabricators within the design process, and how that closer collaboration can assist in improving the project against a series of performance and sustainability markers.

Keywords: Design; Fabrication; Collaboration; Sustainability.

1 Introduction

While collaborative approaches to design and construction have improved since the processes described in the major reports by Latham (1994) [1] and Egan (1999) [2], the immediacy of the climate emergency requires redoubled efforts across the industry.

Efforts to reduce the overall embodied carbon usage within a project have become mainstream over the last five years [3,4] for the primary design team. However, extending this through to the rest of the supply chain is not a subject that has been significantly explored. Some fabricators and suppliers are engaged in the behaviours that are necessary to address our influence on the climate emergency and would value the opportunity to offer additional improvements to an engaged design team.

This paper reflects the experience of a small fabricator focused on complex and intricate work. Different drivers may apply to larger or more production-oriented fabricators. By looking at recent examples the paper aims to highlight areas of improvement that could be made and also misconceptions that might occur in the early embodied carbon calculation process. It is expected that the general principles that can be drawn from these examples can be extrapolated to larger projects.

2 Cost does not equal carbon

The vast majority of fabrication contracts are let to the lowest cost tenderer. Whilst some consideration is made to baseline quality requirements, the consideration of carbon has never (in our experience) been a criterion for selecting a fabricator. Alternative, fabricator