



ENVIRONMENTAL IMPACT REPORT

OUR SERVICES

Furness Partnership



OUR COMMITMENTS

At Furness Partnership, we are committed to addressing and drastically reducing our environmental impacts, at home and within our industry.

We understand that as structural engineers we have a huge responsibility to mitigate carbon emissions within the built environment. We have therefore assessed the embodied carbon in our structural designs and set ambitious targets for reduction.

This report sets out our learnings and targets so far.



Mike Furness
Director
Katy Gunter
Sustainability Lead



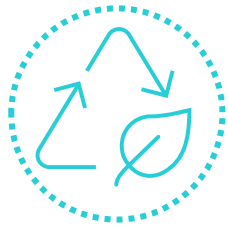


OUR TARGETS



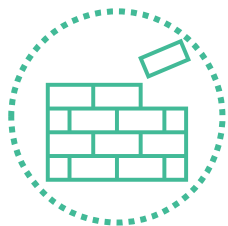
Raise Awareness of Embodied Carbon in Structures

Having incorporated embodied carbon calculations as a basic scope of our work, we endeavor to share our learnings and raise awareness of carbon mitigation measures amongst clients.



Reduce the Embodied Carbon in all Projects by 10% YoY

By quantifying our emissions, we can target impact areas for effective reduction and continuous improvement.



Achieve the LETI Average Design Target of A by 2030

Following effective reduction techniques, we will be on track to improving our performance to industry targets by 2030.



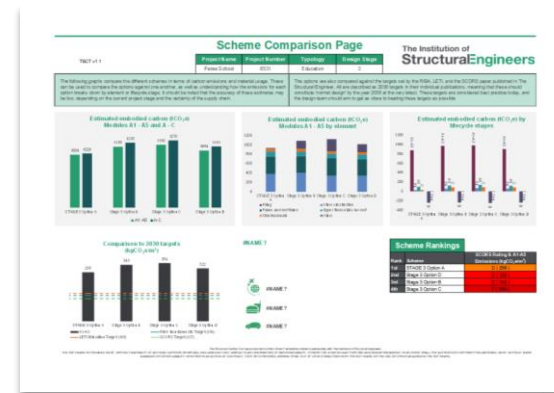


MEASURING OUR IMPACT

We have applied the IStructE calculating carbon principles to a range of recent projects across varying typologies to understand our baseline performance and set targets for future improvement.

With this information, we provide insights and calculations on embodied carbon across all projects as a basic scope of work. This allows us to identify high environmental impact areas in our designs and advise clients on quantified mitigation measures.

Our engineers are experts in refurbishment, repair and low carbon material design, and use these metrics to create the most optimum efficiency in their designs.



1 Sustainability

1.1 Our Policy and Targets

At Furness Partnership we strive to deliver sustainable solutions guided by our values as well as environmental, social and financial responsibilities. We maintain an Environmental Management System that is externally certified to ISO14001 standards and audited regularly to ensure commitment to the cause.

We have formally declared climate and biodiversity emergency and thus, as structural engineers, we have a responsibility to enable informed decision making towards design solutions that mitigate the negative environmental impacts of construction. This can be done by measuring the upfront embodied carbon equivalents emitted through material production and construction of our building structures, which typically accounts for 50-60% of the whole building embodied carbon cost. We are also committed to the following:

- Consider sustainability at the forefront of all projects, advocating for climate mitigation principles as a key measure of success.
- Improve resource efficiency, sustainable consumption, and production, throughout the whole supply chain from design through to completion.
- Include embodied carbon modelling as a basic scope of work, to enable the reduction of embodied carbon
- Accelerate the shift to low carbon materials in all our work.
- Encourage ideas, innovation and knowledge exchange internally and with our partners, that can create carbon and financial savings and benefit our customers, society and environment.

1.2 Embodied Carbon Ratings

1.2.1 Structural carbon reporting

For the carbon assessment of this project the carbon calculator tool provided by IStructE and EWPL has been used. The principles provided by the IStructE publication 'How to Calculate 'SCORS' rating for the scheme based on A1-A5 emissions (ex-structure and substructure, for upfront emissions and divided by the

Scheme name: STAGE3 Option A

Item	Material Type	Material Description	Material Volume	Description	Volume (m ³)	Weight (kg)	Embodied Carbon (kgCO ₂ e)	Embodied Carbon (tCO ₂ e)	Embodied Carbon (kgCO ₂ e/m ²)	Embodied Carbon (tCO ₂ e/m ²)	Embodied Carbon (kgCO ₂ e/m ²)	Embodied Carbon (tCO ₂ e/m ²)	Embodied Carbon (kgCO ₂ e/m ²)	Embodied Carbon (tCO ₂ e/m ²)	Embodied Carbon (kgCO ₂ e/m ²)	Embodied Carbon (tCO ₂ e/m ²)	
Concrete	Concrete	Concrete	1.1	Concrete	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Steel	Steel	Steel	2.1	Steel	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
Brick	Brick	Brick	3.1	Brick	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	
Timber	Timber	Timber	4.1	Timber	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
Other	Other	Other	5.1	Other	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	
Total																	

Embodied Carbon Summary

Embodied Carbon (tCO₂e): 156

Embodied Carbon (kgCO₂e/m²): 156

Embodied Carbon (tCO₂e/m²): 156

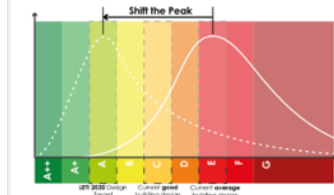
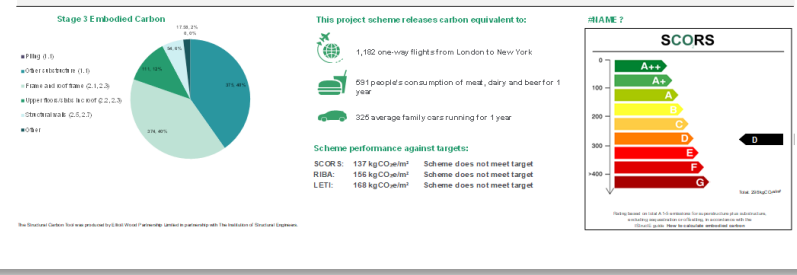


Fig. 2. Industry standards (LEI, 2020) illustration of current building embodied carbon averages and target alignment

OUR PERFORMANCE



We have calculated the embodied carbon on a range of projects over the last 5 years and benchmarked our performance against industry averages and targets using data published by IStructE (2020).

Due to our large proportion of refurb, we have a good quantity of A and above ratings, but still have room for improvement across all projects, especially new builds.

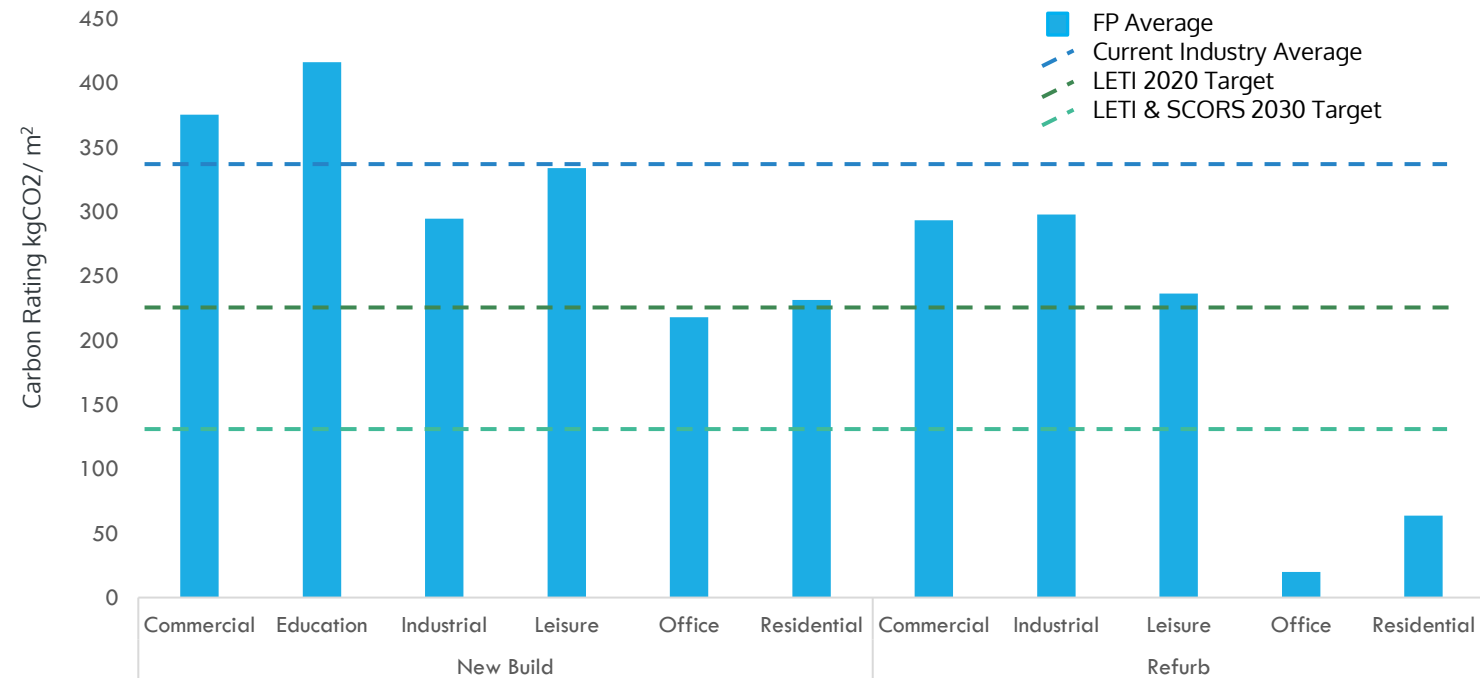
Currently good performance is considered a C, with average projects sitting between G and E. In order to shift the peak towards lower embodied carbon we must reconsider the resources used in all projects and embrace lean design principles where new construction is unavoidable.

The projects in this data set were selected at random from the last 5 years. It is unavoidable that there will be variations to true averages but provides a good benchmark to work from.

References:

Arnold, W., Cook, M., Cox, D., Gibbons, O., & Orr, J. (2020). Setting carbon targets: An introduction to the proposed SCOR scheme. *IStructE*.

Embodied Carbon by Project Type (2016-2021)



AWARDED FOR SUSTAINABILITY



IstructE David Alsop Sustainability Award
Visitors Centre
at Waters Edge Country Park

BCIA Awards- Small Building of the Year
Dunraven School Sports Hall commended for the reuse of
shipping containers





THE IMPORTANCE OF RETROFITS

At Furness Partnership we have developed extensive knowledge in the restoration of historic and listed buildings, which is key in the ultimate endeavour to reduce embodied carbon in construction.

Working closely with Historic England, we have developed many specialist repair and strengthening techniques that are both sympathetic to the existing structure, whilst providing the client with the longevity and serviceability required to conserve the existing built environment.

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