Greater London Authority - Whole Life-Cycle Carbon (WLC) Assessment template

HOW TO USE THIS SPREADSHEET

This template should be used by planning applicants to fulfil the requirements of the Mayor's Whole Life-Cycle Carbon assessment policy set out in London Plan Policy SI 2. Before completing and submitting this spreadsheet to the GLA, applicants should read the Whole Life-Cycle Carbon Assessment guidance:
https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/planning-guidance/whole-life-cycle-carbon-assessments-guidance-pre-consultation-draft

Applicants are required to submit WLC information to the GLA at the following three stages: pre-application, outline/detailed planning submission and post-construction. Separate tabs are provided in this spreadsheet for each stage. An outline of the information required at each stage and how to submit it is provided below.

1. Pre-application stage

At pre-application stage, applicants are required to complete the pre-application information tab of this template which requires applicants to confirm various details about the site and to provide details of the WLC principles which are informing the development of the site. This should be submitted to the GLA along with all other pre-application material.

2. Outline/detailed planning submission stage

At this stage, applicants are required to complete the outline or detailed planning stage tab of this template (whichever is relevant) and submit it to the GLA along with their planning application. This stage of the process requires a baseline WLC assessment against each life-cycle module to be undertaken. At outline stage this can be based on default figures from the RICS Professional Statement: Whole Life Carbon assessment for the built environment. At detailed stage this should be based on bespoke building assumptions. Applicants are required to undertake two assessments; the first accounts for the current status of the electricity grid and the second accounts for its expected decarbonisation. Applicants may determine which assessment is to form the basis of design decisions (which should be confirmed in the relevant cell) but both assessments should be completed. This spreadsheet allows for both assessments to be provided.

3. Post-construction stage

At the final stage of the WLC assessment process, applicants should complete the post-construction result tab of this template and submit it to the GLA within three months of practical completion. This will require an update of the information provided at planning submission stage and for the actual WLC carbon emission figures to be reported using actual material quantities and site emissions during construction. Information should be submitted to:

ZeroCarbonPlanning@london.gov.uk

QUERIES

Any queries or feedback on this template should be submitted to:
ZeroCarbonPlanning@london.gov.uk

Project details	
Project name	
Planning application reference number (if applicable)	
Use Type	
Brief description of the project	
GIA (m^2)	
Authors (organisation or individuals)	
Date of assessment	

	WLC reduction principles	Key benefits	Has this principle been adopted? (Y/N)	If yes provide examples, and if no please provide reasons for this
1	Reuse and retrofit of existing buildings	Significant retention and reuse of structures is carbon efficient and reduces construction costs.		
2	Use recycled or repurposed material	Reduces carbon emissions and reduces waste.		
3	Material selection	Appropriate material choices is key to carbon reduction. Ensuring that there is synchronicity between materials selected and planned life expectancy of the building reduces waste and the need for replacement, thus reducing in use costs.		
4	Minimise operational energy use	A 'fabric first' approach should be prioritised to minimise energy demand and reduce carbon and in-use costs.		
5	Minimise operational water use	Choice of materials and durability of systems, to avoid leakage and subsequent building damage, contribute to reducing the carbon cost of water use.		
6	Disassembly and reuse	Designing for future disassembly ensures that products do not become future waste, and maintain their environmental and economic value.		
7	Building shape and form	Compact efficient shapes help minimise both operational and embodied carbon emissions for a given floor area. This means a more efficient building overall resulting in lower construction and in use costs.		
8	Regenerative design	Removing CO_2 from the atmosphere through materials and systems absorbing it makes a direct positive contribution to carbon reduction.		
9	Designing for durability and flexibility	Durability means that repair and replacement is reduced which in turn helps reduce life-time building costs. A building designed for flexibility can respond with minimum environmental impact to future changing requirements and a changing climate, thus avoiding obsolescence which also underwrites future building value.		
10	Optimisation of the relationship between operational and embodied carbon	Optimising the operational/embodied carbon relationship contributes directly to resource efficiency and overall cost reduction.		
11	Building life expectancy	Defining building life expectancy gives guidance to project teams as to the most efficient choices for materials and products. This aids overall resource efficiency, including cost efficiency and helps future proof asset value.		
12	Local sourcing	Sourcing local materials reduces transport distances and supply chain lengths and has associated local social and economic benefits.		
13	Minimising waste	Waste represents an unnecessary and avoidable carbon cost. Buildings should be designed to minimise fabrication and construction waste, and to ease repair and replacement with minimum waste, which helps reduce initial and in-use costs.		
14	Efficient fabrication	Efficient construction methods (e.g. modular systems, precision manufacturing and modern methods of construction) contribute to better build quality, reduce construction phase waste and reduce the need for repairs during post completion and the defects period (snagging).		
15	Lightweight construction	Lightweight construction uses less material which reduces the carbon footprint of the building as there is less material to source, fabricate and deliver to site.		
16	Circular economy	The circular economy principle focusses on a more efficient use of materials which in turn leads to carbon and financial efficiencies.		

Project details	
[illegible]	[illegible]
[illegible]	[illegible]
Brief description of the project	Residential-led redevelopment to provide 453 residential units (of which 173 units will be affordable), flexible retail, community and office uses
GIA (m²)	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Reference study period (if not 60 years)	60 years
Software tool used	OneClickLCA - Carbon assessment, RICS Tool
[illegible]	[illegible]
[illegible]	[illegible]

Estimated WLC emissions (Assessment 1)
N.B. This forms the WLC baseline for the development. The results from Assessment 1 below are automatically populated here.

	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO₂e	22,638,397 kg CO2e	26,904,433 kg CO2e	30,436,595 kg CO2e	870,752 kg CO2e	-4,907,302 kg CO2e
TOTAL kg CO₂e/m² GIA	574.9580282	683.304543	773.0125176	22.11489193	-124.6330573
Comparison with WLC benchmarks (see Appendix 2 of the guidance) if Assessment 1 was used to inform design decisions	[Explain the reasons for any divergences from WLC benchmarks, including against the WLC aspirational benchmarks]				

Estimated WLC emissions (Assessment 2)
N.B. The results from Assessment 2 below are automatically populated here.

	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO₂e	22,638,397 kg CO2e	26,904,433 kg CO2e	9,018,164 kg CO2e	870,752 kg CO2e	############
TOTAL kg CO₂e/m² GIA	574.9580282	683.304543	229.0385577	22.11489193	-124.6330573
Comparison with WLC benchmarks (see Appendix 2 of the guidance) if Assessment 2 was used to inform design decisions	[Explain the reasons for any divergences from WLC benchmarks, including against the WLC aspirational benchmarks. Please note that grid decarbonisation has not been accounted for in the benchmarks]				

Key site opportunities and constraints in reducing WLC emissions	

Summary of key actions to reduce whole life-cycle carbon emissions that have informed this assessment, including the WLC reductions	Action	WLC reduction (kg CO₂e/m² GIA)
	Electrically powered and efficient heat pump energy strategy, maximising benefit of decarbonising national grid	

Specify further opportunities to reduce the development's whole life-cycle carbon emissions, including the WLC reduction potential	Further potential opportunities	WLC reduction potential (kg CO₂e/m² GIA)

MATERIAL QUANTITY AND END OF LIFE SCENARIOS		Product and Construction Stage (Module A)		Assumptions made with respect to maintenance, repair and replacement cycles (Module B)	Material 'end of life' scenarios (Module C)	Benefits and loads beyond the system boundary (Module D)	
Building element category		Material type	Material quantity (kg)			Estimated reusable materials (kg)	Estimated recyclable materials (kg)
Note/example		Breakdown of material type in each category [Insert more lines if needed]	65000 kg	For all primary building systems (structure, substructure, envelope, MEP services, internal finishes)	Declare 'end of life' scenario as per project's Circular Economy Statement	0 kg	25 kg
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment						
0.2	Major Demolition Works						
0.3	Temporary Support to Adjacent Structures						
0.4	Specialist Ground Works						
0.5	Temporary/Diversion Works						
1	Substructure						
2.1	Superstructure: Frame						
2.2	Superstructure: Upper Floors						
2.3	Superstructure: Roof						
2.4	Superstructure: Stairs and Ramps						
2.5	Superstructure: External Walls						
2.6	Superstructure: Windows and External Doors						
2.7	Superstructure: Internal Walls and Partitions						
2.8	Superstructure: Internal Doors						
3	Finishes						
4	Fittings, furnishings & equipment (FFE)						
5	Services (MEP)						
6	Prefabricated Buildings and Building Units						
7	Work to Existing Building						
8	External works						
	TOTAL	0 kg				0 kg	0 kg
	Material intensity (kg/m2 GIA)	0 kg/m2 GIA				0 kg/m2 GIA	0 kg/m2 GIA

Confirm here whether Assessment 1 or Assessment 2 (see below) is to form the basis of design decisions	[illegible]

ASSESSMENT 1 - current status of the electricity grid

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES* (kgCO2e)		Sequestered (or biogenic) carbon (negative value) (kgCO2e)	Product stage (kgCO2e)	Construction process stage (kgCO2e)		Use stage (kgCO2e)								End of Life (EoL) stage (kgCO2e)				TOTAL Modules A-C kgCO₂e	Benefits and loads beyond the system boundary (kgCO2e)
			Module A			Module B								Module C					Module D*
Building element category			[A1] to [A3]	[A4]²	[A5]	[B1]	[B2]*	[B3]*	[B4]*	[B5]*	[B6]		[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.2	Major Demolition Works													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.3	Temporary Support to Adjacent Structures	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.4	Specialist Ground Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.5	Temporary/Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
1	Substructure	0 kg CO2e	3,284,082 kg CO2e	50,169 kg CO2e	1,193,045 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	128,021 kg CO2e	0 kg CO2e				73,588 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-739,101 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	1,058,284 kg CO2e	41,382 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				58,569 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-991,158 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	3,035,261 kg CO2e	165,282 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,635 kg CO2e	0 kg CO2e				237,146 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	917,229 kg CO2e	29,871 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	46,093 kg CO2e	0 kg CO2e				64,775 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	199,093 kg CO2e	10,983 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				15,717 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	225,794 kg CO2e	0 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	849,125 kg CO2e	7,295 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	90,644 kg CO2e	0 kg CO2e				13,893 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	959,956 kg CO2e	-826,177 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	661,306 kg CO2e	787 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	672,148 kg CO2e	0 kg CO2e				127 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-281,841 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	976,676 kg CO2e	4,981 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	427,291 kg CO2e	0 kg CO2e				53,831 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
2.8	Superstructure: Internal Doors	0 kg CO2e	568,109 kg CO2e	1,844 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,136,219 kg CO2e	0 kg CO2e				46,505 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
3	Finishes	0 kg CO2e	695,034 kg CO2e	3,222 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,115,487 kg CO2e	0 kg CO2e				53,454 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-236,430 kg CO2e
4	Fittings, furnishings & equipment	0 kg CO2e	85,600 kg CO2e	193 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	85,600 kg CO2e	0 kg CO2e				1,697 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	173,090 kg CO2e	-7,922 kg CO2e
5	Services (MEP)	0 kg CO2e	5,661,668 kg CO2e	10,344 kg CO2e	0 kg CO2e	9,327,177 kg CO2e	0 kg CO2e	0 kg CO2e	13,809,220 kg CO2e	0 kg CO2e	15,101,785 kg CO2e	13,169,516 kg CO2e	2,165,294 kg CO2e	256,708 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-1,008,646 kg CO2e
6	Prefabricated Buildings and Building Units	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
7	Work to Existing Building	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	External works	0 kg CO2e	3,111,415 kg CO2e	27,155 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	63,899 kg CO2e	0 kg CO2e				13,741 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-806,027 kg CO2e
	TOTAL kg CO2e	0 kg CO2e	21,081,844 kg CO2e	363,509 kg CO2e	1,193,045 kg CO2e	9,327,177 kg CO2e	0 kg CO2e	0 kg CO2e	17,577,256 kg CO2e	0 kg CO2e	28,271,301 kg CO2e		2,165,294 kg CO2e	870,752 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-4,907,302 kg CO2e
	TOTAL - kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	535 kg CO2e/m2 GIA	9 kg CO2e/m2 GIA	30 kg CO2e/m2 GIA	237 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	446 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	718 kg CO2e/m2 GIA		55 kg CO2e/m2 GIA	############	########	########	########	############	-125 kg CO2e/m2 GIA

Notes:
* Report non-decarbonised values for both material and operational emissions using current status of the electricity grid.

ASSESSMENT 2 - expected decarbonisation of the electricity grid

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES* (kgCO2e)		Sequestered (or biogenic) carbon (negative value) (kgCO2e)	Product stage (kgCO2e)	Construction process stage (kgCO2e)		Use stage (kgCO2e)								End of Life (EoL) stage (kgCO2e)				TOTAL Modules A-C kgCO₂e	Benefits and loads beyond the system boundary (kgCO2e)
			Module A			Module B								Module C					Module D*
Building element category			[A1] to [A3]	[A4]²	[A5]	[B1]	[B2]*	[B3]*	[B4]*	[B5]*	[B6]		[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.2	Major Demolition Works													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.3	Temporary Support to Adjacent Structures	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.4	Specialist Ground Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.5	Temporary/Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
1	Substructure	0 kg CO2e	3,284,082 kg CO2e	50,169 kg CO2e	1,193,045 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	128,021 kg CO2e	0 kg CO2e				73,588 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-739,101 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	1,058,284 kg CO2e	41,382 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				58,569 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-991,158 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	3,035,261 kg CO2e	165,282 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,635 kg CO2e	0 kg CO2e				237,146 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	917,229 kg CO2e	29,871 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	46,093 kg CO2e	0 kg CO2e				64,775 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	199,093 kg CO2e	10,983 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				15,717 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	225,794 kg CO2e	0 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	849,125 kg CO2e	7,295 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	90,644 kg CO2e	0 kg CO2e				13,893 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	959,956 kg CO2e	-826,177 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	661,306 kg CO2e	787 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	672,148 kg CO2e	0 kg CO2e				127 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-281,841 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	976,676 kg CO2e	4,981 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	427,291 kg CO2e	0 kg CO2e				53,831 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
2.8	Superstructure: Internal Doors	0 kg CO2e	568,109 kg CO2e	1,844 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,136,219 kg CO2e	0 kg CO2e				46,505 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	0 kg CO2e
3	Finishes	0 kg CO2e	695,034 kg CO2e	3,222 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,115,487 kg CO2e	0 kg CO2e				53,454 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-236,430 kg CO2e
4	Fittings, furnishings & equipment	0 kg CO2e	85,600 kg CO2e	193 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	85,600 kg CO2e	0 kg CO2e				1,697 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	173,090 kg CO2e	-7,922 kg CO2e
5	Services (MEP)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	Prefabricated Buildings and Building Units	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
7	Work to Existing Building	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	External works	0 kg CO2e	3,111,415 kg CO2e	27,155 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	63,899 kg CO2e	0 kg CO2e				13,741 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-806,027 kg CO2e
	TOTAL kg CO2e	0 kg CO2e	21,081,844 kg CO2e	363,509 kg CO2e	1,193,045 kg CO2e	9,327,177 kg CO2e	0 kg CO2e	0 kg CO2e	17,577,256 kg CO2e	0 kg CO2e	6,852,870 kg CO2e		2,165,294 kg CO2e	870,752 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	############	-4,907,302 kg CO2e
	TOTAL - kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	535 kg CO2e/m2 GIA	9 kg CO2e/m2 GIA	30 kg CO2e/m2 GIA	237 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	446 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	174 kg CO2e/m2 GIA		55 kg CO2e/m2 GIA	############	########	########	########	############	-125 kg CO2e/m2 GIA

Notes:
* Report decarbonised values for both material and operational emissions using expected decarbonisation of the electricity grid.

Project details	
Project name	Manor Road
Planning application reference number (if applicable)	
Use type	C3, A1, A2, A3, D2, B1
Brief description of the project	Residential-led redevelopment to provide 453 residential units (of which 173 units will be affordable), flexible retail, community and office uses
GIA (m²)	39374
Authors (organisation or individuals)	Hoare Lea
Date of assessment	30.07.2020
Nationally recognised assessment method used	BS EN 15978, with additional guidance from RICS Professional Statement
Reference study period (if not 60 years)	60 years
Software tool used	OneClick LCA - Carbon assessment, RICS Tool
Source of carbon data for materials and products	Type III EPD's (BSEN15804), Type III EPD's (ISO21930), Type III EPD's (ISO14067), EPDs & Data to ISO 14025, 14040, 14044
EPD database used	One Click LCA generic construction materials database, Envirodec, DAPconstrucción, GBC Espana, and AENOR, BAU-EPD, CENIA, DAP Habitat, EPD Danmark, EPD Italy, IN

Estimated WLC emissions (Assessment 1)
N.B. This forms the WLC baseline for the development. The results from Assessment 1 below are automatically populated here.

	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	22,638,397 kg CO2e	26,904,433 kg CO2e	30,436,595 kg CO2e	870,752 kg CO2e	-4,907,302 kg CO2e
TOTAL kg CO_2e/m^2 GIA	574.958	683.305	773.013	22.115	-124.633
Comparison with WLC benchmarks (see Appendix 2 of the guidance) if Assessment 1 was used to inform design decisions	Module A1-A5 is lower than the benchmark of 750-850 kgCO2e/m2GIA and this could be attributed to assigning more detailed Environmental Product Declaration data where this was known (façade, external walls) which utilises a lightweight steel framing system. Module B1-B5 are higher than the reported benchmark of 300-400 kgCO2/m2 GIA and this could be attributed to a more robust assessment of the proposed building services proposed to be installed, coupled with the high frequency of replacement throughout the life cycle of the building.				

Estimated WLC emissions (Assessment 2)
N.B. The results from Assessment 2 below are automatically populated here.

	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	22,638,397 kg CO2e	26,904,433 kg CO2e	0 kg CO2e	870,752 kg CO2e	##############
TOTAL kg CO_2e/m^2 GIA	575	683	0	22	-125
Comparison with WLC benchmarks (see Appendix 2 of the guidance) if Assessment 2 was used to inform design decisions	Note that modules B6-B7 do not allow data for entry within the 'Detailed Planning Stage' worksheet. Data has been copied into the 'Outline Planning Stage' which yeilds the Assessment 2 results for B6-B7.				

Key site opportunities and constraints in reducing WLC emissions	The existing site contains a significant area of tarmac roads, which, in line with project's pre-demolition audit will be reprocessed and used as aggregate on site. The Proposed Development also has the opportunity to further reduce embodied carbon in the technical design stages by analysing EPD's of the proposed services, facade and fit out products, and selecting lower carbon alternatives which meet the same functional requirements. A concrete frame has been proposed for the development, and despite considering the inclusion of Pulverized Fly Ash and Ground Granulated Blast-Furnace Slag as cement replacements, the exact quantum to be included cannot be acertained at this stage of design, and therefore averages were used to be conservative in this Whole Life Carbon Assessment.

Summary of key actions to reduce whole life-cycle carbon emissions that have informed this assessment, including the WLC reductions	Action	WLC reduction (kg CO_2e/m^2 GIA)
	Heat pump energy strategy which takes advantage of future grid decarbonisation (compared to a gas boiler scenario or SAP10 Carbon	544
	Recovery of aggregate for re-use on site	unquantified
	Lightweight steel frame façade with brick facing, constructed offsite and installed in modules	unquantified

Specify further opportunities to reduce the development's whole life-cycle carbon emissions, including the WLC reduction potential	Further potential opportunities	WLC reduction potential (kg CO_2e/m^2 GIA)
	Maximise recycled content in structural steel and aluminium products	unquantified
	Select building services products with long warranties to minimise replacement and need for refurbishment.	unquantified
	Compare façade manufacturers and compare Environmental Product Declarations to select products with lower product life cycle emiss	unquantified

MATERIAL QUANTITY AND END OF LIFE SCENARIOS		Product and Construction Stage (Module A)		Assumptions made with respect to maintenance, repair and replacement cycles (Module B)	Material 'end of life' scenarios (Module C)	Benefits and loads beyond the system boundary (Module D)	
Building element category		Material type	Material quantity (kg)			Estimated reusable materials (kg)	Estimated recyclable materials (kg)
Note/example		Breakdown of material type in each category [Insert more lines if needed] e.g. Concrete e.g. Reinforcement e.g. Formwork	65000 kg 5000 kg 250 kg	For all primary building systems (structure, substructure, envelope, MEP services, internal finishes)	Declare 'end of life' scenario as per project's Circular Economy Statement	0 kg 2 kg 0 kg	25 kg 8 kg 0 kg
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment				-		
0.2	Major Demolition Works				-		
0.3	Temporary Support to Adjacent Structures				-		
0.4	Specialist Ground Works				-		
1	Substructure			Permanent	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead		
2.1	Superstructure: Frame			60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead		
2.2	Superstructure: Upper Floors			60	Recycling of Concrete, Cement to replace primary gravel Recycling of steel		
2.3	Superstructure: Roof			60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of steel		
2.4	Superstructure: Stairs and Ramps			60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of steel		
2.5	Superstructure: External Walls			35-60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone to replace primary gravel Recycling of aluminium, steel		
2.6	Superstructure: Windows and External Doors			25-45	Recycling of aluminium, steel		
2.7	Superstructure: Internal Walls and Partitions			40 for plasterboard	Recycling of plaster to replace primary gravel Wood products to being incinerated for energy recovery		
2.8	Superstructure: Internal Doors			25 for wooden doors.	Wood products to being incinerated for energy recovery		
3	Finishes			15 years for paint	-		
4	Fittings, furnishings & equipment (FFE)			25-50 years	Recycling of Porcelain, Ceramic, Stone to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead Wood products to being incinerated for energy recovery		
5	Services (MEP)			20 years for ventilation 20 years for radiators and other heat emitters	Recycling for Aluminium, Steel, Stainless steel, Galvanized steel, Copper coated, Copper uncoated, Brass, Zinc, Lead		
6	Prefabricated Buildings and Building Units			-	-		
7	Work to Existing Building			-	-		
8	External works			60 years	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel		
	TOTAL		0 kg			0 kg	0 kg
	Material intensity (kg/m2 GIA)		0 kg/m2 GIA			0 kg/m2 GIA	0 kg/m2 GIA

Confirm here whether Assessment 1 or Assessment 2 (see below) is to form the basis of design decisions	Assessment 2

ASSESSMENT 1 - current status of the electricity grid

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES[1] (kgCO2e)		Sequestered (or biogenic) carbon (negative value) (kgCO2e)	Product stage (kgCO2e)	Construction process stage (kgCO2e)		Use stage (kgCO2e)								End of Life (EoL) stage (kgCO2e)				TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary (kgCO2e)
			Module A			Module B								Module C					Module D*
Building element category			[A1] to [A3]	[A4][2]	[A5]	[B1]	[B2]*	[B3]*	[B4]*	[B5]*	[B6]		[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.2	Major Demolition Works													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.3	Temporary Support to Adjacent Structures	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.4	Specialist Ground Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.5	Temporary Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
1	Substructure	0 kg CO2e	3,284,062 kg CO2e	50,169 kg CO2e	1,193,045 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	128,021 kg CO2e	0 kg CO2e				73,588 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	4,728,885 kg CO2e	-739,101 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	1,058,284 kg CO2e	41,382 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				59,569 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,159,235 kg CO2e	-991,158 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	3,015,241 kg CO2e	165,282 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,635 kg CO2e	0 kg CO2e				##############	0 kg CO2e	0 kg CO2e	0 kg CO2e	3,420,304 kg CO2e	0 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	917,229 kg CO2e	29,871 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	46,093 kg CO2e	0 kg CO2e				44,775 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,037,968 kg CO2e	0 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	199,093 kg CO2e	10,983 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				15,717 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	225,794 kg CO2e	0 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	848,125 kg CO2e	7,295 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	90,644 kg CO2e	0 kg CO2e				13,893 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	959,956 kg CO2e	-826,177 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	661,306 kg CO2e	787 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	672,148 kg CO2e	0 kg CO2e				127 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,334,368 kg CO2e	-281,841 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	976,676 kg CO2e	4,981 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	427,291 kg CO2e	0 kg CO2e				53,831 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,462,779 kg CO2e	0 kg CO2e
2.8	Superstructure: Internal Doors	0 kg CO2e	568,109 kg CO2e	1,844 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,136,219 kg CO2e	0 kg CO2e				46,505 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,752,677 kg CO2e	0 kg CO2e
3	Finishes	0 kg CO2e	695,034 kg CO2e	3,222 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,115,487 kg CO2e	0 kg CO2e				53,454 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,867,198 kg CO2e	-236,430 kg CO2e
4	Fittings, furnishings & equipment	0 kg CO2e	85,600 kg CO2e	193 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	85,600 kg CO2e	0 kg CO2e				1,697 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	173,090 kg CO2e	-7,922 kg CO2e
5	Services (MEP)	0 kg CO2e	5,661,668 kg CO2e	10,344 kg CO2e	0 kg CO2e	9,327,177 kg CO2e	0 kg CO2e	0 kg CO2e	13,809,220 kg CO2e	0 kg CO2e	15,101,785 kg CO2e	13,169,516 kg CO2e	2,165,294 kg CO2e	##############	0 kg CO2e	0 kg CO2e	0 kg CO2e	59,501,712 kg CO2e	-1,008,646 kg CO2e
6	Prefabricated Buildings and Building Units	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
7	Work to Existing Building	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	External works	0 kg CO2e	3,111,415 kg CO2e	37,155 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	63,899 kg CO2e	0 kg CO2e				13,741 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	3,226,210 kg CO2e	-816,027 kg CO2e
TOTAL kg CO2e		**0 kg CO2e**	**21,081,844 kg CO2e**	**363,509 kg CO2e**	**1,193,045 kg CO2e**	**9,327,177 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**17,577,256 kg CO2e**	**0 kg CO2e**	**28,271,301 kg CO2e**		**2,165,294 kg CO2e**	**##############**	**0 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**80,850,177 kg CO2e**	**-4,907,302 kg CO2e**
TOTAL - kg CO2e/m2 GIA		**0 kg CO2e/m2 GIA**	**535 kg CO2e/m2 GIA**	**9 kg CO2e/m2 GIA**	**30 kg CO2e/m2 GIA**	**237 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**446 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**718 kg CO2e/m2 GIA**		**55 kg CO2e/m2 GIA**	**##############**	**##############**	**##############**	**##############**	**2,053 kg CO2e/m2 GIA**	**-125 kg CO2e/m2 GIA**

Notes:
* Report non-decarbonised values for both material and operational emissions using current status of the electricity grid.
[1] If you have entered a reference study period in cell C10 because the assumed building life expectancy is greater or less than 60 years, this table should be copied and pasted below using the actual assumed life expectancy. This should be done for both GWP reporting tables and should be clearly labelled
[2] Use the 'European manufactured' transportation scenarios (see Table 7, page 19 of the RICS PS) to calculate transportation emissions of MEP equipment

	Mandatary cells for completion
	N/A

ASSESSMENT 2 - expected decarbonisation of the electricity grid

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES[1] (kgCO2e)		Sequestered (or biogenic) carbon (negative value) (kgCO2e)	Product stage (kgCO2e)	Construction process stage (kgCO2e)		Use stage (kgCO2e)								End of Life (EoL) stage (kgCO2e)				TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary (kgCO2e)
			Module A			Module B								Module C					Module D*
Building element category			[A1] to [A3]	[A4][2]	[A5]	[B1]	[B2]*	[B3]*	[B4]*	[B5]*	[B6]		[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.2	Major Demolition Works													0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.3	Temporary Support to Adjacent Structures	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.4	Specialist Ground Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.5	Temporary Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
1	Substructure	0 kg CO2e	3,284,062 kg CO2e	50,169 kg CO2e	1,193,045 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	128,021 kg CO2e	0 kg CO2e				73,588 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	4,728,885 kg CO2e	-739,101 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	1,058,284 kg CO2e	41,382 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				59,569 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,159,235 kg CO2e	-991,158 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	3,015,241 kg CO2e	165,282 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,635 kg CO2e	0 kg CO2e				##############	0 kg CO2e	0 kg CO2e	0 kg CO2e	3,420,304 kg CO2e	0 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	917,229 kg CO2e	29,871 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	46,093 kg CO2e	0 kg CO2e				44,775 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,037,968 kg CO2e	0 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	199,093 kg CO2e	10,983 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				15,717 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	225,794 kg CO2e	0 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	848,125 kg CO2e	7,295 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	90,644 kg CO2e	0 kg CO2e				13,893 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	959,956 kg CO2e	-826,177 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	661,306 kg CO2e	787 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	672,148 kg CO2e	0 kg CO2e				127 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,334,368 kg CO2e	-281,841 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	976,676 kg CO2e	4,981 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	427,291 kg CO2e	0 kg CO2e				53,831 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,462,779 kg CO2e	0 kg CO2e
2.8	Superstructure: Internal Doors	0 kg CO2e	568,109 kg CO2e	1,844 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,136,219 kg CO2e	0 kg CO2e				46,505 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,752,677 kg CO2e	0 kg CO2e
3	Finishes	0 kg CO2e	695,034 kg CO2e	3,222 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,115,487 kg CO2e	0 kg CO2e				53,454 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,867,198 kg CO2e	-236,430 kg CO2e
4	Fittings, furnishings & equipment	0 kg CO2e	85,600 kg CO2e	193 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	85,600 kg CO2e	0 kg CO2e				1,697 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	173,090 kg CO2e	-7,922 kg CO2e
5	Services (MEP)	0 kg CO2e	5,661,668 kg CO2e	10,344 kg CO2e	0 kg CO2e	9,327,177 kg CO2e	0 kg CO2e	0 kg CO2e	13,809,220 kg CO2e	0 kg CO2e				##############	0 kg CO2e	0 kg CO2e	0 kg CO2e	59,501,712 kg CO2e	-1,008,646 kg CO2e
6	Prefabricated Buildings and Building Units	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
7	Work to Existing Building	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e				0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	External works	0 kg CO2e	3,111,415 kg CO2e	37,155 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	63,899 kg CO2e	0 kg CO2e				13,741 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	3,226,210 kg CO2e	-816,027 kg CO2e
TOTAL kg CO2e		**0 kg CO2e**	**21,081,844 kg CO2e**	**363,509 kg CO2e**	**1,193,045 kg CO2e**	**9,327,177 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**17,577,256 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**		**0 kg CO2e**	**##############**	**0 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**80,850,177 kg CO2e**	**-4,907,302 kg CO2e**
TOTAL - kg CO2e/m2 GIA		**0 kg CO2e/m2 GIA**	**535 kg CO2e/m2 GIA**	**9 kg CO2e/m2 GIA**	**30 kg CO2e/m2 GIA**	**237 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**446 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**		**0 kg CO2e/m2 GIA**	**##############**	**##############**	**##############**	**##############**	**2,053 kg CO2e/m2 GIA**	**-125 kg CO2e/m2 GIA**

Notes:
* Report decarbonised values for both material and operational emissions using expected decarbonisation of the electricity grid.
[1] If you have entered a reference study period in cell C10 because the assumed building life expectancy is greater or less than 60 years, this table should be copied and pasted below using the actual assumed life expectancy. This should be done for both GWP reporting tables and should be clearly labelled
[2] Use the 'European manufactured' transportation scenarios (see Table 7, page 19 of the RICS PS) to calculate transportation emissions of MEP equipment

	Mandatary cells for completion
	N/A

Project details	
[illegible]	
[illegible]	
[illegible]	e.g. A1, B1 etc
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	e.g. BS EN 15978, with additional guidance from RICS Professional Statement
Reference study period (if not 60 years)	[This cell should only be filled in if the reference study period, i.e. the assumed building life expectancy, exceeds or is less than 60 years. Applicants should state the reference study period in this cell. While the assessment should still be done to 60 years, applicants may, if they choose to, submit an additional assessment of the modules B, C and D for the actual reference study period by copying and pasting an additional 'GWP potential for all life-cycle modules' table, see below]
Software tool used	[This should align with the software tool used at outline/detailed planning stage]
Source of carbon data for materials and products	[See guidance for acceptable sources]
EPD database used	[If using more than one database please list all]

WLC emissions baseline (Assessment 1) (automatically populated from the 'detailed planning stage' tab)	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	22,638,397 kg CO2e	26,904,433 kg CO2e	30,436,595 kg CO2e	870,752 kg CO2e	###########
TOTAL kg CO_2e/m^2 GIA	574.958	683.305	773.013	22.115	-124.633

WLC emissions baseline (Assessment 2) (automatically populated from the 'detailed planning stage' tab)	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	22,638,397 kg CO2e	26,904,433 kg CO2e	0 kg CO2e	870,752 kg CO2e	-4,907,302 kg CO2e
TOTAL kg CO_2e/m^2 GIA	574.958	683.305	0.000	22.115	-124.633

Post-construction WLC emissions (Assessment 1) (automatically populated from Assessment 1 below)	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	0 kg CO2e	0 kg CO2e	#VALUE!	0 kg CO2e	0 kg CO2e
TOTAL kg CO_2e/m^2 GIA	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	#DIV/0!
Commentary comparing the post-construction results against the WLC emissions baseline (Assessment 1) above	[Explain the reasons for any divergences from assessment 1 result against the WLC emissions baseline above]				
Commentary comparing the post-construction results against the WLC benchmarks (see Appendix 2)	[Explain the reasons for any divergences from WLC benchmarks, including against the WLC aspirational benchmarks]				

Post-construction WLC emissions (Assessment 2) (automatically populated from Assessment 2 below)	Module A1-A5	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	0 kg CO2e	0 kg CO2e	#VALUE!	0 kg CO2e	0 kg CO2e
TOTAL kg CO_2e/m^2 GIA	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	#DIV/0!
Commentary comparing the post-construction results against the WLC emissions baseline (Assessment 2) above	[Explain the reasons for any divergences from assessment 2 result against the WLC emissions baseline above]				
Commentary comparing the post-construction results against the WLC benchmarks (see Appendix 2)	[Explain the reasons for any divergences from WLC benchmarks, including against the WLC aspirational benchmarks. Please note that grid decarbonisation has not been accounted for in the benchmarks]				

Confirm here whether Assessment 1 or Assessment 2 formed the basis of design decisions	

Summary of key actions undertaken to reduce whole life-cycle carbon emissions, including the reductions achieved	Action undertaken	WLC reduction achieved (kg CO_2e/m^2 GIA)
	[This list does not need to be exhaustive but should identify the actions with the biggest impacts. Insert more lines if needed]	

Lessons learnt from the process of undertaking a WLC assessment that will inform future projects	
	i.e. Design options or materials that could be used, design principles that could be applied.
	[Insert more lines if needed]

MATERIAL QUANTITY AND END OF LIFE SCENARIOS		Product and Construction Stage (Module A)		Assumptions made with respect to maintenance, repair and replacement cycles (Module B)	Material 'end of life' scenarios (Module C)	Benefits and loads beyond the system boundary (Module D)	
Building element category		Material type	Material quantity (kg)			Estimated reusable materials (kg)	Estimated recyclable materials (kg)
Note/example		Breakdown of material type in each category [Insert more lines if needed] e.g. Concrete	65000 kg	For all primary building systems (structure, substructure, envelope, MEP services, internal finishes)	Declare 'end of life' scenario as per project's Circular Economy Statement	0 kg	25 kg
		e.g. Reinforcement	5000 kg			2 kg	8 kg
		e.g. Formwork	250 kg			0 kg	0 kg
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment						
0.2	Major Demolition Works						
0.3	Temporary Support to Adjacent Structures						
0.4	Specialist Ground Works						
1	Substructure						
2.1	Superstructure: Frame						
2.2	Superstructure: Upper Floors						
2.3	Superstructure: Roof						
2.4	Superstructure: Stairs and Ramps						
2.5	Superstructure: External Walls						
2.6	Superstructure: Windows and External Doors						
2.7	Superstructure: Internal Walls and Partitions						
2.8	Superstructure: Internal Doors						
3	Finishes						
4	Fittings, furnishings & equipment (FFE)						
5	Services (MEP)						
6	Prefabricated Buildings and Building Units						
7	Work to Existing Building						
8	External works						
		TOTAL	0 kg			0 kg	0 kg
		Material intensity (kg/m2 GIA)	#DIV/0!			#DIV/0!	#DIV/0!

ASSESSMENT 1 - current status of the electricity grid

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES[1] (kgCO2e)		Sequestered (or biogenic) carbon (negative value) (kgCO2e)	Product stage (kgCO2e)	Construction process stage (kgCO2e)		Use stage (kgCO2e)							End of Life (EoL) stage (kgCO2e)				TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary (kgCO2e)
			Module A			Module B							Module C					Module D*
Building element category			[A1] to [A3]	[A4]	[A5]	[B1]	[B2]*	[B3]*	[B4]*	[B5]*	[B6]	[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment																0 kg CO2e	
0.2	Major Demolition Works																0 kg CO2e	
0.3	Temporary Support to Adjacent Structures																0 kg CO2e	
0.4	Specialist Ground Works																0 kg CO2e	
0.5	Temporary Diversion Works																0 kg CO2e	
1	Substructure																0 kg CO2e	
2.1	Superstructure: Frame																0 kg CO2e	
2.2	Superstructure: Upper Floors																0 kg CO2e	
2.3	Superstructure: Roof																0 kg CO2e	
2.4	Superstructure: Stairs and Ramps																0 kg CO2e	
2.5	Superstructure: External Walls																0 kg CO2e	
2.6	Superstructure: Windows and External Doors																0 kg CO2e	
2.7	Superstructure: Internal Walls and Partitions																0 kg CO2e	
2.8	Superstructure: Internal Doors																0 kg CO2e	
3	Finishes																0 kg CO2e	
4	Fittings, furnishings & equipment																0 kg CO2e	
5	Services (MEP)										Regulated emissions / Unregulated emissions						0 kg CO2e	
6	Prefabricated Buildings and Building Units																0 kg CO2e	
7	Work to Existing Building																0 kg CO2e	
8	External works																0 kg CO2e	
TOTAL kg CO2e		0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	#VALUE!	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
TOTAL - kg CO2e/m2 GIA		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Notes:
* Report non-decarbonised values for both material and operational emissions using current status of the electricity grid.
[1] If you have entered a reference study period in cell C10 because the assumed building life expectancy is greater or less than 60 years, this table should be copied and pasted below using the actual assumed life expectancy. This should be done for both GWP reporting tables and should be clearly labelled

(shaded)	Mandatory cells for completion
(crossed)	N/A

ASSESSMENT 2 - expected decarbonisation of the electricity grid

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES[1] (kgCO2e)		Sequestered (or biogenic) carbon (negative value) (kgCO2e)	Product stage (kgCO2e)	Construction process stage (kgCO2e)		Use stage (kgCO2e)							End of Life (EoL) stage (kgCO2e)				TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary (kgCO2e)
			Module A			Module B							Module C					Module D*
Building element category			[A1] to [A3]	[A4]	[A5]	[B1]	[B2]*	[B3]*	[B4]*	[B5]*	[B6]	[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment																0 kg CO2e	
0.2	Major Demolition Works																0 kg CO2e	
0.3	Temporary Support to Adjacent Structures																0 kg CO2e	
0.4	Specialist Ground Works																0 kg CO2e	
0.5	Temporary Diversion Works																0 kg CO2e	
1	Substructure																0 kg CO2e	
2.1	Superstructure: Frame																0 kg CO2e	
2.2	Superstructure: Upper Floors																0 kg CO2e	
2.3	Superstructure: Roof																0 kg CO2e	
2.4	Superstructure: Stairs and Ramps																0 kg CO2e	
2.5	Superstructure: External Walls																0 kg CO2e	
2.6	Superstructure: Windows and External Doors																0 kg CO2e	
2.7	Superstructure: Internal Walls and Partitions																0 kg CO2e	
2.8	Superstructure: Internal Doors																0 kg CO2e	
3	Finishes																0 kg CO2e	
4	Fittings, furnishings & equipment																0 kg CO2e	
5	Services (MEP)										Regulated emissions / Unregulated emissions						0 kg CO2e	
6	Prefabricated Buildings and Building Units																0 kg CO2e	
7	Work to Existing Building																0 kg CO2e	
8	External works																0 kg CO2e	
TOTAL kg CO2e		0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	#VALUE!	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
TOTAL - kg CO2e/m2 GIA		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Notes:
* Report decarbonised values for both material and operational emissions using expected decarbonisation of the electricity grid.
[1] If you have entered a reference study period in cell C10 because the assumed building life expectancy is greater or less than 60 years, this table should be copied and pasted below using the actual assumed life expectancy. This should be done for both GWP reporting tables and should be clearly labelled

(shaded)	Mandatory cells for completion
(crossed)	N/A

Assessment no.	WLC reduction principles adopted
Assessment 1	Y
Assessment 2	N