The draft consultation version of the template has been updated as follows:

Template tab	Details
Pre-app information	Principle 1 expanded to require further details on pre-construction demolition and options explored for retaining existing buildings/structures.
	Removal of Y/N option next to each WLC reduction principle.
Outline and Detailed planning Stage & Post-construction result	Confirmation of operational modelling process used
	Confirmation relating to proportion of material quantities included relating to cost
	Confirmation of third party mechanisms
	Confirmation that the assessment has or can be submitted to the Built Environment Carbon Database
	Updated assessment summary results to align with new WLC benchmarks
	Addition of selection of most comparable WLC benchmark selection
	Addition of details relating to retention of existing structures and buildings
	Updated note/example text for module B assumptions and end of life scenarios in the 'Material Quantity and End of Life Scenarios' table
	Addition of details relating to refrigerants to 'Material Quantity and End of Life Scenarios' table
	Addition of option in assessment table to report A5 emissions as a single number or A5 emissions not related to a building element category
	Removal of assessment 2
	Colour coding to reflect cells that require inputs and cells which are updated automatically
Post-construction result	Addition of confirmation relating to post-construction evidence submission
	Addition of list of product specific EPDs from products installed in the building

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 (WLC) 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/london-plan-guidance/whole-life-cycle-carbon-assessments-guidance

Applicants are required to submit a WLC assessment 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 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.

3. Post-construction stage

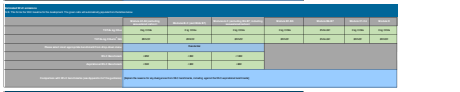
At the final stage of the WLC assessment process, applicants should complete the post-construction result tab of this template and submit it to the GLA prior to occupation of the development. This will require an update of the information provided at planning submission stage and for the actual WLC carbon emission figures to be reported using actual material quantities and site emissions during construction. Information should be submitted to:
ZeroCarbonPlanning@london.gov.uk

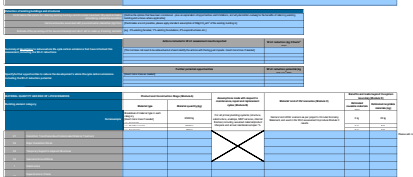
QUERIES

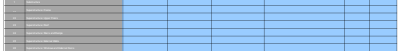
Any queries or feedback on this template should be submitted to:
ZeroCarbonPlanning@london.gov.uk

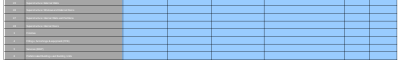
Project details	
Project name	14 Blackburn Road
Planning application reference number (if applicable)	
Use Type	Eg
Brief description of the project	Full planning permission is sought for the following description of development :
GIA (m^2)	9126
Authors (organisation or individuals)	IN2 Engineering
Date of assessment	22.03.2023

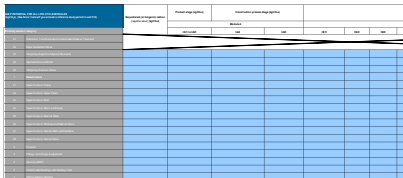
	WLC reduction principles	Key benefits	Provide examples of how reduction principle has been used, or give reasons why it cannot be used.	
1	Reuse and retrofit of existing buildings	Significant retention and reuse of structures is carbon efficient and reduces construction costs.	Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition	It is believed that the disassembly and reuse option for the existing building will provide greater benefits in the lifespan of the building compared to a retention option. This is due to the possibility of better thermal performance, as discussed in the Energy Strategy, and
			Carbon emissions associated with pre-construction demolition ($kgCO_2e/m^2$)	$50kgCO_2e/m^2$
			Estimate of the percentage of the new build development which will be made up of existing elements	0
2	Use repurposed or recycled materials	Reduces waste and carbon emissions.	A pre demolition audit will be undertaken to consider the feasibility of reusing any demolitoon or excavation waste. The design will consider new materials with recycled content for example cement with 50% GGBS content where feasible.These options will be further explored at the next design stage and	
3	Material selection	Appropriate material choices are key to carbon reduction. Ensuring that materials are selected with consideration of the planned life expectancy of the building reduces waste, the need for replacements and the in-use costs.	The assessor will be briefed on the need for low carbon materials to optimise the design and ensure low carbon materials are specified. The contractor will be responsible for sourcing materials and will give priority to products with EPDs. Low carbon materials will be used unless cost is prohibitive or there is extreme difficulty in sourcing the materials. All materials will be specified where possible in line with the expected 60 year life span recommended by the GLA and RICS and if this is not possible the material should be easily replaced with the old material being recycled.	
4	Minimise operational energy use	A 'fabric first' approach should be prioritised to minimise energy demand and reduce carbon and in-use costs.	GLA energy guidance will be followed including the energy hierarchy. Energy demand will first be reduced through lean measures (taking a fabric first approach) before then looking at renewable to reduce carbon impact. All dwellings and the non domestic unit will hae improved fabric in comparison to	
5	Minimise the carbon emissions associated with operational water use	Choice of materials and durability of systems, which help to avoid leakage and subsequent building damage, contribute to reducing the carbon emissions of water use.	Design will incorporate low flow flowing fixtures where feasible to minimise water use on site. Water will be distributed around the site in highly insulated pipes to reduce heat loss. Any buried pipework will be specified to have high corrosion resistance to minimise leaks. tgreen and blue roofs are being considered to provide at source water storage.	
6	Disassembly and reuse	Designing for future disassembly ensures that products do not become future waste and that they maintain their environmental and economic value.	Where possible constructions will be designed to be dismantled as constructed for potential reuse. M+E services will be designed for easy maintenance to avoid the need for replacement of whole systems.	
7	Building shape and form	Compact efficient shapes help minimise both operational and embodied carbon emissions from repair and replacement for a given floor area. This leads to a more efficient building overall resulting in lower construction and in use costs.	Design has been carefully considered to maximise usesable floor space for occupants and minimising unneeded back of house spaces. Design allows the best use of exterior walls for habitable rooms.	
8	Regenerative design	Removing carbon emissions from the atmosphere through materials and systems absorbing it makes a direct contribution to carbon reduction.	The use of green roof can be considered by the design team at the next design stage along with unfinished concrete in external areas. A podium garden has been proposed as the entrance to residential units, the site is currently an industrial unit so this would be an uplift in green space for the devlopment.	
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.	The site will be designed for longeivity with minimal maintenance where possible likely through the use of brick or concrete facades. The site has flexibility as the indurstial unit on the ground floor could be easily changed to a new use and it will be investigted as to the impact reconfiguration of apartments would havee i.e forming two apartments into one larger one or changing an aprtment into an amenity space.	
10	Optimisation of the relationship between operational and embodied carbon	Optimising the relationship between operational and embodied carbon contributes directly to resource efficiency and overall cost reduction.	GLA energy hierarchy will be adopted to ensure a fabric first approach is taken to design and to ensure lean measures are implemented. where possible materials which perform well in terms of embodied carbon will be specified to achieve the desired fabric performance. Glazing ratios are to be carefully balanced so that useful winter gains are admitted and excessive summer gains are prevented.	
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.	LCA will be carried out against a 60 year life expectancy. All services and materials will be designed to meet this life expectancy where feasible.	
12	Local sourcing	Sourcing local materials reduces transport distances and supply chain lengths and has associated local social and economic benefits.	Where possible materials will be sourced locally to minimise CO2 emissions from transport especially for materials with a large total mass for the building. The main contractor will be expected to have a sustainable procurement plan to ensure local sourcing is carried out where feasible.	
13	Minimising waste	Waste represents unnecessary and avoidable carbon emissions. Buildings should be designed to minimise construction waste, and to ease repair and replacement with minimum waste, which helps reduce initial and in-use costs.	Where possible prefabricated materials will be specified to minimise onsite waste. The main contractor will be expected to have a waste management plan in place to minimise landfilling of materials and have systems in place on site for the segregation of waste streams. All waste will be reused/recycled where possible with a atrget of 95% diversion from landfill in line with the CE statement. larger pack sizes for deliveries to be used to reduce quantities of waste coming onto the construction site and service providors are to be made responsible for their own waste to promote reusable packaging.	
14	Efficient construction	Efficient construction methods (e.g. modular systems, precision manufacturing and modern methods of construction) can contribute to better build quality, reduce construction phase waste and reduce the need for repairs in the post completion and the defects period (snagging).	Where possible prefabricated elements will be specified to help contribute to better build quality and minimise the snagging phase this will be the conytractors responsibility. Consideration will be given to unitised bathroom and kitchen assemblies .	
15	Lightweight construction	Lightweight construction uses less material which reduces the carbon emissions of the building as there is less material to source, fabricate and deliver to site.	Lightweight facades will be considered where appropriate as this will limit the quantity of material to be sourced and transported. It is noted that this should not affect the buildings fabric first approach. An optioneering exercise will be carried out to consider the material and embodied carbon potential savings from a lightweight facade.	
16	Circular economy	The circular economy principle focusses on a more efficient use of materials which in turn leads to carbon and financial efficiencies.	Where possible materials will be specified with an end of life scenario which allows for reuse/recycling. Materials should also be specified with a high degree of reused materials where possible for example cement with up to 50% GGBS. This will align with points raised in circular economy statement.	











Key	
🟩	Data automatically calculated - no direct input required
🟦	Cells that require information / data inputting
☒	N/A

Project details

Project name	
Planning application reference number (if applicable)	
Use Class	
Brief description of the project	
GIA (m²)	

Assessment details

Authors (organisation or individuals)	
Date of assessment	
Operational modelling methodology for Module B6 results	e.g. SAP or TM54
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	
Type of EPDs and carbon database used	[If using more than one database please list all]
Please confirm if 95% of the cost allocated to each building element category has been accounted for in the assessment?	[Yes, or please explain any omissions]
Explanation of the third-party mechanisms which have been adopted to quality assure this submission	
Please confirm whether you have submitted this assessment to the Built Environment Carbon Database (https://www.becd.co.uk/) or if you give permission for the GLA to do this on your behalf by checking one of the following boxes	I have submitted this assessment to the BECD ☐ I give permission for the GLA to submit this assessment to the BECD on my behalf ☐

Estimated WLC emissions

N.B. This forms the WLC baseline for the development. The green cells will automatically populate from the tables below

	Module A1-A5 (excluding sequestered carbon)	Modules B-C (excl B6 & B7)	Modules A-C (excluding B6-B7; including sequestered carbon)	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	#VALUE!	0 kg CO2e	0 kg CO2e
TOTAL kg CO_2e/m^2 GIA	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	#DIV/0!
Please select most appropriate benchmark from drop-down menu	Residential						
WLC Benchmark	<850	<350	<1200				
Aspirational WLC Benchmark	<500	<300	<800				
Comparison with WLC benchmarks (see Appendix 2 of the guidance)	[Explain the reasons for any divergences from WLC benchmarks, including against the WLC aspirational benchmarks]						

Retention of existing buildings and structures

Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition	[Outline the options that have been considered - plus an explanation of opportunities and limitations, and why demolition outweighs the benefits of retaining existing buildings/structures where applicable]
Carbon emissions associated with pre-construction demolition ($kgCO_2e$)	[If estimates are not possible, please apply standard assumption of $50kgCO_2e/m^2$ of the existing building/s]
Estimate of the percentage of the new build development which will be made up of existing elements	[e.g. X% existing facades; Y% existing foundations; Z% superstructures etc.]

Summary of key actions to reduce whole life-cycle carbon emissions that have informed this assessment, including the WLC reductions	Actions included in WLC assessment results reported	WLC reduction (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]	

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)
	[Insert more lines as needed]	

MATERIAL QUANTITY AND END OF LIFE SCENARIOS

Building element category		Product and Construction Stage (Module A): Material type	Product and Construction Stage (Module A): Material quantity (kg)	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): Estimated reusable materials (kg)	Benefits and loads beyond the system boundary (Module D): Estimated recyclable materials (kg)
Notes/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) including assumed material/product lifespans and annual maintenance/repair %	Declare 'end of life' scenario as per project's Circular Economy Statement, and used in the WLC assessment to produce Module C results	0 kg	25 kg
		e.g. Reinforcement	[illegible]			[illegible]	[illegible]
		e.g. Formwork	[illegible]			[illegible]	[illegible]
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						

Please add rows where more than 1 material type exists per building element category

Refrigerants		Refrigerant name	Initial quantity/charge (kg)	Assumed annual leakage rate %	Refrigerant GWP ($kgCO_2e/kg$)	End of Life recovery rate %
a	Refrigerants Type 1 (if applicable) - please see CIBSE TM65 for methodology					
b	Refrigerants Type 2 (if applicable) - please see CIBSE TM65 for methodology					
c	Refrigerants Type 3 (if applicable) - please see CIBSE TM65 for methodology					

Please add rows if required

TOTAL	0 kg	☒	0 kg	0 kg
Material intensity (kg/m2 GIA)	#DIV/0!	☒	#DIV/0!	#DIV/0!

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES ($kgCO_2e$) (See Note 1 below if you entered a reference study period in cell C12)

Building element category		Sequestered (or biogenic) carbon (negative value) ($kgCO_2e$)	Product stage ($kgCO_2e$)	Construction process stage ($kgCO_2e$)		Use stage ($kgCO_2e$)							End of Life (EoL) stage ($kgCO_2e$)				TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary ($kgCO_2e$)
			Module A			Module B							Module C					Module D
			[A1] to [A3]	[A4]	[A5]	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
0.2	Major Demolition Works	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
0.3	Temporary Support to Adjacent Structures										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
0.4	Specialist Ground Works										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
0.5	Temporary Diversion Works										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
1	Substructure										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.1	Superstructure: Frame										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.2	Superstructure: Upper Floors										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.3	Superstructure: Roof										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.4	Superstructure: Stairs and Ramps										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.5	Superstructure: External Walls										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.6	Superstructure: Windows and External Doors										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.7	Superstructure: Internal Walls and Partitions										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
2.8	Superstructure: Internal Doors										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
3	Finishes										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
4	Fittings, furnishings & equipment										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
5	Services (MEP)										Regulated emissions Unregulated emissions	Operational Water	[Where only a single C1-C4 is known, please include				0 kg CO2e	
6	Prefabricated Buildings and Building Units										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
7	Work to Existing Building										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
8	External works										☒	☒	[Where only a single C1-C4 is known, please include				0 kg CO2e	
Other site construction impacts or overall construction stage [A5] carbon emissions not specific to an individual building element category																	0 kg CO2e	
TOTAL kg CO_2e		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!	Operational Water	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
TOTAL kg CO_2e/m^2 GIA		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#VALUE!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Notes:

1 If you have entered a reference study period in cell C12 because the assumed building life expectancy is greater or less than 60 years, then you will need to fill in this table using a 60 year building life expectancy. If you choose to, you may create a second table below and complete it using the actual assumed life expectancy. This should be clearly labelled.

Project details	
Project name	14 Blackburn Road
Planning application reference number	
Site address	xg
Brief description of the project	ull planning permission is sought for the following description of development :
GIA (m²)	9130

Key	
	Data automatically calculated - no direct input required
	Cells that require information / data inputting
	N/A

Assessment details	
Assessor organisation	IN2 Engineering
[illegible]	[illegible]
[illegible]	[illegible]
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	OneClickLCA
Types of EPDs and carbon database used	INIES, One ClickLCA, EPD NORGE, OKOBAUDAT, ICE, IBU, Inside, RTS, International EPD system
Please confirm if 95% of the cost allocated to each building element category has been accounted for in the assessment?	Yes
Explanation of mechanisms which have been adopted to quality assure the submission	In order to ensure data quality throughout IN2 have sent RFIs to various members of the design team to ensure accuracy in material selections. One click LCA includes a completeness and plausibility check feature which was used throughout the study to ensure all features required for the WLC assessment were captured and accurate. IN2 also employed a thorough internal quality assurance process ensuring all work is reviewed and any necessary changes made before issue.
Please confirm whether you have submitted this assessment to the Built Environment Carbon Database (https://www.becd.co.uk) or if you give permission for the GLA to do this on your behalf by checking one of the following boxes	I have submitted this assessment to the BECD ☐ I give permission for the GLA to submit this assessment to the BECD on my behalf ☐

Estimated WLC emissions
N.B. This forms the WLC baseline for the development. The green cells will automatically populate from the tables below

	Module A1-A5 (excluding sequestered carbon)	Modules B-C (excl B6 & B7)	Modules A-C (excl B6 & B7; including sequestered carbon)	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	5,109,055 kg CO2e	3,035,027 kg CO2e	8,122,304 kg CO2e	2,834,797 kg CO2e	4,758,506 kg CO2e	200,230 kg CO2e	-1,173,127 kg CO2e
TOTAL kg CO_2e/m^2 GIA	559.835	332.589	890.018	310.629	521.423	21.941	-128.546
Please select most appropriate benchmark from drop-down menu	Offices						
WLC Benchmark	<950	<450	<1400				
Aspirational WLC Benchmark	<600	<370	<970				
Comparison with WLC benchmarks (see Appendix 2 of the guidance)	As can be seen in the table above the Blackburn Road development achieves GLA aspirational benchmarks. This has been achieved through careful selection of products as can be seen in the next section. The site will also benefit from how the benchmarks are defined. Office benchmarks have been selected as this is the most appropriate for the site however the ground floor of the Blackburn Road development is an open plan warehouse area, this will have an inherently lower embodied carbon than an office space resulting in the development as a whole comparing favourably against the benchmarks.						

Retention of existing buildings and structures	
Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition	It is believed that the disassembly and reuse option for the existing building will provide greater benefits in the lifespan of the building compared to a retention option. This is due to the possibility of better thermal performance, as discussed in the Energy Strategy, and the possibility for adaptability principles to be applied to the new build development as discussed later in this report.
Carbon emissions associated with pre-construction demolition (kg CO_2e)	50kg.co2/m2
Estimate of the percentage of the new build development which will be made up of existing elements	0%

Summary of key actions to reduce whole life-cycle carbon emissions that have informed this assessment, including the WLC reductions	Actions included in WLC assessment results reported	WLC reduction (kg CO_2e/m^2 GIA)
	Use of chipboard internal walls instead of masonry construction.	--
	Concrete roof assembly versus a concrete slab in a flat roof assembly	--

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)
	Use of a CLT floor slab assembly	--
	Wooden framed windows instead of PVC	--

MATERIAL QUANTITY AND END OF LIFE SCENARIOS / Building element category		Material type (Product and Construction Stage (Module A))	Material quantity (kg)	Assumptions made with respect to maintenance, repair and replacement cycles (Module B)	Material 'end of life' scenarios (Module C)	Estimated reusable materials (kg) (Module D)	Estimated recyclable materials (kg) (Module D)
Notes/example		Breakdown of material type in each category [insert more lines if needed] e.g. Concrete		For all primary building systems (structure, substructure, envelope, MEP services, internal finishes) including assumed material/product lifespans and annual maintenance/repair %	Declare 'end of life' scenario as per project's Circular Economy Statement, and used in the WLC assessment to produce Module C results		
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	EPS Insulation	9850	As Building	Plastic Based Material Incineration	0 kg	0 kg
		Ready Mix Concrete	1773158	As Building	Concrete Crushed to aggregate	0 kg	1773158
		Plastic Vapor control layer	455	As Building	Plastic Based Material Incineration	0 kg	0 kg
		Reinforcement steel	66499	As Building	Steel Recycling	0 kg	66,499 kg
		self levelling mortar	58956	As Building	Concrete Crushed to aggregate	0 kg	58,956 kg
		Reinforcement steel (Piles)	234717	As Building	Steel Recycling	0 kg	234,717 kg
		Ready Mix Concrete (Piles)	9353136	As Building	Concrete Crushed to aggregate	0 kg	9,353,136 kg
2.1	Superstructure: Frame	Readymix concrete (column)	605929	As Building	Concrete Crushed to aggregate	0 kg	605929
		Reinforcement Steel(Column)	82709	As Building	Steel Recycling	0 kg	82709
		Concrete Beam	476001	As Building	Concrete Crushed to aggregate	0 kg	476001
		Reinforcement Steel(Beam)	82972	As Building	Steel Recycling	0 kg	82972
2.2	Superstructure: Upper Floors	Ready mix concrete	5466839	As Building	Concrete Crushed to aggregate	0 kg	5466839
		Reinforcement steel	275576	As Building	Steel Recycling	0 kg	275576
		Self Levelling mortar	288746	As Building	Concrete Crushed to aggregate	0 kg	288746
2.3	Superstructure: Roof	Hollow core concrete slabs	901159	As Building	Concrete Crushed to aggregate	0 kg	901159
		EPS insulation	12125	30	Plastic Based Material Incineration	0 kg	0 kg
		Plastic vapour control layer	494	As Building	Plastic Based Material Incineration	0 kg	0 kg
2.4	Superstructure: Stairs and Ramps	Steel reinforcement	3200	As Building	Steel Recycling	0 kg	3200
		concrete	77376	As Building	Concrete Crushed to aggregate	0 kg	77376
2.5	Superstructure: External Walls	Lightweight concrete block	352868	As Building	Concrete Crushed to aggregate	0 kg	352,868 kg
		Lightweight concrete block	758667	As Building	Concrete Crushed to aggregate	0 kg	758,667 kg
		Plasterboard	64420	As Building	Gypsum recycling	0 kg	64,420 kg
		Rockwool insulation	198048	As Building	Landfill	0 kg	0 kg
		Gypsum Plaster	19909	30	Gypsum recycling	0 kg	19,909 kg
		Render mortar	187025	As Building	mortar use in backfill	0 kg	187,025 kg
		Masonry mortar	48816	As Building	mortar use in backfill	0 kg	48,816 kg
		masonry mortar	104954	As Building	mortar use in backfill	0 kg	104,954 kg
2.6	Superstructure: Windows and External Doors	PVC windows	32469	30	Glass containing product recycling	0 kg	32,469 kg
2.7	Superstructure: Internal Walls and Partitions	Internal wall system with rockwool core and chipboard sidin	321166	30	wood product recyling	0 kg	321,166 kg
2.8	Superstructure: Internal Doors	Wooden Door	10187	30	wood product recyling		10,187 kg
3	Finishes	Carpet	18279	15	Landfill	0 kg	0 kg
		Paint	34095	10	Landfill	0 kg	0 kg
4	Fittings, furnishings & equipment (FFE)	Workstation with screens	28392	10	Wood product recycling	0 kg	28,392 kg
		Office Chair	2652	10	Metal Prodcut recyling	0 kg	2,652 kg
5	Services (MEP)	Ceramic Toilet	500	20	Landfill	0 kg	500 kg
		Brass valve (sprinkler)	89	30	Metal product recyling	0 kg	89 kg
		Monometers (sprinkler)	14	30	Metal product recyling	0 kg	14 kg
		Globe valves (sprinkler)	195	30	Metal product recyling	0 kg	195 kg
		Steel pipes (sprinkler)	36995	30	Metal product recyling	0 kg	36,995 kg
		Brass quarter turn valve (sprinkler)	9.22	30	Metal product recyling	0 kg	9 kg
		Flexible shower hose (sprinkler)	157	30	Metal product recyling	0 kg	157 kg
		Fire sprinkler (sprinkler)	163	30	Landfill	0 kg	0 kg
		galvanised steel (sprinkler)	818	30	Metal product recyling	0 kg	818 kg
		Stainless steel (sprinkler)	1359	30	Metal product recyling	0 kg	1,359 kg
		Acrylic paint (sprinkler)	317	30	Landfill	0 kg	0 kg
		ASHP	4560	20	Metal product recyling	0 kg	4,560 kg
		Sockets	45	45	Landfill	0 kg	0 kg
		Brass Taps	16	20	Metal product recyling	0 kg	16 kg
		LED lights	2176	15	Landfill	0 kg	0 kg
		Urinal	540	20	Landfill	0 kg	0 kg
		Electrical cabling	36500	20	Metal product recyling	0 kg	36,500 kg
		Sewage pipework	1547	25	Metal product recyling	0 kg	1,547 kg
		Drinking water supply	740	25	Metal product recyling	0 kg	740 kg
		Ventilation system	25347	25	Metal product recyling	0 kg	25,347 kg
		Heating system	25096	20	Metal product recyling	0 kg	25,096 kg
		Sink	740	20	Landfill	0 kg	0 kg
		Solar panels	2925	20	Metal product recyling	0 kg	2,925 kg
		Elevator	3330	20	Metal product recyling	0 kg	3,330 kg
6	Prefabricated Buildings and Building Units						
7	Work to Existing Building						
8	External works						

Please add rows where more than 1 material type exists per building element category

Refrigerants		Refrigerant name	Initial Charge(kg)	Annual leakage rate %	Refrigerant GWP ($kgCO_2e/kg$)	End of Life recovery rate %
a	Refrigerants Type 1 (if applicable) - please see CIBSE TM65 for methodology	R410-a	20	5	2087.5	90
b	Refrigerants Type 2 (if applicable) - please see CIBSE TM65 for methodology					
c	Refrigerants Type 3 (if applicable) - please see CIBSE TM65 for methodology					

Please add rows if required

	Material quantity	Estimated reusable materials	Estimated recyclable materials
TOTAL	22,091,962 kg	0 kg	21,816,615 kg
Material intensity (kg/m2 GIA)	2,421 kg/m2 GIA	0 kg/m2 GIA	2,391 kg/m2 GIA

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES ($kgCO_2e$) (See Note 1 below if you entered a reference study period in cell C12)

	Building element category	Sequestered (or biogenic) carbon (negative value) ($kgCO_2e$)	Product stage (kgCO2e) Module A [A1] to [A3]	Construction process stage (kgCO2e) Module A [A4]	[A5]
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	0 kg CO2e	1,220,163 kg CO2e	85,990 kg CO2e	55,390 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	202,783 kg CO2e	6,298 kg CO2e	7,586 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	928,586 kg CO2e	42,778 kg CO2e	58,553 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	168,984 kg CO2e	2,108 kg CO2e	3,331 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	2,000 kg CO2e	13 kg CO2e	104 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	661,796 kg CO2e	4,244 kg CO2e	56,131 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	78,155 kg CO2e	158 kg CO2e	0 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	329,887 kg CO2e	658 kg CO2e	42,126 kg CO2e
2.8	Superstructure: Internal Doors	-17,321 kg CO2e	39,252 kg CO2e	51 kg CO2e	0 kg CO2e
3	Finishes	0 kg CO2e	47,974 kg CO2e	374 kg CO2e	4,852 kg CO2e
4	Fittings, furnishings & equipment	-4,458 kg CO2e	40,962 kg CO2e	277 kg CO2e	1,667 kg CO2e
5	Services (MEP)	0 kg CO2e	786,690 kg CO2e	2,893 kg CO2e	16,247 kg CO2e
6	Prefabricated Buildings and Building Units				
7	Work to Existing Building				
8	External works				
	Other site construction impacts or overall construction stage [A5] carbon emissions not specific to an individual building element category				210,000 kg CO2e
	TOTAL kg CO_2e	-21,778 kg CO2e	4,507,232 kg CO2e	145,837 kg CO2e	455,986 kg CO2e
	TOTAL - kg CO_2e/m^2 GIA	-2 kg CO2e/m2 GIA	494 kg CO2e/m2 GIA	16 kg CO2e/m2 GIA	50 kg CO2e/m2 GIA

	Building element category	Use stage (kgCO2e) Module B [B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
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		17,339 kg CO2e	4,335 kg CO2e				
2.1	Superstructure: Frame		3,803 kg CO2e	951 kg CO2e				
2.2	Superstructure: Upper Floors		3,803 kg CO2e	951 kg CO2e	248,464 kg CO2e			
2.3	Superstructure: Roof		3,803 kg CO2e	951 kg CO2e	2,065 kg CO2e			
2.4	Superstructure: Stairs and Ramps		3,803 kg CO2e	951 kg CO2e				
2.5	Superstructure: External Walls		10,495 kg CO2e	2,624 kg CO2e	5,932 kg CO2e			
2.6	Superstructure: Windows and External Doors		10,495 kg CO2e	2,624 kg CO2e	82,020 kg CO2e			
2.7	Superstructure: Internal Walls and Partitions		3,803 kg CO2e	951 kg CO2e	337,010 kg CO2e			
2.8	Superstructure: Internal Doors		3,803 kg CO2e	951 kg CO2e	39,451 kg CO2e			
3	Finishes		10,951 kg CO2e	2,738 kg CO2e	242,596 kg CO2e			
4	Fittings, furnishings & equipment		913 kg CO2e	228 kg CO2e	208,379 kg CO2e			
5	Services (MEP)	137,775 kg CO2e	18,252 kg CO2e	4,563 kg CO2e	1,417,031 kg CO2e		1,579,947 kg CO2e	2,429,093 kg CO2e
6	Prefabricated Buildings and Building Units							
7	Work to Existing Building							
8	External works							
	TOTAL kg CO_2e	137,775 kg CO2e	91,260 kg CO2e	22,815 kg CO2e	2,582,947 kg CO2e	0 kg CO2e	4,009,040 kg CO2e	749,466 kg CO2e
	TOTAL - kg CO_2e/m^2 GIA	15 kg CO2e/m2 GIA	10 kg CO2e/m2 GIA	3 kg CO2e/m2 GIA	283 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	439 kg CO2e/m2 GIA	82 kg CO2e/m2 GIA

	Building element category	End of Life (EoL) stage (kgCO2e) Module C [C1]	[C2]	[C3]	[C4]	TOTAL Modules A-C kgCO2e	Benefits and loads beyond the system boundary ($kgCO_2e$) Module D
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.2	Major Demolition Works	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.3	Temporary Support to Adjacent Structures	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.4	Specialist Ground Works	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.5	Temporary Diversion Works	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
1	Substructure	[Where only a single C1-C4 is known, please include it here]	35,043 kg CO2e	21,362 kg CO2e	34 kg CO2e	1,439,657 kg CO2e	-159,804 kg CO2e
2.1	Superstructure: Frame	[Where only a single C1-C4 is known, please include it here]	9,143 kg CO2e	709 kg CO2e		231,272 kg CO2e	-58,312 kg CO2e
2.2	Superstructure: Upper Floors	[Where only a single C1-C4 is known, please include it here]	26,257 kg CO2e	36,800 kg CO2e		1,346,192 kg CO2e	-229,203 kg CO2e
2.3	Superstructure: Roof	[Where only a single C1-C4 is known, please include it here]	2,683 kg CO2e	25,320 kg CO2e		209,243 kg CO2e	-57,445 kg CO2e
2.4	Superstructure: Stairs and Ramps	[Where only a single C1-C4 is known, please include it here]	117 kg CO2e	7 kg CO2e		6,983 kg CO2e	-705 kg CO2e
2.5	Superstructure: External Walls	[Where only a single C1-C4 is known, please include it here]	6,011 kg CO2e	529 kg CO2e	518 kg CO2e	748,279 kg CO2e	-32,633 kg CO2e
2.6	Superstructure: Windows and External Doors	[Where only a single C1-C4 is known, please include it here]	157 kg CO2e	682 kg CO2e	1,012 kg CO2e	175,300 kg CO2e	-29,478 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	[Where only a single C1-C4 is known, please include it here]	6,265 kg CO2e	202 kg CO2e		720,899 kg CO2e	-1,356 kg CO2e
2.8	Superstructure: Internal Doors	[Where only a single C1-C4 is known, please include it here]	39 kg CO2e	17,436 kg CO2e	5 kg CO2e	83,656 kg CO2e	0 kg CO2e
3	Finishes	[Where only a single C1-C4 is known, please include it here]	91 kg CO2e	0 kg CO2e	81 kg CO2e	309,656 kg CO2e	
4	Fittings, furnishings & equipment	[Where only a single C1-C4 is known, please include it here]	114 kg CO2e	4,765 kg CO2e	16 kg CO2e	252,862 kg CO2e	0 kg CO2e
5	Services (MEP)	[Where only a single C1-C4 is known, please include it here]	4,357 kg CO2e	381 kg CO2e	106 kg CO2e	7,146,800 kg CO2e	-604,192 kg CO2e
6	Prefabricated Buildings and Building Units	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
7	Work to Existing Building	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
8	External works	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
	Other site construction impacts					210,000 kg CO2e	
	TOTAL kg CO_2e	0 kg CO2e	90,277 kg CO2e	108,181 kg CO2e	1,772 kg CO2e	12,880,910 kg CO2e	-1,173,127 kg CO2e
	TOTAL - kg CO_2e/m^2 GIA	0 kg CO2e/m2 GIA	############	############	0 kg CO2e/m2 GIA	1,411 kg CO2e/m2 GIA	-129 kg CO2e/m2 GIA

Notes:
1 If you have entered a reference study period in cell C12 because the assumed building life expectancy is greater or less than 60 years, then you will need to fill in this table using a 60 year building life expectancy. If you choose to, you may create a second table below and complete it using the actual assumed life expectancy. This should be clearly labelled.

Project details	
Project name	
Planning application reference number (if applicable)	
Site address	
Brief description of the project	
GIA (m²)	

Assessment details	
Assessor's name and organisation	
Date of assessment	
Last stage assessment carried out (e.g. RIBA stage)	e.g. '3/4/5' or '18/19'
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]
Type of EPDs and carbon database used	[If using more than one database please list all]
Please confirm if 95% of the cost allocated to each building element category has been accounted for in the assessment?	[Yes / No]
Explanation of mechanisms which have been adopted to quality assure the submission	
Please confirm whether you have submitted this assessment to the Built Environment Carbon Database (https://www.becd.co.uk/) or if you give permission for the GLA to do this on your behalf by checking one of the following boxes	I have submitted this assessment to the BECD ☐
	I give permission for the GLA to submit this assessment to the BECD on my behalf ☐

Key	
	Data automatically calculated - no direct input required
	Cells that require information / data inputting
	N/A

List of product specific EPDs for products that have been installed	Product	EPD reference number
	[Please add rows if needed]	

Please confirm the following post-construction evidence has been submitted with this WLC assessment	
Site energy (including fuel) use record	[Yes / No]
Contractor confirmation of as-built quantities and specifications	[Yes / No]
Record of material delivery including distance travelled and transportation mode	[Yes / No]
Waste transportation record include waste quantity, distance travelled and transportation mode	[Yes / No]

WLC emissions baseline (automatically populated from the 'detailed planning stage' tab)

	Module A1-A5 (excluding sequestered carbon)	Modules B-C (excl B6 & B7)	Modules A-C (excl B6-B7; including sequestered carbon)	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	5,109,005 kg CO2e	3,035,027 kg CO2e	8,122,304 kg CO2e	2,834,797 kg CO2e	4,758,506 kg CO2e	200,230 kg CO2e	-1,173,127 kg CO2e
TOTAL kg CO_2e/m^2 GIA	559.835	332.569	890.018	310.629	521.423	21.941	-128.548

Post-construction WLC emissions

	Module A1-A5	Modules B-C (excl B6 & B7)	Modules A-C (excl B6-B7; including sequestered carbon)	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	#VALUE!	0 kg CO2e	0 kg CO2e
TOTAL kg CO_2e/m^2 GIA	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	#DIV/0!
Please select most appropriate benchmark from drop-down menu							
WLC Benchmark	#N/A	#N/A	#N/A				
Aspirational WLC Benchmark	#N/A	#N/A	#N/A				
Commentary comparing the post-construction results against the WLC emissions baseline above	[Explain the reasons for any divergences from the results 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 benchmark]						

Retention of existing buildings and structures	
Confirmation of which options for retaining existing buildings and structures that were under exploration at planning stages have been implemented	
Actual carbon emissions associated with pre-construction demolition ($kgCO_2e$)	
Estimate of the percentage of the new build development which is made up of existing elements	[e.g. X% existing facades; Y% existing foundations; Z% superstructures etc.]

Summary of key actions undertaken to reduce whole life-cycle carbon emissions, including the reductions achieved	Action undertaken	WLC reduction achieved (kg [illegible])
	[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	
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		For all primary building systems (structure, substructure, envelope, MEP services, internal finishes) including assumed material/product lifespans and annual maintenance/repair %	Declare 'end of life' scenario as per project's Circular Economy Statement, and used in the WLC assessment to produce Module C results		
		e.g. Reinforcement					
		e.g. Formwork					
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment			N/A			
0.2	Major Demolition Works			N/A			
0.3	Temporary Support to Adjacent Structures			N/A			
0.4	Specialist Ground Works			N/A			
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						
Refrigerants		Refrigerant name	Initial Charge (kg)	Annual leakage rate %	Refrigerant GWP ($kgCO_2e/kg$)	End of Life recovery rate %	
a	Refrigerants Type 1 (if applicable) - please see CIBSE TM65 for methodology						
b	Refrigerants Type 2 (if applicable) - please see CIBSE TM65 for methodology						
c	Refrigerants Type 3 (if applicable) - please see CIBSE TM65 for methodology						
		TOTAL	0 kg	N/A	N/A	0 kg	0 kg
		Material intensity (kg/m2 GIA)	#DIV/0!	N/A	N/A	#DIV/0!	#DIV/0!

Please add rows where more than 1 material type exists per building element category

Please add rows if required

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES ($kgCO_2e$) (See Note 1 below if you entered a reference study period in cell C12)		Sequestered (or biogenic) carbon (negative value) ($kgCO_2e$)	Product stage ($kgCO_2e$)	Construction process stage ($kgCO_2e$)		Use stage ($kgCO_2e$)							End of Life (EoL) stage ($kgCO_2e$)				TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary ($kgCO_2e$)
			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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.2	Major Demolition Works	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.3	Temporary Support to Adjacent Structures										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.4	Specialist Ground Works										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
0.5	Temporary Diversion Works										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
1	Substructure										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.1	Superstructure: Frame										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.2	Superstructure: Upper Floors										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.3	Superstructure: Roof										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.4	Superstructure: Stairs and Ramps										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.5	Superstructure: External Walls										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.6	Superstructure: Windows and External Doors										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.7	Superstructure: Internal Walls and Partitions										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
2.8	Superstructure: Internal Doors										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
3	Finishes										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
4	Fittings, furnishings & equipment										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
5	Services (MEP)										Regulated emissions / Unregulated emissions	Operational Water	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
6	Prefabricated Buildings and Building Units										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
7	Work to Existing Building										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
8	External works										N/A	N/A	[Where only a single C1-C4 is known, please include it here]				0 kg CO2e	
Other site construction impacts or overall construction stage [A5] carbon emissions not specific to an individual building element category																	0 kg CO2e	
TOTAL kg CO_2e		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!	Operational Water	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
TOTAL - kg CO_2e/m^2 GIA		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#VALUE!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	N/A	#DIV/0!

Note 1: [illegible]

Available benchmarks
Offices
Residential
Schools, Universities etc.
Retail

WLC benchmark	A1-A5	B-C (excl B6 & B7)	A-C (excl B6 & B7)
Offices	<950	<450	<1400
Residential	<850	<350	<1200
Schools, Universities etc.	<750	<250	<1000
Retail	<850	<200	<1050

Aspirational WLC benchmark	A1-A5	B-C (excl B6 & B7)	A-C (excl B6 & B7)
Offices	<600	<370	<970
Residential	<500	<300	<800
Schools, Universities etc.	<500	<175	<675
Retail	<550	<140	<690