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	
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	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	[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.]
2	Use repurposed or recycled materials	Reduces waste and carbon emissions.		
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.		
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 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.		
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.		
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.		
8	Regenerative design	Removing carbon emissions from the atmosphere through materials and systems absorbing it makes a direct 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 relationship between operational and embodied carbon 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 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.		
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).		
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.		
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
Project name
Planning application reference number (if applicable)
Use Class
Brief description of the project
GIA (m^2)

Assessment details
Authors (organisation or individuals)
Date of assessment
Operational modelling methodology for Module B6 results
Reference study period (if not 60 years)
Software tool used
Type of EPDs and carbon database used
Please confirm if 95% of the cost allocated to each building element category has been accounted for in the assessment?
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

Estimated WLC emissions N.B. This forms the WLC baseline for the development. The green cells will automatically populate fr
TOTAL kg CO_2e
TOTAL kg CO_2e/m^2 GIA
Please select most appropriate benchmark from drop-down menu
WLC Benchmark
Aspirational WLC Benchmark
Comparison with WLC benchmarks (see Appendix 2 of the guidance)

Retention of existing buildings and structures
Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition
Carbon emissions associated with pre-construction demolition ($kgCO_2e$)
Estimate of the percentage of the new build development which will be made up of existing elements

Summary of key actions to reduce whole life-cycle carbon emissions that have informed this assessment, including the WLC reductions

Specify further opportunities to reduce the development's whole life-cycle carbon emissions. including the WLC reduction potential

MATERIAL QUANTITY AND END OF LIFE SCENARIOS	
Building element category	
	Note/example
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
Refrigerants	
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

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	
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
5	Services (MEP)
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	
TOTAL kg CO_2e	
TOTAL kg CO_2e/m^2 GIA	

Notes:

1 If you have entered a reference study period in cell C12 because the assumed building life expecta

e.g. SAP or TM54

[This cell should only be filled in if the reference study period, i.e. the assur
should state the reference study period in this cell. While the assessment s
additional assessment of the modules B, C and D for the actual reference s
cycle modules' table, see below].

[If using more than one database please list all]

[Yes, or please explain any omissions]

I have submitted this assessment to the BECD

This shape represents

I give permission for the GLA to submit this assessment to the BECD on m

om the tables below

Module A1-A5 (excluding sequestered carbon)	Modules B-C (excl B6 & B7)
0 kg CO2e	0 kg CO2e
#DIV/0!	#DIV/0!
	Residential
<850	*<350*
<500	*<300*

[Explain the reasons for any divergences from WLC benchmarks, including

[Outline the options that have been considered - plus an explanation of opp retaining existing buildings/structures where applicable]
[If estimates are not possible, please apply standard assumption of 50kgC(
[e.g. X% existing facades; Y% existing foundations; Z% superstructures etc

Actions included in WLC assessment res
[This list does not need to be exhaustive but should identify the actions wit needed]

Further potential opportunitie
[Insert more lines as needed]

Product and Construction Stage (Module A)	
Material type	**Material quantity (kg)**
Breakdown of material type in each category [Insert more lines if needed] e.g. Concrete	65000 kg
e.g. Reinforcement	5000 kg
e.g. Formwork	250 kg

Refrigerant name	**Initial quantity/charge (kg)**
TOTAL	0 kg
Material intensity (kg/m2 GIA)	#DIV/0!

Sequestered (or biogenic) carbon (negative value) **($kgCO_2e$)**	**Product stage ($kgCO_2e$)**
	[A1] to [A3]

0 kg CO2e	0 kg CO2e
#DIV/0!	#DIV/0!

ıncy is greater or less than 60 years, then you will need to fill in this table us

med building life expectancy, exceeds or is less than 60 years. Applicants
should still be done to 60 years, applicants may, if they choose to, submit an
study period by copying and pasting an additional 'GWP potential for all life-

y behalf

This shape represents

Modules A-C (excluding B6-B7; including sequestered carbon)	Module B1-B5
0 kg CO2e	0 kg CO2e
#DIV/0!	#DIV/0!
<1200	
<800	

against the WLC aspirational benchmarks]

portunities and limitations, and why demolition outweighs the benefits of
O_2e/m^2 of the existing building/s]
c.]

ults reported	WLC reduction (kg CO_2e/m^2 GIA)
n the biggest impacts. Insert more lines if	

s	WLC reduction potential (kg CO_2e/m^2 GIA)

Assumptions made with respect to maintenance, repair and replacement cycles (Module B)	Material 'end of life' s
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 Statement, and used in the WLC res

Assumed annual leakage rate %	Refrigerant GWP ($kgCO_2e/kg$)

Construction process stage ($kgCO_2e$)	
Module A	
[A4]	[A5]

0 kg CO2e	**0 kg CO2e**
#DIV/0!	**#DIV/0!**

ing a 60 year building life expectancy. If you choose to, you may create a seco

Key	
	Data automatically ca
	Cells that require info
	N/A

Module B6-B7	Module C1-C4	Module D
#VALUE!	0 kg CO2e	0 kg CO2e
#VALUE!	#DIV/0!	#DIV/0!

scenarios (Module C)	Benefits and loads beyond the system boundary (Module D)	
	Estimated reusable materials (kg)	Estimated recyclable materials (kg)
s per project's Circular Economy assessment to produce Module C sults	0 kg	25 kg
	2 kg	8 kg
	0 kg	0 kg

End of Life recovery rate %		
	0 kg	0 kg
	#DIV/0!	#DIV/0!

[B1]	**[B2]**	**[B3]**

0 kg CO2e	**0 kg CO2e**	**0 kg CO2e**
#DIV/0!	**#DIV/0!**	**#DIV/0!**

nd table below and complete it using the actual assumed life expectancy. This s

lculated - no direct input required
rmation / data inputting

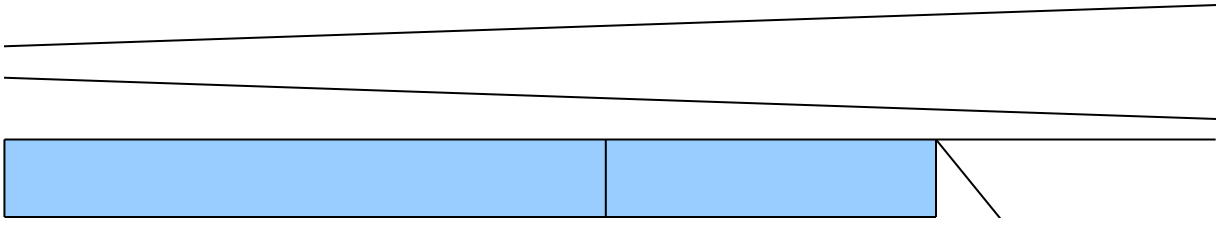
Please add rows where more than 1 material type exists per building element category

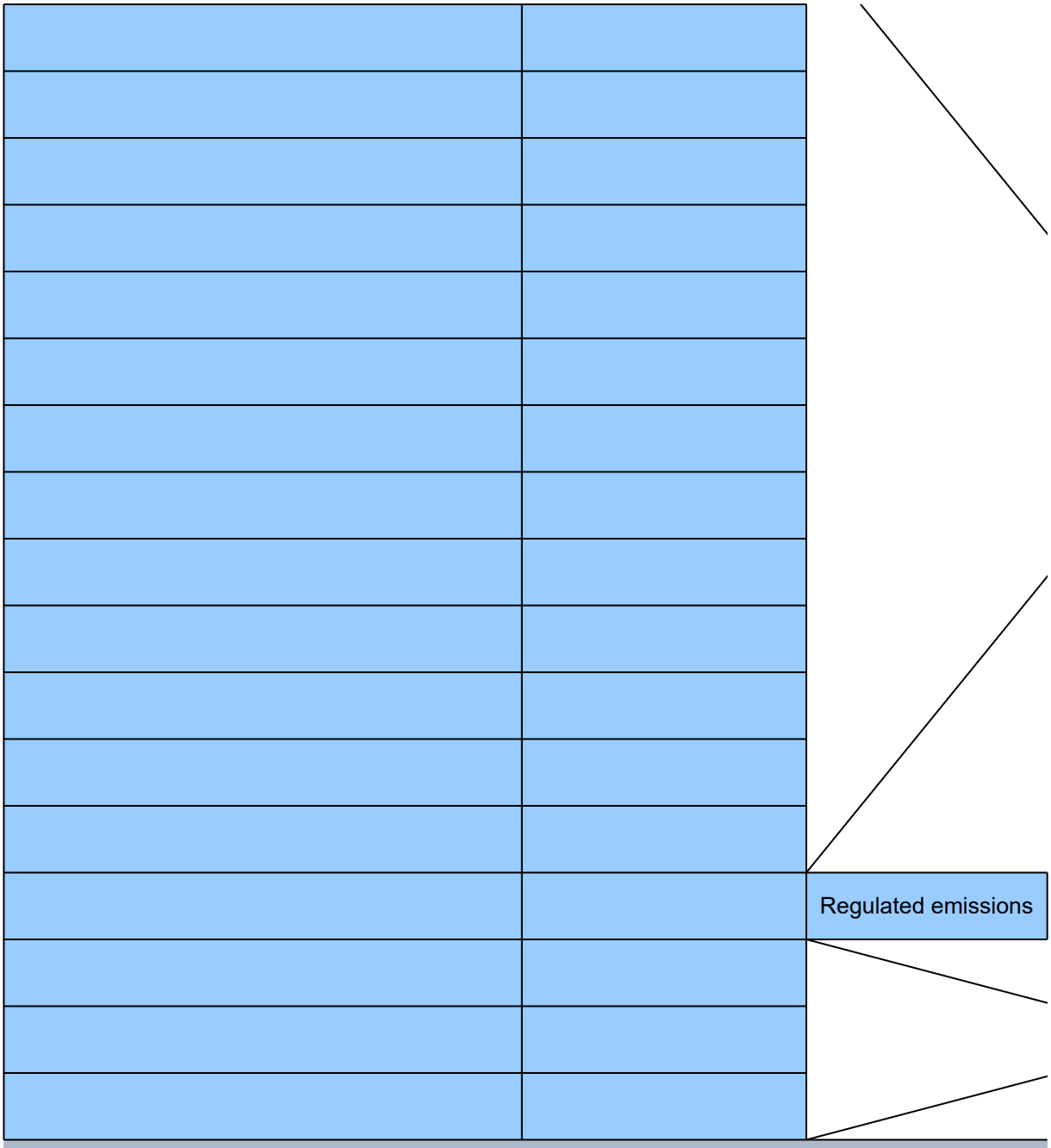
Please add rows if required

Use stage ($kgCO_2e$)

Module B

[B4]	[B5]	[B





0 kg CO2e	**0 kg CO2e**	**#VAL**
#DIV/0!	**#DIV/0!**	**#VAL**

should be clearly labelled.

		End of Life (EoL) stage ($kgCO_2e$)		
		Module C		
6]	[B7]	[C1]	[C2]	[C3]
		[Where only a single C1-C4 is known, please include it here]		
		[Where only a single C1-C4 is known, please include it here]		
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		[Where only a single C1-C4 is known, please include it here]		
Unregulated emissions	Operational Water	[Where only a single C1-C4 is known, please include it here]		
		[Where only a single C1-C4 is known, please include it here]		
		[Where only a single C1-C4 is known, please include it here]		
		[Where only a single C1-C4 is known, please include it here]		
LUE!	**Operational Water**	**0 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**
LUE!	**#VALUE!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

	TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary ($kgCO_2e$)
[C4]		Module D
	0 kg CO2e	
	0 kg CO2e	
	0 kg CO2e	

	0 kg CO2e	
	0 kg CO2e	
	0 kg CO2e	
	0 kg CO2e	
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0 kg CO2e	**0 kg CO2e**	**0 kg CO2e**
#DIV/0!	**#DIV/0!**	**#DIV/0!**

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

Project details	
Project name	City House, Sutton
Planning application reference number (if applicable)	
Use Class	Primarily residential with commercial ground floor
Brief description of the project	The proposed City House development is a residential-led development in Sutton, South London comprising a split-level single massing building of 5 and 13 storeys with a commercial g
GIA (m²)	6900

Assessment details	
Authors (organisation or individuals)	Alexander Dhesi, Marietta Gontikaki (Useful Projects)
Date of assessment	02 February 2024
Operational modelling methodology for Module B6 results	SAP and 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	OneClick LCA: Whole life carbon assessment, GLA / RICS / Green Mark including EN15804 +A2 data
Types of EPDs and carbon database used	OneClick LCA EPD database
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	UKGBC Embodied Carbon QA Protocol
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 [This shape represents]
	I give permission for the GLA to submit this assessment to the BECD on my behalf [This shape represents]

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	3,985,066 kg CO2e	2,311,005 kg CO2e	6,100,216 kg CO2e	2,049,271 kg CO2e	3,868,040 kg CO2e	261,734 kg CO2e	-975,226 kg CO2e
TOTAL kg CO_2e/m^2 GIA	577.546	334.928	884.089	296.996	560.586	37.932	-141.337
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)	The proposed development is within the WLC benchmark for all modules. See WLC statement for analysis and commentary on carbon breakdown.						

Retention of existing buildings and structures	
Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition	Expedition Engineering's pre-demolition audit has appraised the existing City House structure for potential reuse. See the pre-demoliton audit and circular economy statement for commentary on existing structure retention and material reuse opportunities
Carbon emissions associated with pre-construction demolition ($kgCO_2e$)	25125 $kgCO_2e$
Estimate of the percentage of the new build development which will be made up of existing elements	<10% (only site-won material used for levelling)

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)
	25% cement replacement with GGBS.	64.3
	50% recycled content aluminium frame for windows.	14.8
	Use of R410a refrigerant in ASHP systems.	15.6

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 reclaimed bricks from the existing City House structure in the new façade.	17.4
	Lean design of foundations to reduce volume by 10%	15.9
	Reduce area covered by suspended ceiling systems by 15%	8.3
	Specify combination timber/aluminium frame windows	18
	Increase cement replacement in concrete specification from 25% to 50%	51.4

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) 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	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	Concrete C32/40 (25% GGBS)	10488919		crushed to aggregate (for sub-base layers), Portland Cement 20	0 kg	0 kg
		Steel Reinforcement (Rebar)	625000		Steel recycling / Steel recycling	0 kg	625,000 kg
2.1	Superstructure: Frame	Concrete C32/40 (25% GGBS)	2941147		crushed to aggregate (for sub-base layers), Portland Cement 20	0 kg	0 kg
		Steel Reinforcement (Rebar)	192500		Steel recycling / Steel recycling	0 kg	192,500 kg
2.2	Superstructure: Upper Floors	Concrete C32/40 (25% GGBS)	4119746		crushed to aggregate (for sub-base layers), Portland Cement 20	0 kg	0 kg
		Steel Reinforcement (Rebar)	262500		Steel recycling / Steel recycling	0 kg	262,500 kg
2.3	Superstructure: Roof	Concrete C32/40 (25% GGBS)	470828		crushed to aggregate (for sub-base layers), Portland Cement 20	0 kg	0 kg
		Steel Reinforcement (Rebar)	30000		Steel recycling / Steel recycling	0 kg	30,000 kg
2.4	Superstructure: Stairs and Ramps	Precast Concrete Slab (Hollow Core)	70000		Rebar separated (2 %), concrete to aggregate	0 kg	0 kg
2.5	Superstructure: External Walls	Plasterboard	30003		Gypsum recycling	0 kg	60,006 kg
		Vapour Control Layer	548		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Cement Particleboard	57785		Concrete crushed to aggregate (for sub-base layers), Po / regate (for sub-base layers), Port	0 kg	0 kg
		Breather Membrane	548		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Rockwool Rainscreen	30558		Landfilling (for inert materials) / Landfilling (for inert materials)	0 kg	0 kg
		Brick	835252		Brick/stone crushed to aggregate (for sub-b / crushed to aggregate (for sub-b	0 kg	0 kg
		Precast Concrete Paving Slabs	83660		concrete to aggregate / concrete to aggregate	0 kg	0 kg
		Greenguard GG3300 Insulation	6180		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Geotextile Membrane	222		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Liquid Applied Waterproofing	5981		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Metal Stud Framing	8334		Steel recycling / Steel recycling	0 kg	16,668 kg
2.6	Superstructure: Windows and External Doors	Double Glazed Windows and Aluminium Frame	22934		Glass-containing product recycling (80 % glass)	0 kg	45,868 kg
2.7	Superstructure: Internal Walls and Partitions	Plasterboard	125297		Gypsum recycling	0 kg	0 kg
		Metal Stud Framing	11223		Steel recycling / Steel recycling	0 kg	22,446 kg
2.8	Superstructure: Internal Doors	Timber (doors)	15169		Wood-containing product incineration (80% wood)	0 kg	0 kg
3	Finishes	Skim Paint	66713		Landfilling (for inert materials)	0 kg	0 kg
		Rockwool	20237.58		Landfilling (for inert materials) / Landfilling (for inert materials)	0 kg	0 kg
		Separating Layer	7051.8		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Sand/Cement Screed	1123251		Cement/mortar use in a backfill / Cement/mortar use in a backfill	0 kg	0 kg
		Kingspan K103 Insulation	3704.4		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Damp-proof Membrane	1474.2		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Metal Furrings for Suspended Ceiling	39371.47		Steel recycling / Steel recycling	0 kg	0 kg
		Plasterboard	59947.92		Gypsum recycling / Gypsum recycling	0 kg	179,844 kg
		Ceramic Tile	27400		Brick/stone crushed to aggregate (for sub-b / crushed to aggregate (for sub-base layers)		0 kg
		Cross Laminated Timber Flooring	40528		Wood incineration / Wood incineration	0 kg	0 kg
		Nylon Carpet Tiles	12692.06		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Acrylic Paint	2.28		Landfilling (for inert materials) / Landfilling (for inert materials)	0 kg	0 kg
4	Fittings, furnishings & equipment (FFE)	Wardrobe	53914		Wood incineration	0 kg	0 kg
		Kitchen cabinet	9610		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
		Porcelain WC	2768		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
		Ceramic washbasin	2405		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
		Shower enclosure	3700		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
		Heated towel rail	1360		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
5	Services (MEP)	Lift	10068		Metal-containing product recycling	0 kg	0 kg
		Heat interface unit	1354		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
		Air source heat pump	177		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
		Thermal store	213		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
		Mechanical ventilation system	1004		Metal-containing product recyclin / letal-containing product recyclin	0 kg	0 kg
6	Prefabricated Buildings and Building Units						
7	Work to Existing Building						
8	External works	Precast Concrete Paving Blocks	1237.82		concrete to aggregate / concrete to aggregate	0 kg	0 kg
		Sand Laying Course	11040.5		N/A / N/A	0 kg	0 kg
		Sub-base Aggregate	270720		N/A / N/A	0 kg	0 kg
		Geotextile Membrane	80.74		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Grasscrete	18000		concrete to aggregate / concrete to aggregate	0 kg	0 kg
		Resin-bound Aggregate Surfacing	7752.84		Asphalt reuse via reprocessing / Asphalt reuse via reprocessing	23,259 kg	0 kg
		Asphalt Binder Course	32736.5		Asphalt reuse via reprocessing / Asphalt reuse via reprocessing	32,737 kg	0 kg
		Loose Pebble Aggregate	1751		N/A / N/A	0 kg	0 kg
		Surecell Cellular Reinforcement Structure	595.96		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Granite Dust	12757.68		N/A / N/A	0 kg	0 kg
		Poured Rubber Surfacing	1872		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Wonder Yarn Artificial Grass	237.5		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		ForceField Foam Drainage Pad	625		Plastic-based material incineratio / lastic-based material incineratio	0 kg	0 kg
		Soil	84645		N/A	0 kg	0 kg

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					
b	Refrigerants Type 2 (if applicable) - please see CIBSE TM65 for methodology	R454C	9	4	146	98
c	Refrigerants Type 3 (if applicable) - please see CIBSE TM65 for methodology					

Please add rows if required

	Material quantity (kg)	Estimated reusable materials (kg)	Estimated recyclable materials (kg)
TOTAL	22,367,342 kg	55,996 kg	1,434,832 kg
Material intensity (kg/m2 GIA)	3,242 kg/m2 GIA	8 kg/m2 GIA	208 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 ($kgCO_2e$) Module A [A1] to [A3]	Construction process stage ($kgCO_2e$) Module A [A4]	Construction process stage ($kgCO_2e$) Module A [A5]
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment				
0.2	Major Demolition Works				
0.3	Temporary Support to Adjacent Structures	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
0.5	Temporary Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
1	Substructure	0 kg CO2e	1,287,999 kg CO2e	84,446 kg CO2e	71,603 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	369,515 kg CO2e	23,752 kg CO2e	20,534 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	514,132 kg CO2e	33,240 kg CO2e	28,574 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	104,072 kg CO2e	4,029 kg CO2e	7,338 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	6,837 kg CO2e	161 kg CO2e	72 kg CO2e
2.5	Superstructure: External Walls	-204 kg CO2e	204,543 kg CO2e	2,229 kg CO2e	10,999 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	121,966 kg CO2e	114 kg CO2e	1,230 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	-851 kg CO2e	74,627 kg CO2e	335 kg CO2e	2,213 kg CO2e
2.8	Superstructure: Internal Doors	-27,810 kg CO2e	12,476 kg CO2e	58 kg CO2e	1,276 kg CO2e
3	Finishes	-70,365 kg CO2e	262,369 kg CO2e	3,449 kg CO2e	15,885 kg CO2e
4	Fittings, furnishings & equipment	-96,626 kg CO2e	108,314 kg CO2e	661 kg CO2e	3,078 kg CO2e
5	Services (MEP)		272,481 kg CO2e	2,211 kg CO2e	9,126 kg CO2e
6	Prefabricated Buildings and Building Units	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
8	External works	0 kg CO2e	10,121 kg CO2e	2,004 kg CO2e	1,267 kg CO2e
	Other site construction impacts or overall construction stage [A5] carbon emissions not specific to an individual building element category				305,732 kg CO2e
	TOTAL kg CO_2e	-195,856 kg CO2e	3,349,451 kg CO2e	156,689 kg CO2e	478,926 kg CO2e
	TOTAL - kg CO_2e/m^2 GIA	-28 kg CO2e/m2 GIA	485 kg CO2e/m2 GIA	23 kg CO2e/m2 GIA	69 kg CO2e/m2 GIA

	Building element category	Use stage ($kgCO_2e$) 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 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		
0.5	Temporary Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e		
1	Substructure	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e		
2.1	Superstructure: Frame	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e		
2.2	Superstructure: Upper Floors	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e		
2.3	Superstructure: Roof	0 kg CO2e	0 kg CO2e	0 kg CO2e	71,441 kg CO2e	0 kg CO2e		
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e		
2.5	Superstructure: External Walls	0 kg CO2e	0 kg CO2e	0 kg CO2e	213,149 kg CO2e	0 kg CO2e		
2.6	Superstructure: Windows and External Doors	0 kg CO2e	0 kg CO2e	0 kg CO2e	122,975 kg CO2e	0 kg CO2e		
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	0 kg CO2e	0 kg CO2e	78,255 kg CO2e	0 kg CO2e		
2.8	Superstructure: Internal Doors	0 kg CO2e	0 kg CO2e	0 kg CO2e	12,756 kg CO2e	0 kg CO2e		
3	Finishes	0 kg CO2e	34,500 kg CO2e	8,625 kg CO2e	530,632 kg CO2e	0 kg CO2e		
4	Fittings, furnishings & equipment	0 kg CO2e	34,500 kg CO2e	8,625 kg CO2e	439,619 kg CO2e	0 kg CO2e		
5	Services (MEP)	8,082 kg CO2e	0 kg CO2e	21,616 kg CO2e	440,494 kg CO2e	0 kg CO2e	236,100 kg CO2e; 3,390,000 kg CO2e	241,940 kg CO2e
6	Prefabricated Buildings and Building Units	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		
8	External works	0 kg CO2e	0 kg CO2e	0 kg CO2e	24,003 kg CO2e	0 kg CO2e		
	TOTAL kg CO_2e	8,082 kg CO2e	69,000 kg CO2e	38,866 kg CO2e	1,933,324 kg CO2e	0 kg CO2e	3,626,100 kg CO2e	241,940 kg CO2e
	TOTAL - kg CO_2e/m^2 GIA	1 kg CO2e/m2 GIA	10 kg CO2e/m2 GIA	6 kg CO2e/m2 GIA	280 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	526 kg CO2e/m2 GIA	35 kg CO2e/m2 GIA

	Building element category	End of Life (EoL) stage ($kgCO_2e$) Module C [C1]	[C2]	[C3]	[C4]	TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary ($kgCO_2e$) Module D
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	25,125 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	25,125 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
0.4	Specialist Ground Works	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
1	Substructure	0 kg CO2e	54,625 kg CO2e	4,988 kg CO2e	0 kg CO2e	1,503,661 kg CO2e	-284,721 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	15,978 kg CO2e	1,436 kg CO2e	0 kg CO2e	431,215 kg CO2e	-81,035 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	22,107 kg CO2e	1,996 kg CO2e	0 kg CO2e	600,048 kg CO2e	-113,012 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	2,819 kg CO2e	25,833 kg CO2e	0 kg CO2e	215,530 kg CO2e	-57,063 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	205 kg CO2e	24 kg CO2e	0 kg CO2e	7,299 kg CO2e	-2,962 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	3,684 kg CO2e	2,613 kg CO2e	79 kg CO2e	437,092 kg CO2e	-49,910 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	878 kg CO2e	5 kg CO2e	12 kg CO2e	247,180 kg CO2e	-483 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	3,180 kg CO2e	113 kg CO2e	0 kg CO2e	157,872 kg CO2e	-50,315 kg CO2e
2.8	Superstructure: Internal Doors	0 kg CO2e	58 kg CO2e	156 kg CO2e	8 kg CO2e	-1,022 kg CO2e	0 kg CO2e
3	Finishes	0 kg CO2e	6,692 kg CO2e	44,870 kg CO2e	236 kg CO2e	836,892 kg CO2e	-323,909 kg CO2e
4	Fittings, furnishings & equipment	0 kg CO2e	311 kg CO2e	633 kg CO2e	55 kg CO2e	499,170 kg CO2e	0 kg CO2e
5	Services (MEP)	35,764 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	4,657,813 kg CO2e	0 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
7	Work to Existing Building	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	External works	0 kg CO2e	188 kg CO2e	7,064 kg CO2e	0 kg CO2e	44,647 kg CO2e	-11,817 kg CO2e
	Other site construction impacts or overall construction stage [A5] carbon emissions not specific to an individual building element category					305,732 kg CO2e	
	TOTAL kg CO_2e	60,889 kg CO2e	110,724 kg CO2e	89,731 kg CO2e	390 kg CO2e	9,968,256 kg CO2e	-975,226 kg CO2e
	TOTAL - kg CO_2e/m^2 GIA	9 kg CO2e/m2 GIA	16 kg CO2e/m2 GIA	13 kg CO2e/m2 GIA	0 kg CO2e/m2 GIA	1,445 kg CO2e/m2 GIA	-141 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)
Use Class
Brief description of the project
GIA (m^2)

Assessment details
Authors (organisation or individuals)
Date of assessment
Operational modelling methodology for Module B6 results
Reference study period (if not 60 years)
Software tool used
Type of EPDs and carbon database used
Please confirm if 95% of the cost allocated to each building element category has been accounted for in the assessment?
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

List of product specific EPDs for products that have been installed

Please confirm the following post-construction evidence has been submitted with this WLC assessment
Site energy (including fuel) use record
Contractor confirmation of as-built quantities and specifications

Record of material delivery including distance travelled and transportation mode
Waste transportation record include waste quantity, distance travelled and transportation mode

WLC emissions baseline (automatically populated from the 'detailed planning stage' tab)
TOTAL kg CO_2e
TOTAL kg CO_2e/m^2 GIA

Post-construction WLC emissions
TOTAL kg CO_2e
TOTAL kg CO_2e/m^2 GIA
Please select most appropriate benchmark from drop-down menu
WLC Benchmark
Aspirational WLC Benchmark
Commentary comparing the post-construction results against the WLC emissions baseline above
Commentary comparing the post-construction results against the WLC benchmarks (see Appendix 2)

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

Summary of key actions undertaken to reduce whole life-cycle carbon emissions, including the reductions achieved

Lessons learnt from the process of undertaking a WLC assessment that will inform future projects

MATERIAL QUANTITY AND END OF LIFE SCENARIOS	
Building element category	
	Note/example
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
Refrigerants	
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

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	
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
5	Services (MEP)
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	
TOTAL kg CO_2e	
TOTAL - kg CO_2e/m^2 GIA	

Notes:

[1] If you have entered a reference study period in cell C12 because the assumed building life expectancy

e.g. SAP or TM54
[This cell should only be filled in if the reference study period, i.e. the assumed building life reference study period in this cell. While the assessment should still be done to 60 years, a modules B, C and D for the actual reference study period by copying and pasting an additi
[This should align with the software tool used at outline/detailed planning stage]
[If using more than one database please list all]
[Yes / No]
I have submitted this assessment to the BECD
I give permission for the GLA to submit this assessment to the BECD on my behalf

This shape represents a form

Product
[Please add rows if needed]

[Yes / No]
[Yes / No]

[Yes / No]
[Yes / No]

Module A1-A5 (excluding sequestered carbon)	Modules B-C (excl B6 & B7)
3,985,066 kg CO2e	2,311,005 kg CO2e
577.546	334.928

Module A1-A5	Modules B-C (excl B6 & B7)
0 kg CO2e	0 kg CO2e
#DIV/0!	#DIV/0!
#N/A	*#N/A*
#N/A	*#N/A*
[Explain the reasons for any divergences from the results against the WLC emissions base	
[Explain the reasons for any divergences from WLC benchmarks, including against the WL	

[e.g. X% existing facades; Y% existing foundations; Z% superstructures etc.]

Action undertaken
[This list does not need to be exhaustive but should identify the actions with the biggest im

i.e. Design options or materials that could be used, design principles that could be applied
[Insert more lines if needed]

Product and Construction Stage (Module A)	
Material type	**Material quantity (kg)**
Breakdown of material type in each category [Insert more lines if needed] e.g. Concrete	65000 kg
e.g. Reinforcement	5000 kg
e.g. Formwork	250 kg

Refrigerant name	**Initial Charge(kg)**
TOTAL	0 kg
Material intensity (kg/m2 GIA)	#DIV/0!

Sequestered (or biogenic) carbon (negative value) **($kgCO_2e$)**	**Product stage ($kgCO_2e$)**
	[A1] to [A3]

0 kg CO2e	**0 kg CO2e**
#DIV/0!	**#DIV/0!**

' is greater or less than 60 years, then you will need to fill in this table using a 60 year buildi

expectancy, exceeds or is less than 60 years. Applicants should state the applicants may, if they choose to, submit an additional assessment of the onal 'GWP potential for all life-cycle modules' table, see below].

This shape represents a form

	EPD reference number

Modules A-C (excl B6-B7; including sequestered carbon)	Module B1-B5
6,100,216 kg CO2e	2,049,271 kg CO2e
884.089	296.996

Modules A-C (excl B6-B7; including sequestered carbon)	Module B1-B5
0 kg CO2e	0 kg CO2e
#DIV/0!	#DIV/0!
#N/A	
#N/A	

eline above]

LC aspirational benchmarks]

	WLC reduction achieved (kg CO_2e/m^2 GIA)
pacts. Insert more lines if needed]	

.

Assumptions made with respect to maintenance, repair and replacement cycles (Module B)	Material 'end of
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 and used in the WLC asse

Annual leakage rate %	**Refrigerant GWP ($kgCO_2e/kg$)**

Construction process stage ($kgCO_2e$)	
Module A	
[A4]	**[A5]**

0 kg CO2e	**0 kg CO2e**
#DIV/0!	**#DIV/0!**

ng life expectancy. If you choose to, you may create a second table below and

Key	
	Data automatically calc
	Cells that require infor
	N/A

Module B6-B7	Module C1-C4	Module D
3,868,040 kg CO2e	261,734 kg CO2e	-975,226 kg CO2e
560.586	37.932	-141.337

Module B6-B7	Module C1-C4	Module D
#VALUE!	0 kg CO2e	0 kg CO2e
#VALUE!	#DIV/0!	#DIV/0!

life' scenarios (Module C)	Benefits and loads beyond the system boundary (Module D)	
	Estimated reusable materials (kg)	Estimated recyclable materials (kg)
per project's Circular Economy Statement, essment to produce Module C results	0 kg	25 kg
	2 kg	8 kg
	0 kg	0 kg

End of Life recovery rate %		
	0 kg	0 kg
	#DIV/0!	#DIV/0!

[B1]	**[B2]**	**[B3]**

0 kg CO2e	**0 kg CO2e**	**0 kg CO2e**
#DIV/0!	**#DIV/0!**	**#DIV/0!**

complete it using the actual assumed life expectancy. This should be clearly labelled.

culated - no direct input required
mation / data inputting

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

Please add rows if required

Use stage (kgCO_2e)

Module B

[B4]	[B5]	[B

		Regulated emissions
0 kg CO2e	0 kg CO2e	#VAL
#DIV/0!	#DIV/0!	#VAL

		End of Life (EoL) stage (kgC	
		Module C	
6]	[B7]	[C1]	[C2]
		[Where only a single C1-C4 is known, please include it here]	
		[Where only a single C1-C4 is known, please include it here]	
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		[Where only a single C1-C4 is known, please include it here]	
Unregulated emissions	Operational Water	[Where only a single C1-C4 is known, please include it here]	
		[Where only a single C1-C4 is known, please include it here]	
		[Where only a single C1-C4 is known, please include it here]	
		[Where only a single C1-C4 is known, please include it here]	
LUE!	**Operational Water**	**0 kg CO2e**	**0 kg CO2e**
LUE!	**#VALUE!**	**#DIV/0!**	**#DIV/0!**

CO_2e)		TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary ($kgCO_2e$)
			Module D
[C3]	[C4]		
		0 kg CO2e	
		0 kg CO2e	
		0 kg CO2e	
		0 kg CO2e	
		0 kg CO2e	

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		0 kg CO2e	
		0 kg CO2e	
0 kg CO2e	**0 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**
#DIV/0!	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

Available benchmarks
Offices
Residential
Schools, Universities etc.
Retail

WLC benchmark	A1-A5
Offices	<950
Residential	<850
Schools, Universities etc.	<750
Retail	<850

Aspirational WLC benchmark	A1-A5
Offices	<600
Residential	<500
Schools, Universities etc.	<500
Retail	<550

B-C (excl B6 & B7)	A-C (excl B6 & B7)
<450	<1400
<350	<1200
<250	<1000
<200	<1050

B-C (excl B6 & B7)	A-C (excl B6 & B7)
<370	<970
<300	<800
<175	<675
<140	<690