Project details	
Project name	Former Stag Brewery
Planning application reference number (if applicable)	
Type of area	Residential apartmentsFlexible commercial and community floorspace to include1.Retail, financial and professional services, café/restaurant and drinking e
Brief description of the project	The former Stag Brewery Site is bounded by Lower Richmond Road to the south, the river Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High Street) to the west. The Site is bisected by Ship Lane. The Site currently comprises a mixture of large scale
GIA (m²)	54982

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

Assessment details	
Author/s (organisation or individual)	Hoare Lea
Date of assessment	17/02/2023
Operational modeling methodology for Module B6 (kWh)	SAP & TM54 (benchmark data)
Reference study period (if not 60 years)	60 years
Software tool used	OneClick LCA - Carbon assessment, RICS Tool
Type of EPDs and carbon database used	One Click LCA generic construction materials database, Environdec, DAPconstrucción, GBC Espana, and AENOR, BAU-EPD, CENIA, DAP Habitat, EPI
Please confirm if 95% of the cost allocated to each building element category has been accounted for in the assessment?	Yes
Explanation of the third-party mechanisms which have been adopted to quality assure the submission	Hoare Lea Intergrated Management System (IMS) 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 ☐ 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	14,705,906 kg CO2e	2,214,693 kg CO2e	16,920,001 kg CO2e	2,120,640 kg CO2e	22,996,071 kg CO2e	94,053 kg CO2e	-3,746,697 kg CO2e
TOTAL kg CO_2e/m^2 GIA	267.554091	40.295	307.849	38.58375566	418.3994654	1.711235716	-68.16885764
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)	Mixed use development, therefore not all areas included within this assessment relate to residential. However this makes up the majory of the site.						

Retention of existing buildings and structures	
Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition	A proportion of the site consists of refurbishment/change of use of existing buildings
Carbon emissions associated with pre-construction demolition (kgCO_2)	27248100
Estimate of the percentage of the new build development which will be made up of existing elements	2% existing buildings refurbished

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)
	Reductions in total energy consumption due to passive design, LZCs, and heat pumps- Reduction from Baseline	16
	Selection of R454B over R410A	108

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)
	Increase Cement replacement percentage from 20% to 50%	20
	Explore specification of durable and robust materials and products to reduce B2-5 emissions	90

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. Steel, InsulationTiles	14122580.3	Permanent	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead	0 kg	11,298,064 kg
2.1	Superstructure: Frame	Concrete, Steel	6100912.664	60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead	0 kg	4,880,730 kg
2.2	Superstructure: Upper Floors	Wood, vynil	24582924.24	60	Recycling of Concrete, Cement to replace primary gravel Recycling of steel	0 kg	19,666,339 kg
2.3	Superstructure: Roof	Concrete, Steel, Insulation, Tiles	4110109.839	60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of steel	0 kg	3,288,088 kg
2.4	Superstructure: Stairs and Ramps	Concrete, Steel	1182003.509	60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of steel	0 kg	945,603 kg
2.5	Superstructure: External Walls	asonry, Concrete, insulation, Plaserbo	5439726.702	35-60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, stone to replace primary gravel Recycling of aluminium, steel	0 kg	4,351,781 kg
2.6	Superstructure: Windows and External Doors	Glazing, wood, aluminimum	0	25-45	Recycling of aluminium, steel	0 kg	0 kg
2.7	Superstructure: Internal Walls and Partitions	Wooden stud , plasterboard	1249590.428	40 for plasterboard	Recycling of plaster to replace primary gravel Wood products to being incinerated for energy recovery	0 kg	999,672 kg
2.8	Superstructure: Internal Doors		0	25 for wooden doors.	Wood products to being incinerated for energy recovery	0 kg	0 kg
3	Finishes	Paint, Floor coverings, Tiles	1025151.661	15 years for paint	-	0 kg	820,121 kg
4	Fittings, furnishings & equipment (FFE)	Galvanized steel, Copper coated, Co	32915.2708	25-50 years	Recycling of Porcelain, Ceramic, Stone to replace primary gravel Recycling of aluminium, steel	0 kg	26,332 kg
5	Services (MEP)		1826647.105	ers and other heat emitters25 years for electr	Recycling of Aluminium, Steel, Stainless steel, Galvanized steel, Copper coated, Copper	0 kg	1,461,318 kg
6	Prefabricated Buildings and Building Units		0	-	-	0 kg	0 kg
7	Work to Existing Building		0	-	-	0 kg	0 kg
8	External works	Soil, Concrete	2922841.644	60 years	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel	0 kg	2,338,273 kg

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 (kgCQe/kg)**	**End of Life recovery rate %**	
a	Refrigerants Type 1 (if applicable) - please see CIBSE TM65 for methodology						Please add rows if required
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	62,595,403 kg			0 kg	50,076,323 kg
		Material intensity (kg/m2 GIA)	1,139 kg/m2 GIA			0 kg/m2 GIA	911 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)		**Sequestered (or biogenic) carbon** (negative value) **($kgCO_2e$)**	**Product stage ($kgCQ_e$)**	**Construction process stage ($kgCQe$)**		**Use stage ($kgCQ_e$)**							**End of Life (EoL) stage ($kgCQe$)**				**TOTAL Modules A-C $kgCO_2e$**	**Benefits and loads beyond the system boundary ($kgCQe$)**
			Module A			**Module B**							**Module C**					**Module D**
Building element category			**[A1] to [A3]**	**[A4]**	**[A5]**	**[B1]**	**[B2]**	**[B3]**	**[B4]**	**[B5]**	**[B6]**	**[B7]**	**[C1]**	**[C2]**	**[C3]**	**[C4]**		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment												0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	
0.2	Major Demolition Works												0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	
0.3	Temporary Support to Adjacent Structures	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.4	Specialist Ground Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.5	Temporary Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
1	Substructure	0 kg CO2e	4,550,839 kg CO2e	97,664 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	14,472 kg CO2e	0 kg CO2e			30,990 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	###########	-1,556,857 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	887,929 kg CO2e	26,911 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			5,044 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	919,883 kg CO2e	-187,205 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	3,237,420 kg CO2e	115,782 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			49,805 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	###########	-968,991 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	579,399 kg CO2e	19,254 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	14,472 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	613,125 kg CO2e	-79,520 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	106,881 kg CO2e	5,899 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	112,781 kg CO2e	-22,675 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	1,232,941 kg CO2e	8,869 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	4,032 kg CO2e	0 kg CO2e			2,030 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	###########	-278,055 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	202,750 kg CO2e	420 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	164,270 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	367,441 kg CO2e	-23,883 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	444,343 kg CO2e	2,077 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	66,904 kg CO2e	0 kg CO2e			194 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	513,518 kg CO2e	-46,932 kg CO2e
2.8	Superstructure: Internal Doors	0 kg CO2e	316,859 kg CO2e	1,029 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	316,859 kg CO2e	0 kg CO2e			160 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	634,907 kg CO2e	-104,246 kg CO2e
3	Finishes	0 kg CO2e	362,392 kg CO2e	1,825 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	423,046 kg CO2e	0 kg CO2e			323 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	787,586 kg CO2e	-116,505 kg CO2e
4	Fittings, furnishings & equipment	0 kg CO2e	292,244 kg CO2e	477 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	80,794 kg CO2e	0 kg CO2e			1,279 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	374,794 kg CO2e	-25,357 kg CO2e
5	Services (MEP)	0 kg CO2e	1,023,231 kg CO2e	2,002 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,035,791 kg CO2e	0 kg CO2e	8,607,346 kg CO2e	14,353,588 kg CO2e	35,137 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	###########	-295,745 kg CO2e
6	Prefabricated Buildings and Building Units	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
7	Work to Existing Building	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	External works	0 kg CO2e	123,193 kg CO2e	5,121 kg CO2e	1,057,559 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			4,229 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	###########	-40,725 kg CO2e
Other site construction impacts or overall construction stage [A5] carbon emissions not specific to a individual building element category																	0 kg CO2e	
TOTAL kg CO_2e		**0 kg CO2e**	**13,360,420 kg CO2e**	**287,329 kg CO2e**	**1,057,559 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**2,120,640 kg CO2e**	**0 kg CO2e**	**22,960,934 kg CO2e**	**35,137 kg CO2e**	**94,053 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	###########	**-3,746,697 kg CO2e**
TOTAL kg CO_2e/m^2 GIA		**0 kg CO2e/m2 GIA**	**243 kg CO2e/m2 GIA**	**5 kg CO2e/m2 GIA**	**19 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**39 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**418 kg CO2e/m2 GIA**	**1 kg CO2e/m2 GIA**	**2 kg CO2e/m2 GIA**	#########	#########	#########	###########	**-68 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	Former Stag Brewery
Planning application reference number (if applicable)	
Use Class	Residential apartments Flexible commercial and community floorspace to include: i.Retail, financial and professional services, café/restaurant and drinking establishment uses ii.Offices iii.Community use iv.Boathouse Hotel / pub with rooms Cinema Gym Offices School
Brief description of the project	The former Stag Brewery Site is bounded by Lower Richmond Road to the south, the river Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High Street) to the west. The Site is bisected by Ship Lane. The Site currently comprises a mixture of large scale industrial brewing structures, large areas of hardstanding and playing fields.
GIA (m^2)	82795

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

Assessment details	
Authors (organisation or individuals)	Hoare Lea
Date of assessment	17/02/2023
Operational modelling methodology for Module B6 results	SAP & TM54 (benchmark data)
Reference study period (if not 60 years)	60 years
Software tool used	OneClick LCA - Carbon assessment, RICS Tool
Types of EPDs and carbon database used	One Click LCA generic construction materials database, Envirodec, DAPconstrucción, GBC Espana, and AENOR, BAU-EPD, CENIA, DAP Habitat, EPD Danmark, EPD Italy, IMPACT, BI
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	Hoare Lea Intergrated Management System (IMS) 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 ■
	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	50,923,414 kg CO2e	17,502,926 kg CO2e	68,426,340 kg CO2e	15,239,670 kg CO2e	30,071,362 kg CO2e	2,263,257 kg CO2e	-10,399,675 kg CO2e
TOTAL kg CO_2e/m^2 GIA	615.054	211.401	826.455	184.065	363.203	27.336	-125.608
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)	Mixed use development, therefore not all areas included within this assessment relate to residential. However this makes up the majory of the site.						

Retention of existing buildings and structures	
Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition	A proportion of the site consists of refurbishment/change of use of existing buildings
Carbon emissions associated with pre-construction demolition ($kgCO_2e$)	4139750
Estimate of the percentage of the new build development which will be made up of existing elements	2% existing buildings refurbished

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)
	Reductions in total energy consumption due to passive design, LZCs, and heat pumps- Reduction from Baseline	16
	Selection of R454B over R410A	108

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)
	Increase Cement replacement percentage from 20% to 50%	20
	Explore specification of durable and robust materials and products to reduce B2-5 emissions	90

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. Steel, Insulation, Tiles	35827694.52	Permanent	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead	0 kg	28,662,156 kg
2.1	Superstructure: Frame	Concrete, Steel	17203081.26	60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead	0 kg	13,762,465 kg
2.2	Superstructure: Upper Floors	Wood, vynil	76552270.99	60	Recycling of Concrete, Cement to replace primary gravel Recycling of steel	0 kg	61,241,817 kg
2.3	Superstructure: Roof	Concrete, Steel, Insulation, Tiles	2676965.063	60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of steel	0 kg	2,141,572 kg
2.4	Superstructure: Stairs and Ramps	Concrete, Steel	2774947.726	60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to replace primary gravel Recycling of steel	0 kg	2,219,958 kg
2.5	Superstructure: External Walls	Masonry, Concrete, insulation, Plaserboard	15604276.11	35-60	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone to replace primary gravel Recycling of aluminium, steel	0 kg	12,483,421 kg
2.6	Superstructure: Windows and External Doors	Glazing, wood, aluminimum	1151252.278	25-45	Recycling of aluminium, steel	0 kg	921,002 kg
2.7	Superstructure: Internal Walls and Partitions	Wooden stud , plasterboard	3737177.37	40 for plasterboard	Recycling of plaster to replace primary gravel Wood products to being incinerated for energy recovery	0 kg	2,989,742 kg
2.8	Superstructure: Internal Doors	-	-	-	-	0 kg	0 kg
3	Finishes	Paint, Floor coverings, Tiles	3287150.815	15 years for paint	-	0 kg	2,629,721 kg
4	Fittings, furnishings & equipment (FFE)	ess steel, Galvanized steel, Copper coated, Copper unc	39208.08324	25-50 years	Recycling of Porcelain, Ceramic, Stone to replace primary gravel Recycling of aluminium, steel, copper, brass, Zinc & Lead	0 kg	31,366 kg
5	Services (MEP)	-	5644212.682	liators and other heat emitters25 years for electrical	Recycling for Aluminium, Steel, Stainless steel, Galvanized steel, Copper coated, Copper uncoated, Brass, Zinc, Lead	0 kg	4,515,370 kg
6	Prefabricated Buildings and Building Units	-	-	-	-	-	-
7	Work to Existing Building	-	-	-	-	-	-
8	External works	Soil, Concrete	6654025.11	60 years	Recycling of Concrete, Cement, Bricks, Stone, Ceramic, Stone, Asphalt to	0 kg	5,323,220 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					
c	Refrigerants Type 3 (if applicable) - please see CIBSE TM65 for methodology					

Please add rows if required

TOTAL	171,152,262 kg			0 kg	136,921,810 kg
Material intensity (kg/m2 GIA)	2,067 kg/m2 GIA			0 kg/m2 GIA	1,654 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)		**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												0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	
0.2	Major Demolition Works												0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	
0.3	Temporary Support to Adjacent Structures	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	
0.4	Specialist Ground Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	
0.5	Temporary Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	
1	**Substructure**	0 kg CO2e	7,393,782 kg CO2e	257,612 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	57,114 kg CO2e	0 kg CO2e			201,226 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	7,909,733 kg CO2e	-1,419,559 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	3,507,964 kg CO2e	125,584 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			180,342 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	3,813,889 kg CO2e	-652,574 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	13,186,428 kg CO2e	557,671 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			816,548 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	14,560,647 kg CO2e	-3,419,946 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	1,073,288 kg CO2e	15,651 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	57,117 kg CO2e	0 kg CO2e			33,070 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,179,126 kg CO2e	-132,497 kg CO2e
2.4	Superstructure: Stairs and Ramps	0 kg CO2e	388,008 kg CO2e	21,399 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			30,623 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	440,031 kg CO2e	-82,320 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	5,083,583 kg CO2e	43,246 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	16,712 kg CO2e	0 kg CO2e			200,843 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	5,344,384 kg CO2e	-1,195,159 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	1,136,319 kg CO2e	2,350 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	918,594 kg CO2e	0 kg CO2e			46,715 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,103,977 kg CO2e	-125,789 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	2,147,424 kg CO2e	9,580 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	320,544 kg CO2e	0 kg CO2e			141,825 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,619,374 kg CO2e	-210,423 kg CO2e
2.8	Superstructure: Internal Doors	0 kg CO2e	1,450,525 kg CO2e	4,711 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,450,525 kg CO2e	0 kg CO2e			118,783 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	3,024,544 kg CO2e	-477,013 kg CO2e
3	**Finishes**	0 kg CO2e	1,985,123 kg CO2e	9,183 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,148,564 kg CO2e	0 kg CO2e			263,731 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	4,406,600 kg CO2e	-651,820 kg CO2e
4	**Fittings, furnishings & equipment**	0 kg CO2e	1,820,220 kg CO2e	2,749 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	656,898 kg CO2e	0 kg CO2e			21,919 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	2,501,786 kg CO2e	-145,034 kg CO2e
5	**Services (MEP)**	0 kg CO2e	6,194,994 kg CO2e	11,918 kg CO2e	0 kg CO2e	3,353,060 kg CO2e	0 kg CO2e	0 kg CO2e	6,260,542 kg CO2e	0 kg CO2e	22,257,824 kg CO2e	7,681,479 kg CO2e	193,050 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	46,084,926 kg CO2e	-1,787,328 kg CO2e
6	**Prefabricated Buildings and Building Units**	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
7	**Work to Existing Building**	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	**External works**	0 kg CO2e	425,061 kg CO2e	18,241 kg CO2e	4,050,799 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			14,582 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	4,508,684 kg CO2e	-160,415 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 CO2e		**0 kg CO2e**	**45,792,726 kg CO2e**	**1,079,895 kg CO2e**	**4,050,799 kg CO2e**	**3,353,060 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**11,886,610 kg CO2e**	**0 kg CO2e**	**29,959,305 kg CO2e**	**132,059 kg CO2e**	**2,263,257 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**0 kg CO2e**	**98,497,702 kg CO2e**	**-10,399,675 kg CO2e**
TOTAL - kg CO2e/m² GIA		**0 kg CO2e/m2 GIA**	**553 kg CO2e/m2 GIA**	**13 kg CO2e/m2 GIA**	**49 kg CO2e/m2 GIA**	**40 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**144 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**362 kg CO2e/m2 GIA**	**2 kg CO2e/m2 GIA**	**27 kg CO2e/m2 GIA**	##########	##########	##########	**1,190 kg CO2e/m2 GIA**	**-126 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.