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

HOW TO USE THIS SPREADSHEET

This template should be used by planning applicants to fulfil the requirements of the Mayor's Whole Life-Cycle Carbon assessment policy set out in London Plan Policy SI 2. Before completing and submitting this spreadsheet to the GLA, applicants should read the Whole Life-Cycle Carbon Assessment guidance:

 $\frac{\text{https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/planning-guidance/whole-life-cycle-carbon-assessments-guidance-preconsultation-draft}{\text{consultation-draft}}$

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

1. Pre-application stage

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

2. Outline/detailed planning submission stage

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

3. Post-construction stage

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

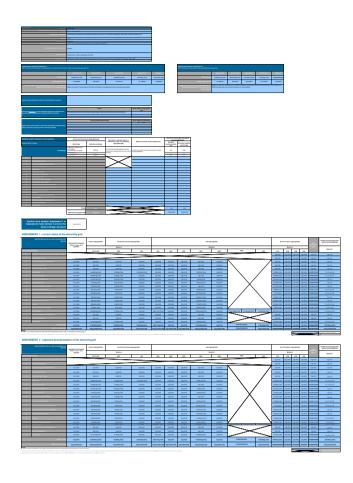
ZeroCarbonPlanning@london.gov.uk

QUERIES

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

| Project details | |
|---|--|
| Project name | |
| Planning application reference number (if applicable) | |
| Use Type | |
| Brief description of the project | |
| GIA (m²) | |
| Authors (organisation or individuals) | |
| Date of assessment | |

| | WLC reduction principles | Key benefits | Has this principle been adopted? (Y/N) | If yes provide examples, and if no please provide reasons for this |
|----|--|--|--|--|
| 1 | Reuse and retrofit of existing buildings | Significant retention and reuse of structures is carbon efficient and reduces construction costs. | | |
| 2 | Use recycled or repurposed material | Reduces carbon emissions and reduces waste. | | |
| 3 | Material selection | Appropriate material choices is key to carbon reduction. Ensuring that there is synchronicity between materials selected and planned life expectancy of the building reduces waste and the need for replacement, thus reducing in use costs. | | |
| 4 | Minimise operational energy use | A 'fabric first' approach should be prioritised to minimise energy demand and reduce carbon and in-use costs. | | |
| 5 | Minimise operational water use | Choice of materials and durability of systems, to avoid leakage and subsequent building damage, contribute to reducing the carbon cost of water use. | | |
| 6 | Disassembly and reuse | Designing for future disassembly ensures that products do not become future waste, and maintain their environmental and economic value. | | |
| 7 | Building shape and form | Compact efficient shapes help minimise both operational and embodied carbon emissions for a given floor area. This means a more efficient building overall resulting in lower construction and in use costs. | | |
| 8 | Regenerative design | Removing CO2 from the atmosphere through materials and systems absorbing it makes a direct positive contribution to carbon reduction. | | |
| 9 | Designing for durability and flexibility | Durability means that repair and replacement is reduced which in turn helps reduce life-time building costs. A building designed for flexibility can respond with minimum environmental impact to future changing requirements and a changing climate, thus avoiding obsolescence which also underwrites future building value. | | |
| 10 | Optimisation of the relationship between operational and embodied carbon | Optimising the operational/embodied carbon relationship contributes directly to resource efficiency and overall cost reduction. | | |
| 11 | Building life expectancy | Defining building life expectancy gives guidance to project teams as to the most efficient choices for materials and products. This aids overall resource efficiency, including cost efficiency and helps future proof asset value. | | |
| 12 | Local sourcing | Sourcing local materials reduces transport distances and supply chain lengths and has associated local social and economic benefits. | | |
| 13 | Minimising waste | Waste represents an unnecessary and avoidable carbon cost. Buildings should be designed to minimise fabrication and construction waste, and to ease repair and replacement with minimum waste, which helps reduce initial and in-use costs. | | |
| 14 | Efficient fabrication | Efficient construction methods (e.g. modular systems, precision manufacturing and modern methods of construction) contribute to better build quality, reduce construction phase waste and reduce the need for repairs during post completion and the defects period (snagging). | | |
| 15 | Lightweight construction | Lightweight construction uses less material which reduces the carbon footprint of the building as there is less material to source, fabricate and deliver to site. | | |
| 16 | Circular economy | The circular economy principle focusses on a more efficient use of materials which in turn leads to carbon and financial efficiencies. | | |



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| Tourie d'catour data fur nutreux and youture. | Type II EPON (IDDININGO), Type II EPON (IDDINING), Type II EPON (IDDINING), EPON II CARRA II ED 1820), 1820), 1820), 1820) |
| BPO delabore soni | One Click LCA generic construction materials distribuse, Encodes, CAPconstrucción, CBC Espana, and AENDR, BADEPO, CENIA, DAP 1966as, EPO Cannada, EPO |

| Size and MCC activities Newsons II NET This lates the BLC location for the development. The results have Assessment I below are advancinally populated base. | | | | | | | | | | | |
|--|--------------------|--------------------|--------------------|-----------------|--------------------|--|--|--|--|--|--|
| | Module AT-AS | Module ST-SS | Models \$6.67 | Medula C1 C4 | Modele D | | | | | | |
| TOTAL by CO. | 22,638,387 kg CD3+ | 26,606,633 kg CDD+ | 30,636,896 kg CCOH | 870,762 kg CCOx | -6,907,302 kg C03e | | | | | | |
| TOTAL Ng CO, AIM" GIS | DE MA | 663.306 | 773.013 | 22.116 | -126.633 | | | | | | |
| Comparison with WLC benchmarks (see Appendix 2 of the guidence) if Assessment 1 wax used to believe design | | | | | | | | | | | |

| Estimated WLC embodors (Assessment 2) N.E. The results from Assessment 2 below are automatical | | | | | | | | | | |
|--|--------------------|--------------------|--------------|-----------------|-------------|--|--|--|--|--|
| | Medicle AT-AS | Module ST-85 | Module 90-97 | Modulo C1-C4 | Module D | | | | | |
| TOTAL by CO,e | 22,638,387 kg CCO+ | 26,804,603 kg C00+ | 0 kg CGS+ | 879,792 kg CCOe | *********** | | | | | |
| 70TAL by CO _J AW [*] GM | ETS . | 603 | | 33 | -126 | | | | | |
| The place of the property of the control of the control of the place of the control of the co | | | | | | | | | | |

| Bay site apportunities and conditation to reducing WLC endocutes | in which give notices a significant size of terms unde, which, it is with property per-dendition shall self are speciment of an elegander or in the Propose integration attains the opinion of the property of | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|
| | Astron | WLC reduction (kg CO _J A/m ² GM ₂ | | | | | | | |
| lummary of terr extress to reduce whole life-cycle carbon | | | | | | | | | |
| entations that have informed this assessment, including the | | | | | | | | | |
| | | - totalestad | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Sansily further assortanties to reduce the development's | Futher potential apportunities | WLC reduction parential (kg CO _a ete | | | | | | | |
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| | control stating between products with only solutions to invention repulsations and meet to income with both product and other products are products and other products are produc | unquanted | | | | | | | |
| | | | | | | | | | |

| | INNTITY AND END OF LIFE SCHMANOS | Product and Conditionion Stay | pe (Mandada A) | Assumptions made with respect to | Material and of the security Medick Ci | Benefits and loads beyon (Med. | |
|------|---|--------------------------------------|--|--|---|--------------------------------------|--------------------------------------|
| | | Material type Material quantity (kg) | | matridenance, repair and replacement cycles (Bledule B) | Material 'end of the scenarios (Medicle C) | Estimated reveable materials (kg) | Estimated recyclal materials (kg) |
| | | | ###################################### | For all primary hubbing systems (blocker, substitution, munique, MEP sensors, intered biologic | Decisive Yeard of 186' accesses as per propert's Circular Sciencety Statement | 200 | 70.0 |
| | | as formed | 200 Au | | | 130 | 224 |
| 61 | Sensition TonoMicardina Contaminated Material Teatment | To Foreign | 20.00 | | | - " | |
| 0.2 | Major Demoktion Works | | | 1 🗸 | | | |
| 63 | Temporary Support to Adjacent Structures | | | | * | | |
| 04 | Specialist Ground Works | | | \sim | | | |
| - 1 | External time | | | Personni | Recollect Average, start, occur, logis, Zinc & Lead | | |
| 2.1 | Superstructure: Prane | | | | Recollect Statement stem cooper losses. Zinc & Sead Recollect Controls. Cerestite setting common case! | | |
| 22 | Superchant Opper Plans | | | | Manyaling of salest Mingrating or common, common, sectors of common, sectors of entition oriented common common, sectors or entition oriented common common, sectors or entition oriented common common, sectors or common, sectors or entition oriented common commo | | |
| 23 | Expension have Mod | | | | Managing of State Common Common or State Common common or Common o | | |
| 24 | Expensivolve State and Ramps | | | 3840 | epitare primary gisel Recycling of sales Recycling of sales Recycling or sales are sales are sales are passes recognitions. | | |
| 2.5 | Superstructure: Enternal Walls Superstructure: Windows and External Disess | | | 260 | Receive of alumnum, steel Receive of alumnum, steel | | |
| 17 | Superstructure: Windows and External Doors. Superstructure: External Walls and Facilities. | | | | Requiring stratements, seen Requiring stratements require primary gases Wood encloses to bene increased for eventy recovery | | |
| - 11 | Superstantian Herné Dans | | | 40 for administrated 25 for equation disease. | Wood products to being increased for every recovery | | |
| 3 | Finales | | | 15 years for paint | | | |
| 4 | Pilings, fareshings & equipment (PPE) | | | 20:03 peak | Recycling of Fundam, Chloria, panel to replace jumpy grade. Recycling of aluminum, steel, copper, brins, Zho & Lead Wood products to ben'ne transmissed the review recovery. | | |
| | Environ (MEP) | | | 20 years for sections 20 years for sadiators and other heat entities | Recycling for Abrandum, Steel, Standard steel, Copper coated, Copper uncoated, State, Zinc, Lead | | |
| | Prefedenciated Eurology, and Building Units | | | | - | | |
| 7 | Work to Existing Building | | | 100 | - | | |
| | Extend solts. | | | 63 years | Recycling of Concrete, Centent, Brishs, Stone, Cecanos, Stone, Aughlat to epitace primary glase! | | |
| | | 101AL | 0.12 | | | dag | Oxe |
| | | Material Intensity (bg/m2 CM) | 0 kg/m2 G/A | | | Daying Gill. | G kg/k/2 GM |

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

| | POTENTIAL FOR ALL LIPS CYCLE MODILES! | | | | | | | | | | | | | | | | | |
|----------------|---|------------------|--------------------|-----------------|-------------------|--------------------|--------------------|------------------|--------------------|------------------|---------------------------------------|-------------------|---|---|------------------|---|-----------------------|---|
| - | (hg COD): Zequesdated (in Malgariti) carbon (ingstine single (hg CODs)) Product single (hg CODs) Construction process single (hg CODs) | | | | | | Use size (sp(CCOH) | | | | | | Bind of Life (BuL) stage (NgCDDe) | | | | TOTAL Worlden A-C | Benefits and loads keyon the spitem boundary (kgC03e) |
| | | | | Module A | | | | | Module II | | | | | Mad | ale C | | MgCO,e | Module IV |
| Multiding when | sent category | | Dartim best | (ME) | pag | (81) | lest. | (MOL) | lest. | best | led | (87) | led | lal | lcsi | tod | | |
| 61 | Semilian Toro Halardon Contempoled Material Teatment | | | | | | | | | | | | 0 kg 003 k | 0 kg CCSh | 0 kg CCDe | 0 kg CCC+ | 0 kg CC0# | 64g COOr |
| 62 | Major Demailion Walks | | | | | | | | | | | | 6 kg CC2+ | 0 kg CCSh | 0 kg CCDe | 0 kg CCC+ | 0 kg CC0# | 64g COOr |
| 0.3 | Temporary Support to Adjacent Structures | 0 kg CCDe | 0 kg CCDe | 0 kg 000a | 0 kg CCDe | 0 kg 000a | 0 kg CCDe | 0 kg C00a | 0 kg CCSh | 0 kg CCSH | | | 0 kg 003 w | d kg CO3+ | d kg CCD+ | 0 kg 000a | 0 kg CCOe | 64g 000a |
| 0.4 | Epeciatric Crisinal Works | 0 kg CCDe | 0 kg CCDe | 0 kg CD2e | 0 kg CCDe | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 0 kg CC3k | 0 kg CCSH | | / | 0 kg 003 w | d kg CO3+ | d kg CCD+ | 0 kg 000a | 0 kg CCOe | 64g 000a |
| 68 | Temporary Chercius Works | 0 kg CCOv | 0 kg CCDe | G kg CCOe | 0 kg CCDe | 0 kg 000w | 0 kg CCDe | 0 kg C00# | 0 kg CC2a | 0 kg CCDe | | | 6 kg CC2+ | 0 kg CCSh | 0 kg CCDe | 0 kg CCC+ | 0 kg CC0# | 66g CO2r |
| - 1 | Exhibitation | 0 kg CCDe | 3,284,002 kg CCD+ | 80,169 kg CX32e | 1,165,665 kg CCD+ | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 138,021 kg C00+ | 0 kg CCSH | | | 73,588 kg CCD+ | d kg CO3+ | d kg CCD+ | 0 kg 000a | 4,738,888 kg CCOx | -799,300 kg CDOr |
| 2.1 | Eigenstructure: Plane | 0 kg CCOv | 1,008,384 kg CCD+ | 41,392 kg C03e | 0 kg CCDe | 0 kg 000w | 0 kg CCDe | 0 kg C00# | 0 kg CC2a | 0 kg CCDe | | / | SR,569 kg CCD+ | 0 kg CCSh | 0 kg CCDe | 0 kg CCC+ | 1,199,235 kg CCOx | .000,101g CDOr |
| 22 | Bujershucture, Upper Places | 0 kg CCDe | 3,016,361 kg CCD+ | 165,362 kg CX3a | 0 kg CCDe | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 2,636 kg CG0+ | 0 kg CCSH | 1 \ / | | *************************************** | d kg CO3+ | d kg CCD+ | 0 kg 000a | 3,430,304 kg CCOx | 64g 000a |
| 23 | Eugenstructure Moof | 0 kg CCOv | 917,229 kg C02a | 28,871 kg C02e | 0 kg CCDe | 0 kg 000w | 0 kg CCDe | 0 kg C00# | 65,003 kg 003+ | 0 kg CCDe | 1 | | 64,776 kg CCD+ | 0 kg CCSh | 0 kg CCDe | 0 kg CCC+ | 1,657,668 kg CCOx | 64g COOr |
| 2.4 | Expensionary State and Kamps | 0 kg CCDe | 189,083 kg C03a | 10,983 kg C03le | 0 kg CCDe | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 0 kg CCSh | 0 kg CCSH | 1 | | 16,717 kg CCD+ | d kg CO3+ | d kg CCD+ | 0 kg 000a | 225,794 kg CI32e | 64g C03r |
| 2.6 | Esperatucium Esterus Walls | 0 kg CCOv | 865,125 kg C03a | 7,396 kg CCDe | 0 kg CCDe | 0 kg 000w | 0 kg CCDe | 0 kg C00# | 90,664 kg 003w | 0 kg CCDe | _ / \ | | 13,883 kg CGS+ | 0 kg CCSh | 0 kg CCSe | 0 kg CCC+ | 965,966 kg CC3+ | ADLITTING COO. |
| 2.6 | Superstructure: Windows and External Doors | 0 kg CCDe | 661,306 kg C02+ | 787 kg C02a | 0 kg CCDe | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 672,1683g-C00e | 0 kg CCSH | 1 / ' | \ | 127 kg (000) | d kg CO3+ | d kg CCD+ | 0 kg 000a | 1,336,368 kg CCOr | -DEDUING COD- |
| 3.7 | Superstructure. Internal Mode and Partitions. | 0 kg CCDe | 976,676 kg C02e | 4,881 kg CCOv | 0 kg CCDe | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 627,291 kg C00+ | 0 kg CCSH | 1 / | | 83,831 kg CCD+ | d kg CO3+ | d kg CCD+ | 0 kg 000a | 1,662,779 kg CCOx | 64g 000a |
| 2.8 | Bujerstructure: Bierral Daws | 0 kg CCOv | 866,109 kg C03a | 1,865 kg CCOw | 0 kg CCDe | 0 kg 000w | 0 kg CCDe | 0 kg C00# | 1,136,218 kg C03a | 0 kg CCDe | | | SE, SSS Ng CCCH | 0 kg CCSh | 0 kg CCSe | 0 kg CCC+ | 1,752,677 kg CCOx | 64g COOr |
| 3. | Finishes | 0 kg CCDe | 695,036 kg C03a | 3,222 kg CC0+ | 0 kg CCDe | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 1,116,687 kg C03h | 0 kg CCSH | 1 / | | 53,654 kg CCD+ | d kg CO3+ | d kg CCD+ | 0 kg 000a | 1,867,198 kg CCOx | -216,610 kg (100s |
| 4 | Pillings, fumbbings & equipment | 0 kg CCOv | BS, 600 kg CCOx | 183 kg CG2e | 0 kg CCDe | 0 kg 000w | 0 kg CCDe | 0 kg C00# | 85,600 kg 000w | 0 kg CCDe | \vee | / | 1,687 kg C00+ | 0 kg CCSh | 0 kg CCSe | 0 kg CCC+ | 173,080 kg CI33e | .7923 kg CODe |
| | Services (NEP) | 0 kg CCOv | 8,661,668 kg CCD+ | 10,366 kg C03ae | 0 kg CCDe | 8,307,177 kg/000e | 0 kg CCDe | 0 kg C00# | 13,808,230 kg C00a | 0 kg CCDe | 15,101,786 kg 000+ 13,165,616 kg 000+ | 2,165,256 kg CCD+ | *************************************** | 0 kg CCSh | 0 kg CCSe | G kg CCCor | 88,800,712 kg C02e | -1,000,600 kg (TSSs |
| - 6 | Prefatorizated Buildings and Building Drifts | 0 kg CCDw | 0 kg CCOe | G kg CCOe | 0 kg CC0+ | 0 kg 000w | d kg CCS+ | 0 kg C00w | 6 kg CC2w | 0 kg C03# | 1 | | 0 kg 003# | 0 kg CO3e | 0 kg CCDe | d kg CCOs | 0 kg CCO# | esg con- |
| 7 | Work to Existing Building | 0 kg CCDw | 0 kg CCDw | d kg CCOe | 0 kg CC0+ | 0 kg COOk | 0 kg CCDe | 0 kg C00e | 6 kg CC2+ | G kg CCDe | · >< | | 0 kg CC2+ | 0 kg CO3e | 0 kg CCDe | G kg CCOs | 0 kg CCOx | 64g CODs |
| | External works | 0 kg CCDe | 3,111,615 kg CCD+ | 37,165 kg C03e | 0 kg CCDe | 0 kg 000e | 0 kg CCDe | 0 kg C00a | 63,899 kg CC2+ | 0 kg CCSH | · | _ | 13,7V1 kg CCD+ | d kg CO3+ | d kg CCD+ | 0 kg 000a | 3,236,210 kg CCOx | JOHNSTN COO. |
| | TOTAL by CODE | 0 kg CCOv | 21,081,864 kg C03+ | 363,600 kg C03+ | 1,183,045 kg CCOv | 8,327,177 kg C00s | 0 kg CO2e | Bay Cook | 17,877,396 kg C00w | 0 kg CO2+ | 38,371,381 kg C00+ | 3,165,256 kg CCOv | *************************************** | 0 kg CO3e | 0 kg CO3e | 0 kg CD3e | 80,850,177 kg C03+ | -6,807,302 kg C03k |
| | TOTAL - Ng COOKING GA | 0 kg CCOwles DIA | SSS by COOking GIA | 9 kg CD3wlw3 GM | 30 kg CCOwled GIA | 237 kg CCOx/m2 GIA | 0 by CO2+in2 GIA | Bing COOMING GIA | ARE NO CODE/WO CLA | 0 by CO2+in2 GIA | THE NA CODWING ON | SS by CCOwled GIA | *************************************** | *************************************** | **************** | *************************************** | 2,813 by COSe/e/2 GIA | -120 kg CODe/w2 GIA |
| Materia | | | | | | | | | | | | | | | | | | |

| on. | Department for ALL UPS CITIZE SECULES (0) CITIZE (0) Experimental for integrating leading in page in the control of integrating leading in the | | | | sage (kgCCOH) | | One stage (MgCDDs) | | | | | | Brief of Life (Bob.) stage (bgC00be) | | | | TOTAL Mediates InC IngCO,e | Benefits and loads beyon the option boundary (kgC03a) |
|--------|--|------------------|--------------------|-------------------|-------------------|--------------------|--------------------|------------------|--------------------|------------------|------------------|------------------|---|------------|-----------|---|----------------------------------|---|
| | | | | Module A | | | | | Module II | | | | Module C | | | 400,0 | Module IV | |
| dig ek | next category | | Date milital | hwi, | 940 | (81) | lest. | (Mod. | lest. | bot | int | (10) | lesi | [0] | (CI) | 908 | | |
| 61 | Senditor Sun/Yourston Curtaminated Material Teamers | | | | | | | | | | | | 6 kg CC2+ | 0 kg CCOa | 0 kg CCD+ | 0 kg CCC+ | d kg CDDe | 69g C00s |
| 6.2 | Major Dematition Walks | | | | | | | | | | | | 0 kg 002w | d kg CCSH | 0 kg CCDe | 0 kg CCO# | d kg CCOs | 64g C00s |
| | Temporary Euggont to Adjacent Etractures | 0 kg CCDe | 0 kg CCOw | 0 kg CCOa | 0 kg C00w | 0 kg 000e | d kg CCDe | 0 kg C00e | 0 kg CCC2e | d kg CCDe | | | 0 kg CC24 | 0 kg CO3e | 0 kg CCDe | 0 kg CCO# | 0 kg 000a | 66g CCC2r |
| 64 | Specialist Ground Works | 0 kg CCDe | 0 kg CCOw | 0 kg CCOa | 0 kg C00w | 0 kg 000e | d kg CCDe | 0 kg C00e | 0 kg CCC2e | d kg CCDe | | / | 0 kg CC2+ | 0 kg CO3e | 0 kg CCDe | 0 kg CCO# | 0.69.000# | 68g COO |
| 68 | Temporary Cherson Works | 0 kg CCDe | 0 kg CCDe | 0 kg CCO# | 0 kg CC0# | 0 kg 000a | d by CODe | 0 kg C00e | 0 kg CC2+ | 0 kg CCDe | | | 0 kg CC2+ | 0 hg C03h | 0 kg CCDe | 0 kg CD3+ | 0 kg 000e | 64,000 |
| -1 | Identos | 0 kg CCDe | 3,384,002 kg CCO+ | 50, 169 kg CCD+ | 1,165,045 kg CCDe | 0 kg 000a | d kg CCDe | 0 kg C00e | 138,831 kg CD2+ | d kg CCDe | | / | 73,568 kg CCD+ | 0 kg CO3e | 0 kg CCDe | 0 kg CCO# | 4,728,885 kg CCOx | .799,301 kg (000s |
| 2.1 | Sujercitudium Plane | 0 kg CCDe | 1,088,384 kg CCO+ | 41,382 kg C02e | 0 kg CC0# | 0 kg 000a | d by CODe | 0 kg C00e | 0 kg CC2a | 0 kg CCDe | | / | ss,ses s ₄ cco+ | 0 kg (003e | 0 kg CCDe | 0 kg CD3+ | 1,168,235 kg CCOr | .000,103g (DO) |
| 3.2 | Superstructure Upper Places | 0 kg CCDe | 3,015,261 kg CCOv | 165,382 kg C03a | 0 kg CCD+ | 0 kg 000a | 0 kg CCD+ | 01gC00r | 2,635 kg CG0+ | 0 kg CCDe | \ / | | *************************************** | d kg CO3+ | 0 kg C03e | 0 kg 000a | 3,429,304 kg CD0e | 64g C03r |
| 2.3 | Superstructure Mont | 0 kg CCDe | 917,229 kg C03e | 29,871 kg C02+ | 0 kg C00w | 0 kg 000e | d kg CCDe | 0 kg C00e | 65,003 kg CC2+ | d kg CCDe | | | 64,775 kg CCD+ | 0 kg CO3e | 0 kg CCDe | 0 kg CCO# | 1,687,868 kg C00w | 66gCD3r |
| 2.4 | Experimentary State and Kamps | 0 kg CCDe | 199,093 kg CICDe | 10,983 kg C03e | 0 kg CC0# | 0 kg 000a | d by CODe | 0 kg C00e | 0 kg CC2a | 0 kg CCDe | | | 18,717 kg 000+ | 0 kg (003e | 0 kg CCDe | 0 kg CD3+ | 225,794 kg CCO# | 64g CO2s |
| 2.6 | Egenholus Edena/Walk | 0 kg CCDH | 868,125 kg CCDe | 7,3% kg C00# | 0 kg CC0# | 0 kg 000e | d by CODe | 0140000 | 90,866 kg C00v | 0 kg CCDe | / \ | | 13,883 kg CGS+ | 0 kg 003e | 0 kg CCDe | 0 kg CCO# | 868,866 kg CCOr | ADLITTE COD |
| 24 | Superchanture Windows and External Doors | 0 kg CCDe | 661,306 kg C03e | 787 kg C03a | 0 kg C00w | 0 kg 000a | d kg CCDe | 0 kg C00e | 673,146 kg CD2+ | d kg CCDe | | \ | 127 kg 000a | 0 kg CO3e | 0 kg CCDe | 0 kg CCO# | 1,334,368 kg CCOx | -DELATING COOP |
| 3.7 | Superstructure. Internet Walls and Parlitions | 0 kg CCDe | BIN, EIN by CICLIe | 6,881 kg CCDw | 0 kg C00w | 0 kg 000e | d kg CCDe | 0 kg C00e | 627,291 kg CD2+ | d kg CCDe | | | 83,831 kg CGS+ | 0 kg CO3e | 0 kg CCDe | 0 kg CCO# | 1,662,779 kg C00e | 64g COOr |
| 2.8 | Superstructure: Menul Diors | 0 kg CCDe | 868,109 kg CX3a | 1,866 kg C00w | 0 kg CC0# | 0 kg 000a | d by CODe | 0 kg C00e | 1,136,210 kg 003e | 0 kg CCDe | | | 66,505 kg CCD+ | 0 kg (003e | 0 kg CCDe | 0 kg CD3+ | 1,782,877 kg CCOe | 65g CODe |
| | Finishes | 0 kg CCDH | 695,036 kg CI33e | 3,322 kg C00w | 0 kg CC0# | 01g 000r | d by CODe | 0140000 | 1,110,687 kg 003e | 0 kg CCDe | | | 83,684 kg CCD+ | 0 kg (333) | 0 kg CCDe | 0 kg CCO# | 1,867,198 kg CCOe | 294494g CDGs |
| 4 | Fillings, fumbbings & equipment | 0 kg CCDe | MS,600 kg CCOx | 193 kg C03a | 0 kg CCD# | 0 kg 000e | 0 kg CCD+ | Oxecco | 85,600 kg CC2+ | 0 kg CCDe | / | _ | 1,687 kg C00+ | d kg CO3+ | 0 kg CO3e | 0 kg 000a | 173,000 kg CCOe | -7912 kg CCOr |
| | Services (MEP) | 0 kg CCDe | 5,661,668 kg CCDv | 15,364 kg C03le | 0 kg CC0e | 8,337,177 kg/C03e | 0 kg CCDe | 01g C03e | 13,808,200 kg C00w | 0 kg CCDe | | | *************************************** | 0 kg CO3e | 0 kg CCDe | 0 kg 000a | 88,801,712 kg CCOx | .1,000,600 kg (TD2s |
| 4 | Prefedenceded Buildings and Building Shifts | 0 kg CCDe | 0 kg CCDe | 0 kg 000a | 0 kg CC0e | 0 kg 000a | 0 kg CCDe | 01gC00e | Chy CCOn | 0 kg CCDe | _ | | 0 kg CC2+ | d kg CCSa | 0 kg CCDe | 0 kg CCO# | 0 kg C00e | 64g (100ar |
| , | Work to Exhibing Building | 0 kg CCOx | 0 kg CCDe | 0 kg 000a | 0 kg CC0e | 0 kg 000e | 0 kg CCDe | 01gC00e | 0 kg CC2a | 0 kg CCDe | \sim | _ | 6 kg CC2+ | 0 kg 003e | 0 kg CCDe | 0 kg CCO# | 0 kg C00e | 6%g C00ar |
| 1 | Rainval works | 0 kg CCOw | 3,111,615 kg-C00w | 37,165 kg C03e | 0 kg CC0+ | 0 kg 000e | 0 kg CCDe | 01g C00e | 63,899 kg CCDv | 0 kg CCDe | | | 13,761 kg C00w | 0 kg C03a | 0 kg CCDe | d kg CCOe | 3,336,313 kg CCOx | ANALOTE COO. |
| | TOTAL Na COOM | 0 kg CCOe | 21,081,864 bg C03e | 363,600 kg C03a | 1,183,048 kg CCOe | 8,307,177 kg C00e | 0 kg CCDe | eng cook | 17,877,356 kg COOk | 0 kg CODe | 0 kg CODe | 0 kg CCOs | | 0 kg C03e | 0 kg C03e | 0 kg C03e | 80,850,177 kg C03e | -6,607,302 kg C03k |
| | TOTAL - Ng COOKING GA | 0 kg CCOwled GIA | ESS by COOMING GIA | 9 kg CD3e/e/3 GIA | 30 No CCOwing GIA | 237 No CODe/no GIA | 0 he CODered GIA | Disa CODE/NO GIA | 66 Na CODWING GIA | 0 ha COZerna GIA | 6 kg C03win2 GIA | Disc COOKING GIA | | | | *************************************** | 2,813 by CO3e/e/2 GIA | -120 ha CODWING ON |

| Project details | |
|---|---|
| Project name | |
| Planning application reference number (if applicable) | |
| | RG.AT, 81 RK. |
| Birlef description of the project | |
| GA (n°) | |
| Authors (organisation or individual) | |
| Date of assessment | |
| Nationally recognised assessment method used | R.G. BS LIN 15WE, WITH ADDROVED GUIDENCE FOR RELS PROBESORS SERVING |
| Reference study period (if not 60 years) | This call found only to filled in this effection analyzed of it. In a susmed building the expectacy, accept on it is set than 60 years. Applicates should state the submission study product in the call. While it is assessment of their distribution sets of places any Chapter of the submission study and present on the call and the call of the set of places and distribution study. Per of the calcular inference study period by copying and pasting an additional CMVP potentiar for all the cycle modules' table, see below. |
| Software tool used | [This should align with the software tool used at outline/detailed planning stage] |
| Source of carbon-data for materials and products | [See guidance for acceptable sources] |
| EPO database used | If using more than one database please list all |

| WLC emissions baseline (Assessment 1) (submarically populated from the 'detailed planning stage' tab) | | | | | | | | | | | | |
|--|--------------------|--------------------|--------------------|-----------------|----------|--|--|--|--|--|--|--|
| | Module A1-A5 | Module B1-B5 | Module SG-S7 | Module C1-C4 | Module D | | | | | | | |
| TOTAL kg CO ₂ e | 22,638,397 kg CO2e | 26,904,433 kg CC0s | 30,436,595 kg CO2e | 870,752 kg CO2e | | | | | | | | |
| TOTAL kg CO ₃ alm ³ GIA | 574.958 | 680.305 | 773.013 | 22.115 | -124.633 | | | | | | | |

| Post-construction WLC emissions (Assessment 1) | | | | | | | | | | | |
|---|--|--|-------------------------|--------------|-----------|--|--|--|--|--|--|
| | Module A1-A5 | Module B1-B5 | Module DG-D7 | Module C1-C4 | Module D | | | | | | |
| TOTAL kg CO ₂ e | 0 kg CO2e | 0 kg CO2e | PVALUE | 0 kg CO2e | 0 kg CC0s | | | | | | |
| TOTAL kg CO ₂ e/m² GIA | HDM/01 | HD1/101 | #VALUE! | 10,000 | NOV/01 | | | | | | |
| Commentary comparing the post-construction results against the WLC emissions baseline (Assessment f) above | (Explain the reasons for any divergences for | om assessment 1 result against the WLC em | issions baseline above) | | | | | | | | |
| Commentary comparing the post-construction results against the WLC benchmarks (see Appendix 2) | Explain the reasons for any divergences to | aplain the reasons for any diseignance from MLC benchmarks, including against the MLC aspirational benchmarks) | | | | | | | | | |

| WLC emissions baseline (Assessment 2) (submarically populated from the 'detailed planning stage' tab) | | | | | |
|--|--------------------|--------------------|--------------|-----------------|--------------------|
| | | Module B1-BS | Module 86-87 | Module C1-C4 | |
| TOTAL kg CO _c e | 22,638,397 kg CO2e | 26,904,433 kg CO2e | 0 kg CO2e | 870,752 kg CO2e | -4,907,302 kg CODs |
| TOTAL kg CO _J elm ² GIA | 574.958 | 683.305 | 0.000 | 22.115 | -124.633 |

| Post-construction WLC emissions (Assessment 2) | (submedically populated from Assessment 2 below) | | | | | | | | |
|--|--|---|--|----------------------|--------------------|--|--|--|--|
| | Module A1-AS | Module B1-BS | Module 86-87 | Module C1-C4 | Module D | | | | |
| TOTAL kg CO _j e | 0 kg CO2e | 0 kg CC0s | WALUE | 0 kg C02e | 0 kg CO2e | | | | |
| TOTAL kg CO _{jelm} GIA | 101/01 | #D1//01 | WALUE | HOMON | #DN/01 | | | | |
| Commercary comparing the post-construction results against the WLC emissions baseline (Assessment 2) above | [Cipitals the reasons for any divergences from assessment 2 nexult against the WLC emissions baseline above] | | | | | | | | |
| Commentary comparing the post-construction results against the WLC benchmarks (see Appendix 2) | (Explain the reasons for a note that grid decarboniss | ny divergences from WLC be alon has not been accounted | enchmarks, including against for in the benchmarks) | the WLC aspirational | berchmarks. Please | | | | |

| Confirm here whethe | r Asses | smen | :1 or |
|---------------------|---------|--------|-------|
| Assessment 2 fe | ormed t | he bas | is of |
| | | | |

| Summary of key actions undertaken to reduce whole life-cycle | Action undertaken | WLC reduction achieved (kg | | | | | |
|--|--|----------------------------|--|--|--|--|--|
| carbon emissions, including the reductions achieved | This set does not need to be exhaustive out should identify the accord with the biggest implacts, traint more tries it needed; | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Le. Design cotions or materials that could be used, design orinciples that could be applied. | | | | | | |
| Lessons learnt from the process of undertaking a WLC | Inset more lines if needed | | | | | | |
| | | | | | | | |

| MATERIAL QU. | ANTITY AND END OF LIFE SCENARIOS | Product and Construc | tion Stage (Module A) | Assumptions made with respect to | | Benefits and load boundary | s beyond the system (Module D) |
|----------------|--|---------------------------------|------------------------|--|--|--------------------------------------|--|
| Building eleme | nt category | Material type | Material quantity (kg) | maintenance, repair and replacement cycles (Module II) | Material 'end of life' scenarios (Module C) | Estimated reusable materials (kg) | Estimated recyclable materials (kg) |
| Notalesamph | | e.g. Concrete | 45000 kg | For all primary building systems (structure, substructure, envelope, MSP sendons, internal finishes) | Declare 'and of life' acerrario as per project's Circular Economy Statement | Alex | 95 km |
| | | e n Seinforement e o Formack | 5000an 950an | 4 | | 0 km | 0 km |
| | Demolition: Toxic Hazardous Contaminated | e o Fortwood | 200 80 | _ | | 910 | 040 |
| 0.1 | Material Transport | | | \sim | | | |
| 0.2 | Major Demolifion Works | | | · × | | | |
| - 43 | Tomorrow Control to Advant Chartens | | | _ | | | |
| 0.4 | Specialist Ground Works | | | | | | |
| - | Substructure | | | | | | |
| - 24 | Superstructure Frame. | | | | | | |
| 2.2 | Superstructure: Liboer Fixors | | | | | | |
| | Supureto et are: Stales and Dames | | | | | | |
| | Superior of the Esternal Walls | | | | | | |
| - 26 | Superstanting Windows and External Doors | | | | | | |
| | Construction of the Constr | | | | | | |
| 2.6 | Consideration between Constant | | | | | | |
| - 1 | Cirishee | | | | | | |
| | Fitings funishings & equipment (FFS) | | | | | | |
| ٠. | Cantinus (MED) | | | | | | |
| 6 | Prefabricated Buildings and Building Units | | | | | | |
| 7 | Work to Existing Building | | | | | | |
| | External works | | | | | | |
| | | TOTAL | 0 kg | | | 0 kg | Okg |
| | | Material intensity (kg/m2 GIA) | 101/01 | | | 101/108 | NOV/OI |

ASSESSMENT 1 - current status of the electricity grid

| GM | IP POTENTIAL FOR ALL LIFE-CYCLE MODULES ¹ (kgCO3k) | Product stage (kgC02e) Construction process stage (kgC02e) Sequestreed for biosenici carbon | | | Use stage (kgCO2e) | | | | | | End of Life (EoL) | | | | TOTAL | Benefits and loads beyon the system boundary (kgC02e) | | |
|------------|--|---|---------------------|---------------------|---------------------|-----------|----------------------|---------------------|----------------------|----------------------|---|----------------------|----------------------|----------------------|-----------------------|---|----------------------|-----------|
| | | (negative value) (kgC02e) | Module A | | | | | | | odule B | | | | Module | Modules A-C kgCOje | Module D* | | |
| Sing eleme | ant category | | [A1] to [A3] | [84] | [AS] | [01] | [8:2]* | [83]- | (0.4)* | last. | (B6) | [87] | (01) | [C2] | (0.0) | [C4] | | |
| 0.1 | Demolition ToxioHazardous/Contaminated Material Treatment | | | | | | | | | | | | | | | | 0 kg CQ2a | |
| | Major Demoition Works | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 0.3 | Temporary Support to Adjacent Structures | | | | | | | | | | | $\overline{}$ | | | | | 0 kg CO2e | |
| 0.4 | Specialist Ground Works | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 0.5 | Temporary Diversion Works | | | | | | | | | | | | | | | | 0 kg CQ2a | |
| 1 | Substructure | | | | | | | | | | | / | | | | | 0 kg CO2e | |
| 2.1 | Superstructure: Frame | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 22 | Superstructure: Upper Fibors | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 13 | Superstructure: Roof | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 2.4 | Superstructure: Stairs and Ramps | | | | | | | | | | | | | | 1 | | 0 kg CQ2e | 1 |
| 2.5 | Superstructure: External Walls | | | | | | | | | | | | | | | | 0 kg CQ2a | |
| 2.6 | Superstructure: Windows and External Doors | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 2.7 | Superstructure: Internal Walls and Partitions | | | | | | | | | | ` | \ | | | | | 0 kg CO2e | |
| 1.0 | Superstructure: Internal Doors | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 3 | Firithes | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 4 | Fittings, furnishings & equipment | | | | | | | | | | / | | | | | | 0 kg CO2e | |
| s | Services (MEP) | | | | | | | | | | Regulated emissions Unregulated emissions | | | | | | 0 kg CO2e | |
| 6 | Prefabricated Buildings and Building Units | | | | | | | | | | | | | | | | 0 kg CQ2a | |
| 7 | Work to Existing Building | | | | | | | | | | \rightarrow | | | | | | 0 kg CO2e | |
| 1 | External vertex | | | | | | | | | | | _ | | | | | 0 kg CO2e | |
| | TOTAL kg CO2e TOTAL - kg CO2e/tr2 GW | 9 kg CO2e eDividi | 9 ko C02e #DIV01 | 0 ka CO2e #DIVØI | 0 ks CO2s #DWXII | 0 kg C02e | 0 kg CO2e #DRIRD! | 0 kg CO2e #DRV01 | 0 kg CO2e #DIVID! | 0 ko CO2e #DIVI01 | WALUE | 0 kg CO2e #DRIRD! | 0 kg CO2s #D6VX01 | 0 kg COSe #DIVIGI | 0 kg CO2e #DIV/01 | 9 kg CO2s #DN/91 | 0 ko CO2e #DRVIDI | 9 ks CO2e |

ASSESSMENT 2 - expected decarbonisation of the electricity grid

| GM | AP POTENTIAL FOR ALL LIFE-CYCLE MODULES' (kgCOSk) | Product stage (kgCO2e) Construction process stage (kgCO2e) Sequestered (or biogenic) carbon | | | | | Use stage (kgCC2k) | | | | | | End | of Life (Ect.) at | age (kgC02e) | | TOTAL Modules A-C | Benefits and loads bey the system boundar (kgC02e) |
|-----------|--|---|--------------|---------------------|-------------------|-----------|--------------------|-----------|-------------------|-----------|---|-----------|-----------|-------------------|--------------|-----------|----------------------|--|
| | | (regative value) (kgCO2e) | | Module A | | | | | 16 | odule B | | | | Module | c | | | |
| g electre | nent category | | [A1] or [1A] | [84] | [AS] | [81] | [8:2]* | (B3)- | [0.4]* | insl. | [B6] | [87] | [01] | [C2] | (03) | [C4] | | Module D* |
| 1.1 | Demoition: ToxicHazardous Contaminated Material Treatment | | | | | | | | | | | | | | | | 0 kg CQ2a | |
| 12 | Major Demolition Works | | | | | | | | | | | | | | | | 0 kg CO2a | |
| i à | Temporary Support to Adjacent Structures | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 14 | Specialist Ground Works | | | | | | | | | | | | | | | | 0 kg CO2a | |
| 15 | Temporary Diversion Works | | | | | | | | | | | / | | | | | 0 kg CO2e | |
| 1 | Substructure | | | | | | | | | | | / | | | | | 0 kg CQ2a | |
| 1.1 | Superstructure: Frame | | | | | | | | | | 1 \ / | | | | | | 0 kg CQ2a | |
| 12 | Superstructure: Upper Fixors | | | | | | | | | | \ / | | | | | | 0 kg CO2a | |
| 13 | Superstructure: Roof | | | | | | | | | | | | | | | | 0 kg CQ2e | |
| 14 | Superstructure: Stairs and Ramps | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 1.5 | Superstructure: External Walts | | | | | | | | | | / \ | | | | | | 0 kg CO2e | |
| 1.6 | Superstructure: Windows and External Doors | | | | | | | | | | / \ | | | | | | 0 kg CO2e | |
| 1.7 | Superstructure: Internal Walls and Partitions | | | | | | | | | | | \ | | | | | 0 kg CO2e | |
| | Superstructure: Internal Doors | | | | | | | | | | | / | | | | | 0 kg CQ2e | |
| 3 | Frishes | | | | | | | | | | / | / | | | | | 0 kg CO2a | |
| 4 | Fittings, funishings & equipment | | | | | | | | | | / | | | | | | 0 kg CO2e | |
| 5 | Services (MEP) | | | | | | | | | | Regulated emissions Unregulated emissions | | | | | | 0 kg CQ2e | |
| | Prefabricated Buildings and Building Units | | | | | | | | | | | | | | | | 0 kg CO2e | |
| 7 | Work to Exesting Building | | | | | | | | | | \sim | | | | | | 0 kg C02a | |
| | External works | | | | | | | | | | | | | | | | 0 kg CO2a | |
| | TOTAL kg CO2e TOTAL - kg CO2em2 GH | 0 kg CO2e #70000 | 6 kg C02e | 0 kg CO2e eDIVAL | 0 kg CO2e eOWN | 0 kg CO2e | 0 kg C02e | 9 kg CO2e | 0 kg CO2e #DMM | 0 kg CO2e | WALUE | 0 kg CO2e | 0 kg CO2e | 0 kg CO3s | 0 kg CO2e | 9 kg CO2e | 0 kg CO2e | 0 kg CO2s |

| Assessment no. | WLC reduction principles adopted |
|----------------|----------------------------------|
| Assessment 1 | Υ |
| Assessment 2 | N |