

<b>Committee:</b>	<b>Date:</b>
Planning and Transportation	19 July 2022
<b>Subject:</b> Addendum Report for Agenda item 4  Boundary House 7 - 17 Jewry Street London EC3N 2EX. Application Ref. 21/00826/FULMAJ.	<b>Public</b>

Whole Life Carbon Assessment

1. The Applicant has submitted an updated Whole Life Carbon Assessment following Officer comments and minor amendments are required to the Committee Report.
2. The following changes are required to the 'Application Cover Sheet' starting on page 11 (rows 11-14 only):

<b>11. OPERATIONAL CARBON EMISSIONS</b>	5,643,543 kgCO <sub>2</sub> e/m <sup>2</sup> over 60 years (decarbonisation of the grid and covers Module B6 only)												
<b>12. EMBODIED CARBON EMISSIONS</b>	<p><b>PROJECT LIFE CYCLE EMISSIONS COMPARED TO GLA BENCHMARKS</b></p> <p style="text-align: center;"><b>WLC benchmarking by stage (residential)</b> kgCO<sub>2</sub>e/m<sup>2</sup>GIA</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>WLC benchmarking by stage (residential) Data</caption> <thead> <tr> <th>Category</th> <th>A1-A5 (excluding sequestration)</th> <th>B-C (excluding B6 &amp; B7)</th> </tr> </thead> <tbody> <tr> <td>WLC benchmarks, GLA</td> <td>850</td> <td>350</td> </tr> <tr> <td>Aspirational WLC benchmark, GLA</td> <td>500</td> <td>300</td> </tr> <tr> <td>Proposed development</td> <td>699</td> <td>711</td> </tr> </tbody> </table> <p style="text-align: center;"> <span style="color: grey;">■</span> A1-A5 (excluding sequestration)    <span style="color: green;">■</span> B-C (excluding B6 &amp; B7) </p> <p><b>TOTAL: 15,687,044 kgCO<sub>2</sub>e/60 years</b> (A1-A5, excluding sequestration and B-C (excluding B6 &amp; B7))</p>	Category	A1-A5 (excluding sequestration)	B-C (excluding B6 & B7)	WLC benchmarks, GLA	850	350	Aspirational WLC benchmark, GLA	500	300	Proposed development	699	711
Category	A1-A5 (excluding sequestration)	B-C (excluding B6 & B7)											
WLC benchmarks, GLA	850	350											
Aspirational WLC benchmark, GLA	500	300											
Proposed development	699	711											
<b>13. WHOLE LIFE CYCLE CARBON EMISSIONS (kgCo2e/m2 GIA)</b>	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="background-color: #70ad47; color: white;">699</td> <td style="background-color: #0056b3; color: white;">606</td> <td style="background-color: #99c2ec; color: white;">610</td> <td style="background-color: #cfe2f3; color: white;">105</td> </tr> <tr> <td style="background-color: #70ad47; color: white;">Product and construction A1-A5</td> <td style="background-color: #0056b3; color: white;">Use B1-B5</td> <td style="background-color: #99c2ec; color: white;">Op. energy and Water use B6-B7</td> <td style="background-color: #cfe2f3; color: white;">End of Life C1-C4</td> </tr> </table> <p><b>TOTAL: 22,473,946 kgCO<sub>2</sub>e/60 years</b></p>	699	606	610	105	Product and construction A1-A5	Use B1-B5	Op. energy and Water use B6-B7	End of Life C1-C4				
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## 14. WHOLE LIFE CYCLE CARBON OPTIONS

Applicable	Light refurbishment	Maximum retention	New superstructure	All new
Images				
Gross Internal Area (GIA)	5,770m <sup>2</sup>	10,889m <sup>2</sup>	11,121m <sup>2</sup>	11,121m <sup>2</sup>
Increase in GIA	-	5,119m <sup>2</sup>	5,351m <sup>2</sup>	5,351m <sup>2</sup>
Embodied carbon (A1-A5) GIA	409 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	627 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	681 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	714 kgCO <sub>2</sub> e/m <sup>2</sup> GIA
% structural material retained relative to existing volume (excluding façade)	100%	63%	5%	0%
Embodied carbon (A1-A5, B1-B5, C1-C4) GIA	1,120 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	1,326 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	1,380 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	1,413 kgCO <sub>2</sub> e/m <sup>2</sup> GIA
Operational energy (B6) GIA	507 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	507 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	507 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	507 kgCO <sub>2</sub> e/m <sup>2</sup> GIA
Fuel source	Electricity	Electricity	Electricity	Electricity
Total WLCA (A1-A5, B1-B6, C1-C4) GIA	1,628 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	1,846 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	1,900 kgCO <sub>2</sub> e/m <sup>2</sup> GIA	1,933 kgCO <sub>2</sub> e/m <sup>2</sup> GIA
Total WLCA (A1-A5, B1-B6, C1-C4)	9,393 tCO <sub>2</sub> e	20,100 tCO <sub>2</sub> e	21,128 tCO <sub>2</sub> e	21,495 tCO <sub>2</sub> e

### Notes and assumptions:

- Structural inputs contributing to A1-A5 sourced from Elliott Wood structural option analysis.
- Remainder of non-structural inputs, including façade, sourced from Hoare Lea WLC assessment proposed development option and pro-rated by area (GIA, m<sup>2</sup>). Carbon factors based on decarbonisation scenario.
- Light refurbishment option assumes that the building is repurposed to a hotel, new all-electric building services system is installed, an allowance has been included for upgrading to more energy efficient elements in the thermal envelope and that no structural strengthening is required.

**Total WLC emissions for light refurbishment = 9,393 tCO<sub>2</sub>e**

**Total WLC emissions for proposed building = 21,128 tCO<sub>2</sub>e**

3. In addition, the following changes are required to the text of the report:

- Above paragraph 209, a heading is inserted: “Options Appraisal”.

- For paragraph 209, the following sentence is substituted:

*“The options are designed to achieve comparable levels of floorspace.”*

With:

*“The options are based on early stage assumptions and are designed to achieve comparable floorspace with the exception of the light refurbishment option which is based on the existing massing.”*







- For paragraph 211, this is to be substituted with:

*“By retaining as much of the existing structure as possible, 17% of structural embodied carbon compared to a totally new scheme would be saved.”*

- Above paragraph 213, the following heading is inserted: “The Proposed Development”.
- In paragraph 214, the total whole lifecycle carbon emissions being emitted over a 60-year period is amended to 22,473,946 kg CO<sub>2</sub>e (previously 22,132,700 kg CO<sub>2</sub>e). This figure is based on the detailed cost plan for the proposed building.

4. In addition, the following table and graph are to be substituted:

- **Table 4** is replaced with the table below:

Applicable	Light refurbishment	Maximum retention	New superstructure	All new
Images New  Existing 				
Gross Internal Area (GIA)	5,770m <sup>2</sup>	10,889m <sup>2</sup>	11,121m <sup>2</sup>	11,121m <sup>2</sup>
Increase in GIA	-	5,119m <sup>2</sup>	5,351m <sup>2</sup>	5,351m <sup>2</sup>
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Total WLCA (A1-A5, B1-B6, C1-C4)	9,393 tCO <sub>2</sub> e	20,100 tCO <sub>2</sub> e	21,128 tCO <sub>2</sub> e	21,495 tCO <sub>2</sub> e

Notes and assumptions:

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- Light refurbishment option assumes that the building is repurposed to a hotel, new all-electric building services system is installed, an allowance has been included for upgrading to more energy efficient elements in the thermal envelope and that no structural strengthening is required.

- Figure 14 is replaced with the graph below:

