|  |   | na                 |                 |                                |              |             |                 |           |                |        |
|--|---|--------------------|-----------------|--------------------------------|--------------|-------------|-----------------|-----------|----------------|--------|
| Assessor         Update         Updat  | CIBSE TM65.2                                  | Embodied Cart      | oon Mid-level ( | Calculation                    |              |             |                 |           |                |        |
| Context         assessment           Embodied Carbon Results with Mid-Level TM65 Calculation Method Total         10.28 kg CODe           Through Life (25 year) Embodied Carbon (kgCO,e)         Image: Context to the con   |   | isation:           | S               |                                |              |             |                 |           |                |        |
| Is 28 by CO2e         Trough Life (25 year) Entoded Carbon (kgCQ,e)         Period         1       2       3       4       5       6       7       8       9       10       11       12       13       14       15       16       17       18       19       20       21       22       23       24       25         25 year product lformation         Product Information       Luminaires         Product Information       10.003 kg       100.003 kg  |   |                    | <u>sales@m</u>  | ikestoanelighting              | <u>g.com</u> |             |                 |           |                |        |
|  | Embodied Carb                                 | on Results with '  | Mid-Level TM6   | 5 Calculation' Me              | thod Total   |             |                 |           |                |        |
| First Build<br>18.07         First Build<br>18.07         Page<br>10.21           1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16         17         18         19         20         21         22         23         24         25           25 year product life           Image: space and space an   |   |                    |                 |                                |              | 18.28 kg C0 | )2e             |           |                |        |
| 1       2       3       4       5       6       7       8       9       10       11       12       13       14       15       16       17       18       19       20       21       22       23       24       25         Z5 year product life             Product Information       Luminaires       Luminaires       1003 kg       1000 00%       B3       Meterial Breakdown       1003 kg       1000 00%       B3       Meterial Breakdown       1003 kg       0000 kWh       1000 00%       B3       B3       Meterial Breakdown       1000 00%       B3       B4       B4 <t< td=""><td>Through Life (25</td><td>ō year) Embodie</td><td>d Carbon (kgC</td><td>O<sub>2</sub>e)</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>  | Through Life (25                              | ō year) Embodie    | d Carbon (kgC   | O <sub>2</sub> e)              |              |             |                 |           |                |        |
| 1       2       3       4       5       6       7       8       9       10       11       12       13       14       15       16       17       18       19       20       21       22       23       24       25         Z5 year product life             Product Information       Unrinaires       1.033 kg       10000%       0.038 kg         100000%       B3       Materials reglaced as part of repair       62.313 kg/CO2a         Energy consumption of the factory per unit of product       Edinburgh, Edinburgh, City       0.38 kWh         Product Complexity       Category 2       Category 2       Category 2  |   |                    | 1               |                                |              |             |                 |           |                |        |
| 25 year product life<br>Product Information<br>Type of Product<br>Product Weight<br>Materials resident of rat least 65% of the product weight. Breakdown<br>B3. Metrials replaced as part of repair<br>Energy consumption of the factory per unit of product<br>Location of Manufacture<br>Product Complexity<br>Complexity<br>Category 2<br>Materials by % of Product Weight<br>100%<br>90%<br>90%<br>90%<br>90%<br>90%<br>90%<br>90%   | 1 2 3   |                    | 6 7 8           |                                | 1 12 13      |             |                 | 10 20 21  | 22 23 2        | 1 25   |
| Product Information       Luminaires         Type of Product       Luminaires         Product Weight       1.000 kg         Material Breakdown for at least 95% of the product weight. Breakdown       0.2018 kg/CO2e         Energy consumption of the factory per unit of product       E10.038 kW/h         Location of Manufacture       Finburgh. City         Product Weight       Category 2         Materials by % of Product Weight       Category 2         Materials by % of Product Weight       100%         90%       59.02%  |   | 4 5                |                 | 9 10 1                         |              | 14 15 1     | 5 17 10         | 19 20 21  | 22 23 24       | + 23   |
| Type of Product         Luminaires           Product Weight         1.003 kg           Materials reactown for at least 95% of the product weight. Breakdown         0.000%           B3: Materials replaced as part of repair         0.213 kgC02e           Energy consumption of the factory per unit of product         10.03 kg           Location of Manufacture         Category 2   | 25 year product                               | life               |                 |                                |              |             |                 |           |                |        |
| Product Weight         1.03 kg           Material Breakdown for at least 95% of the product weight. Breakdown         0.013 kg/ 0.00%           B3: Materials replaced as part of repair         0.213 kg/CC2e           Energy consumption of the factory per unit of product         10.00%           Location of Manufacture         Edinburgh, City of, United Kingdom           Product Complexity         Category 2   |   |                    |                 |                                |              |             |                 |           |                |        |
| B3: Materials replaced as part of repair         0.213 kgO2ce           Energy consumption of the factory per unit of product         0.39 kWh           Location of Manufacture         Editburgh, Editburgh, City<br>of, United Kingdom           Product Complexity         Category 2  | Product Weight                                |                    |                 |                                |              |             |                 |           | 1.003 k        | g      |
| Energy consumption of the factory per unit of product Location of Manufacture  Product Complexity  Materials by % of Product Weight  Category 2  Materials by % of Product Weight  100%  90%  90%  60%  59.02%  59.02%  59.02%  59.02%  1.94%  2.44%  0.10%  0.10%  0.10%  1.94%  2.44%  0.10%  0.10%  0.10%  1.94%  2.44%  0.10% 0.10%  0.   |   |                    |                 | duct weight. Bre               | akdown       |             |                 |           |                |        |
| Indexture         of, United Kingdom           Product Complexity         Category 2             Materials by % of Product Weight           100%   | Energy consum                                 | ption of the facto |                 | product                        |              |             |                 | 5         | 10.38 kV       | /h     |
| Materials by % of Product Weight           100%         90%           90%         90%           80%         90%           70%         59.02%           60%         6.76%           70%         6.76%           70%         6.76%           70%         6.76%  |   |                    |                 |                                |              |             |                 |           | of, United Kir | ngdom  |
| 80%         59.02%           60%         59.02%           50%         59.02%           40%         15.77%           30%         15.77%           10%         194%           2.44%         0.10%         0.10%           6.76%         13.76%           10%         Printed circuit           Stainless steel         Nyon 6,6         Aluminium Ingo         Plantice, Powder Coating plexidjess, Powder Coating Pl   | 100%  |                    |                 |                                |              |             |                 |           |                |        |
| 70%         59.02%           60%         59.02%           50%  |   |                    |                 |                                |              |             |                 |           |                |        |
| 60%         59.02%           50%   | 90%   |                    |                 |                                |              |             |                 |           |                |        |
| 60%           50%           40%           30%           20%           15.77%           13.76%           10%           1.94%           2.44%           0.10%           15.77%           13.76%           0.10%           0.10%           0.10%           0.10%  |   |                    |                 |                                |              |             |                 |           |                |        |
| 40%<br>30%<br>20%<br>10%<br>1.94%<br>2.44%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.10%<br>0.1 | 80%   |                    |                 |                                |              |             |                 |           |                |        |
| 30%     15.77%     13.76%       10%     1.94%     2.44%     0.10%     0.10%     6.76%       10%     Copper     Plastics<br>(general)     Printed circuit     Stainless steel     Nylon 6,6     Aluminium Ingot<br>Aluminium primary ingot     PMMA (acrylic, Powder Coating<br>primary ingot   | 80%<br>70%                                    |                    |                 |                                |              |             |                 |           | 59.02%         |        |
| 20%     15.77%     13.76%       10%     1.94%     2.44%     0.10%     0.10%     6.76%       Copper     Plastics<br>(general)     Printed circuit     Stainless steel     Nylon 6,6     Aluminium Ingot<br>Aluminium primary ingot     PMMA (acrylic, Powder Coating<br>plexiglass)   | 80%<br>70%<br>60%                             |                    |                 |                                |              |             |                 |           | 59.02%         |        |
| 10%     1.94%     2.44%     0.10%     0.10%     0.10%     6.76%       Copper     Plastics<br>(general)     Printed circuit     Stainless steel     Nylon 6,6     Aluminium Ingot Aluminium<br>primary ingot primary ingot plexiglass)     PMMA (acrylic, Powder Coating<br>plexiglass)   | 80%<br>70%<br>60%<br>50%                      |                    |                 |                                |              |             |                 |           | 59.02%         |        |
| 1.94%     2.44%     0.10%     0.10%     0.10%       Copper     Plastics<br>(general)     Printed circuit<br>board mixed     Stainless steel     Nylon 6,6     Aluminium Ingot<br>from old scrap     Aluminium<br>primary ingot     PMMA (acrylic, Powder Coating<br>plexidjass)  | 80%<br>70%<br>60%<br>50%<br>40%               |                    |                 |                                |              |             |                 |           | 59.02%         |        |
| Copper Plastics Printed circuit Stainless steel Nylon 6,6 Aluminium Ingot Aluminium PMMA (acrylic, Powder Coating (general) board mixed from old scrap primary ingot plexiglass)   | 80%<br>70%<br>60%<br>50%<br>40%<br>30%        |                    |                 |                                |              |             | 15.77%          |           | 59.02%         | 13.76% |
| mounted  | 80%<br>70%<br>60%<br>50%<br>40%<br>30%<br>20% | 1.94%              | 2.44%           | 0.10%                          | 0.10%        | 0.10%       | 15.77%          | 6.76%     | 59.02%         | 13.76% |
|  | 80%<br>70%<br>60%<br>50%<br>40%<br>30%<br>20% |                    | Plastics        | Printed circuit<br>board mixed |              |             | Aluminium Ingot | Aluminium | PMMA (acrylic, |        |
|  | 80%<br>70%<br>60%<br>50%<br>40%<br>30%<br>20% |                    | Plastics        | Printed circuit<br>board mixed |              |             | Aluminium Ingot | Aluminium | PMMA (acrylic, |        |
|  | 80%<br>70%<br>60%<br>50%<br>40%<br>30%<br>20% |                    | Plastics        | Printed circuit<br>board mixed |              |             | Aluminium Ingot | Aluminium | PMMA (acrylic, |        |
|  | 80%<br>70%<br>60%<br>50%<br>40%<br>30%<br>20% |                    | Plastics        | Printed circuit<br>board mixed |              |             | Aluminium Ingot | Aluminium | PMMA (acrylic, |        |
|  | 80%<br>70%<br>60%<br>50%<br>40%<br>30%<br>20% |                    | Plastics        | Printed circuit<br>board mixed |              |             | Aluminium Ingot | Aluminium | PMMA (acrylic, |        |

## **STOANE** LIGHTING

## EQUIPMENT DESIGN + MANUFACTURE

TM65.2 Lighting Calculation: Luminaire

## ZTA.50 PLP llona

## CIBSE TM65 Embodied Carbon Mid-level Calculation

| Embodied Carbon Results Breakdown (kg CO <sub>2</sub> e) |                                    |
|--|------------------------------------|
| A1: Material Extraction                                  | 4.570                              |
| A2: Transport  | 0.397                              |
| A3: Manufacturing  | 5.918                              |
| A4: Transport to Site                                    | 0.040                              |
| B3: Repair   | 0.164                              |
| C2: Transport  | 0.013                              |
| C3: Waste Processing                                     | 2.959                              |
| C4: Disposal   | 0.005                              |
| Embodied Carbon Results (kg CO <sub>2</sub> e)           |                                    |
| A1-C4  | 14.07                              |
| A1-C4 with Buffer Factor                                 | 18.28                              |
| Assumptions  |                                    |
| A1: Material carbon coefficient source                   | TM65, Table 2.1; TM65.2<br>Table 9 |
| C4 Percentage of product going to landfill(%)            | 55% - TM65 Table 4.14              |

This report was generated using the CIBSE TM65 Manufacturers form 'beta' version V1.3. Released in August 2023

Stoane Lighting are a UK based company.

Files are generated for a 'standard' version of the fitting and may not include calculations for accessories or derivatives. Only if LED drivers or Power supplies are integral will they be included in the calculation. Repair embodied carbon is calcualted based on light source and control gear replacement once in the 25 year product life

For more inoformation please contact us via our website shown below.



This report was produced using the CIBSE documents; TM65 Embodied Carbon of MEP Products - June 2021 TM65.2 Lighting - August 2023

www.stoanelighting.com