ACME

CARBON AUDIT

2019

2019
MISSION

ACME will produce an annual Carbon Audit

ACME will offset the Carbon Footprint every year to achieve Net Zero

---

ACME will seek to reduce the Carbon Footprint each year

ACME will work towards buildings that are Net Zero Carbon in construction & Carbon Free in use

2019
CARBON SUMMARY

We have audited everything we have used in the London and Berlin office over the year.
Each element was converted to kg of Carbon based on generally published conversion factors, noted for each category.

56,200
KWH OF GAS

$KgCO_2e/Kwh: 0.18$[1]

37,156
KWH OF ELECTRICITY

$KgCO_2e/Kwh: 0.23$[2]
Enough to power 8 households a year

230
KG OF COFFEE BEANS

$KgC0_2e/Kg: 17.8$[3]
23,000 cups of coffee
328 cups per person

560/978
KITCHEN/TOILET ROLLS

Kitchen Roll
$KgC0_2e/Kg: 0.750$[4]
Toilet Paper
$KgC0_2e/Kg: 0.221$

1,690
LITERS OF MILK

$KgC0_2e/Ltr: 1.16$[5]
33.8k cups of tea with milk
482 cups per person

0.762
TONS OF PAPER

$KgC0_2e/Kg: 919$[6]
100,000 sheets of A4
1,700 per person

38,512
KM ON THE BUS

$KgCO_2e/Km: 0.0786$[7]
0.96 times around the Earth

120,054
KM ON THE TUBE

$KgCO_2e/Km: 0.0275$[8]
3 times around the Earth

3,003
KM ON THE TRAIN (COMMUTE)

$KgCO_2e/Km: 0.0369$[10]
6.3 times around the Earth

38,836
KM IN UBERS

$KgCO_2e/Km: 0.1714$[9]
0.075 times around the Earth

251,845
KM ON THE TRAIN (CORPORATE)

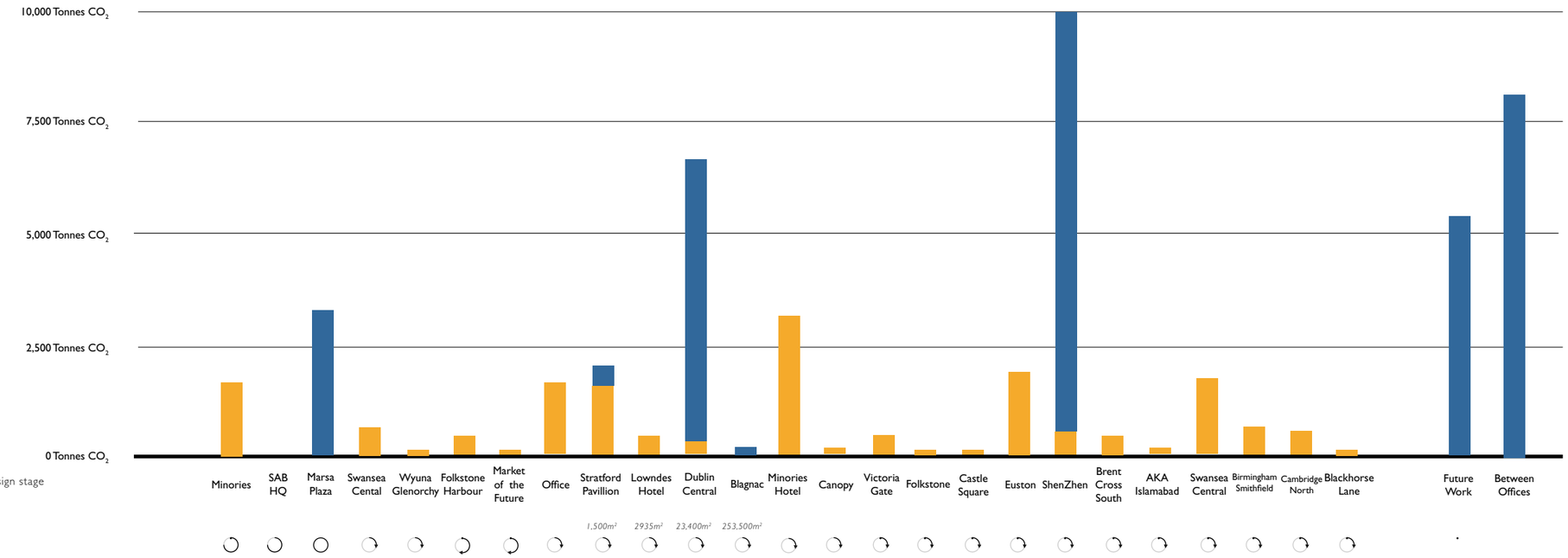
$KgCO_2e/Km: 0.0369$[10]
0.97 times around the Earth

219,171
KM BY AIR

$KgCO_2e/Km:$ [11]
Economy Short Haul - 0.1530
Economy Long Haul - 0.1462
Business Short Haul - 0.4239
Business Long Haul - 0.2295
5.47 times around the Earth

2019
TRAVEL

Travel represents the most significant Carbon Expenditure of the office. 69% of all Carbon used by ACME was used for travel. 19% was used by staff commuting to the office for work every day, and 50% was used by staff traveling to meetings regionally, nationally and internationally. The travel carbon footprint for each project is shown on this page.



PROJECT TRANSPORT

- Project Air Kilometers
- Project Commute / Transport average (minus Air)

London Office Total:
Transport/Commuting (minus Air travel) : 17,138 KG Co2e

Berlin Office Total:
Transport/Commuting (minus Air travel) : 442 KG Co2e

- Status - Competition / Initial design stage
- Status - Development stage
- Status - Construction
- Status - Completed

PROJECT LOCATION

FLIGHT LOCATIONS 2019

ABU DHABI
AMSTERDAM
BAHRAIN
BEIJING
BERLIN
BORDEAUX
BRUSSELS
DAMMAM
DUBAI
DUBLIN
DUSSELLDORF
GENEVA
HAMBURG
LYON
MOSCOW
MUNICH
MUSCAT
NICE
PARIS
SHENZHEN
UZBEKISTAN
VENICE
ZURICH

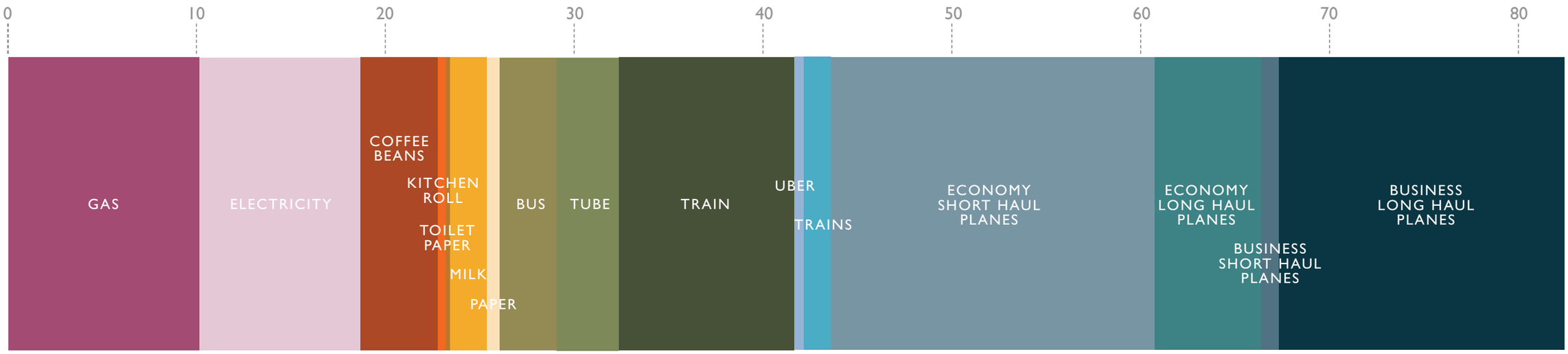
2019
CARBON USE

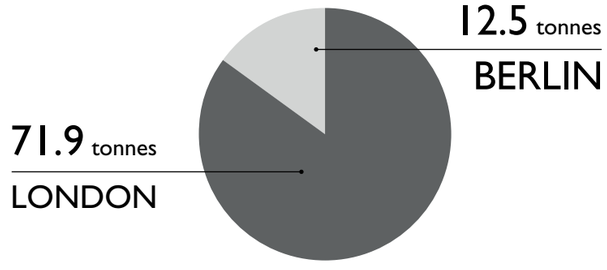
The Carbon used by ACME this year is shown below, broken down into the three internationally recognized Scopes.
Scope 1, Primary Energy use, was 11t.
Scope 2, Secondary Energy use was 11t.
Scope 3 amounted to 62t.

Travel represented 69% of all Carbon used.

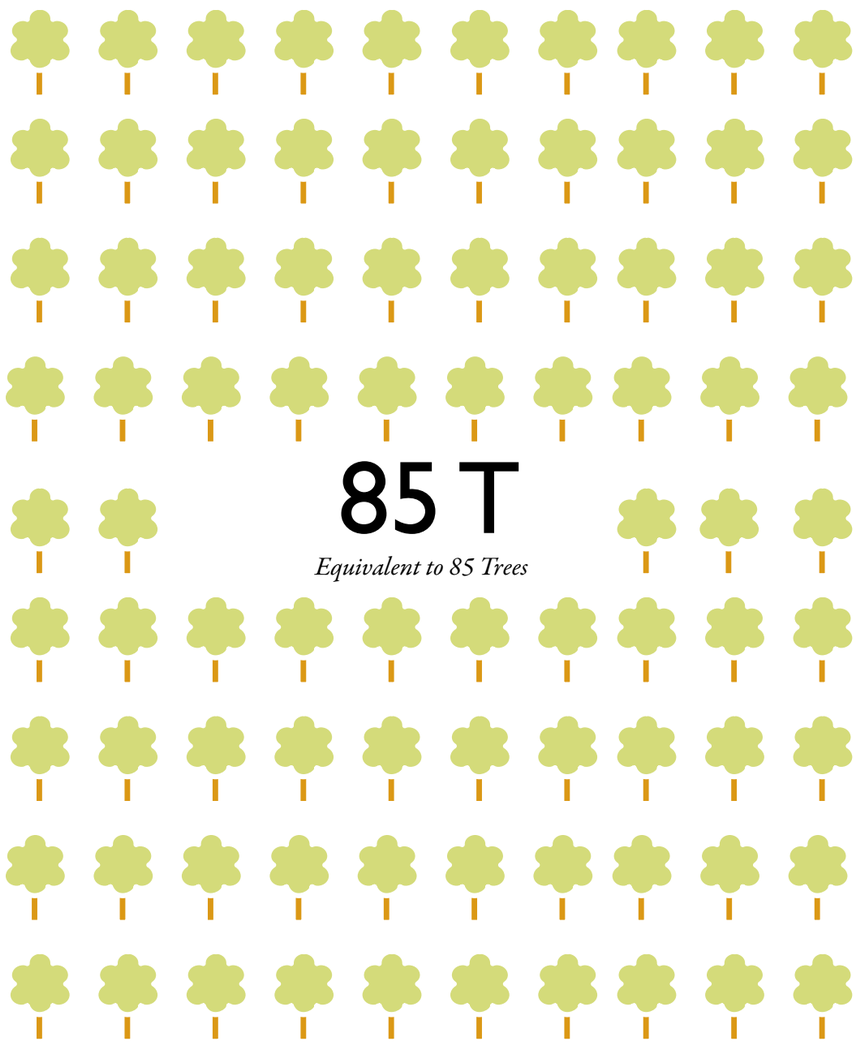
84.4 tonnes

1.2 tonnes per employee





2019
CARBON OFFSETTING



We have offset all Carbon used in 2019 by investing via 'Carbon Footprint' in the following scheme:

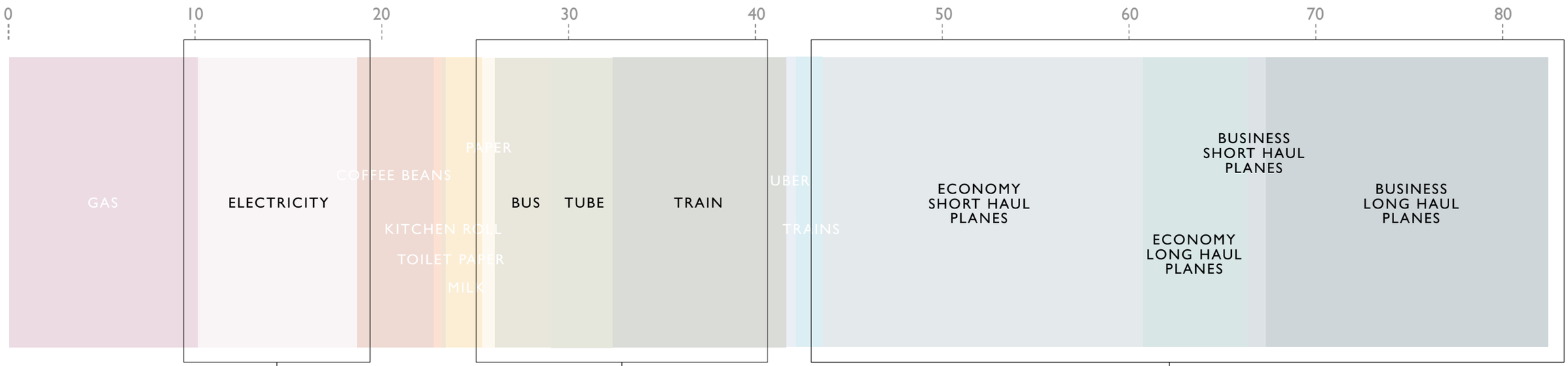
UK tree planting scheme +
Brazil Reducing Deforestation.

Planting takes place in school locations and other biodiversity sites in the UK. For every tree that is pledged, a tonne of carbon will also be saved in the Brazilian Amazon via a VCS avoided deforestation programme.

This meets BSI's PAS 2060 guidance on carbon neutrality.

2020
TARGET

Reduce Carbon In Use



Switch to carbon free power.

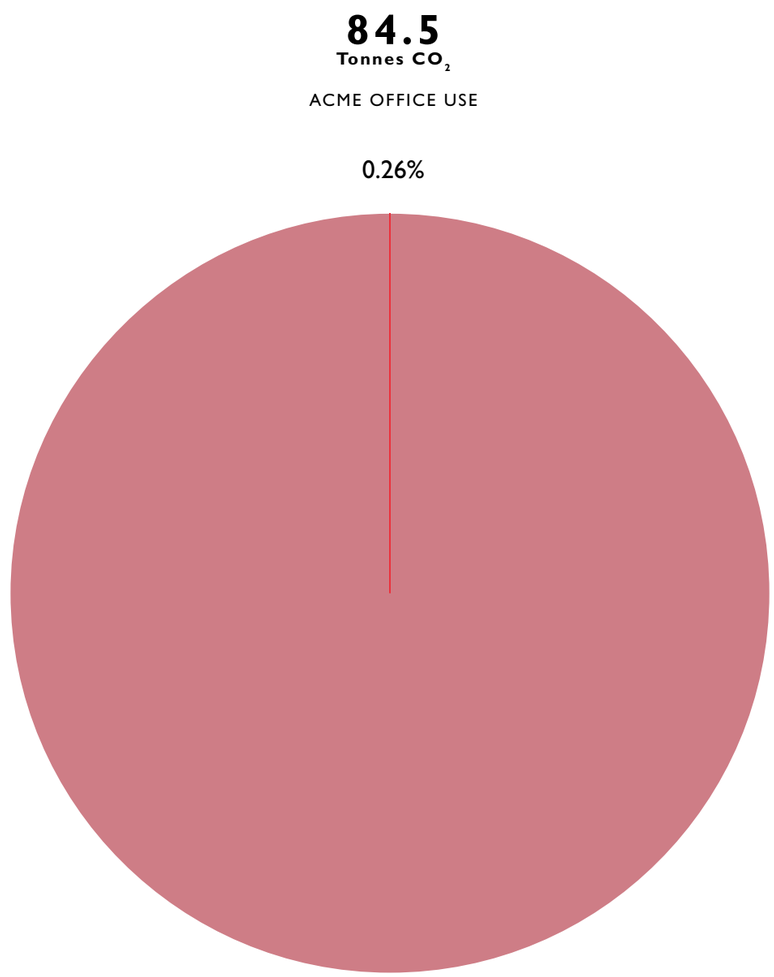
Encourage more cycling by installing showers and secure storage.

Encourage more use of video conferencing.

2019
CARBON IN USE
CARBON IN DESIGN

ACME have used 85t of Carbon for heating and power, supplies, staff commuting and travel. This equates to 1.2t of Carbon per employee.
As designers, we create buildings. The buildings we design use Carbon during construction, and in operation. As responsible designers, we need to review our own use of Carbon, and the use of Carbon to construct and use our buildings.
While we have used 85t of Carbon over the course of the year, we have designed buildings that need 32.000t of Carbon to construct the structural frames.

The Carbon Embodied in the Structural Frame of the buildings we design is 380 times more than the Carbon we use ourselves.



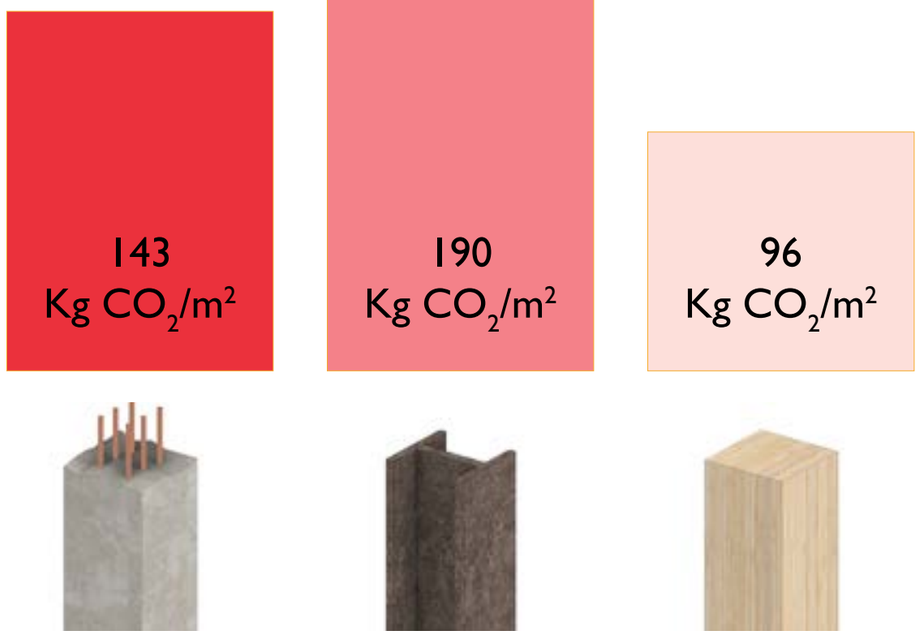
2019
EMBODIED CARBON

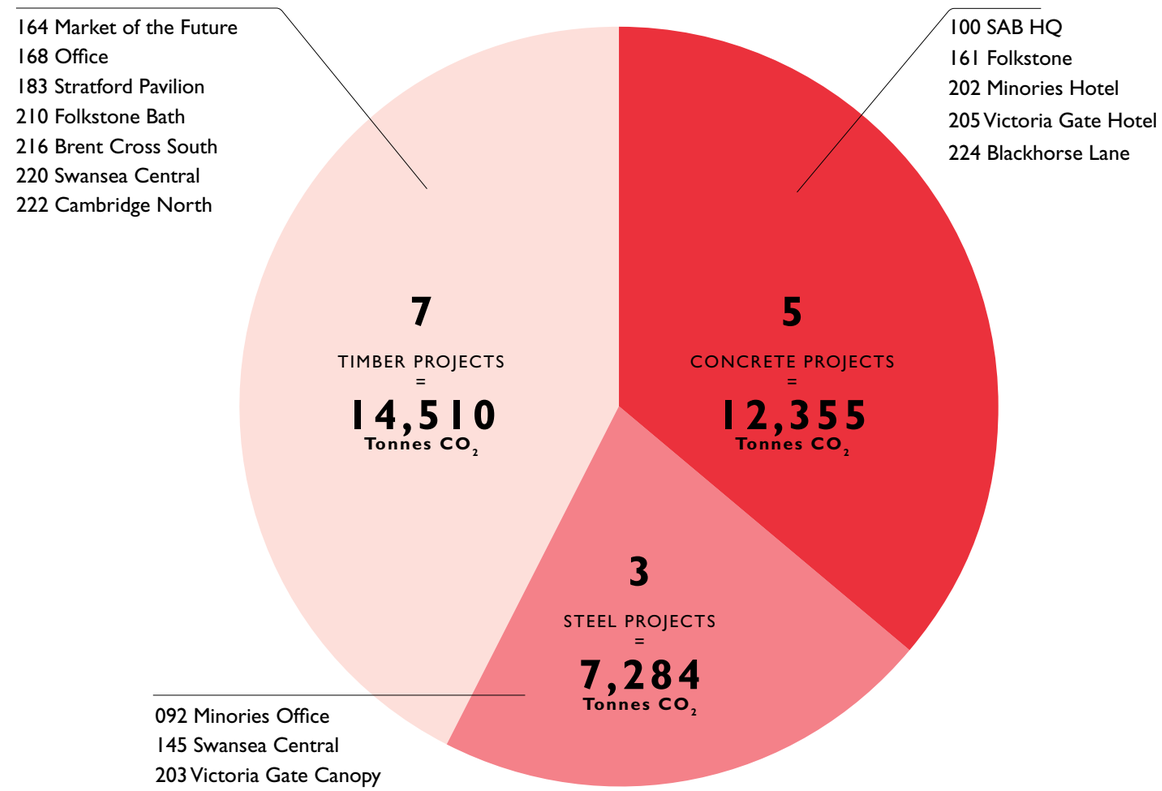
ACME design buildings. These buildings use Carbon in construction (Embodied Carbon) and in use (Operational Carbon).

The primary structure of a building is responsible for approximately 75% of the overall embodied carbon.
(Francesco Ranaudo ETH, Zurich).

We have audited the primary structural frame in this embodied carbon assessment.

The carbon values are based on a study conducted by HTS Engineers and represent the amount of embodied carbon per square metre of GIA.
Excludes masterplans & lost competitions.





2019
EMBODIED CARBON

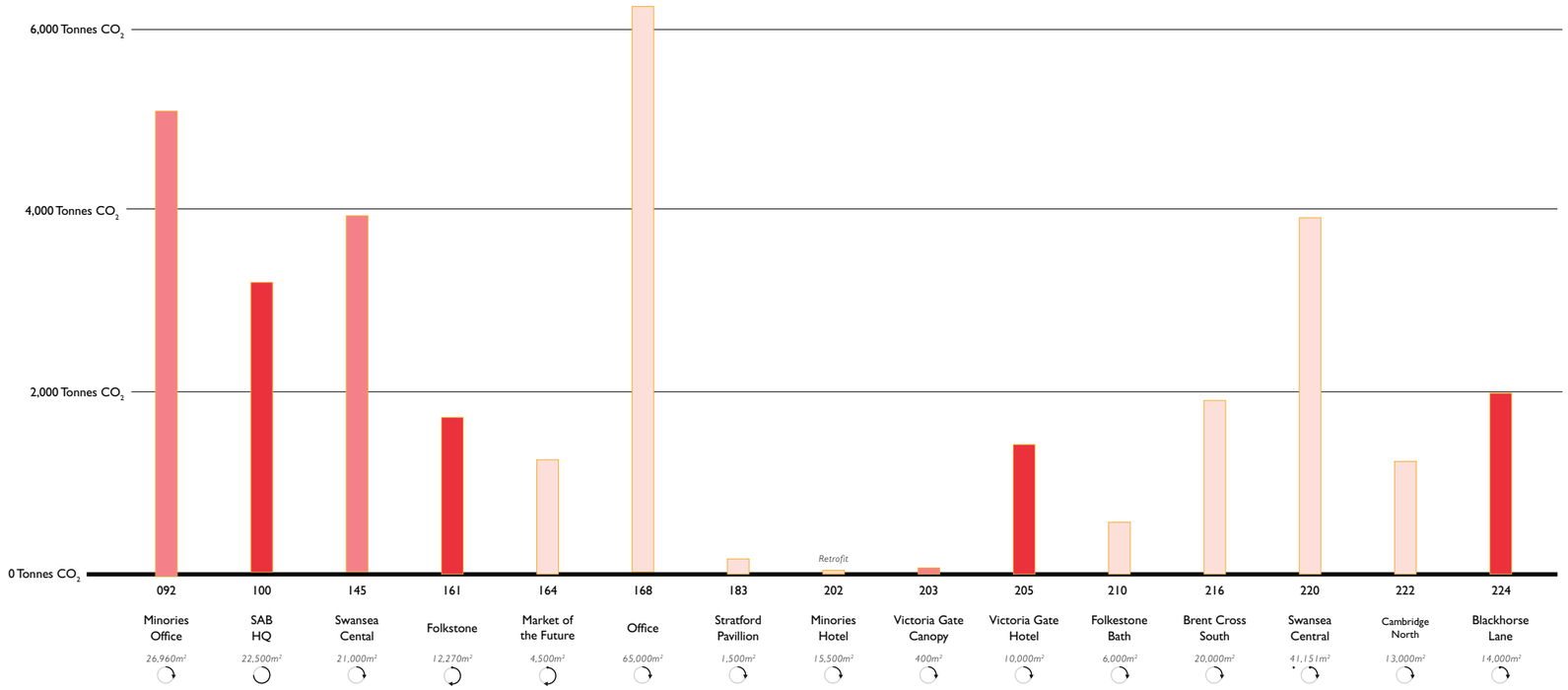
ACME Buildings designed and under construction in 2019, quantified by the Carbon needed to construct their structural frames.
Methodology:
GIA x Embodied carbon of structural system

Note:
The graph illustrates the embodied carbon per project based on the structural system only.

PROJECT STRUCTURAL MATERIAL & STAGES

- Concrete Structure
- Steel Frame
- CLT/Timber Frame
- Retrofit

- Status - Competition / Initial design stage
- Status - Development stage
- Status - Construction
- Status - Completed



PROJECT LOCATION

092 Minories Office **London**
183 IQL Pavilion **London**
202 Minories Hotel **London**
224 Blackhorse Lane **London**
216 Brent Cross **London**
205 Victoria Gate Hotel **Leeds**
203 Victoria Gate Canopy **Leeds**
210 **Folkestone** Bath
161 **Folkestone** Harbour
222 **Cambridge** North
145 **Swansea** Central
220 **Swansea** North
100 SAB Forum **Leipzig**
164 Market of the Future
191 Blagnac **Toulouse**
168 Office **Europe**

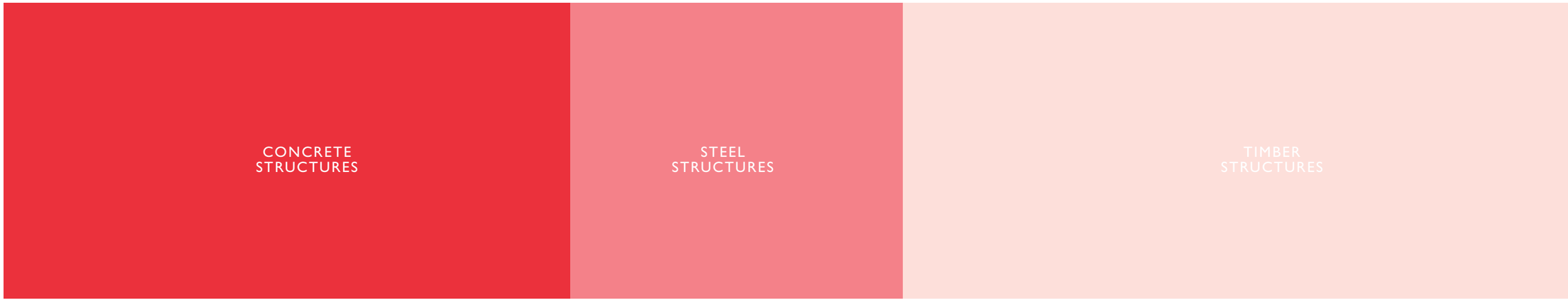
2019
EMBODIED CARBON

Methodology:
GIA x Embodied carbon of structural system

Note:
The graph illustrates the embodied total embodied carbon per project based on its structural system only.

The graphs exclude masterplans & lost competitions

32,119 tonnes
Embodied Carbon In Buildings



2020
TARGET

Reduce Embodied Carbon

CONCRETE STRUCTURES

STEEL STRUCTURES

TIMBER STRUCTURES

We will encourage use of materials with lower embodied carbon such as timber or stone as primary structure.

We will aim to control the full cycle of structural timber including post-demolition recycling, so the carbon stored inside the timber could be counted as sequestered.

SOURCES

1. Gas
A conversion factor of 0.18 $KgCo_2e$/Kwh has been used to calculate the emitted carbon.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

2. Electricity
A conversion factor of 0.23 $KgCo_2e$/Kwh has been used to calculate the emitted carbon.
Source: https://www.eonenergy.com/About-eon/Fuel-Mix

3. Coffee Beans
A conversion factor of 17.8 $KgCo_2e$/Kg has been used to calculate the emitted carbon.
Source: https://www.vegansociety.com/take-action/campaigns/plate-planet/carbon-calculator

4. Kitchen Rolls and Toilet Paper
A conversion factor of 0.750 $KgCo_2e$/Kg has been used to calculate the emitted carbon of Kitchen Roll.
A conversion factor of 0.221 $KgCo_2e$/Kg has been used to calculate the emitted carbon of Toilet Paper.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

5. Milk
A conversion factor of 1.16 $KgCo_2e$/Ltr has been used to calculate the emitted carbon.
Source: https://www.vegansociety.com/take-action/campaigns/plate-planet/carbon-calculator

6. Paper
A conversion factor of 919 $KgCo_2e$/tonne has been used to calculate the emitted carbon.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

7. Bus
A conversion factor of 0.0786 $KgCo_2e$/Km has been used to calculate the emitted carbon.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

8. Tube
A conversion factor of 0.0275 $KgCo_2e$/Km has been used to calculate the emitted carbon.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

9. Uber
A conversion factor of 0.1714 $KgCo_2e$/Km has been used to calculate the emitted carbon.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

10. Train
A conversion factor of 0.369 $KgCo_2e$/Km has been used to calculate the emitted carbon.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

11. Plane
A conversion factor of 0.1530 $KgCo_2e$/Km has been used to calculate the emitted carbon of Economy Short Haul Flights.
A conversion factor of 0.1462 $KgCo_2e$/Km has been used to calculate the emitted carbon of Economy Long Haul Flights.
A conversion factor of 0.4239 $KgCo_2e$/Km has been used to calculate the emitted carbon of Business Short Haul Flights.
A conversion factor of 0.2295 $KgCo_2e$/Km has been used to calculate the emitted carbon of Business Long Haul Flights.
Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020