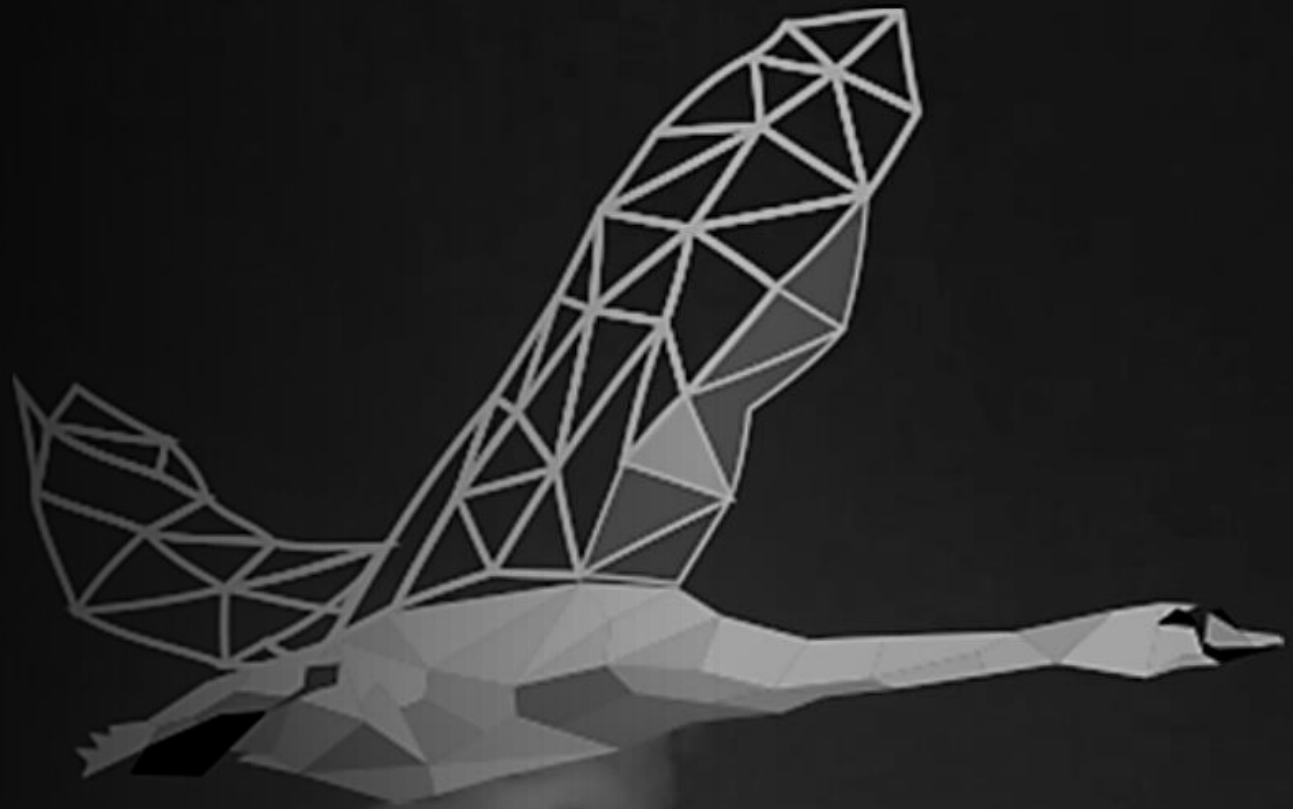
# Material Passports

SEDA Meeting of Minds

02.09.2022

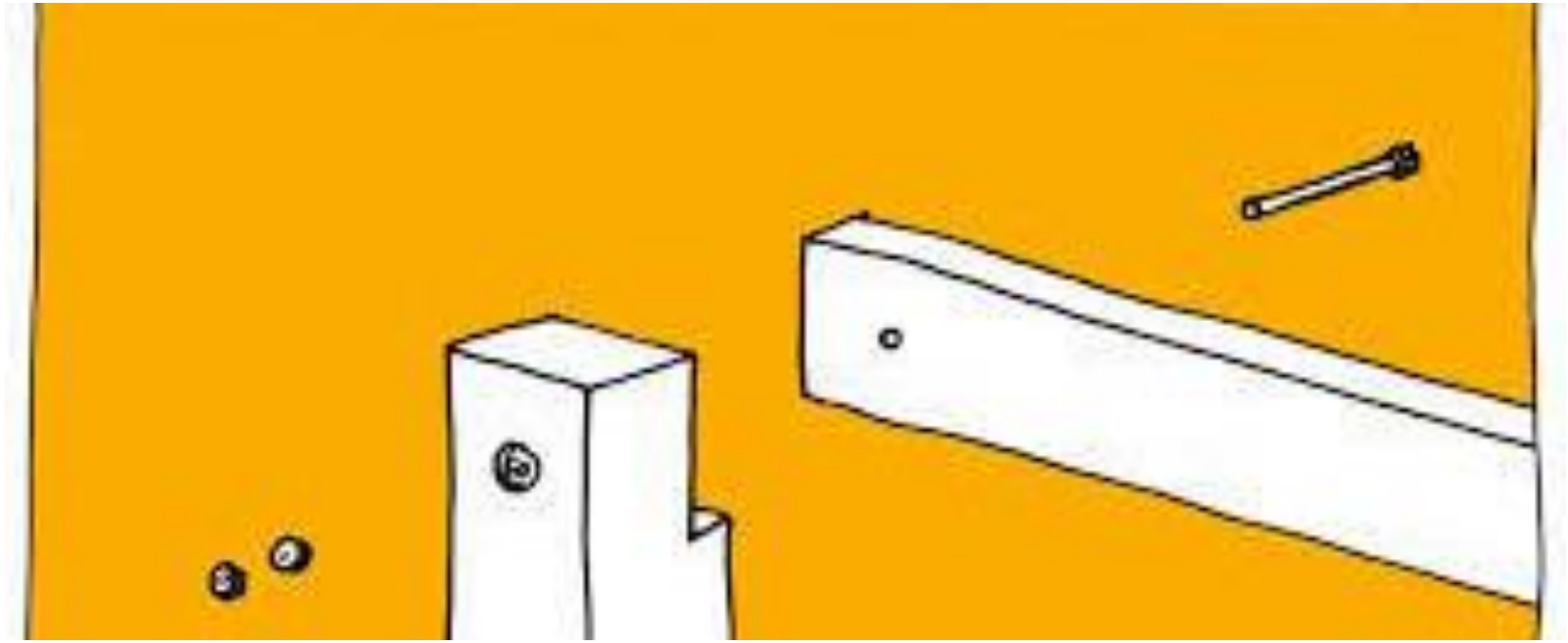


EALA Impacts CIC


KING'S THEATRE
KING'S THEATRE


ST. SOPHIA'S
PRIMARY
SCHOOL

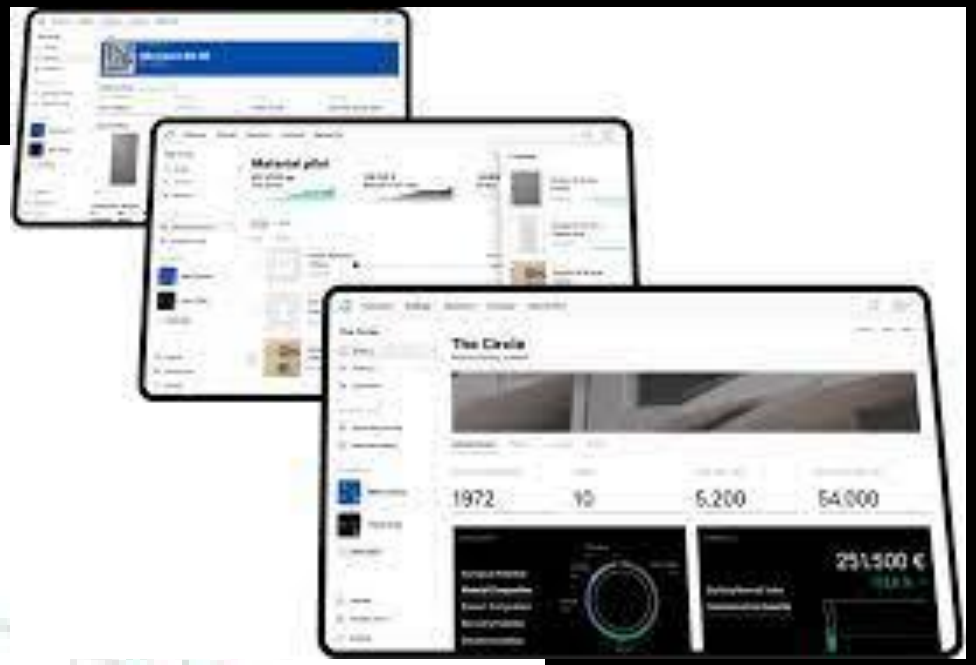

WENTWORTH STREET
COLLEGE EAST
ATTLEE HOUSE
SUNLEY HOUSE
GUNTHORPE STREET
TOYNBEE HALL
38 COMMERCIAL STREET
MALLON GARDENS
COMMERCIAL STREET
ARTS ADMIN CAFE
ARTS ADMIN
PROVAND HOUSE

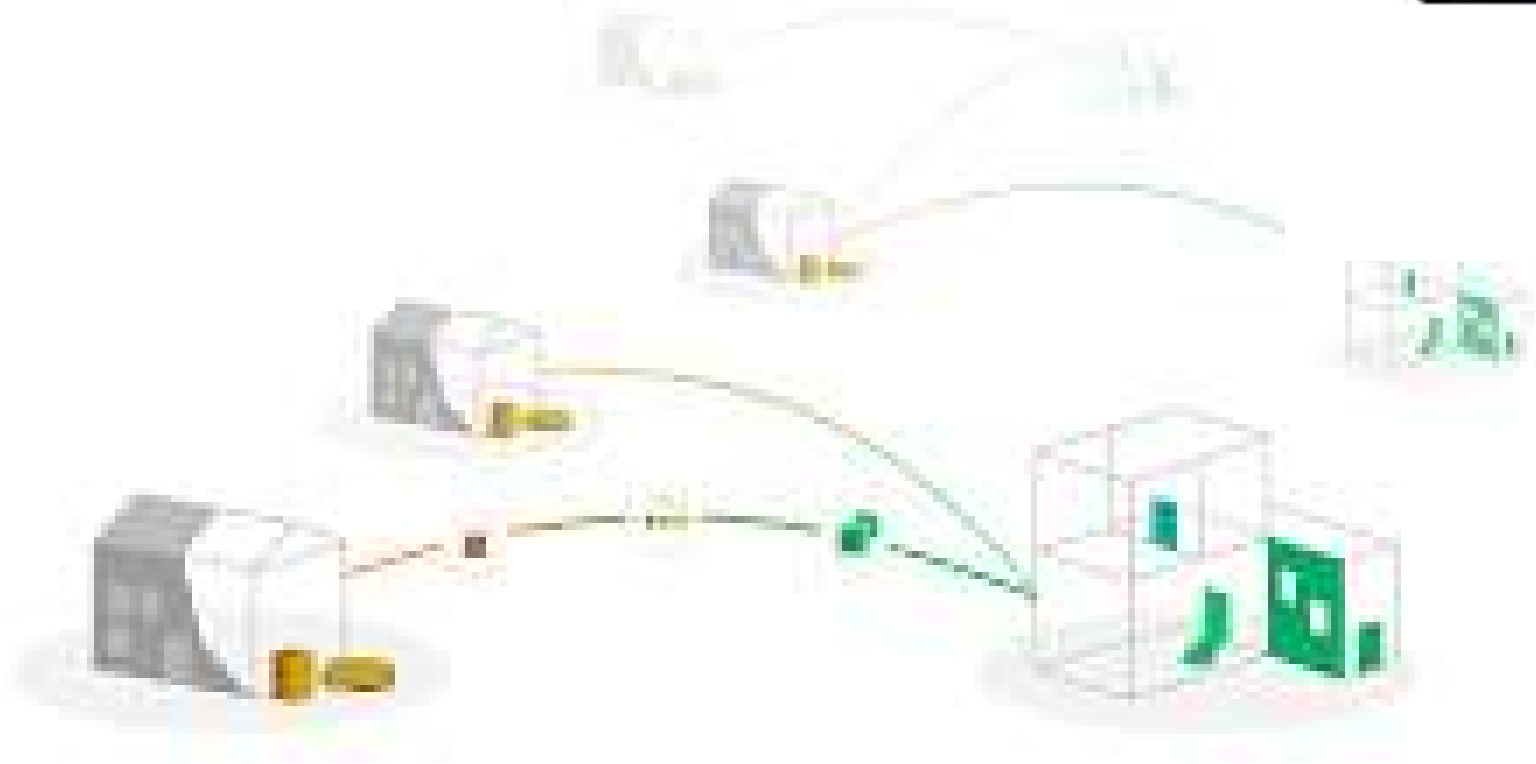


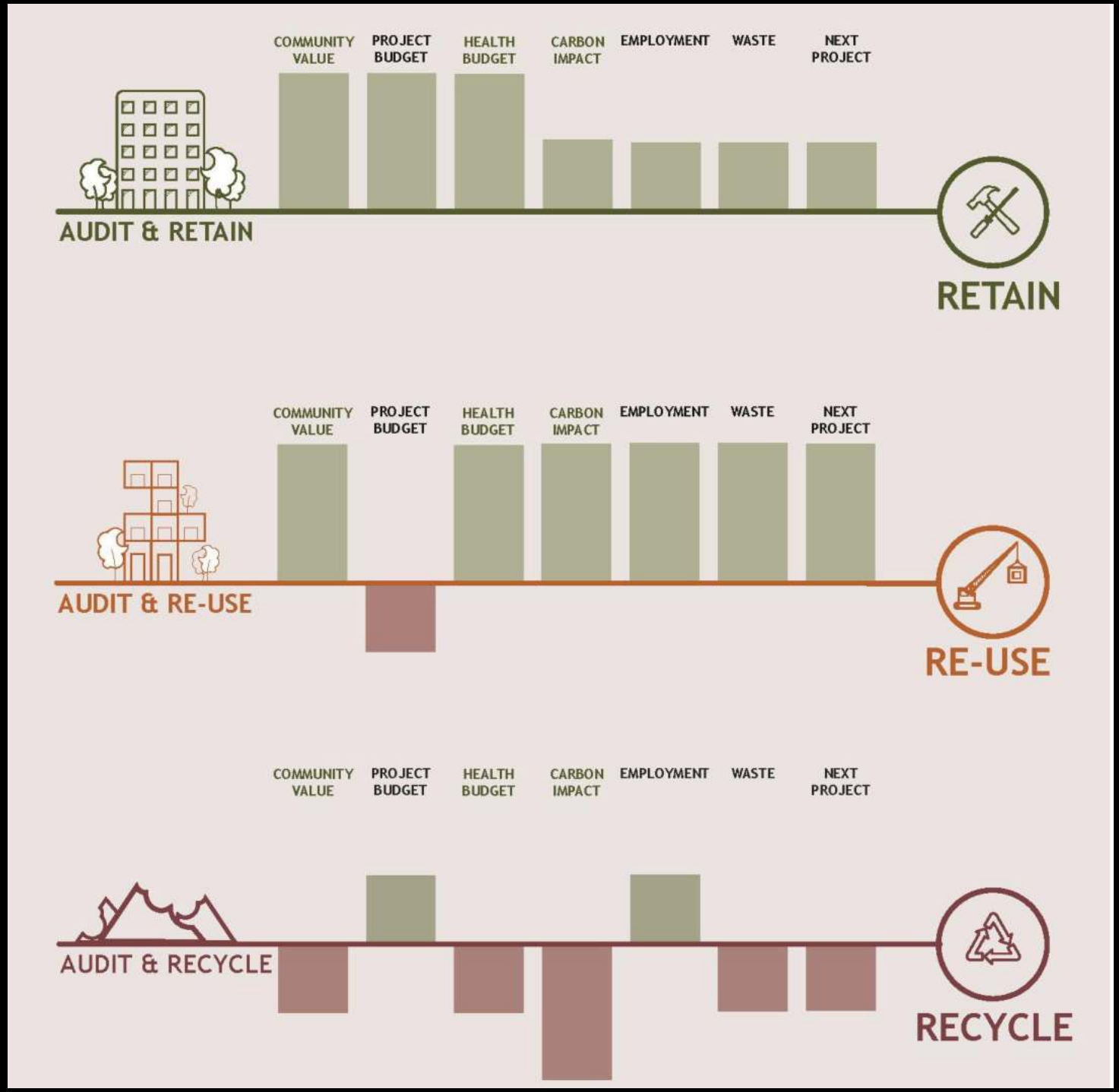

dusseldorp

| Item Ref | Group Element | Element | Description | Material Arising | | | Waste Recovery Commentary | Waste Route Commentary | Waste Route | Cost to remove/process | | Cost - avoided impacts | | Carbon - avoided impacts | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Qty | Unit | %ge recoverable | | | | Sum | Comments | Sum (for new) | Comments | Carbon (kgCO2e/t) | Carbon (kgCO2e) | Carbon (£/tCO2e) | Comments |
| 1.1.1 | Substructure | Strip foundations | In situ concrete formed with rebar cages | 96 | m3 | 100% | Grub up and crush to provide aggregate elsewhere. Assume stored on site. | Aggregate for use as back-fill. Re-bar may be an issue. | 3 | £ 19,200 | Rate for labour items, assumed crusher brought onto site (see preliminaries) | £ 2,880 | Material only; excludes movement around site | 103 | 23,731 | £ 879 | General average embodied carbon rate applied to<br>**Concrete embodied carbon = 103kgCO2 x mass (T)**<br>Rebar weight factor = 0.100t of rebar per m³ concrete.<br>648 x 0.1 = 64.8t<br>**Rebar embodied carbon = 1200kgCO2/t = 77,760kgCO2** |
| 1.1.2 | Substructure | Ground floor slab | In-situ RC slabs poured between ground beams. | 135 | m3 | 100% | Grub up and crush to provide aggregate elsewhere. Assume stored on site. | Aggregate for use as back-fill. Re-bar may be an issue. | 3 | £ 27,000 | Rate for labour items, assumed crusher brought onto site (see preliminaries) | £ 4,050 | Material only; excludes movement around site | 103 | 33,372 | £ 1,236 | **Concrete embodied carbon = 103kgCO2 x mass (T)**<br>Rebar weight = 27t<br>**Rebar embodied carbon = 32,400kgCO2** |
| 1.1.3 | Substructure | Damp-proofing/tanking | Assume a slurry beneath the slab and founds. | 225 | m2 | 0% | Assume unrecoverable. | | 4 | £ - | Assumed strip out and dispose | £ - | | | - | £ - | |
| 1.1.4 | Substructure | Back-fill/hardcore | Assume graded and compacted hardcore backfill beneath slab/foundations. | 259 | m3 | 100% | Assume dug up, washed and graded. | Sold or set aside for re-use. | 3 | £ 12,960 | Assumed reused on the same site, or collected by buyer if sold | £ 7,776 | Material only; excludes movement around site | 7.5 | 2,916 | £ 108 | General UK aggregate mix |
| 2.1.3 | Superstructure | Upper floor slabs | Pre-cast concrete slabs fixed to loadbearing panels. | 405 | m3 | 100% | Cut re-bar connection to surrounding structure. Make good cut ends to prevent corrosion. | Use as sub-base for new external paved areas. | 1 | £ 101,250 | Assumes broken down into easily manoeuvrable component sizes | £ 40,500 | Material only; excludes movement around site | 103 | 100,116 | £ 3,708 | **Concrete embodied carbon = 103kgCO2 x mass (T)**<br>Rebar weight = 3.7t<br>**Rebar embodied carbon = 4,440kgCO2** |
| 2.1.4 | Superstructure | Loadbearing internal walls | Pre-cast Mitchell Camus panels. | 287 | m3 | 100% | Cut re-bar connection to surrounding structure. Make good cut ends to prevent corrosion. | Aggregate for use as back-fill. Re-bar may be an issue. | 3 | £ 71,712 | Assumes broken down into easily manoeuvrable component sizes | £ 28,685 | Material only; excludes movement around site | 136 | 93,627 | £ 3,468 | Assumed RC in situ 28/35 Mpa concrete used<br>Concrete embodied carbon = 136 x mass (T)<br><br>Rebar CO2 = 95,640kgCO2 |
| 2.1.5 | Superstructure | External walls - original ground floor | Pre-cast concrete Mitchell Camus system. | 474 | m2 | 100% | Cut connections to the frame and treat all exposed steel leaving ready for re-use elsewhere. | U values don't meet modern construction without additional insulation. However no reason these panels should not be used on new buildings as part of a broader system. | 1 | £ 18,960 | Assumes fixings are in good condition and can be reused without any repair work | £ 47,400 | Based on precast wall panels; dependent on specification; excludes costs associated with fitting old system vs new | 136 | 23,207 | £ 860 | Assumed RC in situ 28/35 Mpa concrete used<br>Concrete embodied carbon = 136 x mass (T) |
| 2.1.6 | Superstructure | External walls - original upper floors | Pre-cast concrete Mitchell Camus system. | 1422 | m2 | 100% | Cut connections to the frame and treat all exposed steel leaving ready for re-use | U values don't meet modern construction without additional insulation. | 1 | £ 56,880 | Assumes fixings are in good condition and can be reused without any repair work | £ 142,200 | Based on precast wall panels; dependent on specification; excludes costs | 178 | 91,122 | £ 3,375 | **Precast concrete embodied carbon = 178kgCO2 x mass (T)** |

Concular




COMMUNITY VALUE
PROJECT BUDGET
HEALTH BUDGET
CARBON IMPACT
EMPLOYMENT
WASTE
NEXT PROJECT
AUDIT & RETAIN
RETAIN
COMMUNITY VALUE
PROJECT BUDGET
HEALTH BUDGET
CARBON IMPACT
EMPLOYMENT
WASTE
NEXT PROJECT
AUDIT & RE-USE
RE-USE
COMMUNITY VALUE
PROJECT BUDGET
HEALTH BUDGET
CARBON IMPACT
EMPLOYMENT
WASTE
NEXT PROJECT
AUDIT & RECYCLE
RECYCLE


Mine the Anthropocene
- renewables
- natural materials
- circular economy
Infrastructure
- Happy Cities
- density
- green transport
- district heating
- resilience
- culture
Existing buildings
- invest in assets
- retrofit
- material passports
- buildings as banks
- regeneration
- heritage
everything
Community
- sense of place
- sense of ownership
Wellbeing
- health
- happiness
- end fuel poverty
Maintenance
- fabric first
- repair and retain