

Commercial offices

Operational energy

Implement the following indicative design measures:

Fabric U-values (W/m².K)

| | |
|---------|--|
| Walls | 0.12 - 0.15 |
| Floor | 0.10 - 0.12 |
| Roof | 0.10 - 0.12 |
| Windows | 1.0 (triple glazing) - 1.2 (double glazing) |
| Doors | 1.2 |

Fabric efficiency measures

| | |
|------------------|--|
| Air tightness | <1 (m ³ /h. m ² @50Pa) |
| Thermal bridging | 0.04 (γ-value) |
| G-value of glass | 0.4 - 0.3 |

Power efficiency measures

| | |
|--------------------------|---------------------------------|
| Lighting power density | 4.5 (W/m ² peak NIA) |
| Lighting out of hours | 0.5 (W/m ² peak NIA) |
| Tenant power density | 8 (W/m ² peak NIA) |
| ICT loads | 0.5 (W/m ² peak NIA) |
| Small power out of hours | 2 (W/m ² peak NIA) |

System efficiency measures

| | |
|-----------------|------------------|
| MVHR | 90% (efficiency) |
| Heat pump SCOP | ≥ 2.8 |
| Chiller SEER | ≥ 5.5 |
| Central AHU SFP | 1.5 - 1.2 W/l.s |
| A/C set points | 20-26°C |

Window areas guide (% of wall area)

| | |
|-------|--------|
| North | 25-40% |
| East | 25-40% |
| South | 25-40% |
| West | 25-40% |



Balance daylight and overheating



Include external shading



Include openable windows and cross ventilation



Maximise renewables to generate the annual energy requirement for at least two floors of the development on-site



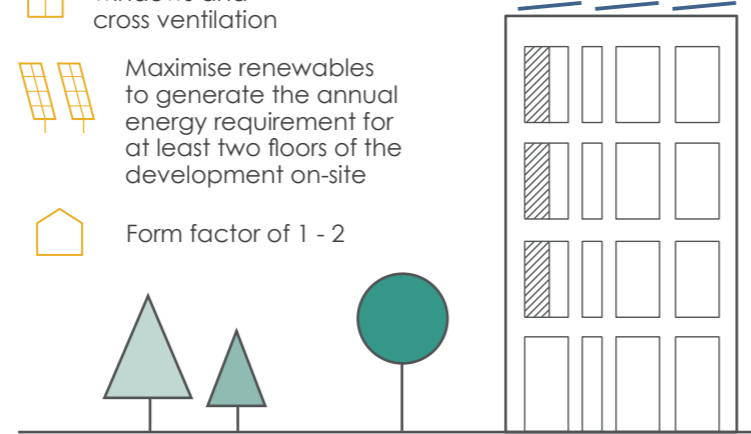
Form factor of 1 - 2

Reduce energy consumption to:



Energy Use Intensity (EUI) in GIA, excluding renewable energy contribution

Reduce space heating demand to:



Heating and hot water

Implement the following measures:



Fuel
Ensure heating and hot water generation is fossil fuel free



Heat
The average carbon content of heat supplied (gCO₂/kWh.yr) should be reported in-use



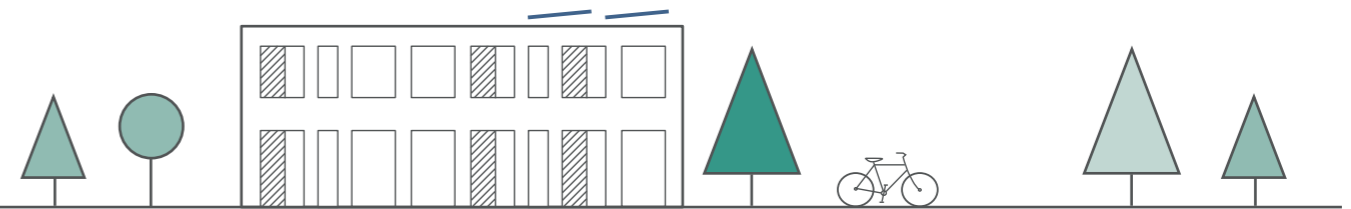
Heating
Maximum 10 W/m² peak heat loss (including ventilation)

Connect to community wide ambient loop heat-sharing network to allow excess heat from cooling to be made available to other buildings



Hot water
Maximum dead leg of 1 litre for hot water pipework

'Green' Euro Water Label should be used for hot water outlets (e.g.: certified 6 L/min shower head – not using flow restrictors).



Demand response

Implement the following measures to smooth energy demand and consumption:



Peak reduction

Reduce heating and hot water peak energy demand



Active demand response measures

Install heating and cooling set point control

Reduce lighting, ventilation and small power energy consumption



Electricity generation and storage

Consider battery storage



Electric vehicle (EV) charging

Electric vehicle turn down
Reverse charging EV technology



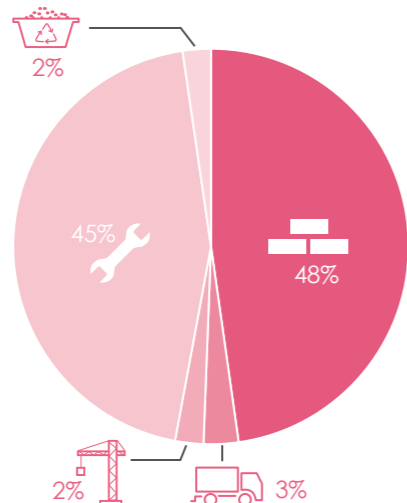
Behaviour change

Incentives to reduce power consumption and peak grid constraints
Encourage responsible occupancy.

Embodied carbon

Focus on reducing embodied carbon for the largest uses:

- Products/materials (A1-A3)
- Transport (A4)
- Construction (A5)
- Maintenance and replacements (B1-B5)
- End of life disposal (C1-C4)



Average split of embodied carbon per building element:

- 48%** - Superstructure
- 17%** - Substructure
- 16%** - Façade
- 15%** - MEP
- 4%** - Internal finishes

Reduce embodied carbon by 40% or to:



Area in GIA

Data disclosure

Meter and disclose energy consumption as follows:



Metering

(Metering strategy following BBP Better Metering Toolkit guidance)

- Record meter data at half hourly intervals
- Separate landlord and tenant energy use meters and clearly label meters with serial number and end use
- Submeter renewable energy generation
- Use a central repository for data that has a minimum of 18 months data storage
- Provide thorough set of meter schematics and information on maintenance and use of meters
- Ensure metering commissioning includes validation of manual compared to half hourly readings.

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Disclosure

- Carry out an annual Display Energy Certificate (DEC) and include as part of annual reporting
- Report energy consumption by fuel type and respective benchmarks from the DEC technical table
- For multi-let commercial offices produce annual landlord energy (base building) rating and tenant ratings as well as or instead of a whole building DEC
- Upload five years of data to a publicly accessible database such as GLA and/or CarbonBuzz.