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 (m³/h·m²@50Pa)
- Thermal bridging: 0.04 (y-value)
- G-value of glass: 0.4 - 0.3

Power efficiency measures
- Lighting power density: 4.5 (W/m² peak NIA)
- Lighting out of hours: 0.5 (W/m² peak NIA)
- Tenant power density: 8 (W/m² peak NIA)
- ICT loads: 0.5 (W/m² peak NIA)
- Small power out of hours: 2 (W/m² 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

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

Heating and hot water
Implement the following measures:

Fuel
- Ensure heating and hot water generation is fossil fuel free

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

Data disclosure
Meter and disclose energy consumption as follows:

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