6.0 Landscaping and Sustainability

6.1. Landscape framework

Key landscape objectives in working towards making Worthing a net zero carbon emissions City whilst improving, enhancing and creating green infrastructure and spaces:

Landscape Ecology, Biodiversity Net Gain (BNG), Play Space & Amenity Features

- Ecological Corridors & Habitat Networks: Linking green spaces for wildlife movement with native plants and pollinator-friendly species.
- Biodiversity Net Gain (BNG): Habitat creation, enhancement, and offsetting to increase biodiversity, including bird/bat boxes and insect hotels.
- Diverse Planting: Native trees, wildflower meadows, and varied vegetation supporting wildlife and improving soil health.
- Green Roofs & Walls: Extensive green roofs helping to reduce heat island effect and offer additional habitat.
- Flood-resistant & Climate-Adaptive Landscaping: Flood-tolerant plants and resilient designs for long-term ecological sustainability.
- Community Engagement: Memorial community gardens
- Water-Efficient Landscaping: Rainwater harvesting and sustainable irrigation to maintain communal green spaces.
- Homezone: Safe, accessible hardlandscaping designed for pedestrian frendly routes and movements.
- Amenity Areas: private gardens and terraces, with usible front gardens to Chesswood Road and Ham Road.

6.2. Sustainability - Considerations

In order to address the climate change the sustainability strategy seeks to address the target set out under the RIBA 2030 Climate Challenge and LETI Design Guide.

The proposal aims to:

REDUCE

- Energy use over building life time
- The need for fresh water
- Travel distance of inhabitants
- Embodied carbon during construction
- Disturbance of neighbours during construction
- Energy during construction
- Waste and carbon emissions through off-site construction method

REUSE

- Rain water collected for irrigation
- Energy through heat recovery systems
- Water for flushing toilets and irrigation

RECYCLE

- Heat
- Materials for construction
- Local waste recycled for community benefit

In addition to further reduce the carbon footprint of the development, the proposal aims to:

- Create energy efficient design and layouts;
- Evaluate material choice options against the 'materials pyramid' and consider for their design merit
- Create a place where a sense of community can be developed and where a safe and attractive environment can be created;

BE LEAN: Fabric First Approach

The specification of the building fabric and thermal envelope (insulation, glazing, air permeability etc.) is designed to drive down heat losses from the dwellings, minimise energy consumption and reduce running costs.

BE CLEAN: High-Efficiency, all-electric

Ultra high-efficiency heating & hot water systems. Energy efficient LED lighting and appliances.

BE GREEN: Renewable Energy Generation

In order to achieve the sustainable objectives the building will generate a proportion of its own electrical demand through roof-mounted photovoltaic (PV) panels.

Operational energy

Implement the following indicative design measures:

Fabric U-values (W/m².K)

Walls	0.13 - 0.15
Floor	0.08 - 0.10
Roof	0.10 - 0.12
Exposed ceilings/floors	0.13 - 0.18
Windows	1.0 (triple glazing)
Doors	1.00

Efficiency measures

Air tightness	<1 (m³/h.m²@50Pa)
Thermal bridging	0.04 (y-value)
G-value of glass	0.6 - 0.5
MVHR	90% (efficiency) ≤2m (duct length from unit to external wall)

Window areas guide (% of wall area)

North	10-20%
East	10-15%
South	20-25%
West	10-15%

Balance daylight and overheating

Include external shading

Include openable windows and cross ventilation

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 (gCO_2/kWh.yr) should be reported in-use

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

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 set point control and thermal storage

Electricity generation and storage
Consider battery storage

Electric vehicle (EV) charging
Electric vehicle turn down

Behaviour change
Incentives to reduce power consumptio and peak grid constraints.

LETI Design Guide

The Construction Material Pyramid

6.3. Sustainability Principles - Adur and Worthing council

A: Orientation of Building. Building orientation optimised to benefit from passive solar gain and minimise energy demand. Internal layout considered to maximise dual aspect units.

B: Building fabric. Wall thicknesses considered to allow for optimal levels of thermal insulation, minimising operational energy demand

1. Energy Efficiency & Carbon Reduction

Energy-Efficient Buildings: Meeting or exceeding current energy efficiency standards.

Low Carbon Technologies: Using renewables like solar panels and heat pumps to reduce fossil fuel reliance.

Carbon-Neutral Goals: Supporting developments that use green energy and sustainable construction.

2. Sustainable Design & Construction

Sustainable Materials: Using durable, low-impact, and locally sourced materials.

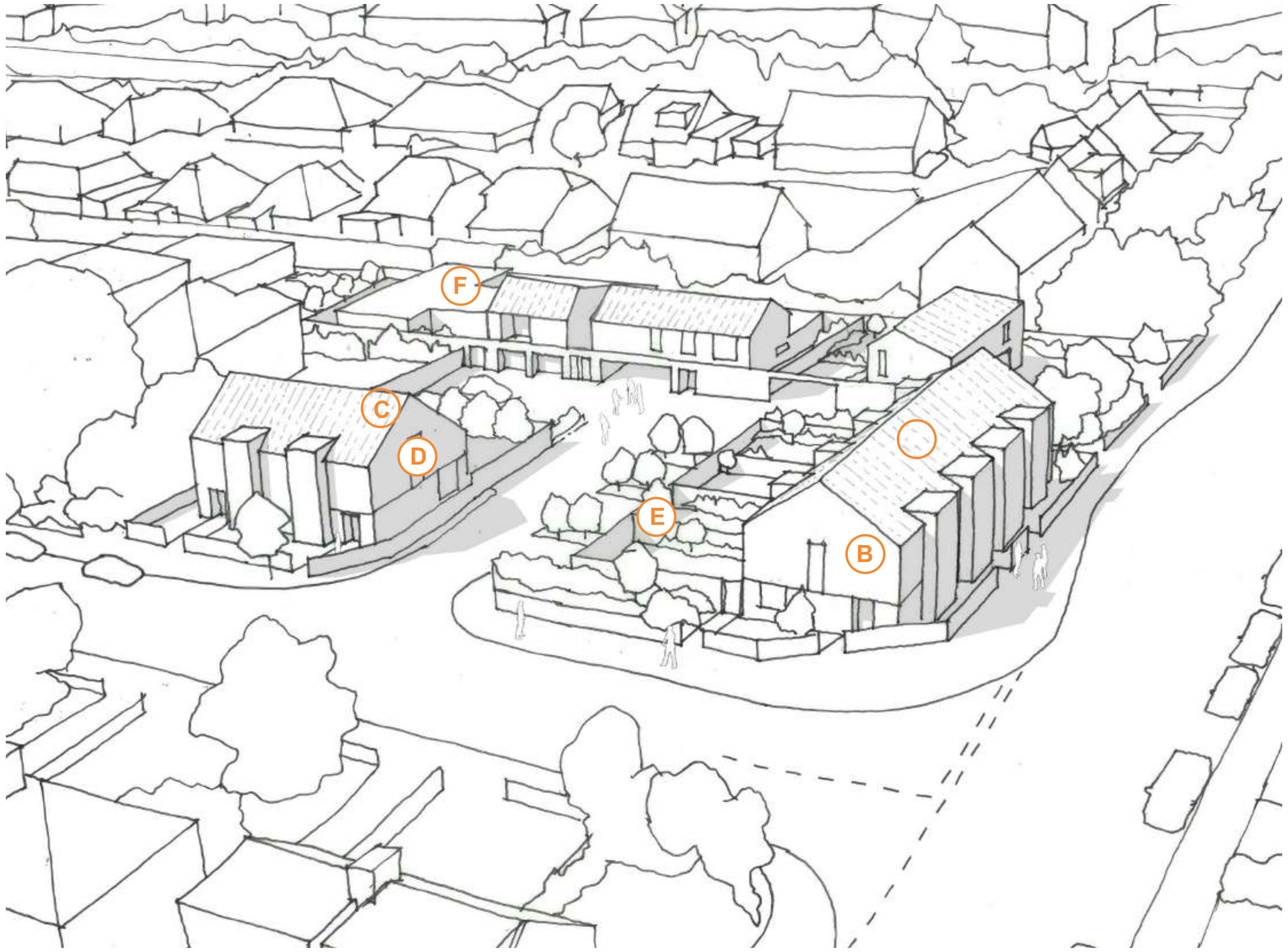
Biodiversity Enhancement: Adding green spaces and trees to support biodiversity and well-being.

Adaptability & Durability: Creating homes adaptable to future needs and climate challenges.

3. Water Management & Efficiency

SuDS: Managing surface water with permeable materials to reduce flooding.

Water Conservation: Implementing low-flow taps, efficient heating, and rainwater harvesting.



4. Health & Well-Being

Green Spaces: Providing communal areas for recreation and well-being.

Healthy Homes: Ensuring natural light, ventilation, and soundproofing for comfort.

5. Active & Sustainable Transport

Walking & Cycling: Developing pedestrian and cycle routes with secure storage and connectivity.

EV Charging: Including infrastructure for electric vehicle charging.

6. Community Engagement & Social Value

Community Involvement: Engaging with local communities to shape development.

Social Value: Creating local employment opportunities and enhancing social well-being.

C: Renewable Energy. Provision of PV panels to assist with sustainable electric generation and reduce operational energy

D: Glazing ratios balance daylight and overheating. Solar shading and openable windows help regulate temperature.

E: Low Carbon Systems. Provision of ASHP and MVHR

F: Green Infrastructure. Provision of green roofs and retention of existing planting assist with biodiversity net gain and ecological benefits.

6.4. Sustainability Principles - reuse conclusion

Limitations and Challenges of Reusing Materials from a 1960s Modern Church

While the reuse of materials from a decommissioned church is often seen as a sustainable and heritage-sensitive approach, the case of a modern church built in the 1960s presents a distinct set of challenges.

The construction techniques, materials, and design sensibilities of that period may limit the feasibility, desirability, or practicality of reuse in contemporary projects.

1. Material Quality and Lifespan

Churches built in the post-war era, particularly in the 1960s, often used materials and methods reflective of their time—such as reinforced concrete, mass-produced brickwork, early forms of prefabrication, and composite panel systems. Many of these materials were not intended for long-term durability and may now be showing signs of deterioration, including spalling concrete, corroded reinforcement, or delamination. Reuse of such elements may not be structurally viable or economically justifiable when compared to new, more efficient alternatives.

2. Asbestos and Hazardous Materials

It is not uncommon for buildings of this era to contain asbestos-containing materials (ACMs) in ceiling tiles, insulation, floor coverings, or textured coatings. The presence of hazardous substances can significantly complicate salvage operations, as removal must comply with strict health and safety regulations. This adds risk, delay, and cost to any reuse strategy, often making full or partial reclamation unfeasible.

3. Design Incompatibility

The architectural language of 1960s ecclesiastical buildings was often minimalist, functional, and tailored to the liturgical reforms of the time. Elements such as plain concrete finishes, simple aluminium window frames, or modular joinery are unlikely to hold significant aesthetic or heritage value, and may not translate meaningfully into new architectural schemes. Their reuse could feel out of place or may not contribute positively to the character of a new development.

4. Environmental Performance

Many materials from this period do not meet current performance standards for insulation, thermal bridging, air tightness, or fire safety. Reusing them could compromise the energy efficiency or regulatory compliance of a new building. In some cases, it may be more sustainable in the long term to use high-performance new materials rather than retrofitting outdated ones with poor environmental credentials.

5. Cost, Logistics, and Uncertainty

Salvaging and reusing components from a 1960s church can be disproportionately complex and costly relative to their value. Concrete panels, large-format glazing, and built-in furnishings are often difficult to extract without damage. In addition, many elements were site-specific and not designed for disassembly or relocation. This makes them technically challenging to integrate into a new scheme without significant adaptation or bespoke detailing.

6. Lack of Heritage Value

Unlike older, more traditionally built churches, a 1960s church may have limited historical or architectural significance, particularly if it was one of many constructed in response to post-war population growth. While it may hold local meaning, it may not justify extensive efforts to preserve or reuse its materials—especially if its architectural merit has not been formally recognised or listed.

Conclusion

Although reusing materials from a 1960s church aligns with sustainability aspirations, it must be balanced against the realities of material performance, health risks, design integration, and cost.

In many cases, a more strategic approach—salvaging selected items of symbolic or practical value—may prove more effective than attempting widespread reuse. For the remainder of the structure, careful deconstruction and responsible recycling may offer a more appropriate and pragmatic route forward.