Application - AWDM/1633/21 –

Energy and sustainability statement

Proposed development at Old Town Hall Car Park, Southwick

Application type

Full planning application

Site

- The site falls within the Southwick Waterfront area of the Shoreham Harbour Regeneration Area Plan
- The site is within the proposed Shoreham Heat Network Area

Description.

The proposal is for the erection of six small commercial office units on the site of an existing car park, along with cycle and car parking, and shared amenity accommodation.

The planning recommendation is for the development to achieve a BREEAM Excellent rating.

The applicant is willing for the detailed BREEAM assessment to be a condition of Planning Approval.

Energy Strategy

Passive design

The building is arranged over three floors with office accommodation on the upper two levels. The key features of passive design are as follows:

The office suites are small (all less than 45 sqm) allowing natural light to be the primary form of day lighting.
The shared circulation corridors are buffer spaces allowing solar benefit from south facing windows and internal glazing whilst avoiding overheating to the office areas.
The size of the offices and opportunity for cross ventilation allows the units to be naturally ventilated.

Materials

The main elements of the building will be formed from traditional materials, all of which are capable of being recycled or re-used:

- Facing clay brickwork .
- Natural slate roofs.

- Timber floors and roof.

Energy efficiency

Insulation.
The building will be well insulated and will comply with the requirements of the enhanced Part L Building Regulations coming into effect June 2022.

Minimisation of thermal bridging
The building will comply with the requirements of the enhanced Part L Building Regulations coming into effect June 2022 covering thermal bridging and air tightness

Electrical Appliances
All fitted electrical appliances with be GRADE A+ or better

Lighting
All internal and external lighting will be from low energy LED fittings.
Lighting within corridors and wcs etc will be fitted with movement detectors to turn off lighting when these spaces are unoccupied

Timber
All timber will be sustainably sourced via an appropriate stewardship scheme.

Heating, and hot water

System:
Until such times that the Shoreham District Heating System is developed and available it is envisaged that the building will be heated via low temperature radiators run from air source heat pump(s) situated within the ground floor parking undercroft and wall mounted.

The calculated space heat load for the building is estimated at 30 KW
This is capable of being achieved through three or four heat pumps.

A plant room is provided at second floor level to accommodate heat storage and associated equipment. Full Details of the system are still to be fully designed.

As and when a District heating supply becomes online, the low temperature HW radiators system can be operated and supplied by the primary network via a heat exchanger in the allocated plant space.
A conduit for the primary Heating supply pipework can be accommodated within the ground floor construction for future connection.

The load for domestic hot water will be light, limited to one shared tea point and three WC hand basins. Localised electric instant water heaters are likely to be the most efficient solution for these areas..

Overheating :

Passive measure to avoid overheating are as follows:

The shared circulation corridors to first and second floors are buffer spaces allowing solar benefit from south facing windows whilst avoiding overheating to the office areas.

Opening roof lights are installed to the top of the stairs and may be used for venting of the communal areas.

Second floor office suites have high attic ceilings which can act as heat reservoirs.

The masonry external walls will have thermal mass

Renewable technologies -:

- Solar PV (Photovoltaics)
- Air source heat pump
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Technology type	**Description**	**Capacity (kW)**	**Estimated annual generation (kWh)**	**Total CO_2 saving from this technology (kg CO_2/m^2)**
Solar PV	*15m^2 of PV panels,*	*4.5 kW approx*	*TBC*	*TBC*
Air source heat pump	3-4 units	Up to 30kW	TBC	TBC
TOTAL		34.5 kW	TBC	TBC

Rationale for the chosen renewable energy technologies

Air Source Heat pump.
There is space within the ground floor parking undercroft to mount air source heat pumps out of view, and away from neighbouring properties. It is estimated that a small array of heat pumps can produce sufficient output to run space heating to the office suites via low temperature radiators. The radiator system can also be used with a district heating scheme if and when this becomes available.

Solar PV panels.
The building has a clear and unobstructed elevation to the south and an area of flat roofing is suitable to mount PV panels. The output from these panels will be fed back into the National Grid network.

Transport

Separate cycle stores are provided for users of the office suites, with additional cycle parking allocated to the neighbouring residential conversion.
Car charging points for electric vehicles are provided in the ground floor parking undercroft.