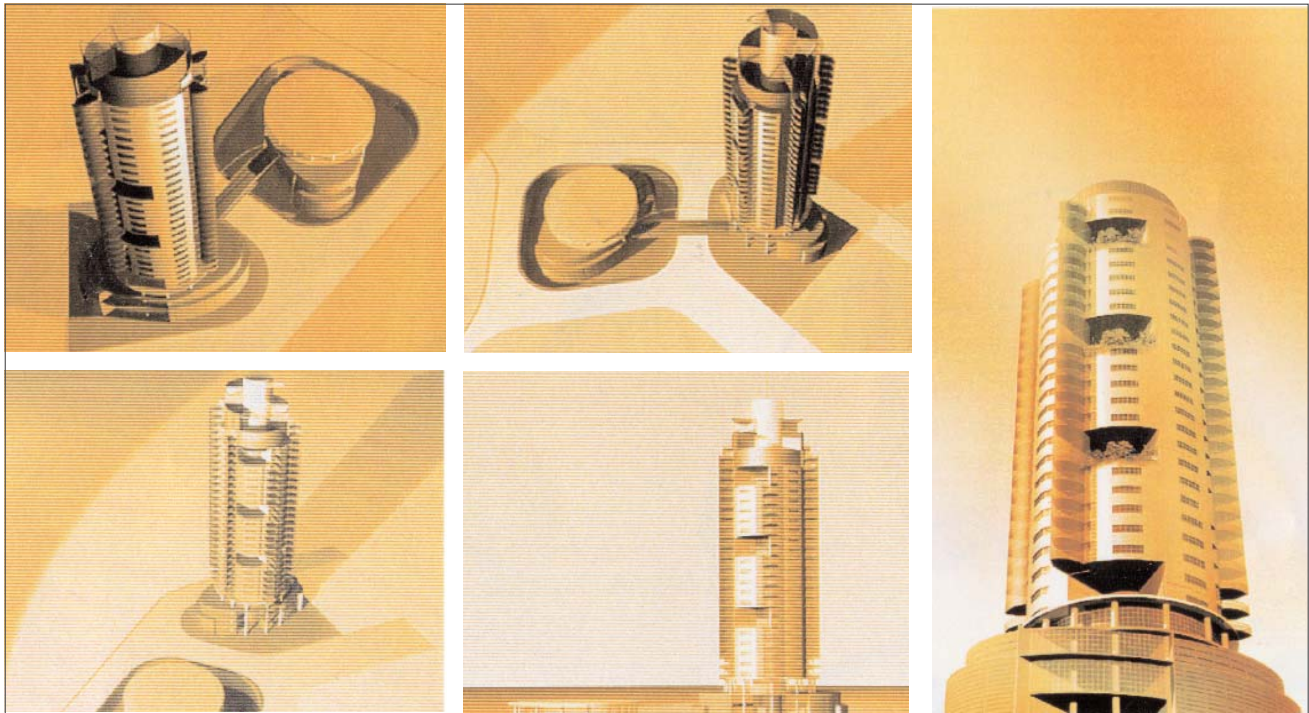


BATTLE McCARTHY©

Consulting Engineers & Landscape Architects



PROJECT:

Sun Tower, Basingstoke, UK

CLIENT:

Bewley Homes PLC

ARCHITECTS:

Broadway Malyan

BM SERVICES:

Environmental Analysis

VALUE:

Classified

DESIGN BRIEF

To design a landmark tower for a commercial and retail development

DESIGN INITIATIVES/ACTIONS UNDERTAKEN

The aim of this project was to create an exciting and dynamic mixed tenancy residential and commercial tower whilst utilising passive design techniques to reduce the high environment impacts typical of high-rise contemporary living.

Environmental Design

The design of the Sun Tower responds to a number of environmental issues to passively create a sustainably building, whilst also being a visual landmark for local rejuvenation and for Basingstoke.

The building form primarily responds to maximise sunlight and daylight to all apartments, whilst maximising the potential for natural ventilation of internal spaces.

Each apartment is arranged to enable passive solar gains to living spaces, with glazed areas facing south, southwest or southeast. This arrangement provides space for a central stem housing all essential services including stairs, lifts, ventilation shafts and utilities. Glazing area varies around the building facade, with a minimum to the north increasing around the facade to a maximum solar exposure to the south.

All the apartments are passively cooled via operable windows and ventilators. In peak summer conditions the external sky gardens can be opened up to the core to promote cross ventilation of the floor plate. A vertical ventilation shaft also ascends the central stem to connect leeward and windward skygardens to enable cross ventilation and passive cooling from an increased surface area.

The tower's energy demands will be supplemented by on-site renewable energy production from PV cells and wind turbines and with heat and power generation from a log burning CHP unit. Waste heat from the low level commercial units will supplement the residential heating demand and the leisure pool will act as a heat dump. Solar thermal panels will also provide economic heating for domestic hot water. Rain water will be collected at the podium level and treated for non-potable use.

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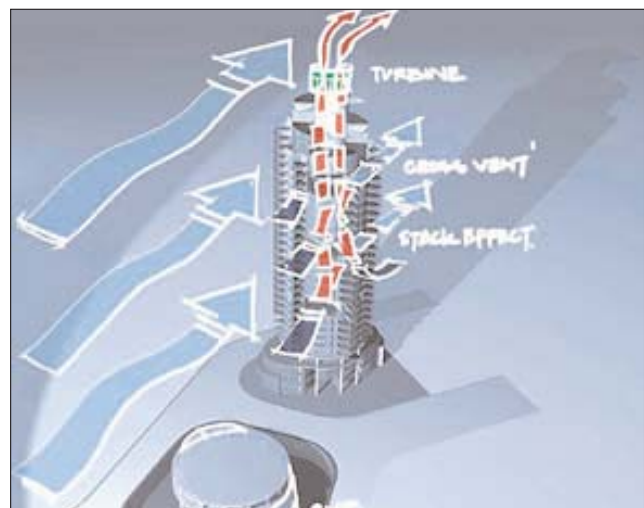
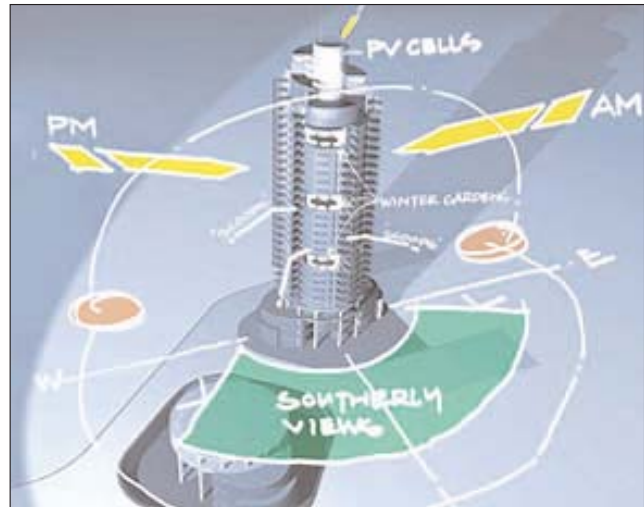
The proposed building from the west

The sky gardens are arranged such that no apartment is more than two floors from an external green social amenity space. Each of the six 3 storey gardens will be placed along the southwest and northwest facades of the tower to promote communal use, cross ventilation and vertical stack effect. The variation in height, aspect and orientation will allow for varied ecological habitats.

The tower comprises 27 storeys including 4 storeys of commercial units at podium level and planted terrace before the 108 residential apartments ascend from the 5th floor. The apartments range from standard 55m² units to 85m² penthouse duplex units. 30% of the residential units will provide key-worker housing.



The Sun Tower featured in the Royal Academy's Summer Exhibition 2003 as part of the 'Sky High: Vertical Architecture' exhibit curated by Sir Norman Foster. The show aimed to explore the development of the skyscraper and the Sun Tower was selected as a simple approach to the challenge of providing high density affordable homes in urban areas. The tower was also cited for its innovative use of passive techniques and emphasis on key-worker homes.



Environmental analysis