

SUSTAINABLE CONSTRUCTION AND ENERGY STATEMENT
FOR THE REDEVELOPMENT OF
THE AFTER DARK CLUB
112 LONDON STREET
READING
RG1 4SJ

Ref: 2956/wmg/cm

September 2016 (Rev.)

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SUSTAINABLE CONSTRUCTION AND ENERGY STATEMENT

Redevelopment of 112 London Street Reading RG1 4SJ

1. General Note and Description

The proposals involves the demolition and subsequent site clearance of an existing, in the main, single storey building currently use as a night club (The After Dark).

The mainly brick built structure is in a very poor condition and certain areas of the roof are insecure. There may be asbestos in the building. Services such as gas, water and electricity are available in the building. In addition foul and surface water systems are available.

The proposals envisage the redevelopment of the land for 5 units comprising single person units on the ground floor with a mezzanine 2 floor 2 bed unit above. The design image is that of a mews terrace.

Space has been left for cycles and bin stores with a garden area at one end of the development.

It is intended that the proposed development will be to the best and current building standards, taking into account Reading Borough Council's requirements. This report seeks to note the sustainable construction proposed along with an energy statement and the hot water and heating system proposed.

2. Sustainable Construction

The design envisages a combination of brick and render for walls with stone detailing in places. Pitched slate roof dormers dressed in appropriate waterproof material. Mono pitch roofs will be a high quality single membrane waterproof material.

Party walls will above the roof line, lead flashed to the roof, all lead treated with anti patina oil to prevent staining.

Gullies will be PVC system with stone coping on parapet walls.

Internal construction will be beam and block on the ground floor with a repeat for all floors.

Roof structure will be a combination of timber and steel.

There will be sufficient levels of sound protection between units horizontally and vertically.

Demonstrate the ratings of materials to be used, as set out in the BRE Green Guide to Specification. Materials should be all rating B and above, with over 60% A rated.	The following construction elements are anticipated to be used. There description, assessment number and the BRE Green guide rating are described with each element. Pitched roof with slates on battens and counter battens, underlay, rafters and insulation. 812410006-A+ External walls - brick, insulated block, cement mortar. Some areas to be rendered – self colour. 806170061-A+ Ground floor screed on insulation on grouted aircrete beam and block flooring. 82014007-B First floor as ground without insulation 807280031-B Windows PVC-U double glazed 813100009-A Internal partitions timber stud, plasterboard, plaster skim coat and paint. 809760003-A+ Glass Wool Insulation 821532000-A+ Ceramic Floor Tiles 821580001-B Semi flexible Poly Vinyl Chloride tiles 821570012-A Close boarded fencing or railings 827020020-A Hard landscaping area to be pavements (porous type) 82212001-B Concrete block paving on sub-base 830120021-A
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Maximise reclamation of materials following demolition.	The development is of sufficient value to require a Site Waste Management Plan to be prepared as part of the building contract.
Demonstrate the % of construction materials which are from recycled or reused contents.	As part of that process and to achieve compliance the specification of the work will be prepared to ensure a maximum use of materials from the demolished 112 London Street. The specification of all other elements will seek to incorporate, where reasonable practical and element of recycled materials for the new build
Demonstrate the % of local reclaimed or recycled materials to be used in paved areas	
Maximise the % of locally resourced materials (i.e. within 35 miles of the site)	Wherever possible the specification of materials will seek to use locally sourced materials wherever they are available.
An assessment of the energy demand of the development and predicted CO2 emissions by at least 10% of the predicted level.	To be provided by SAP calculations
Demonstrate the % of energy demand has reduced CO2 emissions by at least 10% of the predicted level.	To be provided by SAP calculations.
Demonstrate the % of energy to be provided from on site renewable generation including an explanation of the proposed choice of renewable energy technology.	See heating and hot water system details.
Demonstrate the measures to ensure that the average domestic water use will be 105 litres/capita/day	To be proved by calculations.

Show how adaptation to microclimate is considered through design principles and use of shading	The design of the new mews type development and its orientation is primarily driven by site specific factors of site shape, adjoining properties and the location of a tree protected by a Tree Preservation Order. Generally the internal design of all the dwellings have been arranged to ensure that the primary habitable room within each dwelling will benefit from the best available daylight
Demonstrate that there is adequate storage for waste and recycling containers.	The scheme design is such that waste bins, recycling containers and bicycle storage are located at the London Street access and the amenity space is located at the St Giles Close access

Energy Statement - General Points

The aim is to provide an all electrical system, no gas supply. This also avoids the use of solar panels or heat pumps.

Several systems have been considered as noted.

Orientation and day lighting along with insulation levels and air tightness.

Combined with the above and U values as follows: -

Ground Floor 1.10
Walls 0.25
Roof Ceiling 0.11
Roof Slope 0.18
Windows 1.30
Doors 2.30

All to comply with Part Q

Technology	Generation	Feasible	Reasons
Combined heat and Power	Thermal + Electrical	No	Inappropriate heating and electrical demand Insufficient plant room space Insufficient space for hot water storage
Solar Thermal	Thermal	No	Limited roof space and orientation
Solar Photovoltaics	Electrical	No	Inadequate south facing roof slopes Roof areas are unshaded
Ground Source Heat Pump	Thermal	No	Limited space
Biomass Boiler	Thermal	No	Local biomass fuel suppliers available Insufficient space for delivery vehicle Insufficient plant space for boiler Insufficient space for fuel storage

Wind Turbine	Electrical	No	Obstruction which may cause turbulence Insufficient open space for turbines Issues arising from surrounding residents

Selected System

Heating System:- to be all electric. Under floor heating and power for hot water.

Heating system by Earth Save Products _ www.ESAVEP.com

Notes

- 100% low energy lights
- Heat pump with radiators or under floor electrics
- To a water heat pump

Energy Saving Measures

Best practice and appropriate measures have been factored into the design to minimise the environmental impact on the site,

Orientation and Day Lighting

Building design is a compromise between the relative high u-value of windows compared to the lower values of walls, having a large area of glass allows more daylight into the building at the cost of losing heat during the winter and gaining excess solar radiation during the summer. Window orientation also has an effect e.g. north facing windows will only transmit a small level of daylight and have relatively high heat loss in the winter. Conversely south facing windows allow higher levels of daylight into the building but also admit higher solar gains in the summer.

The building has a natural South East/South West orientation, due to the street layout and surrounding buildings. Whilst this may not provide the optimum orientation for solar gain, it will however help to contribute to reducing heating and lighting loads and, given the constraints of the site, the building is sited in the most feasible position possible.

Insulation and Air Tightness

All of the thermal elements have been assessed and will be built with adequate amounts of insulation to comply with or improve on the Part L building regulations minimum standards in order to reduce heat loss as much as possible.

This building will be built to best practice and it is expected that after an air test is completed an air permeability figure of at least $5\text{m}^3/\text{hm}^2 @ 50 \text{ pa}$ will be achieved, which comfortably exceeds the building regulations standard of $10\text{m}^3/\text{hm}^2 @ 50 \text{ pa}$.

The properties will be built with continuity of insulation throughout to minimise the effects of thermal bridging and to reduce the likelihood of cold spots forming. The dwelling will achieve a thermal bridging U-Value of at least 0.08 to match that of accredited construction details.

Material Selection

Due to the nature of the site and space required to deliver, store and distribute materials around the site several decisions need to be considered.

One decision involves the use of Wienerberger Porotherm clay block walling system. Based on a precision system of blockwork the blocks can be laid with the minimum use of cement and delivery can be made daily.

The key list of benefits for its use is that it has many advantages which make a compelling argument for making it a quick, cost effective, highly suitable choice of material (wienerberger.co.uk).

Other materials such as brick and block for other walls can follow after the main structure is in place.

Material for the roof structure can be formed off site and brought in as required, as with other items.

Ecology Issues

It is intended to make use insect hotels in places of safety to increase number of insects in the air.

Secure by Design

The development will be provided with gated security and walls and fencing to protect the front rear and side elevations. Lights will be provided on the main corners, over doors and in the garden and bin store and bike areas.

Entry will be gate entry phones and covered by TV systems as well as spy holes in the doors.

All doors and windows will be to Part Q of the Building Regulations Act.

Fire Safety, Part B and Part M

The development is on a restricted site and fire doors will be required to allow safe entry and exist in the case of fire.

Disabled Access

Access is achievable by wheelchair or disabled scooter. Door widths will allow access.

Other details such as switches and sockets will be dealt with in the building regulations submission

Grey Water

It is intended that grey water will be used where possible.

Services

Water, electrical supply, BT connections and TV cables will be provided.

End