

DESIGN AND ACCESS STATEMENT

Part 2 Sustainability & Energy Efficiency

Proposed Mixed
Use Development

Thornton Road
Pickering

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Introduction

Considering the current focus of Government and society on creating sustainable and energy efficient new developments, the issue has been at the forefront of the design process. Careful consideration has been given to the merits of making the building more efficient during the construction and operational phases of the development. Included within this has been weighing up the benefits of providing renewable energy on site.

The modern design of the buildings, which benefit from simple clean lines, means it is 'greener' than pseudo-traditional designs. This is on the basis that fewer more sustainable materials are used and the construction time is shortened and more efficient.

The materials applied to the buildings are low maintenance and in the majority of cases require no further applications over time. Quality facing materials are to be utilised on the elevations. The cladding is pre-finished and naturally oxidises therefore does not have to be painted or re-coated unlike traditional plastisol coated claddings. The guttering and down pipes are a powder coated aluminium finish and therefore do not require re-painting or maintenance.

The development aims towards a zero percent additional run-off target in regard to surface water drainage.

To ensure that the development does not waste energy through unnecessary lighting, all internal and external lighting will be remotely operated. This means that the lighting within ancillary areas uses sensors to turn on when someone enters the room and turns off after a specified period of inactivity.

As well as saving energy through lighting systems, Premier Inn operate an extensive recycling policy for all waste cardboard and plastics generated during its operations. All recyclable waste is separated into its constituent parts, the cardboard is then collated and collected twice a week to be recycled. All plastics are separated and bagged. The cardboard bales and Plastics collected separately.

Energy efficiency is a long term lifecycle issue, which should not only be addressed in the short term build such as through materials but also, in the long term through the operation and maintenance costs.

Sustainability & Energy Efficiency

Protection of Nature's Resources

The key to achieving sustainable development is to ensure prudent use of land and resources. This section details how the development has taken account of this during the design.

The development has used materials that are highly rated within the Green Guide specification in the construction of this development.

Element	Construction	Rating
Roof	Mono-pitched roof steel truss construction with an aluminum cladding finish with internal mineral wool insulation.	A
Walls	Poroton Blockwork with a render cladding. Facing Brickwork	A/A+
Glazing	Windows, Double glazed with Aluminum Frame.	A

Protection of Nature's Resources

Ash and Lacey Ash Zip system or similar is used for the roof construction of all the buildings, this is one of the lowest environmental impact materials on the market.

The external walls of the hotel will be formed from Poroton Blockwork using a single leaf construction. Poroton is light-weight and gives enhanced thermal performance due to the air spaces within each block.

Glazing is used modestly around the elevations, this allows natural light into the building reducing the need for artificial lighting. The windows have an aluminum frame which can be recycled at the end of its operational life. This material is also durable, having some of the longest replacement intervals according to the Green Guide.

Operational waste produced in the hotel is segregated at source. Cardboard and plastic packaging is bailed / bagged on site and collected appropriately.

In terms of water usage, The development has a number of objectives which govern the water use on site, these include;

1. Water is fully metered.
2. Water usage monitored on a monthly basis.
3. Water usage targeted use per month.
4. Installation of low water use fittings.
5. All new toilets have dual-flush controls installed.

Sustainability & Energy Efficiency

Energy

Premier Inn are widely recognized as having a lower energy consumption than average benchmarks with energy usage restricted to lighting, selective local heating and a small amount of refrigeration.

In order to achieve an energy efficient design, it is required to ensure optimum use of energy throughout a buildings life. In this section each component of the building will be discussed in terms of its energy efficiency.

Materials

Building Regulations set the minimum thermal performance standards for a building. The development will exceed the minimum standards to make significant reductions in the heating requirements of the building.

Glazing

The development optimises the window selection to maximise daylight, minimize heat loss, reduce solar gains and provide acceptable noise insulation and aims for an area weighted average U-value no greater than 1.1 W/m²K. All windows will be double glazed, with a minimum of 6mm thick glass and a 12mm gap.

Lighting

All lighting in the Development is connected to the Building Management System (BMS). The lighting within the sales area is controlled by timers, the other areas of the store use lights controlled by motion sensors. External lighting utilises a combination of light sensors and timers in order to minimize energy consumption through seasonal variations. Lighting levels vary depending upon the activity i.e. 15 minutes after the store closing lighting levels reduce to only 30% and vice versa.

Heating

The Hotel uses air conditioning systems that provide both heat and cool air. This allows the building to be effectively controlled with the same management system.

The small amount of hot water required will be provided by electric water heating to reduce losses from water storage.

Sustainability & Energy Efficiency

Air

The development is considered unlikely to give rise to any significant air quality issues. Techniques are applied during the construction period to minimise the potential for dust and local air pollutants. Best practice is used to control dust on the construction site.

Efforts are also made to reduce impact on air quality within the building. To achieve this, the development's finishings are designed to be of low impact to human health. These include the use of low impact paints, where practical, including water based paints that have low volatile organic compounds.

Air leakage through draughts at joints in the building such as windows, doors and poorly fitted cladding causes variations with the building's temperature. It takes a significant amount of energy to control these leaks with measures to reduce such leaks being incorporated into the building design.

The amount of openings within the building envelope have been kept to a minimum to reduce the areas where air leakage could occur. Appropriate seals will be used to reduce these draughts to a minimum. The roof space and any draughts created from the cladding around the roof space will not affect the temperature within the building.

Noise

During operation of the development, every effort is made to ensure noise does not compromise the health and well being of building occupants as well as other potentially sensitive receptors.

Noise impacts to the surrounding receptors would be minimized through the appropriate management and if required the installation of acoustic fencing. Where perceived noise sources could occur, acoustic fencing would be supplied to ensure the operation of the hotel does not impact the amenity of local residents.

Lighting

Impacts from lighting have been addressed during the design of the development. Light pollution emanating from the building at night may impede the view of the night sky and cause glare effects, both of which present potential harmful physiological and ecological effects. The development minimise light obstruction, including light trespass and sky glow by following appropriate guidance from the Institute of Lighting Engineers.

Conclusion

The design of this development has made significant advances towards sustainable design and construction.

The design incorporates measures to reduce environmental impact, both through design and through the commitment of the developer to follow best practice to reduce pollution during the construction phase.

The information provided clearly demonstrates that the development can be regarded as energy efficient and will also deliver sustainability within the local community.

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