



Development of 6Nos 2bed Apartments
Site of the Former Kings Arms, Joseph Street,
Middleton, Manchester, Lancashire, m24 5sq.

KAM-TLL-XX-XX-DR-A-D (50) DAS_P01.1

DESIGN ACCESS STATEMENT
25TH November 2023.

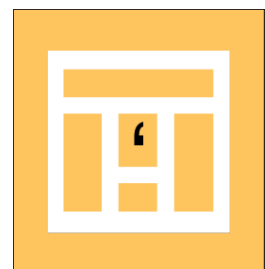


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1.0 INTRODUCTION

1.1 Background

This Design and Access Statement has been prepared in support of a Planning Application for 6 Nos. Apartment on Site of Former Kings Arms, Joseph Street, Middleton, Manchester, Lancashire, M24 5SQ. The proposed apartments are fully intended to be affordable, smart and optimised, promoting full energy and environmental sustainability and smart home technologies.

This statement responds to the requirements of the Town and Country Planning (Development Management Procedure) (England) Order 2010 for most planning applications to be accompanied by a Design and Access Statement. It has been structured in accordance with Communities and Local Government “Guidance on information requirements and validation” (March 2010) and CABE (2006) guidance.



Fig 01: Location Plan.

1.2 Site location & Context Plan

The proposed site lies between football pitches, residential buildings, main road and a school.–The site location has good transport network links; Middleton train station is approximately 2.0 miles away and the major transport networks are also within a 2miles radius, A664 approximately 500m away to the South-eastern side of the site, M60 and M62 are both less than to the south and north of the site respectively. It is located near to the junction with Wood Street, leading direct into Middleton town centre. There is a number of schools within approximately 1mile radius from the Joseph Street serving the area. Joseph Street Site is also characterized by vegetation, an expanse mature tree and parks to the South and South West of the site. The new development will be within a built up area. To the rear of residential site is Woodside Working Mens Club and residential properties located to south, east and

west of the site. The design will not have an impact to the trees and natural setting of the environment as it is a brownfield site, a former site for the Kings Arms pub. The area has a number of quality homes and it is proposed that the land at Joseph Street is developed for high quality, well-designed homes that will meet housing needs adding to Rochdale Council existing stock. This project will contribute towards the 7,360 houses on brownfield site by 2028 according to Rochdale Council Core strategy for provision of housing.

The site is very well located for public transport. The railway station has direct links to other towns and Manchester City centre is approximately 1 mile away from the proposed development site. There are regular bus routes serving the site with bus stops on Wood Street within 50m away and Long Street approximately 400m.

The area comprises a high density of residential and a few commercial properties within close vicinity. This section within Joseph Street, Wood Street, Mellalieu Street and Long Street typically contains two and three storey terraced properties and a mix of bungalows, detached and semi-detached properties. The location is within easy walking distance of a range of shops and facilities along Wood Street and Long Street to the North and South of the site. A public right of way runs along the Southern side of the site, which links up to pedestrian access to the fields and to the school.

The proposal will not disturb the enjoyment of the existing pedestrian/cycle path on Premier Road from the site that will contribute to the access to the development of the site.

The key features of the development are as below.

- A highly sustainable location and site close to good transport and amenities.
- A total of 1 (3 Storey) flat comprising of 6 units under flat roof designed to meet the design standards of Rochdale Council.
- A highly sustainable development with all homes designed to meet Rochdale current sustainability criteria.
- Generously sized private amenity for all residents.
- High quality houses under brick, built of high quality material to satisfy sustainability approach (economics, energy, environment & emotions).
- Parking will be provided on site to meet Rochdale Council's standards.
- Designed to key 'Secured by Design' principles.

1.3 Assessment- Site Location

The proposed development makes best use of previously developed land on this brownfield site with the addition of ten much needed residential dwellings. The former King's Arm site has been idle for a number of years following demolition of the old property. The building sits comfortably in the street scene and respects the adjacent properties in terms of design and protection of amenity, and creates high quality living spaces for future occupiers.

1.4 Physical Context

The site contains the following:

- A grassed area.
- Flat topography.
- Main road.
- Neighbouring a pub at rear
- Existing residential houses to the west, south and eastern side of the of site.

1.5 Topography

The site is on a relatively flat terrain; the site has no defined slope that requires flattening. There is a moderate cross slope falls from North to South that extends towards the rear but does not impact the site.

1.6 Connections

The site connects with Wood street to the south of the site. Wood Street leads to Manchester new road and Manchester old road leading into A576 and ultimately M60. From wood street towards Middleton town centre, Wood street connects with Oldham road which feeds into B6195 and A627(M) towards M62 Northeast if the site. The site is about 5-10minutes to the town centre.

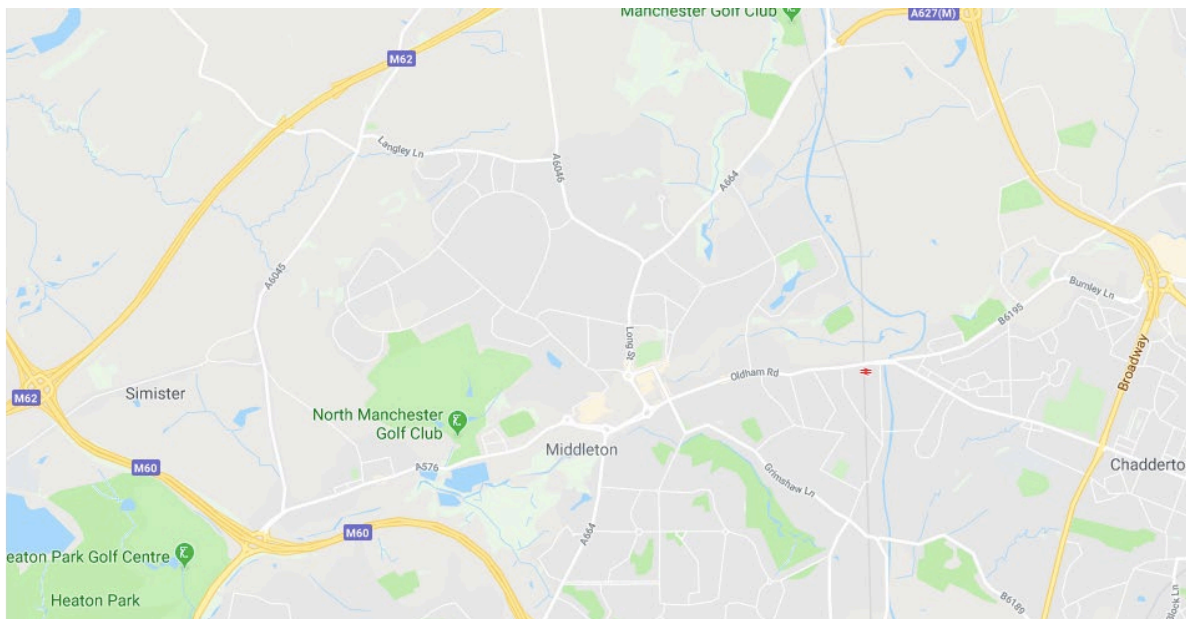


Fig 02: Area Map showing Middleton.

1.7 Local Context

The proposed site is situated close to all important amenities, there are local shops, ATM and fuel station nearby and the town centre is 0.5 miles away. There are 4 schools within a 2mile radius, pubs and supermarkets are within close walking distances. The neighbourhood is characterized by older late Victorian red brick semidetached and detached house; they mainly comprise of dark grey Welsh slate roof tile with back of the house accessible back gardens.

Wood Street leads to a roundabout T-Junction that connects to Manchester New road and Manchester old road, which leads to A576 and M60 south and north bound.



Fig 03: Site Plan View



Fig 04: View looking at access to site from the west .



Fig 05: Houses on street



Fig 06: View looking along Wood Street



Fig 07: The street view looking at Site.



Fig 08: Substation along Joseph Street.



Fig 09: View to footpath towards Wood Street.



Fig 10: Bungalows along Joseph Street.



Fig 11: View of site and wall to rear.

2.0 PROPOSAL

2.1 Use

The nearby context is residential, comprising of groups of semi-detached and detached housing.

It is proposed that the site is developed for residential use, which will provide 6 new 2-bedroom apartments within 1 (3 storey) Apartment block.

The proposed site design has evolved in direct response to:

- The site-specific constraints and opportunities.
- The local context analysis.

2.2 Layout

The layout has been carefully designed acknowledging and proposing the following key site features, to create a well thought through layout, with the aim of creating a proposal with a strong sense of community and place without having any negative impact on the local context:

- The existing mature landscape and natural surroundings
- Reasonable separation between proposed and existing buildings.
- Private secure parking bays in the rear of the dwellings.
- Landscaped frontages.
- Sense of community and place.

2.3 Scale

The scale of the proposed building is led by the physical constraints of the site. The proposal offers a variety of spaces of different scale providing interest, safety and contributing to a sense of community. Through the use of these different scales the development offers distinctive character and activity while providing continuity of enclosure and an appropriate setting for high quality public open spaces.

The form of the scheme reflects the density and character of the surrounding area and is suitable in scale. The height of the eaves and ridge of the building frontage matches the adjacent buildings at Sarah Street and Parkfield.

The rear three storey element of the development is reduced in height and scale with a ridge height matching that of the abutting existing building to the rear of the site. The flat roof design takes into consideration the building height relationships of the nearby 3 storey flats, the bungalows and the Woodside Working Men's Club on Higher Wood street at the rear of the development.

2.4 Floor Plan as Proposed

Floor to floor heights of all floors have been designed to achieve a minimum of 2.5m internal floors to ceiling height following our proposed standards. The site area 668.166m².



Fig 12: Site Plan showing Building Footprint.

Proposed development fits well into the existing context.

Scheme is not over developed, reflecting the density of adjoining sites, and the existing trees on the site'.

2.5 Schedule of Accommodation

The proposed development is for 6 units' dwellings (2Bed apartments) in 1 (3 storey) apartment.

The following is a breakdown of the number of dwellings on the proposed residential site of 2 Beds apartments. The development will be 100% private rent that are affordable to the Rochdale Council and also meets Rochdale Council Housing needs. The secure private parking spaces will offer amenity that will benefit the residents of the development, reducing the impact of roadside parking in the area.

The schedule of accommodation below outlines a detailed breakdown of the proposed dwellings.

APT	Code	Name	Beds	Total m ²	Internal Communal Space m ²	External Communal Space m ² (Soft & Hard Landscaping)	Nos. Car park allocation
01	101	2B3P	2	61.365	9.109	188.220 + 270.552	1
02	102	2B3P	2	63.028	9.109		1
03	201	2B3P	2	61.365	9.109		1

04	202	2B3P	2	63.028	9.109		1
05	301	2B3P	2	61.365	9.109		1
06	302	2B3P	2	63.028	9.109		1
				373.179	54.654 m ²	458.772 m ²	8
Overall Site Area				668.166m ²			

Table 01: SOA.

2.5.1 Amenity Space

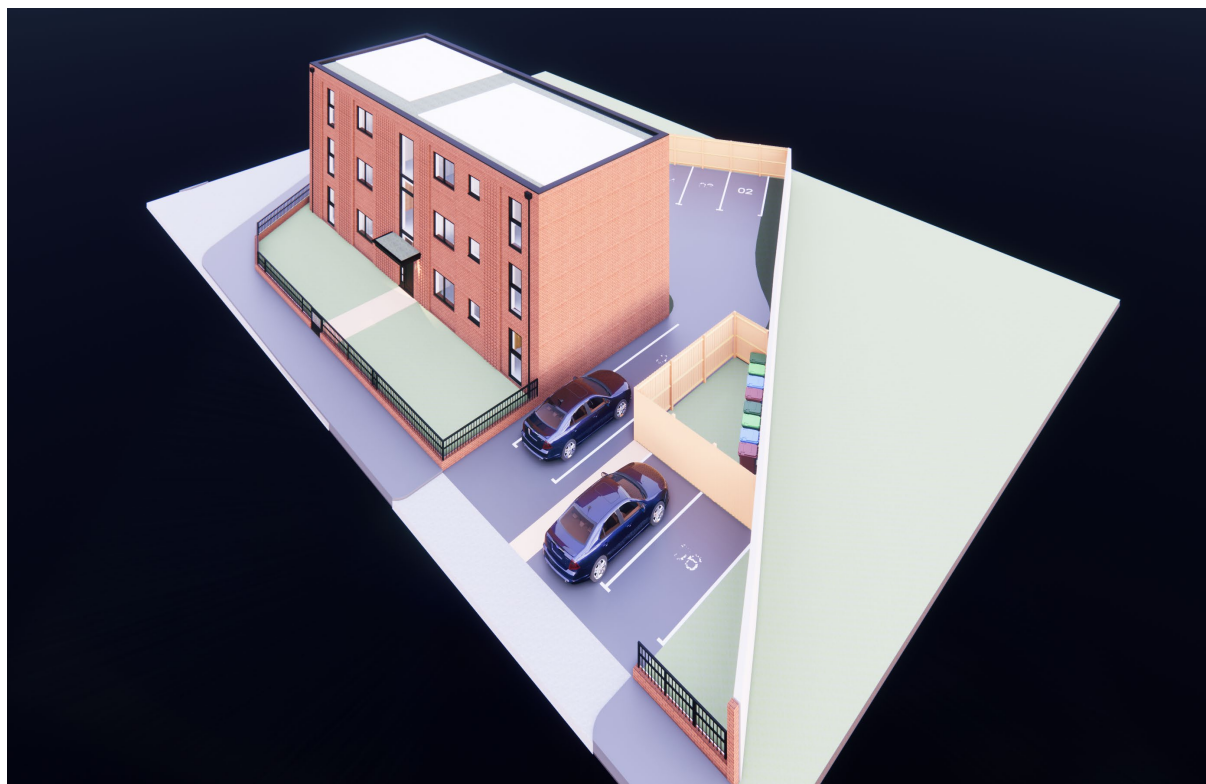


Fig 13: Aerial Image of Proposed Building.

2.5.2 Car and Cycle Parking

The site will comprise of both secured car and cycle parking spaces as illustrated in the above schedule of accommodation. Each dwelling will have one car park space within the Property Boundary. The development includes secure, covered storage for 5 bicycles for the use of residents and a communal refuse store located close to the car park.

2.6 Appearance

2.6.1 Building Design

The building is traditional in design and draws inspiration from the surrounding architecture and features of the surrounding area. The architectural treatment of flat is a continuation of the neighbouring buildings in terms of character and material choice.

The windows are full height in order to enable maximum natural light into the rooms. The south facing balcony doors allows daylight, sunlight and outlook to be retained therefore ensuring no loss of amenity to the neighbouring property. All residential units have a good outlook and plenty of natural light to ensure a high quality living environment. All residential units comply with space standards and are wheelchair accessible.

The design element of the building on the ground floor has been left open to allow for off-road parking for the residence, it also works well for the design aesthetics as the mass of the building is broken to ensure it is viewed as part of the development.

Through using a carefully considered palette of high quality brick materials the proposed development will be respectful to its suburban setting and the local vernacular, whilst being attractive and welcoming and reflect the wider context and nature of the site.

Traditional and materials are proposed including a complementary pallet of differing bricks with clay tiled roofs and windows with large openings to maximise natural light to the dwellings.

The buildings and associated boundary treatments aim to effortlessly integrate and discreetly mask the 'everyday clutter' of daily life in order to present a well-designed and tidy street that is a joy to visit and live in whilst also ensuring that the impact on the existing trees and landscape is kept to a minimum.

2.6.2 Apartment

The proposed brick is selected to match the existing materials on houses in the area allowing the property to blend uniquely with character and appearance to suite; with flat roof creating a unified visual coherence to the development as a whole. The flat has a simple entrance canopy made of similar material as the proposed roof, with feature timber attached to the brick face to create a contemporary feel to the property.

The key building features throughout the scheme are:

- Natural material palette
- Expressed flat roof forms
- Large window openings
- Building typology with its own individual character, expressed by the brick material.

The aim for the buildings are to collectively provide a vibrant, visually interesting scheme with a sense of community, creating a place where you would love to live.



Fig 14: Street View showing proposed development with access to Parking at rear.



Fig 15: Street View showing proposed development with access/exit to Parking at rear.



Fig 16: Street View showing Brick teething feature on proposed development.

2.6.3 Proposed Building Materials

A proposed brick option for the proposed flat allows the property to blend in with local character of red brick which will have visual coherence with adjacent properties.

2.6.3.1 Material Palette

The materials proposed are as follows:

- Dorchester Red Stock Brick for the proposed development all through the site. Same will be used for the dwarf fencing.
- The proposed roof is Sedum Green Roof. This is proposed to maintain the scheme aerial visual to tie to the buildings site.
- Windows / Doors - SbD Compliant
- Grey vertical format windows and doors in aluminium frames and Cill. Clear glass generally.
- Private Front Doors, SbD timber doors with integral window.
- Rainwater Goods, uPVC rainwater downpipes and gutters (colour: grey) carefully and discreetly located.
- Roof Fascia in RAL 6017 Grey
- Rosa Wasserstrich WF Paver

Exact materials can be conditioned, subject to planning approval.

2.6.3.2 Houses Material



Fig 17: Dorchester Red Stock Brick



Fig 18: Clear Glass

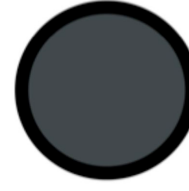


Fig 19:RAL 6017 Grey

2.6.4 Building Material Pallet (Floor Plans and Elevations)

2.6.4.1 Apartment Layouts

KAM-TLL-ZZ-XX-DR-A-E(10)03 - GA Layout Plan



Fig 20: 3D Floor Plan.

2.7 Landscape

There are no existing trees on site except for shrubs, a few trees will be planted around the site boundary. A Landscape scheme will be prepared subject to planning approval to support the scheme. This 'Proposed Landscape Scheme' will set out the nature and extent of the proposed landscape treatments within the application site along and that will provide more detail relating to the soft landscaping and details respectively.

2.8 Accessibility Statement

2.8.1 Philosophy and Approach

The proposals have been designed to achieve a high quality, inclusive residential development for 3 storey flat comprising of 6 (2bed) residential apartment for affordable housing. The street and public realm has

been designed to be welcoming, safe and desirable. The streetscape has been designed to be clearly legible, with clear divisions between public and private.

2.8.2 Secured By Design

The safety and security of the neighbourhood are of great importance. The process of developing the design has been guided by the Secured by Design principles that seek to achieve natural surveillance in active neighbourhoods through the design of the layout, the mix of dwelling types and connection to established movement networks. Routes through and around the proposal are well defined, overlooked and active. The continuity and enclosure that contributes to the character of the development also assist in reducing crime and the fear of crime.

2.8.3 Approach to the Site

The main route for residents and visitors approaching the site will be from the main proposed site entrance at Joseph Street to the south of the site, accessible by foot, wheelchair, bike, electric scooter, or car. The approach will give easy access to and from the Land and will provide safe pedestrian links from Joseph Street. The site connects to the main roads to catch public transport, Wood street has pedestrians and cyclers links with easy access to surrounding areas. Wood street connects directly to the A576 and A664 which connects to major roads M60 to the southeast of the site. Connectivity and accessibility to and from the site and to the main roads.

There are 8 parking spaces located on site including 1 disabled spaces.

2.8.4 Access from the Street

The main street is simple, linear and offers good forward visibility and vehicle movement throughout. Discreet low Level Street lighting along the access road aids safe approach for residents to their homes. Building entrances are well lit and clearly defined.

2.8.5 Design considerations

Access to the bin and cycle stores is within the site, fenced and gated, secure from the street located to the side of the building. The apartment will be fully wheelchair accessible in accordance with Lifetime Homes standards, this applies to living / kitchen / dining area and both bedrooms. All doors to the development will comply with all relevant building regulations including Part M where applicable and practicable.

Provision for the following has been included: - Entrances: Level thresholds to all entrance doors and minimum clear widths to comply with Building Regulations Approved Document Part M will be provided. Circulation: Internal ground floor access with minimum clear widths of unobstructed openings will be achieved.

The entrances to the apartment have been carefully considered in the design of the layout and are not excessive. The materials choices for the external areas are designed to be accessible to wheelchair users and those with reduced mobility.



Fig 21: Front Elevation looking from the Street.

2.8.6 Emergency Access

Fire appliances, police, and ambulances will be able to enter the site from the main entrance off Wood Street. The street is wide enough for the turning and manoeuvre of both fire appliances and refuses vehicles at the proposed road access in the site.



Fig 22: Rear Elevation looking at the Proposed Building.

2.8.7 Cycle Parking/Storage Statement

The application promotes the use of cycles and provision for storage has been provided to the rear of the proposed property.

2.8.8 Waste Management, Refuse and Recycling Statement.

The proposed development will provide waste and recycling bins to the rear garden of the proposed dwellings and presented for collection in line with the local authority collection scheme.

2.8.9 Utilities Statement and Foul Drainage Assessment

Gas, electric and water is currently provided to all adjacent properties from the footpath/carriageway. It is understood the sewer within the carriageway is a combined system. It is proposed that the surface water will be connected to this sewer via a separate surface water drainage system designed for the proposed dwelling.

All main services and drainage points are accessible to the proposed development. All services will be fed from the footpath/carriageway outside the proposed dwelling and access into the property from either the front or the side. Consultation will need to be held with each of the relevant parties to confirm proposals in the context of the proposed development.

3.0 SUSTAINABILITY STATEMENT

The formulation of the energy strategy for the proposed development takes into account several important concerns and its priorities. These include:

- A. To achieve the maximum viable reduction in total CO₂ emissions through the fabric first strategy.
- B. To minimise the negative impact of the proposed development on both the local and wider climate.
- C. To achieve the highest viable levels of the Homes Quality Mark
- D. To minimise to the lowest possible extent emissions of pollutants such as nitrogen oxides and particulate matter, thereby minimising the effects on local air quality.

This statement first establishes a baseline assessment of the energy demands and associated CO₂ emissions for the development based on current Building Regulations. Please refer to Energy Statement.

3.1 What makes a house a sustainable home?

Innovation and sustainability are two of SmOp Developments' core values. Both are at the heart of our commitment to create material solutions that help deliver a better quality of life.

The brick house is one such solution. It is our response to the UK housing crisis and the pressing need to build houses that are sustainable and affordable, but efficient and beautiful too.

The strategic vision for the Whole House Concept is founded on using exemplary products to create a UK home that is designed to the principles of SmOp's concept: economy, energy, environment and emotion. Central to this strategy is an emphasis on using materials to create a home that is designed to last. SmOp's concept has been developed to be flexible enough to accommodate different products, locations, and orientations, and to be applicable to the diverse range of home types and environments in which we build in the UK.

To support faithful interpretation of SmOp's concept, this guide has been created to introduce the principles and provide more detailed design criteria. These 'rules' shall be observed by anyone seeking to realise a SmOp's home.

3.2 Flexibility, Design And Lifestyle

3.2.1 Adaptable and Affordable homes

A house built to standard has been designed to offer the flexibility to suit a wide range of modern lifestyles and requirements. From room configuration, size and dimension, to sustainability upgrades and even construction scale, it can all be delivered with minimal cost and maximum efficiency. Our standards encourage using attic or smart-roof types to enable cost effective loft conversions for all residents.

3.2.2 Space and light

Providing a house that can deliver the space and light to appeal to consumers is one of the biggest challenges house builders in the UK face. Our house designs are able to offer both. It has been designed in full accordance with the London Housing Design Guide (LHDG), and its internal space recommendations

for two, three, four & five bedroom houses. For example, a three-bedroom house should have an internal area of 96sqm and generous storage space, while a four-bedroom property should provide an internal area of 100sqm – more details in the **Emotion Section**.

Our house types fully meet these recommendations regardless of the size or type of house required.

3.3 Porotherm – the beauty within our brick house

The inner walls of our brick house are constructed with Porotherm, the market-leading clay block walling system. The innovative system is designed to allow speed, cost and sustainability to be delivered all at once without ever compromising quality.

The precision engineered block is equipped for both load and non-load bearing applications, with a unique interlocking design that rules out the need for mortar in the vertical joints. Not only does this save 95% of typical water usage and speed up drying time by a third, but the blocks can be laid far quicker than traditional masonry. The result is an inner block work wall that is both the economic option and a genuine sustainable building solution.

3.4 The matrix and “Long Term Approach”

Successful house concepts have to be as individual as their inhabitants, flexibly adapting to their needs and expectations. There cannot be only one solution that uniformly fits every person at every building site. Nevertheless, modern, sustainable homes are characterised by four key features: they sensibly use energy, are considerate to the environment, guarantee quality of life and are affordable to everyone.

SmOp has summarised these four elements into their strategy standing for economy, energy, emotion and environment. These four principles form the design framework for the SmOp Whole House Concept presented in this technical manual. The homes architectural features, the services strategy, and the project sustainability framework have all taken reference from the design strategy.

3.4.1 Economy “Golden Rule”:

"A house that not only gives optimum build performance and meets a growing market need, but that is financially affordable and accessible to construct and operate."

Concept	Principles	Importance
Economy	Masonry elements comply with BS 8000: Part 3 British standard for workmanship on Building sites: Code for Masonry and BDA Building Note 1 Brickwork - Good Site Practice	Must
	The primary fabric elements (except floors and roof trusses) of the building is constructed in baked clay products including Porotherm clay blockwork inner leaf, brickwork outer leaf and Sandtoft roof tiles	Must
	High level tiled Pitched roofs	Must

All of the roof surfaces (pitched or flat) should facilitate regular inspections by the householder	Must
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Table 02: Economy Golden Rule.

3.4.2 Energy:

“A house that meets the most up to date energy performance standards/standards and will do for every day of its 120-year plus life cycle.”

Focusing on the efficient use of energy – recycle of any unused heat, energy efficient appliances, use of low carbon technologies.

Concept	Principles	Importance
Energy	External Wall U-value of 0.18W/m ² K	Must
	Max Roof U-value of 0.13 W/m ² K	Must
	Max Windows U-Value of 1.6 W/m ² K	Must
	Max Air permeability of 5m ² /m ² /hr	Must
	Thermal Bridging of 0.04 W/m ² K	Must
	Natural ventilation	Must
	Passive Cooling	Recommended
	MVHR	Recommended
	Under-floor heating	Recommended
	LTHW	Recommended
	Smart meter	Must
	Well lit rooms	Must
	Single Phase consumer unit	Must

Table 03: Energy Table.

3.4.3 Emotion:

“A house that people will want to live in; a house that not only provides flexibility and practicality, but provides the owner with confidence of a high quality healthy living environment attributable to the design principles.”

Concept	Principles	Importance
Emotion	Floor Ceiling Height minimum of 2.5 m	Must
	Roof surfaces steeply at a minimum of 40 degrees	Recommended
	Minimum Gross internal area of the house to conform with: London Housing Design Guide or The level proposed by Home and Communities Agency (HCA)	Must
	The GIA in conform to whichever stated area is less in these two; see table 1.	Must
	Layouts planned and in conform with Lifetime Homes	Must

Usage of Loft space (without usage of dormers)	Recommended
A vacant loft space uses room in the roof to facilitate the future loft conversion where the span is greater than 7m.	Must
Rain gutter either concealed behind a fascia or made from high quality metals	Must
Presence detection with time delay off external lighting to save energy	Recommended
Porotherm used for wall for wet rooms in combination with clay plaster.	Recommended
Smoke alarm system compliant with BS5839 Part	Must

Table 04: Emotion Table.

3.4.5 Environment:

A house that is sustainable, focusing on the efficient use of water, building materials.

The foundation strategies based on fabric first approach, efficient insulation, correct type glazing. These principles shall be embedded into the TLL brick house at every stage; from the concept design through to construction material selection and architectural approach.

The strategic vision for the Whole House Concept is founded on using exemplary products to create a UK home that is designed to the principles of the TLL concept economy, energy, environment and emotion. Central to this strategy is an emphasis on using materials to create a home that is designed to last.

Concept	Principles	Importance
Environment	Meet the minimum of HQM 3 starts or the most current building regulations through adopting a 'fabric first' strategy	Must
	Primary fabrics elements used achieve A and A+ from Green Guide to Specification	Must
	80% of the materials in the primary fabric elements are responsible sourced being good, very good or excellent as define in BES 6001 (issue 2.0) 2009	Must
	Save water, energy and meet requirements of Code for Sustainable Homes Level 4 - TBC	Must
	Reduced flow fittings and fixtures to limit water usage to 105 l/person/day or below.	Must
	Flow reducing valves on taps 3l/min	Must
	Low flush toilet 2.6 and 4 l	Must
	A rated (European Union Energy labelling scheme) energy efficient Washing machines and dishwashers	Must
	Rainwater harvest system	Recommended
	Grey water treatment system	Recommended

Grey water treatment system to supply WC and washing machine.	Recommended
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Table 05: Environment Table.

The aspiration is to achieve Code for Sustainable Homes Level 4 (Technical Guides November 2010 with the latest amendments) and to comply with TLL' principles / BRE's Home Quality Mark.

3.5 BIM and our homes

From first brick to last check, our brick house has been designed with Building Information Management (BIM) at the heart of the concept. Building Information Management (BIM) is central to our standard, structuring the build process to encourage collaboration, as well as optimise time and material efficiency.

BIM not only supports sustainable construction through the design, planning and build stages of any project, but also provides responsiveness and efficiency through the operational lifespan of the property. BIM encourages a lifestyle approach to planning and design; it allows the asset owner to understand maintenance requirements easily and simply. It provides real time updates to the owner in the form of reminders, all to ensure that our brick house is as simple to run, as it was to design and build.

This systematic guide explains how level 2 building information modelling (BIM) can be used for the development of a built asset such as a new building. Level 2 BIM is required as a minimum on centrally procured public projects in the UK and is commonly used on private-sector projects. People who are not BIM experts and will be helpful for employers, consultants, contractors and suppliers write this guide for use. To help understand BIM, a glossary of BIM terminology is provided along with a wide selection of supporting articles.

Projects that incorporate level 2 BIM identify the decisions that will need to be made throughout the life of a built asset and the information deliverables required at each stage of the project to support those decisions. This ensures that appropriate information is created and shared in a suitable format at the right time so that better decisions can be made throughout the delivery and operation of built assets.

Information deliverables include model files, documents and structured data files containing information about the facility, floors, spaces, systems and components. Together these create a digital replica of the built asset that starts by representing design intent and matures by handover to reflect what has actually been built and installed.

The guide shows how level 2 BIM can be incorporated into a project following the RIBA plan of work 2013 stages. The first two stages have been broken down into sub-sections where important employer decisions have been identified that are not included within the RIBA plan of work. The end of each stage is marked by an employer's decision point, or gateway, at which the employer needs specific information to help them decide whether the project has developed satisfactorily and whether it should continue to the next stage.

The guide is aligned to PAS 1192-2, the standard for level 2 BIM in the capital/delivery phase of construction projects and in accordance with the other information management industry standards such as BS1192:2007, BS1192:4 and PAS1192:5.

3.6 Mandatory Standards for our Homes

Mandatory minimum performance standards are set for some issues. For three of these, a single mandatory requirement is set which must be met. The three un-credited issues are:

- Environmental impact of materials –We must make sure at least three of the following five key elements of the building envelope achieve a rating of A+ to D in the 2008 version of The Green Guide. The five key elements are roof, external walls, internal walls, upper and ground floors and windows. This should not be an issue.
 1. Suggested min roof U value of 0.13 w/m²K
 2. Suggested min Floor U value of 0.13 w/m²K
 3. Suggested min external fabric U value of 0.18 W/m²K
 4. Suggested min windows U value of 1.4 W/m²K
 5. Suggested air-permeability equal or less 5m³/h@50pa
- Management of surface water run-off from the development
 1. The aim is to design surface water drainage for the development which avoid, reduce and delay the discharge of rainfall run-off to watercourses and public sewers.
 2. To obtain an appropriate report containing all information necessary to demonstrate compliance with the peak rate of run-off and volume of run-off requirements. The report should include areas of permeable and impermeable surfaces on the site pre and post development.
- Storage of non-recyclable waste and recyclable household waste
 1. An adequate space must be allocated for waste storage and sized to accommodate containers according to BS 5906 based on a maximum collection frequency of once a week.

Construction Element	Specification
Ground Floor	U=0.13 W/m ² K
Main Wall	U=0.18 W/m ² K
Roof	U=0.13 W/m ² K
Windows	U= 1.4 W/m ² K
Timber Doors	U=2.5 W/m ² K
Design Air Permeability	Below 5m ³ /hm ² (@50Pa.)
Ventilation	High Efficiency MVHR/natural cross-ventilation
Lighting	100% 'Low E'
Thermal Bridge	y=0.04 (Enhanced Construction Details)
Space & Water Heating	Central Heating / individual gas boilers
Heating Control	Time and temperature zone control
Renewable Energy Technology	PV communal system (flats) and solar thermal (houses)

Table 06: Construction Element Table.

- An HQM Pre-Assessment report has been completed using the aforementioned energy
- y performance data along with details supplied by the scheme architect, combined with a review of the site. This provides confirmation of the potential HQM rating that may be achieved by the proposed scheme.
- This report has been prepared by a Licensed Code Assessor, Passivhaus Designer, BREEAM Accredited Professional. The report is intended to support the planning application for this development and therefore, establishes an approach to the delivery of this scheme, which the developer commits to implement.

3.7 Energy Hierarchy

The Energy Hierarchy provides a framework to guide energy policy and decision making to achieve practical and cost effective carbon emission reductions. The hierarchy prioritises demand-side activities to reduce wastage and improve efficiency (see Figure3.1) and is aligned with the Zero Carbon Homes definition.

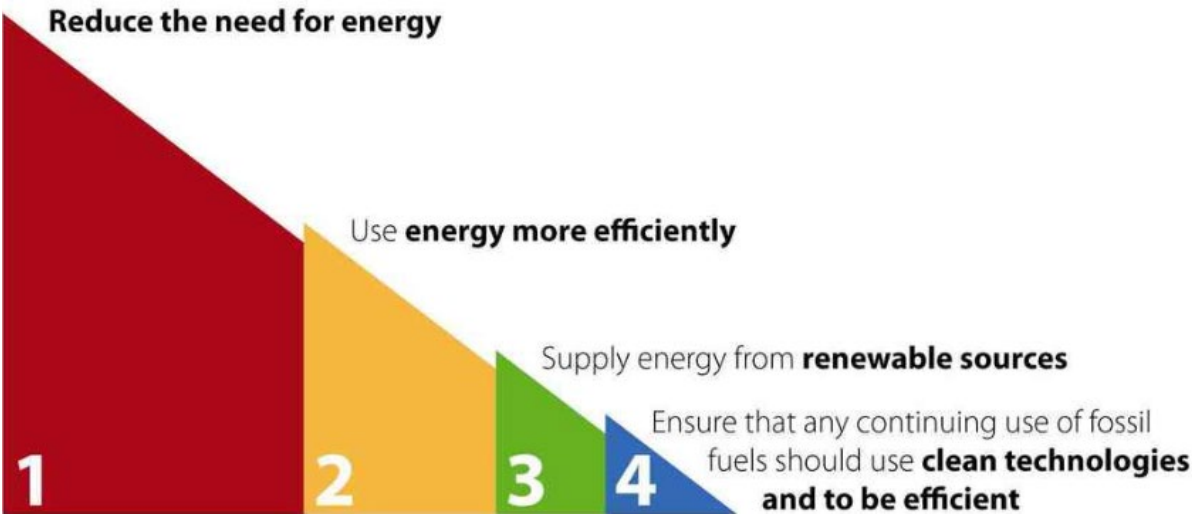


Fig 23: The Energy Hierarchy

3.7.1 First Principle

All Houses will be constructed with a material and design specification, which significantly exceeds minimum Building Regulation standards and includes numerous efficiency measures designed to reduce heat losses and minimise energy demand. This ‘fabric led’ approach to minimising energy demand and associated carbon dioxide emissions is aligned with the first principle of the energy hierarchy which states that reduction in energy demand should be achieved initially by energy efficiency.

Porotherm Clay block is the ideal material for the fabric of the building in order to meet the sustainability aspirations of this project for many reasons. If you break sustainability into three elements of economic,

environmental and social factors clay materials generally, have excellent credentials in all of these areas. In terms of environmental factors clay has many benefits.

Firstly the durability of the material - Longevity is a key element of sustainability and clay materials have a very long lifecycle, lasting well over 150 years. Clay also offers excellent thermal performance and using a fabric first approach you can make homes extremely energy efficient. Clay is also a very economical as it is a very cost effective building material.

Porotherm offers potentially significant savings compared to other construction methods due to its efficient laying process that means projects can be completed much more quickly than using traditional methods. The social factors are linked to the security, longevity and familiarity associated with clay products. The benefit of clay is that modifying the building is easier than it is with other construction methods.

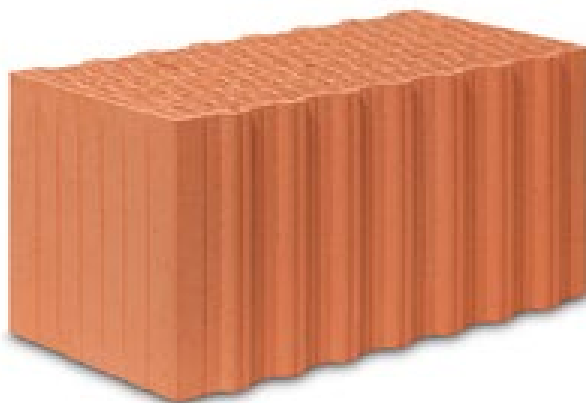


Fig 24: Porotherm Brick.

3.7.2 Second Principle

Waste heat from the flats and houses will be captured by high efficiency (>90% efficient) mechanical ventilation with heat recovery (MVHR) systems to reduce heat demand and provide healthy living conditions for the occupants. The proposed 100% low energy lighting provision and sophisticated control systems for the space and water heating within the flats and houses will also ensure the energy consumed by the flats and houses is used efficiently, as per the second principle of the Energy Hierarchy.

3.7.3 Third Principle

Photovoltaic (communal system on flats) and Solar Thermal (houses) will form part of this site's energy strategy to achieve a 50% carbon reduction over the current baseline.

The systems can be easily installed using a method already used widely by roofers, which reduces the risk of poor workmanship and subsequent weather proofing problems. In addition, there is no need for a specialist solar installer, which reduces the number of trades on the roof and saves time.

- **Designed by roofing experts** - Roof Integrated system developed by a trusted roofing company.
- **Universal** - compatible with virtually all types of tiles or slates, regardless of the manufacturer.
- MCS approved
- **Guaranteed** - 15-year product guarantee.

- **Ready to install** - supplied ready-to-install by the roofing contractor.
- **Aesthetically pleasing** - Building Integrated PV with the latest slim, black panels and unobtrusive flashings that is visually superior to bolt on systems.
- **One trade on the roof** - requires no additional trades on the roof.
- **Ventilated** - for higher performance efficiencies.

3.7.4 Fourth Principle

High efficiency centralised gas boilers (flats) and individual gas boilers (houses) with 150- 300l water cylinders and a solar thermal coil will meet the main space and water heating demand of the flats and houses.

3.8 Build Fabric and Thermal Performance

A very high standard of building fabric specification will deliver emission performance in excess of the compliance standard established by the Building Regulation, Part L (2010). The standard measurement of heat transfer through a given building material or construction type is the U-value (W/mK). The lower the U-value, the more slowly heat transfers and is lost out of a building. Heat loss occurs through the following areas and elements of the construction:

- Ground Floor;
- External Walls;
- Roofs;
- Doors and windows;
- Thermal (cold) Bridging (heat loss through construction joints); and
- Uncontrolled ventilation.

Table 7.0 presents the proposed material specification that will be incorporated to limit heat loss and ensure efficient operation of the proposed flats and houses.

Construction Element	Specification
Ground Floor	U=0.13 W/m ² K
Main Wall	U=0.18 W/m ² K
Roof	U=0.13 W/m ² K
Windows	1.4 W/m ² K
Timber Doors	U=2.5 W/m ² K
Design Air Permeability	Below 3m ³ /hm ² (@50Pa.) or natural cross-ventilation
Ventilation	High Efficiency MVHR
Lighting	100% 'Low E'
Thermal Bridge	y=0.04 (Enhanced Construction Details)
Space & Water Heating	Gas Boiler or Centralised Heating
Heating Control	Time and temperature zone control
Renewable Energy Technology	Solar PV and Solar Thermal

Table 7.0 – Proposed Specification

3.9 This material specification and design will provide the following benefits

High performance thermal insulation (ensuring low U-values for all heat loss elements) and thermally efficient windows and doors will minimise heat loss through the main building elements;

Very low air tightness of at least $3\text{m}^3/\text{hm}^2$ (@50Pa.) is targeted for this build in order to minimise uncontrolled ventilation. This will reduce heat losses and provide high levels of occupant comfort. Focus on the quality of the build is vital to deliver such airtight buildings.

Mechanical Ventilation with Heat Recovery (MVHR) will reduce expelled stale air and pre-heat incoming fresh air to reduce the flats and houses heating demand and provide good levels of occupant comfort. The design air permeability of at least $3\text{m}^3/\text{hm}^2$ (@50Pa.) for these flats and houses would virtually eliminate uncontrolled ventilation and ensure that the majority of the expelled stale air will pass across the heat exchanger, thereby boosting the energy reduction potential of these systems;

Photovoltaic (PV) and Solar Thermal panels harness solar thermal energy and convert it into zero carbon electricity or heat which can then be used within a building. The panels may be orientated in a southerly direction in tilted arrays upon the roof, thereby enabling this technology to operate efficiently. This technology will significantly reduce the flats and houses emission rate of this development. It will help us to meet the aspiration of 50% improvement on current PART L and carbon baselines.

Air conditioning systems are not required to cool the building. The MVHR unit includes a bypass function to ventilate the flats during the summer months; and Attention to cold bridging junctions including the provision of insulation to limit heat transfer. Enhanced Construction Details have been developed by the Energy Saving trust in order to limit the heat losses from flats and houses through non-repeating thermal bridges. These significantly reduce the emission rate of the flats and houses.

3.10 Renewable Energy & Low Carbon Systems

The potential for renewable and low carbon energy systems were considered for this proposal which includes combined heat & power, ground/air source heat pumps and solar energy. A summary of each system is outlined in the sections below along with their respective advantages and disadvantages. The Energy Hierarchy provides a framework to guide energy policy and decision making to achieve practical and cost effective carbon emission reductions. The hierarchy prioritises demand-side activities to reduce wastage and improve efficiency and is aligned with the Zero Carbon Homes definition.

3.10.1 Heat Pump

Heat pumps are an essential part of the UK's renewable energy mix. Several variations exist which can deliver heat energy to a building as and when it is required. With regards the Miles Platting, Area1 development heat pumps were considered viable either as standalone system(s), and/or as part of a sitewide energy strategy. However, high-end capital costs, design constraints and maintenance

requirements during cold snaps would need further studies. Capital costs can vary widely, with quotes ranging as high as £12,000 per dwelling/unit. A summary of each variation is listed as follows;

3.10.1.1 Water to Water Heat Pumps

Heat is extracted from a nearby watercourse, which is transferred to a looped pipework system and then used to generate heat energy for space heating and domestic hot water;

3.10.1.2 Air to Water Heat Pumps

Heat is extracted from the outside ambient air temperature and transferred to a storage water supply via a heat exchanger where it is used as a source of heat energy supply when it is required;

3.10.1.2 Ground Source Heat Pumps

Heat is taken from below ground level and transferred to a fluid mix (glycol etc.), and thereafter upgraded to provide a suitable source of heat energy.

3.10.1.2.1 Advantages, Heat Pumps

- Heat pumps can provide a sustainable and renewable source of heat energy supply;
- Heat pumps can generate constant supplies of heat and/or cooling;
- Heat pumps are particularly beneficial when used in conjunction with under-floor heating systems and low surface temperature heat emitters;
- Certain heat pumps receive an income from the Renewable Heat Incentive, see www.energysavingtrust.co.uk for further details;
- Payback periods average between 5 – 7 years depending on the type of system and the availability of the Renewable Heat Incentive.

3.10.1.2.2 Disadvantages, Heat Pumps

- Horizontal ground source systems require large areas to generate required levels of heat;
- Vertical ground source heat systems can be expensive to procure and install;
- Efficiency levels are reduced as outside temperatures decrease (i.e. heat pumps need to work harder.
- during colder periods to maintain internal temperatures at comfortable levels).

3.10.2 Combined Heat and Power (CHP)

CHP is the simultaneous generation of heat and power contained within the same energy system. Products range from small-scale domestic engines which run on simple gas turbines, to large-scale tri-generation systems which provide heating, cooling and power. The heat produced during the generation cycle is recovered and then used as a source of heat-energy within the building. CHP systems can deliver efficiency levels up to 90% efficient in contrast to separate systems which can range as low as 30% to 50%. CHP systems are usually specified on large-scale projects where there is a constant and high demand for power (i.e. hospitals and large office buildings).

Although CHP is fast becoming an available option to designers its inclusion at the Proposed could not be confirmed as suitable due to the low demand for heat and power, and periods of occupation which could not be established. The advantages and disadvantages of specifying a CHP system remain outside the scope of this report.

3.10.3 Solar Energy

Solar energy is an increasingly popular choice of renewable energy that continues to expand due to rising demand for sustainable building-design, funding requirements associated with Code for Sustainable Homes, the availability of the Feed in Tariff, the Renewable Heat Incentive and Planning Conditions.

Solar energy is a common choice of renewable energy due to its simplicity in installation, its low maintenance requirements, it is source of renewable energy during daylight hours and it can offer an income/investment from the Feed in Tariff and/or Renewable Heat Incentive.

Proposed Solar energy variations is Solar Photovoltaic (PV).

3.10.3.1 Solar Photovoltaic

Solar Photovoltaic (PV) panels produce electricity when stimulated by direct and diffuse daylight. The panels absorb light from which an electrical charge is generated. PV panels are usually located on roof areas and have wiring from within the panels fixed to an isolation switch, an inverter and a generation meter for use at source or export to the grid. The price of the panels is declining as the market reaches maturity. Although, a cost of approximately £5,500 per dwelling can be considered reasonable depending on the number of panels required.

3.10.3.1.1 Advantages, Solar (PV)

- PV arrays provide a free source of electricity that can be used at source or export to the grid;
- PV arrays are simplistic to install, and wiring is minimal;
- Maintenance requirements are minimal with the majority of PV panels;
- The payback period ranges between 8 – 10 years depending on site parameters;
- The Feed in Tariff provides a return of approximately 4.11 pence for each unit of energy generated, although changes to the incentive are currently being reviewed at the time of writing, see www.energysavingtrust.co.uk for further details.

3.10.3.1.2 Advantages, Solar (PV)

- Energy generation can be limited by the site's orientation and efficiencies of the installed panels;
- Energy generation is dependent on diurnal weather conditions and temperatures;
- An increase in structural roof loadings can be expected. This can lead to additional and expensive strengthening works;
- PV panels do not produce energy during hours of darkness.

4.0 CONCLUSIONS AND RECOMMENDATIONS

It is conclusion and recommendation of this report the design and specifications outlined above meet the requirements for sustainability as required by Manchester's Local Development Framework Policy En, and current Building Regulation requirements, Part L 2013. A mixture of sustainable building-design, a fabric first approach and renewable/low carbon energy systems will deliver thermally efficient accommodation that will reduce demand for energy, resist heat-loss through conduction and maintain internal temperatures at comfortable levels for the occupants.



5.0 APPENDIX

5.1 Application Drawings

1800750_Investigation&RiskAssesment

1800750_MaterialSchedule

KAM-TLL-ZZ-00-DR-A-W(10)01 - Location Plan

KAM-TLL-ZZ-00-DR-A-W(10)02 - Site Plan – Existing

KAM-TLL-ZZ-00-DR-A-W(10)03 - Site Plan – Proposed

KAM-TLL-ZZ-00-DR-A-W(10)04 - Proposed Aerial View

KAM-TLL-ZZ-00-DR-A-W(10)06 - Topographical Survey

KAM-TLL-ZZ-XX-DR-A-E(10)01 - GA Street View

KAM-TLL-ZZ-XX-DR-A-E(10)02 - GA Elevations

KAM-TLL-ZZ-XX-DR-A-E(10)03 - GA Layout Plan

KAM-TLL-ZZ-XX-DR-A-P(10)01 - GA Perspectives 01

KAM-TLL-ZZ-XX-DR-A-P(10)02 - GA Perspectives 02

KAM-TLL-ZZ-XX-DR-A-P(10)03 - GA Perspectives 03