

Babergh and Mid Suffolk District Council (BMSDC)

New Homes

Technical Specification

May 2022



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1.0

Introduction



Document Guide



Documents

This **New Homes Technical Specification** document and its sister document the **Housing Design Guide** have been produced by Babergh and Mid Suffolk District Councils to guide all future development. The standards set out in these two documents are highly deliverable and should be met by all developments going forward.

The documents respond to current best practice and address both the Climate Emergency Declaration made by all Suffolk councils and our response to the recent and currently ongoing affect of the Covid19 pandemic.

These two documents will form an integral part of any new designer's or developer's appointment. They will support and complement the written **Project Design Brief** provided for a particular development.

Developments

It is expected that all aspects of scheme designs comply with the design guide and the new homes technical specification. Where this is not possible, written approval must be obtained from The Council to vary the specification. These guides apply to all tenures of affordable housing and open market housing delivered by the Councils'.

Viewing & using these Documents

If you are viewing this document as a hard copy please refer to the contents pages.

When viewing as an electronic file we have introduced a series of hyperlinks to make it easier to navigate. In order to use this feature you should view the document in Adobe Acrobat.



All hyperlinks can be selected when this symbol appears when you hover over text in the contents page. Just one click will take you where you want to go. Other hyperlinks within the document are shown as yellow underlined text.

Document Updates

This Technical Specification has been developed taking into account various documents currently under consultation, including:

- The Future Homes Standard, 2019 Consultation on changes to Part L and Part F.
- Planning for the Future, White Paper August 2020

This Technical Specification remains under constant review.

Mandatory and Aspirational Design Goals will be reviewed every 2yrs or sooner if required.

Babergh & Mid Suffolk

Babergh and Mid Suffolk are two District Councils providing services throughout the two regions of central Suffolk. These two Councils continue to govern matters as two separate, sovereign councils but now share a fully integrated staffing structure, allowing an experienced and professional workforce to deliver support to both regions.

The districts of Babergh and Mid Suffolk have 60 Conservation Areas and are home to some of the most important and distinctive listed buildings in the country. New developments should add to the beauty and unique character of the many towns and villages which comprise these two districts.

Mid Suffolk and Babergh District Councils own and manage circa 7,000 properties within the District that provide affordable housing for applicants registered on the

Choice Based Letting System. In 2012 government approved changes to Housing Revenue Accounts that allowed Local Authorities to build their own affordable housing.

Mid Suffolk and Babergh District Councils identified several sites within their ownership for development as a part of the New Build Development Programme with affordable housing for local people.

Once built, homes will become part of both Councils housing stock and managed by them.

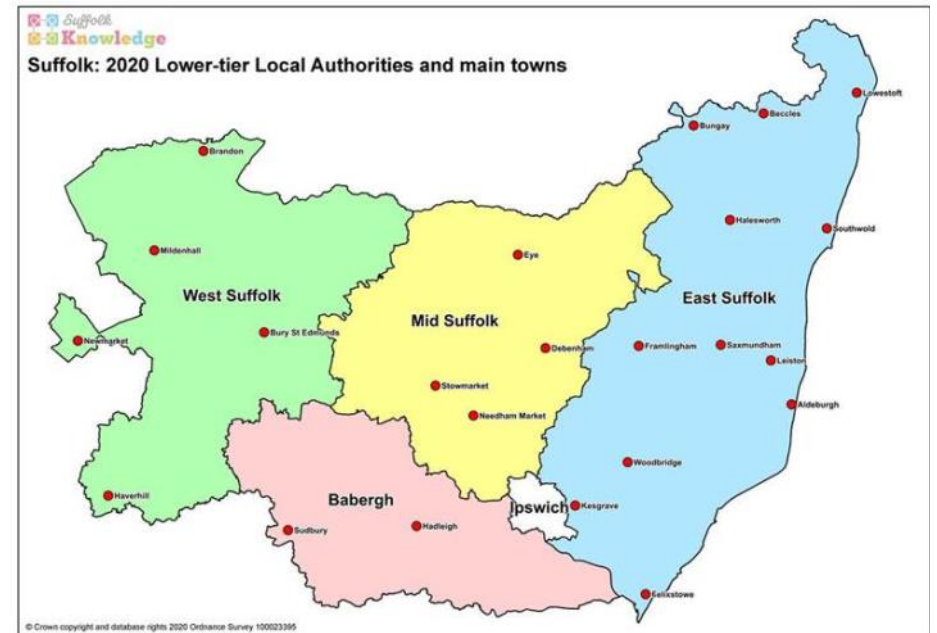


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2.0

Achieving Design Quality



Design Quality

We strive for all of our projects to meet the high design quality standards set out in this document.

The underlying purpose for design quality and the quality of new development at all scales is to create well-designed and well-built places that benefit people and communities. This includes people at different stages of life and with different abilities.

New Build Development Programme

Our New Build Development Programme will deliver high quality innovative design. To achieve this goal this document sets out robust procedures to monitor quality through the design development and procurement process.

All future development should aspire to achieve the requirements set out in this document.

Equal Opportunities

The Council is committed to ensuring equality of opportunity in all its commissioning and therefore requires that all consultants and contractors adhere to our Equal Opportunity Policy when working on behalf of The Council. Copies of both of these policies are available upon request.

Future Maintenance

The future maintenance of the building should always be considered, and facilities to ensure that the buildings are able to be maintained easily and safely should be incorporated into the design.



Design Goals (page 1 of 5)

The Housing Design Guide ([Appendix 1](#)) sets out a clear and ambitious design framework which captures characteristics in design that we will adopt generally in our projects moving forwards, and further aspirational objectives that we hope to incorporate where suitable, viable and beneficial.

This Housing Design Guide reflects the high-level design outcomes and shall be used to redefine the Councils developments moving forwards. The Guide is to read in conjunction with this Technical Specification which includes a [Design Compliance Matrix](#) setting out clearly the mandatory and aspirational requirements contained within the Design Guide.

The Housing Design Guide and Technical Specification respond to industry movement in design standards, residents expectations and the Climate Emergency.

This Design Guide is established around four key design topics, referencing the National Design Guide Characteristics, these are:

1.0 Context and Identity

Context and Identity looks at how we can enhance the existing surroundings with distinctive and attractive developments.

2.0 Movement, Nature and Public Spaces

Movement, nature and public spaces covers principles relating to these topics. It looks at ways we can enhance accessibility and ease of movement around new developments whilst providing safe, social and inclusive public spaces.

3.0 Homes and Buildings

Homes and buildings looks at principles around providing practical, safe, healthy and sustainable buildings which promote integrated and mixed communities.

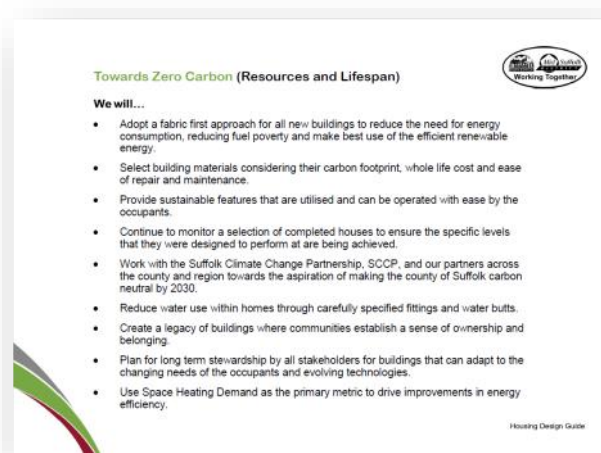
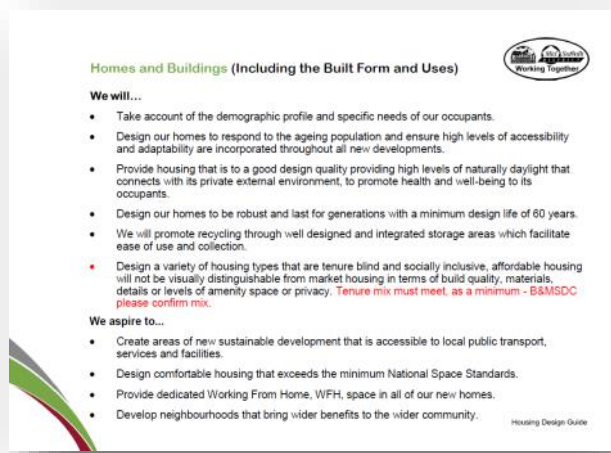
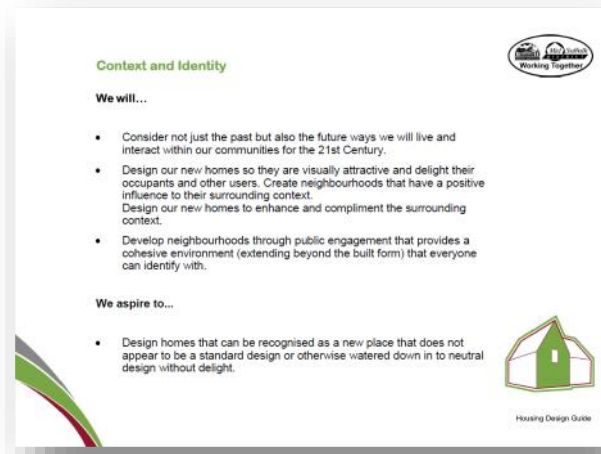
4.0 Towards Zero Carbon

In 2019 all Suffolk Local Authority members declared a 'climate emergency'. As part of this, the Suffolk Climate Change Partnership, SCCP, will work together with partners across the county and region towards the aspiration of making the county of Suffolk carbon neutral by 2030. This section looks sets positive and ambitious goals for meeting this pledge, delivering efficient and resilient developments made to last.



Design Goals (page 2 of 5)

Extracts from the Design Guide, full document is included in [Appendix 1](#)



Design Goals (page 3 of 5)

Design Compliance Matrix

Within the Design Guide, for each of the four design topics a number of mandatory design goals have been set, along with a number of approaches for achieving higher quality indicated in the table below as aspirational design goals. Innovation is encouraged across all scales of development, with Design teams encouraged to meet as many 'aspirational' design goals as practical in addition to all of the 'mandatory' design goals. However, it is not the intention of this document for these aspirational design goals to be meticulously followed for each development proposal. The approach taken will vary dependent on the nature, scale, location and context of each proposal. Instead, these aspirational design goals are included to inspire innovation and the pursuit of higher standards by providing examples of how the councils development objectives can be addressed. These approaches are all underpinned by industry best practice.

Design Goal to...	Mandatory	Aspirational*
1.0 Context and Identity		
Consider not just the past but also the future ways we will live and interact within our communities for the 21st Century.	✓	
Design our new homes so they are visually attractive and delight their occupants and other users.	✓	
Create neighbourhoods that have a positive influence to their surrounding context.	✓	
Design our new homes to enhance and compliment the surrounding context.	✓	
Develop neighbourhoods through public engagement that provides a cohesive environment (extending beyond the built form) that everyone can identify with.	✓	
Design homes that create character and identity in form and build.	✓	
2.0 Movement, Nature and Public Spaces		
Promote walking and cycling that connects to local community facilities	✓	
Design public spaces that feel safe, secure and attractive for all to use and enjoy	✓	
Detail all external fixings and street furniture to be robust and hard-wearing to minimise ongoing maintenance and repairs	✓	
Incorporate home zones within our neighbourhoods to promote fully inclusive environments that are focused primarily on the pedestrian and the aging populations	✓	
Integrate and enhance existing natural environments to enrich the sense of place to the local community	✓	

Design Goals (page 4 of 5)

Design Goal to...	Mandatory	Aspirational*
2.0 Movement, Nature and Public Spaces Cont...		
Provide a net gain for biodiversity on all our developments	✓	
Provide a range of good quality outdoor spaces that will encourages a wide variety of activities, well-being and interaction, social and civic inclusion		✓
Use permeable surfaces and sustainable urban drainage to reduce and manage water run-off		✓
Create green corridors throughout new neighbourhoods to encourage areas of play, food production and recreation		✓
Prioritise areas of nature within new developments to address climate change mitigation and resilience		✓
Provide external areas that range from public parks to shared spaces and private gardens		✓
Provide opportunities for food growing on all our developments		✓
3.0 Homes and Buildings (including Built Form and Uses)		
Take account of the demographic profile and specific needs of our occupants	✓	
Design our homes to respond to the ageing population and ensure high levels of accessibility and adaptability are incorporated throughout all new developments	✓	
Provide housing that is to a good design quality providing high levels of naturally daylight that connects with its private external environment to promote health and well-being to its occupants	✓	
Design our homes to be robust and last for generations with a minimum design life of 60 years	✓	
We will promote recycling through well designed and integrated storage areas which facilitate ease of use and collection	✓	
Design a variety of housing types that are tenure blind and socially inclusive affordable housing will not be visually distinguishable from market housing in terms of build quality materials details or levels of amenity space or privacy. Provide homes and developments were people feel safe and secure.	✓	
Create areas of new sustainable development that is accessible to local public transport services and facilities		✓
Design comfortable housing that exceeds the minimum National Space Standards		✓
Provide dedicated Working From Home WFH space in all of our new homes.		✓
Develop neighbourhoods that bring wider benefits to the wider community.		✓

Design Goals (page 5 of 5)

Design Goal to...	Mandatory	Aspirational*
4.0 Towards Zero Carbon (Resources and Lifespan)		
Adopt a fabric first approach for all new buildings to reduce the need for energy consumption reducing fuel poverty, make best use of the efficient renewable energy creating homes that are 'zero-carbon ready'.	✓	
Select building materials considering their carbon footprint whole life cost and ease of repair and maintenance	✓	
Provide sustainable features that are utilised and can be operated with ease by the occupants.	✓	
Continue to monitor a selection of completed houses to ensure the specific levels that they were designed to perform at are being achieved	✓	
Work with the Suffolk Climate Change Partnership SCCP and our partners across the county and region towards the aspiration of making the county of Suffolk carbon neutral by 2030	✓	
Reduce water use within homes through carefully specified fittings and water butts	✓	
Create a legacy of buildings where communities establish a sense of ownership and belonging	✓	
Plan for long term stewardship by all stakeholders for buildings that can adapt to the changing needs of the occupants and evolving technologies.	✓	
Use Space Heating Demand as the primary metric to drive improvements in energy efficiency	✓	
Instal the most appropriate renewable energy resources and consider renewable energy supplies	✓	
Building Regulations Part L from June 2022, developments must achieve a reasonable reduction in carbon emissions of at least 31% measured against the 2016 amendments to Building Regulations Part L	✓	
Install the infrastructure to support the future installation of electrical car charging areas were out of curtilage parking is provided	✓	
Provide an electrical car charging point to all new in-curtilage car parking areas.	✓	
Reduce water use within homes through grey water recycling.		✓
Meet Zero Carbon Targets in all our future new homes.		✓
Meet the Passivhaus Standard or equivalent.		✓
Provide all our new homes with filtered fresh air with heat recovery (MVHR)		✓

*For Major developments, defined as ten or more dwellings or a site area of 0.5 hectares or more, at least one aspirational goal must be met under each topic heading. Design teams will be expected to outline their approach to meeting the selected aspirational goals and how these will be monitored to ensure success and to inform future

Design Development Process (page 1 of 2)

The RIBA Plan of Work is the definitive model for the design and construction process of buildings and we require all Design Teams to work within this model.

“The RIBA Plan of Work organises the process of briefing, designing, constructing and operating building projects into eight stages and explains the stage outcomes, core tasks and information exchanges required at each stage.

Guidance in the RIBA Plan of Work 2020 Overview is based on nearly seven years of feedback, gathered by the RIBA, from the construction industry. It now includes an expanded glossary, comparison to international plan of work equivalents and guidance on the following core project strategies:

- Conservation Strategy
- Cost Strategy
- Fire Safety Strategy
- Health and Safety Strategy
- Inclusive Design Strategy
- Planning Strategy
- Plan for Use Strategy
- Procurement Strategy
- Sustainability Strategy - including detailed tasks aligned to the RIBA Sustainable Outcomes Guide**

RIBA Plan of Work 2020 Overview



RIBA
Plan of Work

www.ribaplanofwork.com

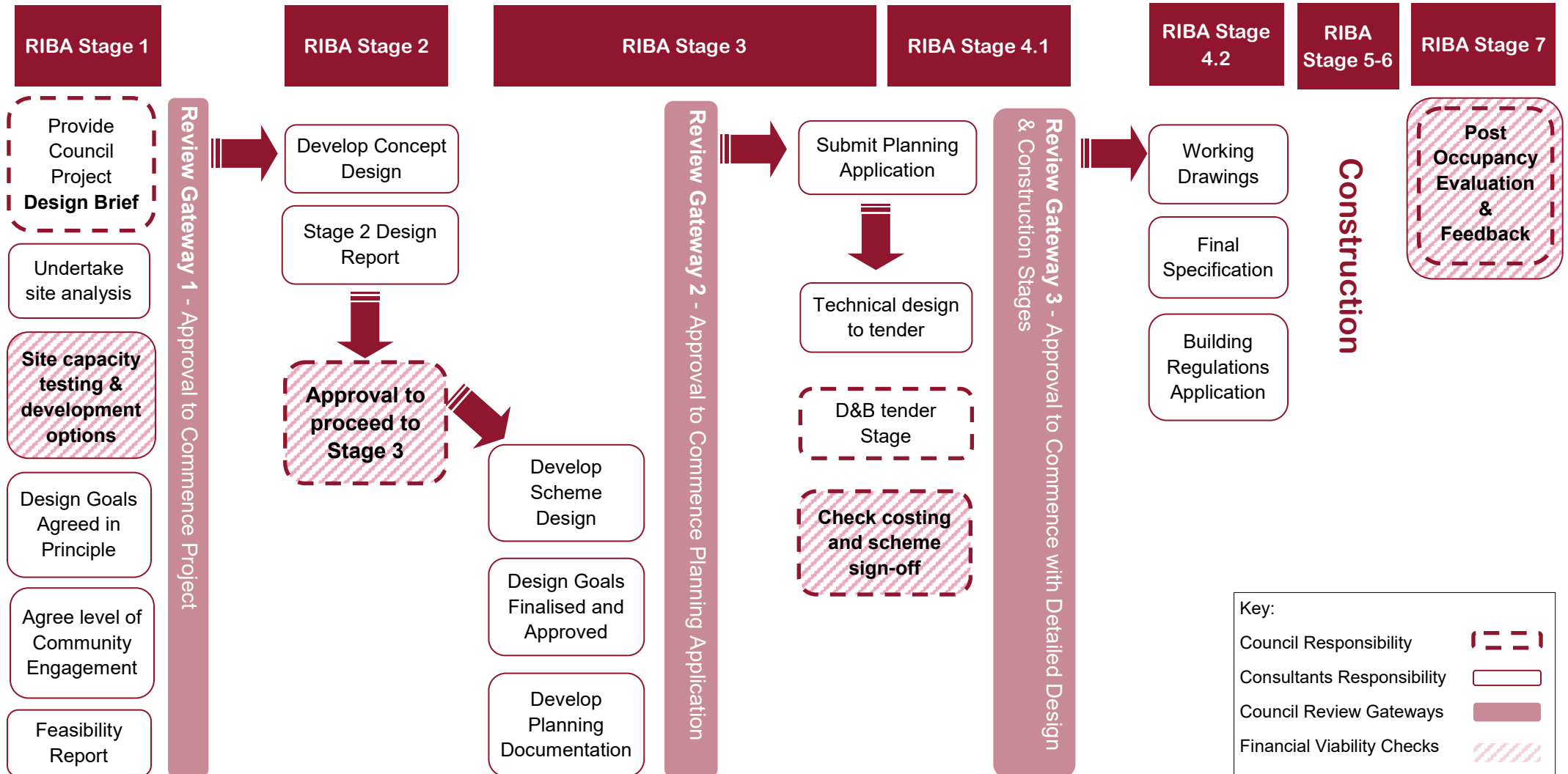
RIBA 
Architecture.com

*<https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-plan-of-work>

Design Development Process (page 2 of 2)

In order for the Design Goals set by the council (Design Compliance Matrix) to deliver successful new developments, they need to be integrated into the design process from the Strategic Definition Stage of the RIBA Plan of Work. For further guidance on the Plan of Work see <https://www.ribaplanofwork.com/>.

This diagram illustrates our typical process of design development with key responsibilities and actions to ensure the design quality of our schemes. This also introduces our 3 Project Review Gateways, which are expanded on in our Design Review Processes on P18-19.



Babergh and Mid Suffolk Review Process (page 1 of 2)

Our Design Review Process is informed by the principles set out in the UK Design Council's Principles of Design Review. Our design reviews are always focused on improving the outcomes for our residents and communities. Through this process we endeavour to improve the quality of the architecture, urban design and landscape delivered through our developments.

We use this process to explore how the design proposals can better meet the needs of our future residents and of everyone within the community who will be affected by it. This internal Design Review Process and the team who will facilitate it is set out on the proceeding page.

Community Engagement

We strive to harness the passion and experience of local communities to help shape the future development of their local area.

Community engagement requires a bespoke approach for every development. It is a way of developing a working relationship between ourselves along with our development team, and members of our local community and community groups. Good community engagement helps us to achieve design quality and positive change.

Community engagement provides an opportunity for the design teams we are working with to learn about the context in which they are designing from those who live, work or have an interest in the locality, and for the evolving design to be challenged by those who are most familiar with the area.

The level of local and community pre-planning engagement must be agreed with our team at the earliest possible stage. The level of engagement will

depend on the significance and the locality of the project, and a stakeholder engagement plan will be produced for each new development.

As a council we place a great emphasis on engaging with key stakeholders before submitting our planning applications. The National Planning Policy Framework for England (2019) states the important role of pre-application engagement:

“Early engagement has significant potential to improve the efficiency and effectiveness of the planning application system for all parties. Good quality pre-application discussion enables better coordination between public and private resources and improved outcomes for the community.”

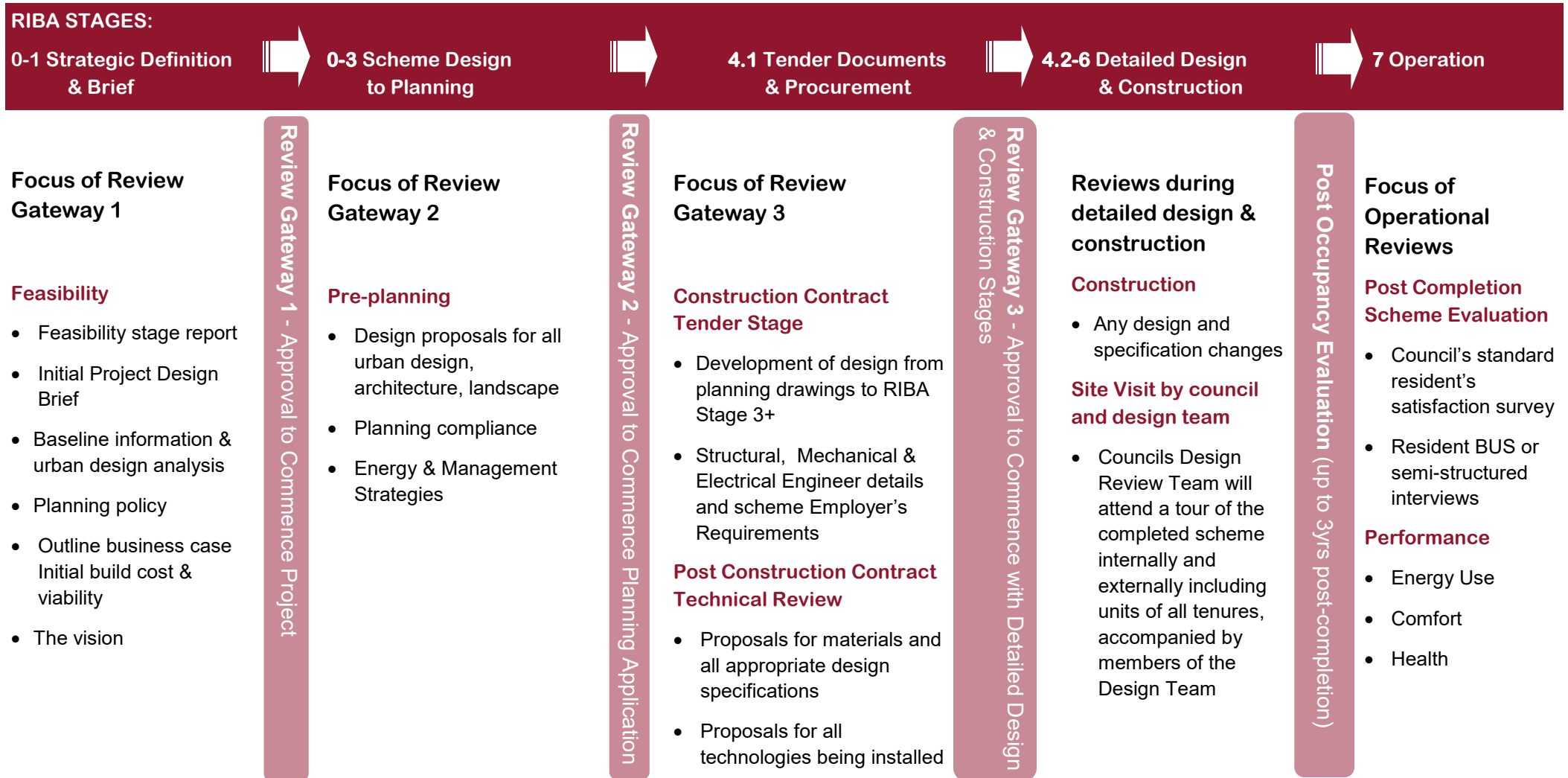
It is important to us that feedback from all community engagement is carefully recorded and shared with participants.



Babergh and Mid Suffolk Review Process (page 2 of 2)

The council require all design teams to follow the RIBA Plan of Work for each project stage so as to ensure design quality. In addition, the council have an internal Design Review Process. This sets out key Review Gateways which must be approved to allow the project to proceed to the next stage. These Design Reviews will be completed by a **Project-focussed group** within the council and typically will consist of a single representative from each of these teams: asset management, asset compliance, tenancy management, building services, public realm and others as appropriate.

This review process is set out below.



3.0

Technical Design Principles



Project Standards

The quality of new housing can play a significant role in helping residents out of fuel and water poverty, improving their health and wellbeing, as well as contributing to sustainable development and addressing the issue of affordability of housing. High quality development also contributes to place making.

It is the responsibility of all consultants and contractors to design and build our schemes to the most current form of these standards. Schemes will be delivered to the following standards and the Council and its representatives will require written, relevant evidence of adherence to these requirements before a scheme starts on site:

- Latest version of the Building Regulations
- The Councils **Project Design Brief**
- Principles and Specification as set out in this document and the Design Guide
- Technical Housing standards – Nationally Described Space Standards – March 2015
- Construction (Design and Management) Regulations 2015
- Building for a Healthy Life, July 2020
- Considerate Constructors Scheme incorporating the Building Social Value resource
- Soft Landings Framework (for major developments)

There are a number of best practice Climate Emergency documents referred to in this specification which teams should be familiar with:

- LETI Climate Emergency Design Guide
- RIBA 2030 Climate Challenge
- Passivhaus: the route to zero carbon



On all new build schemes, the design must accommodate the need for access to all dwellings and movement around the site by people with disabilities by ensuring compliance with Building Regulations Approved Document Part M (“Category 1” compliance only, unless stated otherwise).

All completed projects must participate in Post Occupancy Evaluation as set out in this document, [section 6.0](#).

Fire Safety

Fire safety procedures and protocols should always comply with industry best practice and reflect the recommendations of Dame Judith Hackitt's review - **'Building a Safer Future, Independent Review of Building Regulations and Fire Safety: Final Report, May 2018'** published in response to the fire at Grenfell Tower. While the report is most relevant to new and existing high-rise residential properties which are 7 storeys high or more there are important lessons for design teams to adopt for all building typologies and scales.

In addition to full compliance with Building Regulations, adherence to the Fire Safety Act 2021 and the Building Safety Act (expected to come into force in 2023), BMSDC are committed to installing sprinklers in all new developments that are three storeys or above and only using non-combustible cladding systems.

Fire Safety Design

A clear fire strategy is fundamental to the design of all new buildings and must be followed through the design and construction stages.

It is the councils preference for developments to follow the guidance in Approved Document B¹ wherever possible, before fire engineered solutions are considered.

The Dame Judith Hackitt's review identified the need for "a 'golden thread' of information....so that the original design intent is preserved and changes can be managed through a formal review process. Equally, access to up-to-date information is crucial when effectively carrying out a fire risk assessment of a building and determining whether any action is required."² As such it is important that all information relating to fire safety is captured and presented at Design Review Gateways and included in the hand-over documentation.

Contractor/consultant teams must consider the different aspects of fire safety under the Building Regulations as part of its Fire Strategy including:

- Means of escape
- Spread of fire
- Access for fire fighters

The following additional documentation should be referred to for specialist housing and for the consideration of disabled peoples ability to escape with dignity:

- NFCC's Fire Safety in Specialised Housing, 2017
- BS 9991:2015

Every opportunity must be taken to eliminate fire risk areas (such as designing in suitable secure mobility scooter charging).

Fire & Rescue Service Access

When designing buildings, careful consideration should be given to ensuring that the Fire and Rescue Service can gain the required access to the building perimeter and manoeuvre vehicles safely.

Where considered appropriate Fire and Rescue Service should be consulted at the design stage, prior to a planning application being submitted. Consideration should be made to the following whilst consulting guidance in the current Approved Document B of the Building Regulations:

- Access to building perimeters.
- Landscape provision which may aid or restrict access including gates, barriers and street furniture
- Turning and sweep circles of fire service vehicles
- The impact of any adjacent future developments on access.

¹ Guidance on ways to comply with the fire safety requirements in Part B of Schedule 1 to the Building Regulations 2010.

² Building a Safer Future, Independent Review of Building Regulations and Fire Safety: Final Report, May 2018

Towards Zero Carbon (page 1 of 5)

We have a number of important [mandatory and aspirational Design Goals](#) which relate to Zero Carbon. Contractor/consultant teams are required to comply with all of the mandatory Design Goals and as many aspiration Design Goals as suitable, viable and beneficial for the project.

In 2019 all Suffolk Local Authority members declared a 'climate emergency'. As part of this, the Suffolk Climate Change Partnership, SCCP, will work together with partners across the county and region towards the aspiration of making the county of Suffolk carbon neutral by 2030.

All our new buildings must be designed to meet the energy requirements set out in Building Regulations Part L. However, this standard is based on a series of percentage reductions in emissions relative to the building's particular shape/size and so no specific level of emissions is currently being mandated. This method actually benefits inherently inefficient building shapes and so does not penalise poor design. Given the importance of the current Climate Emergency, it is clear that current targets do not go far enough in reducing energy use.

Our ultimate aim must be to look holistically at carbon emissions in the built environment and determine the most effective way to reduce them. We must consider both embodied carbon¹ and operational carbon².

The council requires all developments to consider ways in which they can minimise embodied carbon, but do not consider it appropriate to mandate any targets for embodied carbon while the methodology for calculating embodied carbon is rapidly evolving.

The council is focusing on the **operational carbon** of our developments. When we refer to Zero Carbon we are referring to operational carbon. And are aspiring to achieve **net operational zero carbon emissions** across all of our developments.

In addition to operational carbon (energy use), we are also providing targets and specifications within this document to address:

- Amount of construction waste generated, re-used and recycled.
- Water consumption;
- Indoor comfort;
- Performance of renewable and/or low carbon technologies

¹ Embodied carbon refers to the carbon emissions relating to the construction of a building, including the carbon emissions resulting from the manufacture and transport of the materials used. Definition from Passivhaus Trust

² Operational carbon refers to the carbon emissions generated during the building's lifetime relating to its use and principally arising from the building's energy demand. Definition from Passivhaus Trust



Towards Zero Carbon (page 2 of 5)

Throughout this document the council is prioritising a fabric first approach to building well designed, high quality, energy efficient homes that are affordable to run, provide a healthy living environment for residents which are easy to maintain.

Operational Carbon

Contractor/ consultant teams will be expected to provide, on completion of each new home, a SAP certificate with an Energy Performance Certificate (EPC) confirming the rating achieved and stating the calculated Space Heating Demand in kWh/m².year.

All developments must adopt a fabric first approach to reduce the need for energy consumption reducing fuel poverty and make best use of the efficient renewable energy.

The councils aspirational Design Goal is to meet the **Zero Carbon*** target in all new developments with every new home built to meet the Passivhaus Standard or equivalent and an EPC A or B rating. Where this is not practical the council have adopted the staged policy approach**, proposed by the Passivhaus Trust, as the table right, with all projects meeting the Zero Carbon target by 2026. For reference, new dwellings designed to minimum current building regulation compliance, have a predicted average space heating demand of around 54 kWh/m².year.

The space heating figure can be taken from the SAP calculation worksheets. Where projects are aiming to meet the Passivhaus Standard this calculation should be completed in the Passivhaus Planning Package (PHPP).

Zero
Carbon
Target



Stage Policy Approach to Target Dwelling Energy Efficiency**				
	2020	2022	2024	2026
Space Heating Demand (kWh/m ² .yr)	45	30	20	15*
Minimum EPC Rating	C	B	B	A

Monitoring is required on all projects to demonstrate compliance with these requirements. This is set out in [Section 6.0.](#)

Embodied Carbon

When considering the specification of materials, designers should follow the Green Guide for Housing aiming for materials which have an A rating. Developments should make the best use of reused and recycled parts and materials. For example, using demolition material instead of new materials to build up roads, footpaths or underground floors, or using aggregate for ground slabs, foundations or concrete pavements.

** 15kWh/m².yr is the figure required to meet Passivhaus Classic, it is the recommended limit for meeting Net Zero Carbon in the RIBA 2030 Pledge and the LETI Climate Emergency Design Guide

*this staged approach was set out in the Passivhaus Trust document 'EPCs as Efficiency Targets' published April 2020

Life Cycle

The newly constructed buildings should be designed and built so that materials that are incorporated can be easily reused or recycled when the buildings are demolished.

Water consumption

The council requires all Design Teams to ensure designs promote water conservation. It is a mandatory Design Goal for all new homes to reduce water use through carefully specified fittings and water butts. In addition, we aspire to further reduce water use through grey water recycling, where suitable and viable.

Indoor comfort

Air quality is becoming an increasingly important issue in our new homes with the improving standards of air tightness being achieved on site. Homes should enable ventilation that controls humidity and odours without causing discomfort from draughts. Ventilation should not add significantly to the heat load to be met by mechanical heating. It is expected that design solutions will utilise Mechanical Ventilation with Heat Recovery. If this is not being provided the council require a report outlining how air quality will be maintained.

Summer comfort is a key design consideration with all designs carefully

balancing good daylighting levels with the overheating risks. Homes should make maximum use of natural and passive solutions such as fixed shading, deep window reveals and landscaping.

All habitable rooms should have openable windows and where possible natural cross ventilation should be provided.

All new homes should be carefully orientated to make maximum use of solar gain in the winter/ heating season and to prevent summer overheating. East and West orientated windows create particular challenges in controlling overheating, due to the low sun angles.

We recommend the LETI guide for window ratios is consulted and any significant variation from the standards set in this document are referred to the council and its representatives for review. Summary values from the LETI document are shown in this table.

Overheating calculations should be submitted with each plot.

*Housing window areas guide	
(% of wall area)	
Small Scale	Medium-large Scale
North 10-15%	North 10-20%
East 10-15%	East 10-15%
South 20-25%	South 20-25%
West 10-15%	West 10-15%

*LETI Climate Emergency Design Guide, path to Zero Carbon

Towards Zero Carbon (page 4 of 5)

This page is included to highlight the importance of the strategic design moves to produce an efficient development. Reference is made here to the LETI Climate Emergency Design Guide.

Key Early Design Decisions

Key design decisions which are taken very early on have a significant impact on the energy demand, even more so than the specification of the building fabric and mechanical systems.

These key decisions relate to orientation, form factor and glazing ratio.

The council requires design teams to consider a building's orientation combined with its glazing ratio to minimising energy demand. And control overheating.

Orientation

The LETI diagram, top right, shows that purely by changing the building's orientation, the space heating demand increases, in this case, from 13kWh/m².yr to 24kWh/m².yr.

Form Factor

A building's form factor is the ratio of its external surface area to the internal floor

area. The greater the ratio, the less efficient the building and the greater the energy demand.

It is reasonable to achieve a form factor of ≤ 3 for most buildings. As shown in the LETI diagram, bottom right.

Detached dwellings will have a high form factor, whereas apartment blocks will have a much lower form factor and thus will tend to be more energy efficient. The result is that the detached dwelling will need a higher performing fabric specification and mechanical systems to achieve the same performance as a terraced home or flat.



Why Orientation is important, Image from the LETI Climate Emergency Design Guide

Type	Form Factor	Efficiency
Bungalow house	3.0	Least efficient
Detached house	2.5	
Semi-detached house	2.1	
Mid-terrace house	1.7	
End mid-floor apartment	0.8	Most efficient

Types of home and their form factor Image from the LETI Climate Emergency Design Guide

Towards Zero Carbon (page 5 of 5)

Performance of low carbon and renewable technologies

The development of low / zero carbon and decentralised energy is strongly supported and encouraged.

New developments must achieve a reasonable **improvement / reduction in carbon emissions of at least 20%** measured against the relevant Target Emission Rate (TER) as set out in the latest Building Regulations Part L.¹

This should be achieved through a 'fabric first' approach to reduce energy demand, followed by the utilisation of energy efficient systems and the provision of appropriate clean, renewable and low carbon technologies on site and / or in the locality of the development.

1 - This document may be reviewed to take into consideration requirements set out in future revisions of Building Regulations Part L



Internal Space Standards (page 1 of 6)

We have a number of important [mandatory and aspirational Design Goals](#) which relate to the internal design of our homes. Contractor/ consultant teams are required to comply with all of the mandatory Design Goals and as many aspiration Design Goals as suitable, viable and beneficial for the project.

Furniture Layouts

All floor plans to show indicative furniture layouts to comply with the furniture schedule detailed in Annex B2 'Furniture for use in demonstrating compliance with space standard' and 'Furniture Schedule' dated 29th April 2013 based on diagrams from the former HQI and London Housing Design Guide 2010.

A wheelchair turning circle should be demonstrated in all ground floor habitable rooms.

The contractor/ consultant teams must prepare detailed drawings (1:50) of every kitchen layout, showing door swings, tiling layout, electrical outlets etc. including capacity of kitchens and gas/water connections. Drawings will be considered and agreed with The Council and its representatives prior to site commencement. The Council's preference is for kitchen/diners as opposed to lounge/diners.

Where possible direct access from the kitchen to open space is to be provided.

Storage Provision for Social Rent Properties

Hat and coat hooks at 2Nr per bedspace to a maximum of 6. Hooks must be provided in a recessed area, or in a separate cloakroom where provided, and appropriate to the number of occupants the property is designed for.

Secure storage is required for harmful substances, medicines etc (one kitchen cabinet to be fitted with a lock). Enclosed storage is required for food, utensils, washing and cleaning items, brooms and tall equipment.

Circulation

The staircase is to be designed to allow for the future provision of a chair/stair lift. A handrail should be fitted which is continuous and unbroken for the full length of the stair. Open risers are not acceptable.

Living rooms are not to be an essential part of circulation and essential storage should not be accessed only in the living room.



Internal Space Standards (page 2 of 6)

We aspire for all of our new homes to exceed the standards set out in the Nationally Described Space Standards.

2020 saw many households demand for space in their homes increase. We are committed to providing new homes which respond to this increased need and specifically the increase in working from home (WFH) which is expected to remain in some form in the future.

The following should be used as minimum guidance for gross internal floor and storage areas but are subject to alteration if circumstances dictate. This is in line with the Nationally Described Space Standards, with additional WFH aspirational area in brackets.

The contractor/ consultant teams shall provide confirmation of unit gross internal floor areas and room sizes scheduled on block plan for The Council and its representatives approval prior to start on site and again at practical completion.

Gross internal floor areas*:

Bed-rooms	Bed spaces	1 Storey Dwelling (m ²)	2 Storey Dwelling (m ²)	3 Storey Dwelling (m ²)	Built in storage (m ²)
1	2	50 (2)	58 (2)		1.5
2	3	61 (2)	70 (2)		2.0
	4	70 (2)	79 (2)		
3	4	74 (4)	84 (4)	90 (4)	2.5
	5	86 (4)	93 (4)	99 (4)	
	6	95 (4)	102 (4)	108 (4)	
4	5	90 (4)	97 (4)	103 (4)	3.0
	6	99 (4)	106 (4)	112 (4)	
	7	108 (4)	115 (4)	121 (4)	
	8	117 (4)	124 (4)	130 (4)	
5	6	103 (6)	110 (6)	116 (6)	3.5
	7	112 (6)	119 (6)	125 (6)	
	8	121 (6)	128 (6)	134 (6)	
6	7	116 (6)	123 (6)	129 (6)	4.0
	8	125 (6)	132 (6)	138 (6)	

*Further detail on how to apply this standard can be found by referring to the technical housing standards – nationally described space standard (2015).



Internal Space Standards (page 2 of 5)

Room Sizes

All dwellings with two or more bedspaces must provide at least one double (or twin) room.

Every single bedroom must have a floor area of at least 7.5m² and be at least 2.15m wide.

Every double (or twin) bedroom is to have a floor area of at least 11.5m² and at least one double (or twin) bedroom is to be 2.75m wide as a minimum, with every other double (or twin) to be 2.55m minimum wide.

Any area which has a headroom of less than 1.5m is not counted within the gross internal area (GIA) unless it is used solely for storage (if the area under the stairs is to be used as storage, assume a general floor area of 1m² within the GIA). Any other area which is used solely for storage and has a headroom of 900-1500mm (such as under eaves) is counted at 50% of its floor area, and any area lower than 900mm is not counted at all.

GIAs for one storey dwellings include enough space for one bathroom and one additional WC

(or shower room) in dwellings with five or more bedspaces.

GIAs for two and three storey dwellings include enough space for one bathroom and one additional WC (or shower room).

Built in storage areas are included within the overall GIA and include an allowance of 0.5m² for fixed services or equipment such as hot water cylinder, boiler or heat exchanger.

Further guidance is available from the Technical Housing Standards – national described space standard documents.

Day lighting

Dwelling layouts should provide good day lighting with kitchens, living rooms and dining rooms designed to meet the day lighting criteria set out in BS8206:Part 2 and should also have a view of the sky as set out in this standard.



Internal Space Standards (page 3 of 5)

BMSDC accept some variation in the kitchen design to meet market expectations where homes are being sold. The HQI requirements listed in this document can be considered aspirational and some flexibility on the requirements listed will be considered by the Council and its representatives.

Kitchens

The kitchen design/layout is to be approved by The Council and its representative prior to placing orders with suppliers.

Internal kitchens are not permitted, a window must be provided.

A worktop should be provided on each side of the cooker space and adjacent to the sink, providing a minimum clear space of 500mm either side. Work surfaces should not be obstructed and the worktop-cooker-worktop-sink-worktop sequence is not to be broken by doors, passages or tall units.

At least one multi-drawer unit to be provided.

A 1.2m run of worktop between the cooker and the sink to be included. Where located in kitchens, wall mounted central heating boilers must be at least 450mm clear from the worktop, located within a boiler housing unit to match surround wall units and with the pipework neatly concealed and accessible.

A 630mm wide fridge/freezer space is to be provided. The fridge/freezer space should not to be located adjacent to the cooker space.

Electric cooker points must be provided, for induction cooking, it is no longer expected that gas cooking should be facilitated.

Wall cupboards should be set back 150mm when located adjacent to a cooker, or boiler position, or in a position where they cannot be reasonably reached.

Space and connection points should include an appliance space for a dishwasher, cooker, fridge/freezer and washing machine. The washing machine space should be adjacent to the sink unit, unless a separate utility area is provided, and must be provided with suitable water supplies and waste connections, stop valves and holes to feed connection pipes through. All connections should be easily accessible and enable the incoming resident to connect their appliances.

Kitchen layout and cubic capacity of units are to be designed in accordance with the Housing Quality Indicators Version 4.

Market sale homes can include independent inland units, breakfast bars and large pan drawers.



Internal Space Standards (page 4 of 5)

Kitchens cont.

To meet market demand, tiling can either:

(1) extend full height between kitchen worktops and wall units and extend behind the cooker recess from floor to wall unit height.

(2) be substituted with 100-150mm high upstands matching the worktops.

No electrical sockets shall be within reach of the sink or drainer.

Sink units are to be located under windows wherever possible and the drainer should be adequately supported from beneath by means of a timber batten.

Adequate space to be provided for free standing bins in the kitchen area.

Floor to ceiling heights

A minimum floor to ceiling height of 2.5m is required for all flats and 2.6m* for the ground floor of all two and three-storey homes. The minimum floor to ceiling height of 2.4m is required for the first floor and above of all multiple storey homes.

*for at least 75% of GIA of floor

Kitchen	1p	2p	3p	4p	5p	6p	7p	+
1 sink top and drainer 600x1000	1000	1000	1000	1000	1000	1000	1000	1000
2 cooker space 600x600	600	600	600	600	600	600	600	600
3 washing machine position / worktop 600x630	630	630	630	630	630	630	630	630
4 other base units 600 x length	1200	1200	1600	1600	1600	2700	2700	+
5 ancillary equipment space 600x length -					600	600	1200	1200
6 fridge/freezer space 600x600(space above not in VOL)	600	600	600	600	600	600	600	600
7 broom cupboard 600x600x1950. (Note this may be counted towards the "tall storage" requirement)	600	600	600	600	600	600	600	600
8 tray space 600x150	Inc.	Inc.	Inc.	inc.	Inc.	inc.	inc.	inc.
9 Recycle bins space	300	300	600	600	600	600	600	600
10 Length of fitments =1+2+3+4+5+6+7+8+9	4930	4930	5630	5630	6230	7330	7930	+
11. VOL- min capacity (cu m.) (MUST include drawers)	1.3	1.5	2	2.1	2.2	2.4	2.6	+
Any wall units provided should be 300 deep and 450 above base units.								
Note: Item 3,5,6,7,9 may be in adjacent rooms to the kitchen.								

Design Unit - Layout

721 HQLv4 April 2008

Internal Space Standards (page 5 of 5)

Bedrooms

All double bedrooms to be designed to allow double or twin beds to be accommodated in the bedroom with adequate circulation space and allowing for furniture etc.

All main bedrooms are to be provided with a built-in wardrobe, incorporating a hanging rail and a shelf above.

In all bedrooms it should be possible to locate the bed in two different positions.

Provision of a space for an occasional cot to main bedroom is required.

Space for a small worktop or similar is to be provided in single bedrooms.

All bedrooms are to have access to washing and WC facilities on the same level.

Storage

Properties should be designed in such a way as to maximise storage space. Slatted shelving to be provided in linen/airing cupboards and a heat source should be provided. Where MVHR is provided for within the home the heat source is

not necessary, an MVHR extract point should be provided instead.

Dedicated Working From Home Space

We aspire to provide a dedicated working from home (WFH) space in every new home.

This space must have as a minimum:

- Access to natural daylighting. With a daylighting factor of $\geq 1.5\%$.
- Space for a small desk:
 - ⇒ 750 x 900mm for 1-2 beds
 - ⇒ 750 x 1500 for 3-4 beds
 - ⇒ 750 x 2400 for 5+ beds
- Access to power, USB charging and wired for connection into the home WiFi (Cat5).
- A shallow wall mounted shelf should be provided above this dedicated desk space to the full length of the desk provision, for storage of work related items.
- In homes with 3 bedrooms or more, this space should not be in the main living area, kitchen or master bedroom.



External Areas (page 1 of 4)

We have a number of important [mandatory and aspirational Design Goals](#) which relate to the external design of our developments. Contractor/ consultant teams are required to comply with all of the mandatory Design Goals and as many aspiration Design Goals as suitable, viable and beneficial for the project.

External areas are very important in establishing the overall quality of the development. Layout of the scheme should provide a clear delineation between public, community and private space. Public spaces should be connected via a clear and well-lit route. All homes should be grouped and orientated in a manner which enhances privacy for occupants and minimises noise.

Areas of existing high-quality landscape, or valuable ecologies which support plants, mammals, birds and insects must be protected. Ecological enhancements such as bird and bat boxes, perches or similar are encouraged.

Private Gardens

Private gardens should be capable of containing sheds/outside stores, washing lines, patios and fuel storage vessels (if required). Manhole covers in gardens are to be avoided wherever possible. A minimum of 25 square metres should be provided for rear gardens. Where private gardens are not provided a minimum of 5 square metres should be provided for balconies.

A level paved patio area (minimum size 9m²) and an accessible rotary clothes dryer are to be provided in the rear garden of all houses and bungalows. A lockable external store/shed is to be provided with access to a path.

Sheds should be located in the rear garden on a concrete base, comprising timber shiplap with apex roof and supplied without a window to accord with Secured by Design requirements.

A level path is to be provided from the property to the garden entrance gate, clothes dryer and shed. A hard surface mowing area is to be located between all grassed areas and external walls

Adequate anti climb close-boarded, pressure-treated fences are to be provided. These must be at least 1.8m in height with concrete gravel boards secured by concrete posts and treated to achieve five-year protection and must also have a gate. Hedgehog doors should be provided in all garden fences, these can be formed on site to the British Hedgehog Preservation Society



External Areas (page 2 of 4)

recommendations or a preformed hedgehog friendly gravel board can be installed. Appropriate signage should accompany this to inform residents of its intended use. Gates are to be fitted with a key operated lock in accordance with the Secured by Design full certification scheme requirements. This fencing must be provided between private gardens and public areas, and between private gardens (when fencing works are being undertaken work must comply with BMSDC Fencing Policy).

Communal External Areas

In communal external areas, a screened drying area is to be provided to flats, finished in coated macadam or pre-cast concrete paving slabs to receive one large accessible rotary clothes dryer per four flats. An accessible rotary dryer is to be included on wheelchair and very sheltered housing projects.

Road designs and layouts are to meet adoptable standards while restricting vehicle speeds. The design of the street and car access must not allow speeds over 20mph on development roads.

Any change from public road to residential road should be marked by a change in the use of material.

External Lighting

All dwelling entrances (front and rear) should be provided with a PIR external light. Lights are to be energy efficient and be set dusk to dawn. All homes are to have a canopy, porch or recess to the main point of access to the dwelling.

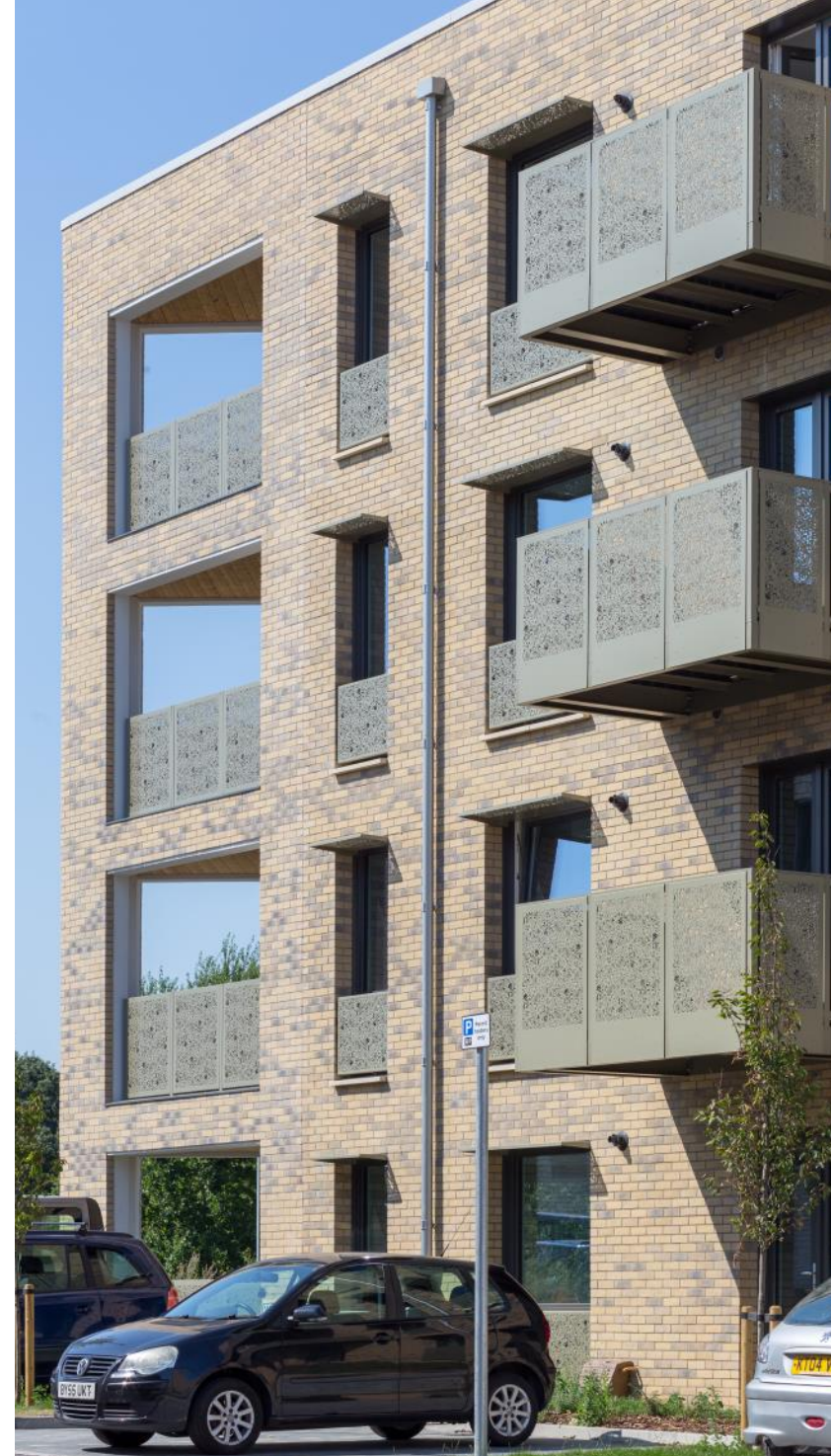
Light fittings (street and dwelling) must be carefully selected and agreed with The Council. All lighting should be adopted by the local authority where possible and, where unadopted lighting is provided, a metered landlord's supply is to be provided.

Letter boxes

No letter boxes should be installed through the thermal envelope, this includes front doors.

Communal Notice Boards

The contractor should allow to provide a lockable notice board for communal areas in flats or a



weather proof external version.

Development Signage

The contractor is required to design a proper signing system for the project and obtain The Council's and its representatives approval. Signs to be constructed of cast iron, brass, stainless steel, anodised aluminium or stoved enamel steel. Plastic signs will not be permitted.

Wayfinder Signage

Wayfinder signage for flats and blocks to comply with the requirements of approved Document B should provide:

- Information to assist in the evacuation of occupied buildings during emergency situations.
- A means of identifying at the building entrance, an individual block within a development or access to specific part of each building or different stair core.
- A visual perspective when entering the building, which would be typically A3 size fitted no higher than 1200mm from the floor level to include ground and typical floor plans

with floor number information and flat unit numbers.

- Visible numbering on each floor level in the building within the stairwell and the lobby adjacent the stair.

Landscaping

Areas of soft or hard landscaping should be suitably located, be sustainable and easily maintained.

Rear access paths must be well lit and avoid any recesses. All main paths should be a minimum of 1000mm wide with a firm and even surface. Where a change in level is unavoidable ramps are to be provided in lieu of steps with a gradient of no more than one in twelve.

Access to the front and rear gardens must be possible without having to pass through the dwelling.

Gardens to the front and rear of dwellings are to be well drained, levelled and cleared of builder's rubble. Front and rear gardens to be turfed.

Communal landscaped areas to be laid to turf or shrub-planted. All planted areas to be covered with weed-suppressant membrane and topped with bark

mulch around shrubs.

Outside taps are required in the rear gardens of every new home. A water butt should be provided to rear gardens of houses and bungalows. A note should be included within the Home Owner's Manual stating that these are not to be connected to a pump or pressure washer, etc. to prevent risk of legionella disease.

Parking Standards

Resident and visitor parking will be provided in line with current local and national planning policies and should reflect the requirements of the end user. Individual spaces to comprise a suitable hard surface area of minimum 3.6m x 6.0m and should be in curtilage where possible. Where in-curtilage parking is provided, one space to have a 900mm adjoining firm even surface to make the space 4.3m x 6.0m overall. Electrical car charging points for all new homes with in-curtilage parking is mandatory. Council parking areas (out of curtilage) are to have the infrastructure for electrical car charging point installed.

Group parking areas are to be identifiable to the groups of dwellings they serve and be within 30m of the dwelling entrances. All communal car parking

External Areas (page 4 of 4)

areas should be provided with a sign stating “Residents Parking Only. Vehicles and contents are left at owner’s own risk”. Individual parking spaces must be demarcated by means of thermoplastic white lining where tarmac surfaced, or by contrasting block pavings where block paved. Communal parking areas should be provided with provision for charging electrical vehicles, ratio of provision to be agreed with the council and its representatives.

Reduced parking numbers may be considered by The Council and its representatives, where there is an alternative sustainable transport policy proposed. Designs should ensure cars are not able to park in areas that would ‘clutter’ the development with cars or restrict use of the roads by emergency or refuse vehicles.

Refuse Standards

Contractors should provide the refuse bins to the size and number required by the local authority (following appropriate consultation with the local authority).

The design layout must ensure access to all dwellings and turning for refuse collection, emergency vehicles, delivery and removal vehicles and people with disabilities.

Individual bins are to be stored at the rear of the dwellings where possible in an area that is secure and accessible for residents to place their bins out on rubbish collection days. The design should take into account attractive and practical storage for refuse and recycling bins.

Communal bin stores must be designed and situated in conjunction with local authority waste management requirements. These stores



must be secure, robust and enable ease of access for occupants and waste disposal teams. Subject to agreement with the local authority, doors/gates shall be fitted with a combination code lock. A wash down point served off a dedicated landlord’s water supply is to be provided with trapped drainage. Bin stores to be build of non-combustible materials and situated away from the main residential building. Adequate lighting (on PIR with timed overrun) and fire detection installations must be provided, served off a dedicated landlord’s electric supply.’

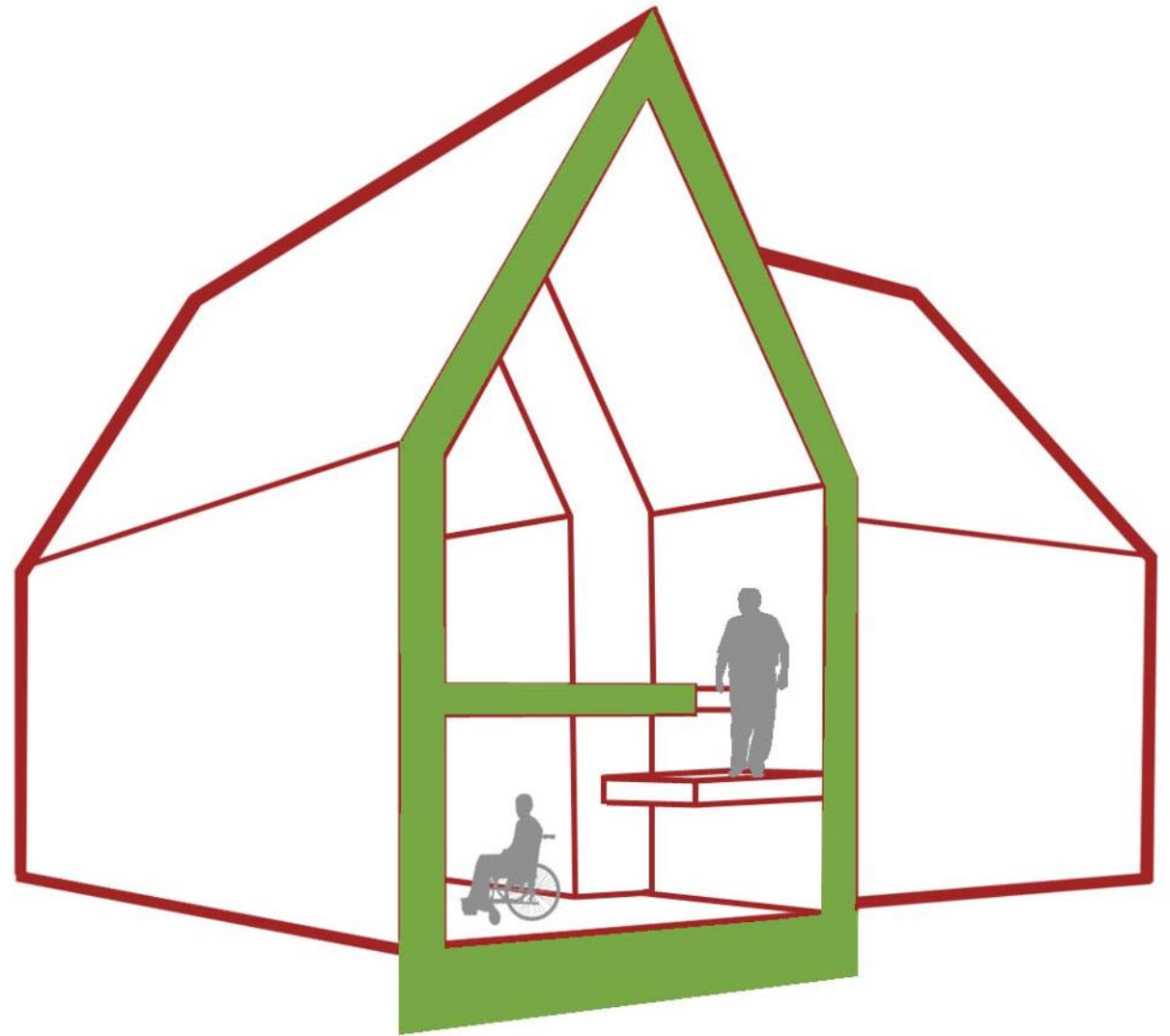
Security Standards

The design of the scheme should provide a safe and secure environment for the residents by enabling natural surveillance and creating secure private areas around individual dwellings, restricting unauthorised access to communal areas around flats and maisonettes by the provision of walls, fences and gates.

Communal bicycle stores shall meet the secure and robust and in compliance with the relevant requirements of Secured by Design. Adequate lighting installations (on PIR with timed overrun) must be provided, served off a dedicated landlord’s electric supply.’

4.0

Technical Performance Specification



Building Fabric and Materials (page 1 of 12)

Contractor/ consultant team shall be responsible for the specification of materials and monitoring workmanship. The following general specification should be regarded as a Brief. If the consultant or contractor has a conflicting opinion or view it should be brought to the Council or its representatives attention by a notice requiring written confirmation of The Council's opinion.

All materials shall be the best of their respective kind and must wherever possible be British Standard approved and kite-marked or carry a BBA certificate.

British Standard Codes of Practice and the latest recommendations of the BRE should always be referred to in respect to the use, application, procedure and tolerances acceptable for all products and workmanship, along with any specific requirements made by the manufacturer. Workmanship should be to the minimum standards set out in BS 8000 Workmanship on Building Sites and always to the satisfaction of the Architect or The Council's appointed site representative.

Design Life

Developments should be designed to take account of the long term maintenance requirements, in terms of both accessibility and cost.

When selecting products the Contractor/ consultant team must consider the life cycle costs and the former HCA's (now Homes England) requirement for a maximum 80% capital cost over a 60 year period.

See current NHBC, or equivalent, Technical Requirements and Performance Standards

Primary Structural elements:

60 years minimum – free from necessity for major repairs or renewals

Airtight components, tapes, gaskets etc.:

60 years minimum – free from necessity for major repairs or renewals

Secondary elements, services & installations:

30 years minimum - designed to reduce the need for maintenance free from necessity for major repairs or renewals

Fixtures and fittings:

15 years minimum – appropriate for use, capable of withstanding normal wear and tear and fixed in a manor so as to remain serviceable

Finishes to internal areas:

10 years minimum - robust and maintenance free



Building Fabric and Materials cont. (page 2 of 12)

Materials

All materials, goods and appliances are to comply with: -

1. Latest relevant British Standards
2. British Board of Agreement Certificate
3. BRE Digests
4. Warranty Provider requirements
5. Local Authority requirements

All timber and timber-based products including particleboard and panel board to use wood from well regulated and managed sources as specified in BREEAM Environmental Standard V.3. 1995. To include certification under the Forest Stewardship Council scheme.

Structural timber to be used in accordance with BS5589: 1989 and BS5268 Part 5:1989.

Particle boards specified to conform to BS5669: 1987

Facing bricks shall be to BS EN 771-1:2011 F0-2 quality.

Furthermore all materials are to be used and fitted in accordance with the manufacturers' recommendations.

Fabric Performance:

It is not the intension of the council to set u-value limits for building fabric. It is for contractor/ consultant teams to produce proposals which comply with the [Dwelling Energy Efficiency table P24](#). The following indicative values are provided as best practice guidance. Note, these values or better are expected to be required when meeting the councils Aspirational Design Goal for Zero Carbon buildings.

U-values

Indicative u-values (W/m².K)*

Walls	0.13 - 0.15
Floor	0.08 - 0.10
Roof	0.10 - 0.12
Exposed ceilings/ floors	0.13 - 0.18
Windows/ Doors	0.80 - 1.00 (triple glazing)

Air tightness

It is the councils preference for all homes to be draught free with a target air tightness less than 1m³/h.m2@50Pa*. This level of air tightness requires an MVHR system.

It is recommended that an early air pressure test is carried out during construction to make rectification

works easier to carry out.

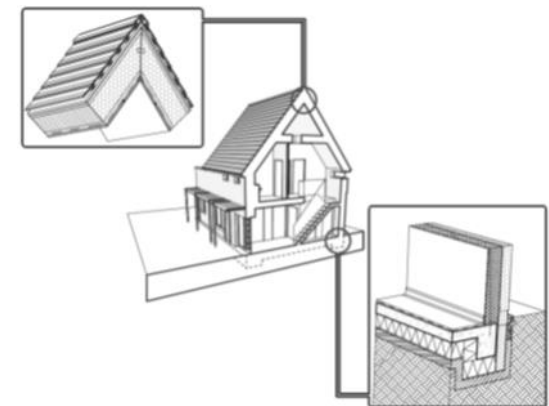
When developments are meeting the Aspirational Design Goal of Passivhaus certification an air tightness of 0.6 ACH@50Pa is required.

The council will consider alternative proposals where these can demonstrate how 1) the dwelling energy efficiency targets can be met and 2) the health and well being of residents will be maintained.

Thermal Bridge Free Detailing

Thermal bridges result in localised reduced interior surface temperatures in winter, which can lead to increased heat losses, surface mould or even condensation.

It is expected that thermal bridging is kept to a maximum of 0.04 (y-value)*



* Fabric Performance Limits from LETI Climate Emergency Design Guide

Building Fabric and Materials cont. (page 3 of 12)

External Walls

All external wall construction including external cladding systems shall be fully non-combustible.

Render

Render is to be off white through coloured rather than painted, with aluminium beading. All rendered walls to have a plinth detail, recessed from the line of the main façade, plinths to extend to 150mm above external finished ground level and be rendered in a dark grey. The render shall be approved by the council and its representatives before being submitted to the Planning Authority for approval

Brick

Where brickwork is to be used as an external finish a facing brickwork sample panel is to be constructed and approved by the council and its representatives in consultation with the local authority planning department. Only through colour bricks will be accepted.

Bricks shall be mixed from a minimum of three packs to prevent banding. Pointing shall be flush, bucket handle or weatherstruck.

Brickwork below ground level is to be in frost resistant bricks in cement mortar. Any brick screen walls or garden walls are to be built and capped in frost

resistant bricks.

Exposed brickwork below damp-proof course level shall be built with facing bricks and pointed to a minimum of 150mm below finish ground level. Top surface of lintels over service entries shall be kept at least 150mm below finished ground level and sealed to prevent vermin entering void below ground floor where suspended slab construction is used

Where any other external facing material is to be used, samples and specification details will be required for approval by the council and its representatives and the local authority planning department.

Ground Floor Construction

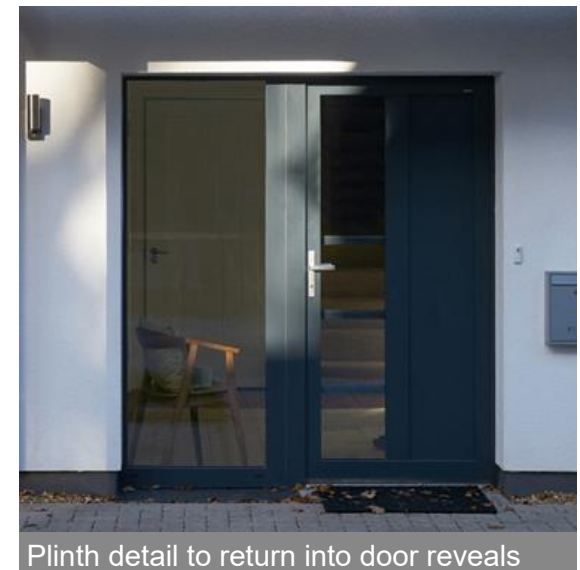
If decking is used in kitchens and bathrooms it is to be 22mm moisture resistant tongue and grooved plywood and care should be used to ensure that floors do not squeak once constructed

Drainage

As a large proportion of the underground drainage system should be adopted by the Local Authority under Section 104 of the Water Services Act 1991 (previously Section 18 of the Public Health Act 1936), this drainage should comply in every respect with the adopting authority specification. In un-adopted drainage, there should be an inspection chamber at



Plinth Detail



Plinth detail to return into door reveals



Bucket handle pointing

Building Fabric and Materials cont. (page 4 of 12)

each change of level or direction.

Soil vent pipe (SVP) access eyes must be provided at each floor level and at the base of the stack. Where SVPs are internal (in ducts or in the roof space) they must be fully lagged and insulated against noise transmission. Wastes from hand basins and baths should not be combined and should lead directly to the stack.

Overflow pipes should project 150mm from the face of the dwelling with no backfall, the pipe should slope 10° and the end tee'd.

Bottle traps should be specified to sinks and wash hand basins.

To facilitate the repair and maintenance of gutter installations, fixings should be used which enable replacement without stripping off roof finishes.

Roofs

Valley gutters are only acceptable where they can be maintained easily with overflows provided. Chipboard decking must not be used.

Warm roofs are preferred providing occupants with warm, dry storage space and space in which to run MVHR ducting (note MVHR ducting should not be run outside of the thermal envelope). Loft access must be provided in all dwellings that allows access to every part of the roof.

Where cold roofs are proposed contractor/design teams are expected to recognise the challenge this poses in terms of achieving a draught-free and thermally robust solution. A purpose made product for Passivhaus and low energy dwellings should be specified such as the Designo Loft ladder or Klimatec 160 where fire protection is also required. These must be lockable if in a communal area.

Pitched roof finishes should be Forticrete roofing 'Gemini' interlocking twin plain tile. Or equivalent and approved.

Flashings to be lead (min Code 4).

Fascia - To be timber FSA accredited, painted or stained to match the timber cladding. Painted fascia boards are to be prepared, knotted, stopped, two undercoats and a minimum of one coat gloss finish, fascia to be stained shall be prepared and stain applied in accordance with the manufacturer's recommendations.

Bitumen felt is not acceptable roof as a covering except to sheds.

Doors and Windows

All windows and doors to be triple glazed.

Colour to be agreed between the council and its representatives and the Contractor.



Example of a Passivhaus Loft Ladder

All windows must be provided with security fittings including to upper floor windows, so that they can be locked in a part open position. Window design should allow for safe operation and be cleaned easily from the inside. Glazing lines to be no higher than 810mm above finished floor level in living, dining and bedroom areas. Living rooms must have at least one opening light in addition to other doors or windows provided.

Building Fabric and Materials cont. (page 5 of 12)

Ironmongery must be sufficiently strong and robust and be of long life and low maintenance. The exact design, make and type to be approved by the council and its representatives. All external fittings must be stainless steel in a satin or chrome polished finish.

All window and door designs must be approved by The Council, and its representatives prior to planning permission and manufacture. With the following specification required as a minimum.

Doors, associated doorframes, door locks and door hardware

All doors, associated doorframes, locks and hardware shall be designed, constructed and installed so as to reduce the risk of unauthorised entry.

Doors should be fit for purpose and comply with the relevant material standard ie:

- BS 8529 (Composite)
- BS 644 (Timber)
- BS 7412 (PVC-U)

The installation of doors, doorframes, locks, and hardware should be securely fixed in accordance with the manufacturer's specifications.

Connection between door and/or frame components

which can be easily released from outside should not be used, this includes accessible screw connections.

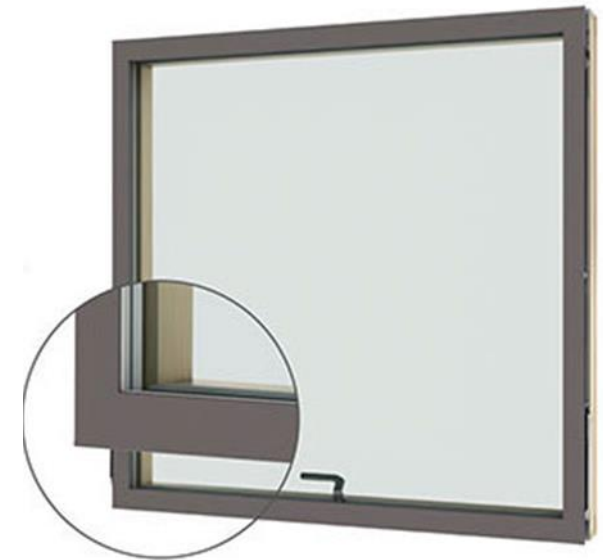
The main entrance door should be fitted with an opening limitation device or door chain which is securely fixed in accordance with the manufacture's specifications and is fit for purpose.

There should be a means of giving a wide angle view of the area immediately outside the main entrance door of individual dwellings. Acceptable ways include one of the following:

- a) A through-door viewer fitted between 1200mm and 1500mm from the bottom of the door.
- b) Clear glazing either to part of the door or a convenient window.
- c) Closed circuit camera-and display.

For the installation of all doors/frames, for lightweight wall construction - to reduce the risk of breaking through the wall finishes and accessing the locking system, on the internal face of the door, timber or light steel framed walls should incorporate one of the following:

- a) Timber sheathing minimum 9mm thick, or
- b) Expanded metal.



Timber/ aluminium composite windows



Front door with clear galzing in door/window

Building Fabric and Materials cont. (page 6 of 12)

The material should be the full height of the door and not less than 600mm measured from the lock (s).

Doors

Front entrance doors must have fitted: 3 hinges, bolts top and bottom, 2 hinge bolts, viewer, security chain, number and knocker. Note the letter box should be provided externally and not penetrate the thermal envelop.

Rear doors must be fitted with: 3 hinges, bolts to top and bottom and 2 hinge bolts.

All locks to a communal entrance, and to individual flats, to be suited as approved by The Council, and its representatives.

Entrance doors to dwellings should be fitted with one (or more) securely fixed lock(s) and keep(s) or multi-point locking system, which has all of the following:

- a) At least 1000 differs.
- b) A fixing which, if burst open, would not pull out without breaking the door or its frame.
- c) A hardened steel bolt or inserts to prevent sawing.
- d) Latch and deadlocking facility.

Locking devices fitted to entrance doors to dwellings should permit emergency egress without the use of a key when the dwelling is occupied. The locking system to entrance doors of dwellings should also provide all of the following functions:

- a) The locking system should hold the door closed on the latch.
- b) The latch may be withdrawn by a key externally and a thumb turn internally or by a handle both internally and externally. Samples to be provided to The Council, and its representatives for approval before orders are placed as alternatives to thumb turns may be required for the affordable flat and house entrances.
- c) The full deadlocking facility should be engaged and operable with a key externally and non-key operated hardware internally.

Note:

Individual locks which comply with BS 8621 or multi-point locks which comply with PAS 8621 meet these requirements. External handles on multi-point locking systems should be twin or split spindle to avoid operating the latch.

Front door ironmongery (to be approved by The Council, and its representatives prior to placing order) to include:

- Door number

- Night latch
- Door viewer – at standard height where glazed panel is not present.
- Security to comply with standards set out above.

Door knockers are required to the houses. Flats are to be served by audio and visual entry systems, refer to [Electrical Specification on P XX](#) for further details. Samples to be provided to The Council, and its representatives for approval before ordering.

All door glazing to be laminated safety glass.

Communal Doors

Front entrance doors are to have a door-entry system approved by The Council, and its representatives and etched with postal addresses. System to have tradesperson entry facility with adjustable time setting, subject to Secured by Design compliance – if not permitted then robust post boxes to be mounted externally in an appropriate location to be agreed with The Council, and its representatives.

Door Glazing

Any glazing which, if open or broken, would permit release of the locking device on the inside of the door by hand or arm entry should include one pane of laminated glass, securely fixed in accordance with the manufacture's specification.

Building Fabric and Materials cont. (page 7 of 12)

Where a sidelight exists alongside any principal entrance door the glazing should be obscured, pattern to be agreed with The Council, and its representatives.

Windows, associated window frames, window locks and window hardware

For the purposes of security this section covers windows, associated window frames, window locks and window hardware that are easily accessible. Guidance is also provided to ensure they are fit for purpose.

All windows, associated window frames, window locks and window hardware within the scope of this standard shall be so designed, constructed and installed so as to reduce the risk of unauthorised entry.

Windows should be fit for purpose and comply with the relevant material standard (including the requirements for basic security as defined by Part Q of the Building Regulations)

The installation of windows, frames, locks, and hardware should be securely fixed in accordance with the manufacturer's specifications.

Hinges and fastenings of opening lights of windows should be of a type which prevents them from being opened from the outside when in the closed

position.

Opening lights on all ground floor windows and other windows which are easily accessible from the outside may be fitted with lockable devices which cannot be released without a key.

Ground floor, basement and easily accessible windows (including easily accessible roof lights) should comply with PAS 24:2012 and should include both of the following:

- a) Laminated safety glazing (6.4mm minimum) in windows below 800mm (from floor level) or 1500mm if within 400mm of a doorframe – that complies with BS EN 356:2000 rating P1A.
- b) Non-key locking hardware on designated accessible emergency egress windows together with laminated glazing conforming with the requirements in requirement (a) above.

Windows falling outside the scope of the British Standard eg. Horizontal sliding windows in BS 7950 should be assessed against BS 7950/PAS 24:2012. Any such assessment should include the appropriate fitness for purpose standard.

Rooflights

Where Velux (or similar) roof lights are installed, locking restrictors are to be provided as are

opening devices or poles.

Rooflight glazing should be triple glazed unless otherwise agreed with The Council, and its representatives.

Georgian wired glass is not acceptable in either windows or doors.

Any external door that opens outwards, any communal and any inter communicating doors must be fitted with a restrictor.

Sliding and folding doors should only be used with the express permission of the council and its representatives. In some cases these may be considered appropriate for market sale homes.

House Numbers

House number signage should be provided similar in appearance to the inset image (page 45), affixed to the front of the properties.

Letter boxes

As set out in the [Design Principles](#) letter boxes should not penetrate the thermal envelop. Boxes must be compliant with Secured by Design Homes 2016 Guide. Colour /finish and location to be agreed with The Council and its representatives. Boxes should be big enough for A4 documents and designed to avoid theft through reaching in from outside.

Building Fabric and Materials cont. (page 8 of 12)

Private - an external mail box must be provided instead of a letterbox through the front door.

Communal - internal letterboxes within flat lobby are to be provided to be Multiple, vertical, front retrieval, FR60 fire rated.

Covered Entrances

These can be formed by:

- a) Canopies
- b) Recesses
- c) Porches

The provision of a covered entrance area is important for achieving a design which is suitable for the widest range of occupants.

The Contractor/ consultant team will be expected to submit proposals for the construction of these for The Council and its representatives approval pre-contract. Designs must comply with Secure by Design Standards.

Canopies, as a minimum, should include a GRP canopy with an aluminium fascia and soffit powder coated to match the external windows and doors (RAL 7016 unless otherwise agreed).

Both canopies and porches provide a suitable location for external letter boxes and meters.



Design Intent for number plate



Design Intent for fire rated flat letter boxes

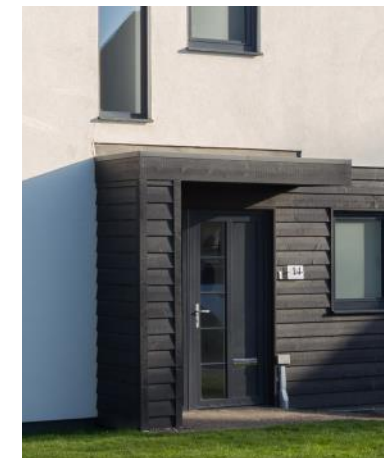
Where possible Electric Smart Meters should be installed on the inside of properties. Where external meters are necessary (all gas meters should be external) these must go on side elevations or in purpose made housings. All to be approved by The council and its representatives.

Internal Walls

Masonry movement joints must be provided and appropriately located within the walls to prevent cracking in accordance with the requirements of the manufacturers supplying the masonry units and to meet with BS 5628 / BS EN 1996-1-1: 2005. Generally, movement joints within



Design Intent for canopy no return



Design Intent for canopy with return

Building Fabric and Materials cont. (page 9 of 12)

brickwork and blockwork must be provided at 12m and 6m maximum centres respectively or at the manufacturers recommended spacing whichever is the lesser dimension.

All movement joint locations and details must be designed and constructed to meet with the The Council/ Architects/ Engineers requirements. Particular attention is drawn to achieving the requirements for acoustic insulation where locating internal movement joints.

Timber frame structures require all partitions to bathrooms and kitchens to be sheathed with Plywood, or similar and approved to support grab rails and wall units, up to imposed load of 1.5kN/m² (e.g lined with plywood behind plasterboard).

Partition walls must be capable of supporting radiators, manifolds and future fixing loads.

Partitions may be load bearing Blocks or timber studs where timber frame used. Non-load bearing partitions may be timber studs or metal studs

Acoustic Sound insulation required to all partitions.

Party Walls - Load bearing in bricks, block or Timber frame. Acoustic Sound Insulation required through party wall structures.

Ceilings

Ceilings in bathrooms and main bedrooms are to be designed to take hoists and rails able to support a person of up to 190kg.

Internal Decorations

A high quality finish is required throughout. 10 years minimum - robust and maintenance free.

All decorative finishes to be approved by The Council, and its representatives.

Staircases

Staircases, where timber, shall be softwood or MDF with balustrades, with suitably finished soffit. In flats' staircases, alternative materials may be required.

All staircases to have painted timber stringers.

Handrails shall be waxed hardwood. Wall handrails profiles to be approved, see design intent generally fitted on steel brackets spaced away from the wall to allow for adequate grip.

The staircase is to be designed to allow for the future provision of a chair/stair lift.

Staircase should have closed risers.

Except in timber frame blocks, staircases in purpose built blocks of flats to be reinforced in-situ

or pre cast concrete with steel balustrades and vertical balusters.

In flatted blocks with communal stairs, PIR lights should be provided to each stairway and corridor with sufficient cover by sensors.

Flooring - decoration

Carpet will be included in all affordable homes in addition to slip resistant sheet flooring R10 generally and R12 in wet / shower rooms. With welded joints and sealed edges should be provided to all kitchens, kitchen diners, cloakrooms and bathrooms. Linoleum/ natural rubber should be considered as an alternative specification to vinyl due to its sustainable credentials. Coved skirtings to be provided to where dedicated wet room areas such as flush floor showers.



Design Intent for balustrade with waxed handrail

Building Fabric and Materials cont. (page 10 of 12)

An entrance mat should be provided inside the front door to houses and flats without communal space; and inside individual flat entrance doors accessed off a communal space/corridor. The mat should be to the full width of the door and to a depth to allow for the full opening of the door. Barrier mat should be Heckmondwicke Battleship/Hippo or equal and approved. colour: Anthracite.

Hard-wearing, contract-grade carpet to be laid to all halls, stairs and landings (including cupboards) in communal spaces in blocks of flats. Stair treads to be fitted with robust, contrasting nosings.

Walls - decoration

All internal walls to be finished in:

Non Cerlite plaster 15mm thick Plasterboard and skimmed, and with galvanised metal angle beads to all external corners – Moisture resistant plasterboard to be provided in all bathrooms and WCs and aqua panel full height to shower enclosures and 3 sides to baths.

Decorations will be painted with a mist and two coats of water based low VOC matt emulsion generally. Kitchens, cloakrooms and bathrooms to be water resistant low VOC matt finish, colours shall be selected by The Council, and its representatives, generally white for ceilings and off white – Valspar Silver Thistle Down or Similar

approved to all internal walls.

All softwood joinery to be knotted first and painted with at least one coat of primer, one undercoat and one gloss or satin (or in accordance with the manufacturer's instructions). If stain is used it must be applied in accordance with manufacturer's instructions.

Glazed wall tiling splash backs in:

- Cloakrooms - splashbacks to sinks
- Shower/ Bathrooms - full height in shower compartments and all walls above baths.

Tile adhesives should be water resisting and tiling should be fully bonded.

Grout should be water resisting, grout colour as appropriate for tile choice, to be approved by The Council, and its representatives.

Dow corning or similar sanitary silicon sealant to be pointed around all tile junctions and between the sink and kitchen worktops, bath and wash basin.

There must be a maximum 5mm gap between underside of tiling and bath/ basin/shower tray/ worktop etc. before silicon bead is applied.

Generally above sinks, window cills to bathrooms to be tiled.

Contractor to work to a 2mm tolerance to all tiling.

Skirtings, Architraves etc.

- Softwood or MDF to standard square edged profile section – Contractor/ consultant team to propose sections for The Council, and its representatives approval.

- 70 mm Chamfer edge architrave
- 120mm Chamfer edge Skirting

Ceilings - decoration

All internal ceilings to be finished in non Cerlite plaster Plasterboard – Moisture resistant in bathrooms

Decorations will be painted with a mist and two coats of water based low VOC matt emulsion generally. Kitchens, cloakrooms and bathrooms to be low VOC silk finish, colours shall be selected by The Council, and its representatives, generally white.

Timber/Moisture resistant primed MDF skirtings to be provided to all walls except wet areas.



Building Fabric and Materials cont. (page 11 of 12)

Wall tiling to be in colours and borders as approved by The Council, and its representatives. Hand wash basin to have 450mm splash back, baths and showers to have full height tiling to all sides. Tiles to be fixed with waterproof adhesive and grouted with white waterproof cement.

Internal Doors

Internal doors should be solid core/ heavyweight core, pre-primed, wood grain. All doors to be provided with 1 1/2 pairs of ball bearing hinges. Removable hardwood thresholds are to be provided to all internal doors.

Door stops are to be provided for all external and internal doors where appropriate.

Internal ironmongery to be heavy duty and bolt through lever furniture, AC Leigh 'Chrome/Polished' - SZC010 internal door handle and polished hinges or similar approved. Samples to be provided for The Council, and its representatives approval.

Internal Ironmongery

Bathroom and cloaks shall have locking mortice latches operable from the outside in an emergency.

Doors to have adequate ventilation at foot to allow for through ventilation. Gap under door must take into account the ultimate floor finishes.

All built in cupboards are to be provided with

adequate ventilation.

Any non-standard doors i.e under stair storage doors must aesthetically match the rest of the internal doors.

Joinery

All internal joinery to be prepared, knotted, stopped, primed and painted with a minimum of two low VOC undercoat and one white gloss low VOC paint finish to achieve an even high gloss finish.

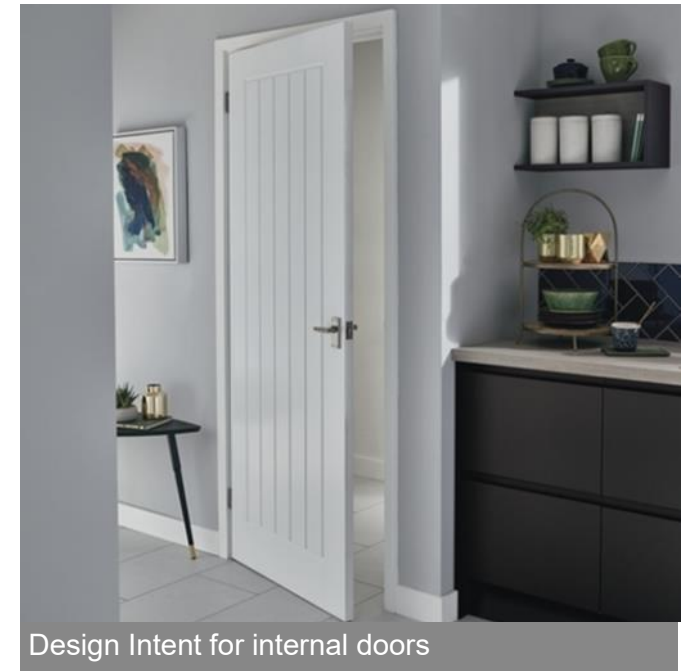
Woodwork White Satin Wood low VOC or similar approved, to be used.

Window Boards - 50 x 25mm softwood battens to be fitted over windows and external door openings except in bathrooms. Battens to extend 150mm beyond opening on either side.

For all Affordable units:

- Hat and coat hooks at 2Nr per bedspace to a maximum of 6. Hooks to be chrome to match ironmongery finish and screwed to softwood rail, the location of which is to be agreed with The Council, and its representatives.
- Curtain battens - All windows to be fitted with curtain battens extending minimum 150mm past window openings. Painted.
- Lockable cabinet required as part of kitchen fit out.

- 1Nr shelf and cloths rail is required to every built in cupboard/ wardrobe



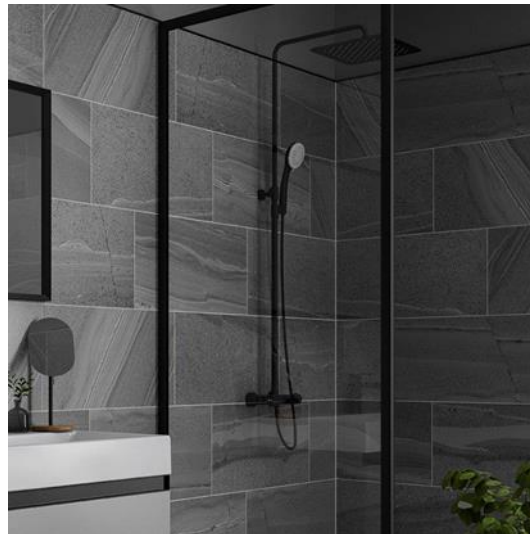
Design Intent for internal doors



Design Intent for internal ironmongery

Building Fabric and Materials cont. (page 12 of 12)

Design Intent for Bathroom and cloak room tiling. Note appearance, not necessarily quality.



Services

(heating, lighting, ventilation, power)

The council require well designed, high quality, energy efficient homes that are affordable to run, and provide a healthy living environment for residents which are easy to operate and maintain.

We have a number of important mandatory and aspirational Design Goals which relate to the building services systems. Contractor/ consultant teams are required to comply with all of the mandatory Design Goals, and as many aspiration Design Goals as suitable, viable and beneficial for the project.

All works to be carried-out are expected to be in accordance with the most current regulations, British standards and all other relevant legislation, recommendations, standards and working practices. Manufacturer's instructions and recommendations are to be followed in full for all components, materials and appliances.

Utilities Infrastructure

New utility services infrastructure shall be installed to site and the supply capacities / routes shall be verified with the relevant utility companies. All necessary works shall be included for, including applications required in providing the infrastructure on site, making the utility connections to each plot—including all required wayleaves and easements.

Service penetrations shall be made using Pro Clima pipe and cable flanges or equivalent to maintain the air tightness standard required for Building Regulation certification. All service penetrations are to be approved by the design team and signed off by the air tightness coordinator on site. Leakage at any non-approved penetrations will need to be rectified and the contractor shall pay for any retesting.

Fire hydrant coverage shall be checked and

confirmed if the existing as being adequate or if new fire hydrants are required to be installed on the proposed site.

Mains Water

External mains water supplies shall be carried out in MDPE pipework to suit the Water Authority requirements.

Water meters for houses:

A smart-type domestic water meter shall be installed within a proprietary chamber in an appropriate location at the boundary to each property complete with remote display located internally to the property to enable easy meter readings by the occupants.

Water meters for flats:

Smart-type domestic water meters shall be installed within a proprietary chamber in an



Services

(heating, lighting, ventilation, power)

appropriate location at the boundary to the block of flats. The meters shall be complete with remote displays located internally to each flat to enable easy meter readings by the occupants.

A mains water connection shall be provided to serve the landlord areas.

Mains Gas

The use of gas fired systems may only be considered in exceptional circumstances, where other alternative forms of low / zero carbon technologies have been evaluated and deemed not viable.

Whilst it is acknowledged that conventional gas boilers may be banned from new buildings in the near future, it is recommended that gas remains an option until new technologies have been suitably developed, or existing alternative LZC heating systems are financially viable and do not result in fuel poverty.

Where natural gas is required for new buildings, the following shall apply:

External mains gas supplies shall be carried out in MDPE pipework to suit the Gas Authority requirements.

Gas meters for houses:

A smart-type domestic gas meter shall be installed

within a proprietary surface mounted housing to the external wall of each property complete with remote display located internally to the property to enable easy meter readings by the occupants. The meter housing specification and location shall be approved by the client team prior to installation.

Gas meters for flats:

Smart-type domestic gas meters shall be installed within an accessible cupboard in an appropriate location within the ground floors of the block. The location of the metering cupboard shall be as near as possible to the point of mains service entry (max. 2 meters) and must be agreed with the Gas Authority prior to installation. The gas meter cupboard shall be ventilated according to the Gas Safety Regulations. The gas meters shall be complete with remote displays located internally to each flat to enable easy meter readings by the occupants.

Soil & Waste Disposal Systems

The soil & waste drainage systems shall be in UPVC pipe with solvent welded connectors, and fittings and shall comply with the Local Authority's requirements. No "brown" pipework shall be left exposed above ground level.

The waste drainage systems shall be connected to a suitable size soil and vent system.

All internal visible soil, waste and overflow pipes shall be white.

All external visible soil, waste and overflow pipes shall be black.

The use of tundishes shall not be permitted.

Internal soil stacks shall not pass through living accommodation. Where this is unavoidable, pipework shall be adequately insulated within a decorated duct.

All overflow pipes shall discharge to outside the building.

Soil and waste pipes shall be properly supported and include cleaning access points.

Stub stacks must be ventilated with an air admittance valve and easily accessible for cleaning purposes. All surrounding ductwork shall be provided with suitable ventilation and access.

Suitable bottle or anti-syphon traps are to be provided as necessary.

Suitably trapped Waste pipes shall be provided adjacent to washing machine space.

Proprietary flashings are to be fitted to all pipes passing through roofs and a ventilating cowl shall be fixed to the head of each pipe.

Services

(heating, lighting, ventilation, power)

The systems shall be fully designed, supplied, tested and commissioned, including condensate waste drainage and the relief valve discharge pipework from the boilers and hot water cylinders.

Domestic Cold Water

General Water Services must conform to the requirements and recommendations of all the appropriate authorities including:

- Building Regulations
- Equipment Manufacturers
- British Standards
- Water Board ~ Model Water by-laws – Environment Agency.

A check must be made with the Water Authority regarding local water composition which may give rise to lime scale or similar problems. Advice should be sought from the Board or other testing Authority if there are problems present and a suitable treatment implemented.

Mains pressure hot and cold water systems will be considered by the Council.

Each unit shall have a separate mains water supply of adequate size and flow to meet demands, with a stop valve where the mains enters the dwelling and a lime-scale inhibitor installed within 2m of the incoming water main. The scale inhibitor shall be

as Scalemaster manufactured by Salamander, which meets the Council's long-term maintenance requirements.

The incoming main must be positioned so as not to restrict the use of the cupboard space. Where boxing-in is provided, suitable identification of the hidden services shall be provided.

Kitchen sinks must always be served directly off the rising main.

A brass bodied external bib tap should be provided in all units with private gardens, fixed to the external wall to the garden. The tap's water supply must be isolated internally with a stopcock, fully insulated, fully drainable and with a non-return valve, hose union and drain cock. The tap should be positioned over a gully/drain where possible.

Pipework should be concealed wherever possible, but should also be reasonably accessible. If pipes are run in floors they should be in ducts, in boxed out skirting or in proprietary trunking. Pipes should not be chased into walls. No micro-bore pipework will be permitted.

All pipework is to be either copper or plastic, with either Conex, Yorkshire capillary or Wavin Push-fit Hep20 fittings.

All exposed pipework is to be in copper.

Pipework must be adequately fixed particularly in

hidden areas.

All pipework along external walls, in roof spaces or floor slabs and below timber ground floors must be insulated with Armaflex or foil faced mineral wool. Phenolic foam insulation shall not be used for the cold water pipework installations. This also applies to overflows and vent pipes. The Contractor shall utilise foil faced mineral wool insulation – as Rockwall or equal and approved.

EPDM flexible hoses shall not be used. Where other flexible hoses are used (e.g. PE, PEX LLDPE or PVC C), they shall be WRAS approved with evidence to have passed BS 6920 test of microbial growth.

Where new or re-located pipework passes through walls, floors or ceilings, tubular pipe sleeves of a non-combustible material compatible with the pipework shall be fitted. The internal diameter of the sleeve shall, except where necessary to allow for expansion and contraction or where otherwise specified, not exceed the outside diameter of the pipework by more than one pipe size and shall project 3mm beyond the finished surfaces.

Stop valves must be clearly labelled with metal or plastic tags, must be easily accessible and should not involve the use of a screwdriver. If placed in an access duct, etc. a hinged cover should be provided. Stop valves and drain taps must be

Services

(heating, lighting, ventilation, power)

Conex brass or gunmetal compression fitting.

In addition to stop valves on each main in each dwelling, a further stop valve should be provided in all flatted schemes located in the common area in a concealed but accessible position. All stop valves must identify the number of the dwelling it serves.

Sure-stop switches should be provided to all accommodation for older people or people with a disability in addition to the main stop valve. Stop valves must be provided at the following points:

- Rising main - on entry to dwelling and shall include a drain tap.
- Rising main - on entry to cold water storage tank.
- On each down service from cold water storage tank.
- To each service connection to all fittings.

All maintenance valves are to be labelled indicating the service affected, with details also being provided in the Health and Safety File. Service valves are to be provided in appropriate locations to allow for isolation of all elements during maintenance and renewal. In line service valves should be provided adjacent to all taps or ball valves and be accessible.

In properties designed for the elderly, quarter turn

stopcocks should be provided.

Each dwelling must contain a drain tap at the lowest point in order that the system can be drained and at sufficient height to allow easy access.

Cold water storage tanks should be located in roof spaces wherever possible. Access to roof spaces must be from communal areas where more than one tank is located within it.

Tanks should be avoided where possible, but if they are used these should be Key Terrain G.R.P. or P.V.C. complete with lid. The Council will not permit the use of Harcopacks or Elson tanks.

All installed cold water storage tanks shall be WRAS approved' and to CIBSE guidelines in terms of minimum capacity. Tanks must be accessible and capable of being removed through the roof hatch. Tanks shall be insulated apart from the bottom surface (loft insulation shall be adjusted accordingly) and be provided with a suitable lid. All tanks shall be supported by minimum 18mm plywood and appropriately spaced 75mm x 50mm timber bearers.

Domestic Hot Water

Where conventional hot water storage is provided, it shall be from a fully indirect pre-insulated (minimum 50 mm thick) open vented torpedo cylinder connected to the heat generating plant, all

to current applicable standards, Part L compliant, Grade 3 and to comply with BS 1566. The cylinder shall be high efficiency, of an adequate capacity and fitted with an immersion heater. A suitable and approved thermostat is to be located on the hot water cylinder. The system shall be fully balanced, flushed and commissioned, including earth bonding connections.

Hot water storage cylinders should be installed on a 150mm plinth and be provided with an adjacent, accessible, drain valve stop valve to enable the cylinder to be accessed for maintenance.

Sufficient hot water should be available, as follows:

- Hot water storage should not be less than 115L, except in the case of systems using off-peak electricity, which should generally have at least 200L capacity.
- They must be fully self-lagged or covered with a suitable lagging jacket of minimum size.
- Where conventional central heating is being installed, the cylinder should be fitted with a primary heating coil, a cylinder thermostat and a 3KW thermostatically controlled immersion heater.

Combination cylinders will only be considered where a 'traditional' system would be inappropriate, for example, in flats.

Services

(heating, lighting, ventilation, power)

Where electric immersions are provided they are to be titanium sheathed type suitable for use in hard water areas.

Where gas combination boilers are used to provide domestic hot water, the boiler type and size selected shall be appropriate for the size of property, according to the occupancy, number of bedrooms and bathrooms or shower rooms and the likely demand for hot water. For larger properties, combination boilers with integral hot water storage may be selected to maximise hot water production.

Where heat pumps are used primarily for domestic hot water generation, they shall be of the high temperature model types, and shall achieve the minimum efficiencies as set out by Building Regulations.

The hot water cylinder shall be sized with an appropriate heat exchanger to ensure maximum heat transfer with the heat pump.

Gas Pipework

Where gas is supplied to a dwelling, a separate brass gas control valve shall be provided to each unit, of back-plate elbow plugged type, as near to the point of entry as possible.

Gas supplies shall be required to the kitchen for the hob, with a purpose made gas connector unit to the

side of the cooker space, and to the boiler position. The cooker gas termination/outlet point shall be provided with a suitable mechanical fitting to allow for both purging and for the future connection of the cooker by a gas safe engineer.

Heating

Whole house heating or equivalent low energy super insulated building solution is required.

Design Criteria:

Design should assume that there is an external ambient temperature of -4°C , saturated.

Standards to be achieved are an even 20°C across the entire dwelling where Passivhaus or equivalent is targeted.

For all other fabric performances, the following temperatures should be achieved:

Living rooms	21°C
Dining/Kitchens	18°C
Bedrooms	18°C
Bathrooms	21°C
Hall Landing	18°C

In old persons' dwellings and wheelchair dwellings, all areas should be 21°C with an external temperature assumption of -4°C .

Design of systems should be included in the consultant's fees and The Council will not pay fees for an additional M&E Engineer unless agreed at the beginning of the works.

Gas Fired Boilers:

Where gas boilers are the agreed primary heating solution, they shall be of the wall hung type—positioned on an external wall.

The boiler shall be manufactured by Worcester Bosch or equal and approved manufacturer. All boilers shall be accurately sized as required for the applicable property. All boilers shall be specifically registered with the manufacturer, to allow for the full available warranty to be activated. Labelling shall be provided at the boiler position, giving the 24hour/7day emergency contact number.

Boilers shall have a minimum seasonal efficiency as set out in current Building Regulations.

Outside weather compensators must be fitted to all new properties. These must be approved & certified as suitable to use with the appliance installed by the appliance manufacturer.

Whole house thermostats are preferred, located where possible in the hall. Programmers should be located in kitchen.

Services

(heating, lighting, ventilation, power)

All boiler flue installations shall be provided within the length recommendations of the manufacturer and with adequate access provisions for maintenance, servicing and inspection. All boiler flue installations shall be core drilled and NOT chased-in.

Flue Gas Heat Recovery System devices shall be fitted to all new gas boilers.

An appointed Gas Safe member must install all gas-fired systems.

All boiler, radiator / heat emitter positions are to be agreed with The Council prior to fixing. The Council does not accept boilers positioned where vents are required to run through lining areas. Boilers should be located on an outside wall. A Spirotech Spirovent or Adey Magnaclean should be provided to all wet heating systems. In addition, a Combimate should be provided where Combi boilers used.

Furnox should be used in all wet systems.

A radiator should be provided to kitchens in preference to an electric plinth heater.

For centralised systems, the preference would be for a gas-fired, wet system. Consideration should be given to a multi-boiler system with thermal stores, external temperature monitors and, where there is a hard water supply, a built-in descaling unit.

Heat Pumps:

Air source and ground source heat pumps shall be considered as alternative heat sources to conventional gas fired boilers. The systems selected shall exceed the minimum efficiency standards set out in the current Building Regulations.

Air source heat pumps (ASHP) shall be accurately sized to match the heating demand—to maximise efficiencies. The outdoor unit(s) shall be situated in an easily accessible space for maintenance with plenty of free air flow, ideally sheltered by an eave, and have at least 5cm elevation to allow adequate drainage. A rigid concrete base shall be provided to avoid excess vibration.

Ground Source Heat Pumps (GSHP) indoor units shall generally be situated within airing cupboards / utility rooms—allowing adequate space for maintenance.

Steel Panel Radiators

Radiators shall be wall hung factory finished Kite marked pressed steel with roll top design, of Stelrad Compact type and installed so as not to impair movement and the placing of furniture and fittings. The preferred supplier shall be “Stelrad Elit”

to BS EN 442 or similar approved.

Radiators shall be of the four tapping type with bottom opposite end connections and a chrome plated air vent incorporated into the top tapping. They shall be complete with concealed mounting brackets, white powder coated paint finish and a minimum 5 year manufacturer’s warranty.

Attention is drawn to the requirement that in the case of radiator substitution, i.e. one manufacturer for another. Substitution shall be made on the basis of output not number of sections or type. Radiators for any one site shall be of the same manufacturer and type, a mixture will not be acceptable.

Generally radiators shall be installed beneath windows where applicable, or elsewhere where they are less likely to conflict with and be obscured by furniture.

Radiators shall be suitably selected to suit the design flow & temperatures of the heating system.

Radiator Valves

Thermostatic radiator valves shall be fitted to all radiators. Valves shall be to BS EN 215 with a chrome plated body and white head. Manual radiator valves shall be fitted to the return connections of all radiators. Valves shall be lockshield type to BS 2767, with integral drain off

Services

(heating, lighting, ventilation, power)

facility on return connection and have a chrome finish. Valves shall be pre-set and balanced during commissioning.

Heating Pipework

The heating pipework shall be concealed wherever possible. Branch risers to each radiator shall rise directly out of the floor into the radiator valve using proprietary radiator connector guides. Main pipe runs from the boiler shall be in copper tube with Geberit Mapress crimp fittings or an equivalent system.

Copper and copper alloy fittings shall be potable, lead free to BS EN 1254 Part 1:1998 and are to be resistant to dezincification.

Micro-bore pipework shall not be permitted. Distribution pipework to radiators may be run in Kuterlex Plus plastic coated copper tube run in continuous lengths with no joints and concealed from view. Alternatively Uponor Q&E PEX shrink-fit pipe system or Wavin Hep2O PB push-fit pipe system may be used and concealed from view using continuous lengths with no joints within the structure. Pipes shall exit the wall behind each radiator using a proprietary terminal box with a cover plate to provide a neat finish.

All pipework shall be supported as recommended by the manufacturer and at a minimum of

1.2m/15mm pipe and 18m/22mm pipe horizontally and 2.0m vertically.

Heating Controls:

Heating controls shall comply with the current Building Regulation standards with respect to:

- Heat source interlocks
- Quantity of separate space heating circuits, independent time controls, rooms thermostats and TRV's
- Independent hot water circuits, time controls and cylinder thermostats
- Flue gas heat recovery controls
- Weather compensation
- Load compensation
- Smart controls with automation and optimisation

Thermostats shall be positioned in buffer/circulation spaces that are not directly heated by radiators or the underfloor heating system, e.g. corridors, staircase etc.

Thermostat mounting height: 1500mm above floor level.

General:

Bathroom radiators should be installed on the heating circuit and not on the hot water primary circuit.

Provision must be made to drain down the system by a drain valve located at the lowest part of the system draining externally.

Pipework should be concealed wherever possible, whilst still being accessible; i.e. not chased into walls or in concrete screed.

An annual estimate of fuel consumption should also be given by the consultant from the appropriate supplier to allow The Council to ensure that economic systems are selected.

Wherever possible, hot water cylinders should be installed in a linen/airing cupboard. Where this is not possible, a small electric heater should be installed in the linen/airing cupboard via the installation of a convector heater, up to 300 watts in size and thermostatically controlled with a guard or heating pipe run through cupboards in gas systems.

Services

(heating, lighting, ventilation, power)

Ventilation

Mechanical Ventilation with Heat Recovery (MVHR) systems are preferred. If this is not being provided the council require a report outlining how air quality will be maintained.

Where MVHR systems are not used, properties should be adequately ventilated using mechanised or passive systems.

Mechanical Extract:

Mechanical extract ventilators are to be provided to all bathrooms, kitchens (unless the hob ventilation is proved to be sufficient) and WC's and shall be overrun timer controlled with a manual override operated by the light switch.

Extract ventilators in bathrooms shall be of SELV type and fitted out of reach of the bath. A 3-pole switched fused spur to isolate the fan, plus transformer is to be located out of reach at high level outside of the bathroom door and bathroom, kitchen and WC lights are to remain operable when fans are isolated at the switched fused spur.

Extract ventilators shall not be the window mounted type and shall be positioned to avoid draughts. Where vertical ducts are used they must be

insulated, fitted with a condensation trap and terminated at roof level with a proprietary ridge vent.

Extract fans are to be fitted in a manner that eliminates vibration.

Electrical Services

The system should be designed to comply with the latest edition of the IET wiring regulations, Statutory and building regulations. Full electrical drawings to be provided to The Council for their approval.

The works shall be carried out by an NICEIC or ECA certified and experienced Contractor. Part P test certificates shall be provided for the complete installation. All equipment and cables used should comply with the relevant British Standards specification and be installed with the British Standards codes of practice where applicable.

Incoming supplies to individual dwellings shall terminate into recessed meter boxes. Meter boxes shall be mounted on side walls wherever possible, or within front door canopy returns if available, lastly to the front elevation if necessary.

All dwellings shall be provided with dual RCD protected 4+4 way consumer units minimum.

External Lighting

External lighting should be provided to sufficiently

illuminate perimeter areas and exits and shall be of a low glare design without light spill beyond the site boundary or onto dwelling windows. Where it is not adoptable it should be controlled using a solar time switch but have an over-ride and be connected to a landlord's supply. All external lighting should be designed and specified at the design stage and be approved by the client.

In flat schemes with communal stairs, permanent lighting should be provided to each stairway and corridor. Two circuits shall be used to allow a 50% lighting provision at selected times and for resilience. Timeclocks and photocells shall be employed (but not presence detection) to ensure lighting during all low light hours or at all times where sufficient natural lighting is not available.

Warm colour LED light sources shall be provided of the same colour temperature and mounted in accessible locations. Luminaire samples shall be approved by the client.

Lighting in dwelling entrance hallways and rooms with more than one entrance to be operated by 2-way switches.

Two-way switching to be provided to all lighting to dwelling staircases.

Wiring

Trip proof mains wired smoke detectors and carbon

Services

(heating, lighting, ventilation, power)

monoxide detectors are to be provided to the hallways and near boilers as appropriate in each dwelling.

Consumer units should be situated in hallways or non-habitable areas.

A secure socket outlet to be provided on each floor of communal areas of flats connected to landlord's supply.

One fuse spur to be provided at high level in the dwelling hall for future security alarm and one to be suitably positioned at low level in the hall for possible future stair lift.

All sockets below worktops for appliances should be controlled via switches above worktop labelled as to which appliance they serve. Labelling shall be permanently etched or factory applied.

The following tables set out The Council's minimum design requirements. All sockets should be positioned conveniently to suit proposed and probable furniture layouts and agreed with The Council. All sockets are to be RCD protected. All sockets should be double socket outlets where possible. Double outlets count as one socket in the table i.e. 3 sockets = 6 outlets.

Area	Double Sockets
Kitchen	4
Dining	2
Living	4 (one with USB charging)
Main Bedroom	3 (one with USB charging)
Double Bedroom	3 (one with USB charging)
Single Bedroom	3 (one with USB charging)
Upper Landing	1
Hall	1
Bathroom	1 x shaver socket and light fitting
Communal corridors in flats	1 x secure socket in every corridor

In each lounge and bedroom at least 1Nr socket shall be equipped with USB integral charging socket.

In addition to the above, provision should be made for a home office space, with 2Nr additional double sockets and a dual telephone and data socket all at 1200mm. Office data sockets should link to a matching data socket at the probable location of the occupier's broadband router, probably the lounge room. This enables a wired data port to be patched to the office location or vice versa.

All general socket outlets should be switched and mounted into securely fastened metal recessed back boxes

Socket outlets to general-purpose dwellings will be located at least 450mm above finished floor level and always a minimum of 150 above surfaces.

Lighting requirements:

Area	Code Service Illuminance (Lux)
General lighting for rooms and areas used either infrequently and/or casual or simple visual tasks	+100
General lighting for working interiors	+750
Lighting to both entrance doors of the property to be provided and controlled by a photoelectric cell with internal switch	
Switched lighting shall be provided in stores over 1.2m ²	

Media Services

Houses and bungalows – dual satellite and TV/FM (quadplex) outlet to be provided in the lounge and TV/FM (duplex) outlet to each bedroom. Each outlet individually co-axial cabled to the roof space and connected to a digital capable aerial via amplifier with inputs for satellite TV.

Flatted schemes – an IRS satellite dish sharing system, including the aerial, should be included on all schemes, with outlet in the lounge and each bedroom as for houses. This should be able to facilitate 4K Ultra HD TV and Sky Q.

Services

(heating, lighting, ventilation, power)

All installations should include digital amplifiers and wide band television aerials as appropriate for digital television. Where necessary boosters must be provided in order to ensure a clear picture is received for all Freeview channels.

In shared accommodation or supported housing schemes, TV and satellite points are to be installed in all bedrooms.

Where a communal system is used each outlet shall be served by a dedicated cable. Shared systems shall be fed via a dedicated accessible landlords power supply.

The system shall be tested and commissioned prior to handover to the CAI (Confederation of Aerial Industries Limited) standards and the certificate given to The Council confirming that this has been carried out and all is satisfactory.

Telephone Points

Provision of telephone services should be made in all schemes and dwellings as follows:

- Outlet in entrance hall and living room plus main bedroom.
- Data port provided adjacent living room telephone point linked to data port in home office locations for distribution of wired data

Lifts

Shafts and motor rooms should be sited away from dwellings to limit noise transmission and nuisance. The lift motor should be suppressed to avoid radio and TV interference.

Lifts should be not less than eight persons and manufactured in accordance with the appropriate British Standard.

Lifts should be capable of accommodating a wheelchair and all lift buttons should be operable from a wheelchair. A mirror should be provided on the wall opposite to the entrance.

The lift should be internally faced with laminate or stove enamel, with washable floor finish. Entrance columns should be in stainless steel. All finishes to be agreed with The Council prior to manufacture.

Provision should be made for the Warden Call System or a BT connection to an off-site call centre to be linked into the lift.

Handrails should be provided to the rear of the car and a car seat situated to the side or rear. The door should give a clear opening width of 800 mm.

Each landing entrance should be protected by sliding doors of stainless steel construction with a full height safety sensor.

Should the lift sump be below drain level then it must be pumped to avoid flooding.

Fire Alarms

Full consultation should take place with the Chief Building Control Officer and Fire Officer as appropriate. The position and specification of all fire alarms should be approved by The Council. All dwellings shall be provided with mains powered, battery backed, linked smoke detector to each level, with additional carbon monoxide detection within kitchens. Common areas shall be protected by a landlords system of linked smoke detectors. Automatic opening vents where specified shall be operated automatically by smoke detectors.

On sheltered schemes Redcare links will be required. Their requirements should be established in writing and accompany any negotiation or tender documents for the scheme against which costings have been made. All systems should be of an open protocol and/or be able to be maintained by any competent engineer.

Door Entry Systems

In flats with communal access and common entrance, a two way audio and colour video door entry system must be provided. If flats have individual letterboxes in the flat doors the system should incorporate a time lock for deliveries. Publicly accessible part shall be vandal resistant

Services

(heating, lighting, ventilation, power)

Warden Call Systems

For any older persons' scheme a request should be made to The Council for a separate brief that will be provided to take into account the particular circumstances of the scheme and the local authority in which it is situated. A warden call system will normally be required. All systems should be of an open protocol and/or be able to be maintained by any competent engineer.

Electric Vehicle Charging points

Provide an electrical car charging point to all new in-curtilage car parking areas and install the infrastructure to support the future installation of electrical car charging areas were out of curtilage parking is provided. The infrastructure shall be planned and installed to avoid subsequent new penetrations to the building envelope.

For flatted schemes with shared parking, infrastructure shall be installed to allow for at least 1Nr public electric vehicle charging point per 10Nr dwellings, with the infrastructure designed to accommodate further expansion to serve additional vehicles as the demand increases.

Developers shall make allowance for determining the projected demand for vehicle charging at planning stages and setting provision appropriately to meet projected demand.



Visual Intent for video entry systems



Visual Intent for external lighting

Efficiency, Resilience and Durability

We have a number of important mandatory and aspirational [Design Goals](#) which relate to Efficiency, Resilience and Durability. Contractor/ consultant teams are required to comply with all of the mandatory Design Goals and as many aspiration Design Goals as suitable, viable and beneficial for the project.

A key requirement for all projects is for the design proposals to be durable and create long-term affordability for residents. The following mandatory Design Goals must be met in this regard:

- Adopt a fabric first approach for all new buildings to reduce the need for energy consumption reducing fuel poverty and make best use of the efficient renewable energy
- Select building materials considering their carbon footprint whole life cost and ease of repair and maintenance.
- Provide sustainable features that are utilised and can be operated with ease by the occupants.

- Create a legacy of buildings where communities establish a sense of ownership and belonging
- Plan for long term stewardship by all stakeholders for buildings that can adapt to the changing needs of the occupants and evolving technologies.

The operational efficiency will be monitored as required in the mandatory design goals to ensure the specific designed performance targets are being achieved, monitoring must follow the methodology set out in [section 6.0](#).

Design proposals should consider that a building will be de-constructed at some point. Facilitating the deconstruction process will bring financial and environmental savings as recovery and reuse potential for materials increases.



Specification of Fittings (page 1 of 5)

The Contractor/ consultant team will be expected to provide The Council, and its representatives with a full specification list of their proposals within the formal Contractor Proposals submission for approval.

Design life = 15 years minimum – appropriate for use, capable of withstanding normal wear and tear and fixed in a manner so as to remain serviceable

Note any appliances provided must have a minimum A rating. Kitchen layouts and cupboard space to comply with standards set out in the Housing Standards Review. All designs must comply with the Technical Design Principles set out in [Section 3.0](#).

Fixtures and fittings with respect to water consumption must comply with the guidance in Table 2.2 of Approved Document G, achieving the 110 litre person per day target for efficiency.

Kitchens

A choice of colours within the range specified will be required and four weeks is to be allowed within the construction programme to enable The Council to select colour schemes for each dwelling.

All appropriate water connections for washing machines in the kitchen as required should be easily accessible and enable the incoming resident to connect their appliance without any additional work. The following is required:

- 3x50mm pre drilled holes are required inside base units, close to the wall, 100mm below the worktop for services where adjacent to washing machine or dishwasher spaces.
- Removable base units for future installation of washing machines to be fitted with additional end panels either side to create required 630mm wide space when removed.

Kitchen sink to be formed in minimum of 0.83 gauge stainless steel and braced underneath for additional support.

Draining boards to be supported on reinforcing.

To minimise water consumption where dishwashers and washing machines are provided they should comply with the following:

- 18ltr maximum volume dishwasher
- 60ltr maximum volume washing machine

Any worktops that cover designated areas for appliances (e.g. washing machine and dishwashers) need to be 650mm minimum depth.

Base units to be 900mm high x 600mm deep and include drawers of varying depths.

Wall units to be 600mm high and 300mm deep. All doors shall have 180 degree hinges. End units to have suitable end panels where required.



Specification of Fittings (page 2 of 5)

All doors to be provided with a soft close system and suitable hinges.

Under cupboard LED lighting required.

Cornice and pelmets required.

Carcass end panels are to match facing door finish.

Where no MVHR system is installed a direct cooker extract is required above the hob.

Where MVHR is provided a recirculating cooker hood is required above the hob. An extract point for the MVHR system should be located in the kitchen. This should not be placed too close to the hob to prevent it becoming clogged with cooking grease.

Additional Requirements:

Cookers, microwaves and refrigerators will be provided in elderly persons' dwellings and the contractor should provide a specification for approval. All appliances should have an A rating

under the EU Energy Efficiency Labelling Scheme.

For rented housing the Council will choose the worktops, cupboard doors and colour of tiling from a range. For shared ownership and market sale units buyer options may be required for:

- worktops
- cupboard doors
- Handles
- choice of tiles



Specification of Fittings (page 3 of 5)

Bathroom and WC layouts to comply with standards set out in the Housing Standards. Water saving sanitary fittings are welcomed throughout.

Bathrooms

Sanitary fittings are to be provided with provision of the following to be included as a minimum:

Accessories for all homes:-

All fittings to be white vitreous china with chromium plated furniture.

55-60cm pedestal basin to Bathrooms

45cm basin to ensembles and ground floor WCs.

Smooth close coupled WC suite with 6/4 Dual Flush (push button) with slow close seat and cover

Chromium plated steel heated towel rail required to all bathrooms and ensembles.

Bath – to be 130litre, water saving, 1700 x 700mm heavy duty enamelled pressed steel with thermostatically controlled shower attachments and shall be slip resistant.

A separate shower mixer and bath tap are required to family bathrooms.

Shower head to have removable 8 litres per minute eco flow regulator. To be supplied as a kit

to include as a minimum single function 100mm. handspray, 600mm rail & 1.35m hose. Plus hose retainer and chrome soap dish.

Bath shower screens to be supplied as part of bath set to ensure a good watertight fit

All duct casings to have removable access panels where appropriate. Framed plastic finish will be acceptable in cupboards but any visible covers / panels in habitable rooms and bathrooms generally are to be frameless plaster or tiled finish. Samples to be provided for client agent approval.

Tiling to be agreed between Contractor and Employer. Shared ownership and market housing should be able to select from a range.

When showers are to be provided they should be approved by The Council. As a minimum shower tray 1200x800mm or 900 x 900mm quadrant is required. Design strategy is set the trays low, riser kits should be avoided.

A separate, additional WC is required for all dwellings of two storeys and above.



Specification of Fittings (page 4 of 5)

If over bath showers are provided, a shower rail and curtain or glass screen must also be supplied.

Toilet roll holders, towel rail and mirror 450x450mm over basin with shaver socket and light.

The Council does not accept black toilet seats.

All bathroom and WC doors to be fitted with a privacy bathroom lock set.

To minimise water consumption the following should be specified:

- Flow Reducing/Aerating taps throughout;
- 6-9 litres per minute shower (note that an average electric shower is about 6/7 litres per minute)

Additional Accessories to social rent properties only:

- Toilet roll holders
- A towel holder next to each wash hand basin if heated towel rails are not provided.

- Bathrooms and cloakrooms to be provided with 450 x 600mm safety glass mirror.
- Lockable cabinet

For all tenures pipework boxing should be avoided. For upper floor bathrooms all pipes should run in the floor. In ground floor WC's for basins, pipes should run in walls or service voids.



Specification of Fittings (page 5 of 5)

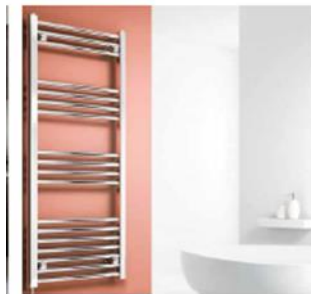
Visual Guide to fittings



Pedestal basin



Accessories



Towel rails



Shower enclosures



Bath with glass screen



Close coupled WC



Basin Tap



Bath Tap Mixer

Projects with Additional Requirements

Additional Design Requirements for Housing for Older People

For very sheltered and sheltered housing the 'SUFFOLK VERY SHELTERED DESIGN BRIEF' should be used. Contact The Council for a copy.

Reference should also be made to the 10 HAPPI design recommendations:

1. Generous/ and flexible internal space standards
2. Plenty of natural light in the home and in circulation spaces
3. Avoidance of internal corridors and single aspect dwellings for light and ventilation
4. Adaptability with Care Ready homes to accommodate emerging healthcare technologies
5. Circulation that encourages interaction, avoiding an institutional feel
6. Shared community hubs providing multi-purpose social spaces that link with the community
7. Engagement with the street through planting, trees and the design of the natural environment
8. High levels of energy efficiency

9. Adequate storage inside and outside home
10. Homezone design of outside spaces that give priority to pedestrians

An audit of how a scheme considers each of the HAPPI 'ten components for the design of housing for older people' should be prepared during the design stage.

Additional Design Requirements for Wheelchair Housing

When designing soft landscaping, consideration should be given to ensuring that a wheelchair user can access all of the private garden including the shed. The provision of raised beds accessed off an area of hardstanding is preferred. The Suffolk Wheelchair Design Brief and Habinteg Wheelchair Housing Design Brief should be used.

Additional Design Requirement for Shared Equity Housing

Individual car parking spaces are to be provided to each property. No communal/open space should be proposed unless it is to be adopted by the local authority.



5.0

Construction



Modern Methods of Construction (MMC)

The council is not prescriptive in the method of construction used. This section is included to highlight MMC as an option to be considered.

Off-Site Construction

This sector of the construction industry is growing in confidence with a number of companies having now been established for many years.

In 2019 the Ministry of Housing, Communities & Local Government, categorised off site construction (referred to as 'Modern Methods of Construction or MMC) into 7 sections to standardised the terminology;

- 1: Pre manufacturing – 3D primary structure systemised approach (volumetric)
- 2: Pre manufacturing – 2D primary structure systemised approach (panelised)
- 3: Pre manufacturing – non-systemised primary structure (individual components)
- 4: Additive manufacturing – advanced digital design site based manufacturing
- 5: Pre manufacturing – non-structural assemblies

and sub-assemblies (pods)

6: Traditional building products – site labour reduction /productivity improvements

7: Site process led labour reduction/productivity / assurance improvements

Pre manufacturing - 3D (volumetric) and 2D (panelised) primary structure

The volumetric and panelised approaches (MMC categories 1 and 2) should be explored for appropriate developments. These two approaches provide varying levels of flexibility in terms of design opportunity, timescales and availability.

Housing developments lend themselves to utilising a standard systemised approach which brings recognised economies.

Where MMC approaches are being considered, early consultation with MMC suppliers is crucial to maximise potential and ensure successful

procurement.

Off-site construction is an assembly process rather than the 'piece on piece' method of traditional construction. Where MMC it being considered designs should be devised to support the efficiencies of the assembly 'flow' thereby achieving cost effective and sustainable homes.

Pre manufacturing – non-structural assemblies and sub-assemblies (pods)

Where developments are of a suitable scale, MMC category 5 can be considered for delivery of a standardised range bathroom, WC and kitchens, as pre manufactured pods.

If these layouts were utilised for future projects, this could become a viable cost effective option.

MMC manufacturers / developers should be BOPAS registered.

Construction Safety (CDM2015)

In all aspects of design and specification, architects and designers should always comply with the obligations under the Construction (Design and Management) Regulations 2015 and seek to eliminate hazards.

All elements of these delivery requirements are to be met and included in any contractor's tender submission.

The Architect will produce a detailed specification which is appropriate to the form of contract to be used. This specification will cover materials and workmanship and will be approved by The Council prior to any tender process.



Building Regulation Compliance

Early engagement with building control is encouraged and is key to avoiding any potential issues with regulatory compliance and to provide a degree of independent oversight of the work. Pre-construction plan checking and a comprehensive site inspection regime to be confirmed and included in the contractors tender submission.

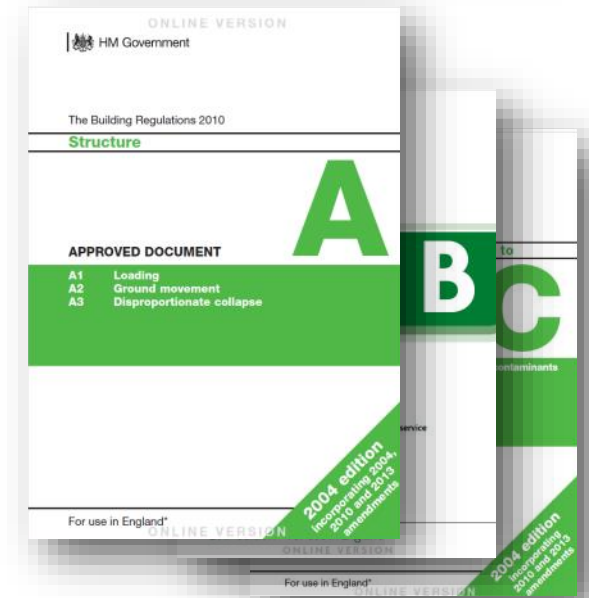
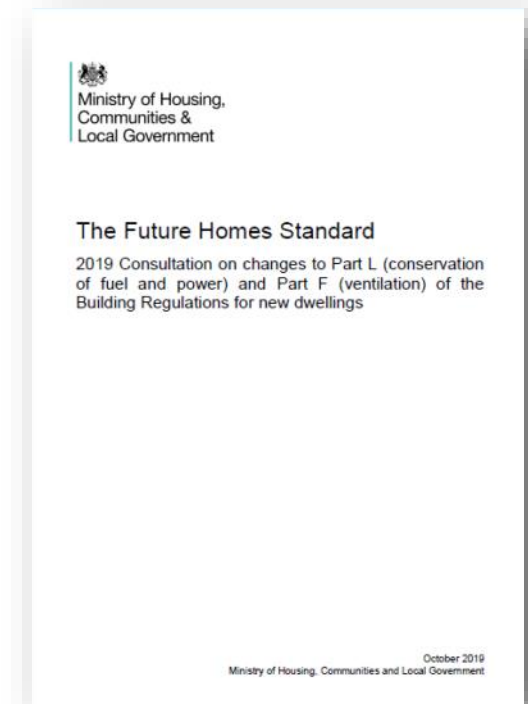
Pre-construction plan checking

Prior to work commencing on site a full plans approval notice / plans certificate should be obtained.

Minimum Provision for Inspection Regime

For an effective inspection regime to provide independent oversight it will need to consist of physical inspections on all foundations, external drains, structural carcass and completions as a minimum.

An on-site inspection record to be maintained and provided at handover to the owner / occupier.



Site Requirements

All site inspection records should be made available to The Council, and its representatives at the monthly site meeting and a copy of the site records should be sent to the council on Practical Completion.

Training of site operatives, undertaking detailed site inspections, provision of robust feedback and the inclusion of a dedicated, on site quality assurance champion are all constituent parts of a successful delivery process for all low energy homes.

These processes are set out in the '**How to build a Passivhaus: Rules of thumb**' guidance document and are summarised below.

Key Stage Design Reviews

- Examine buildability
- Identify risks
- Provide an opportunity to formulate strategies and resolve risks

Training of site operatives

- Tool box talks specific to low energy and Passivhaus construction requirements
- Create an atmosphere of collaboration

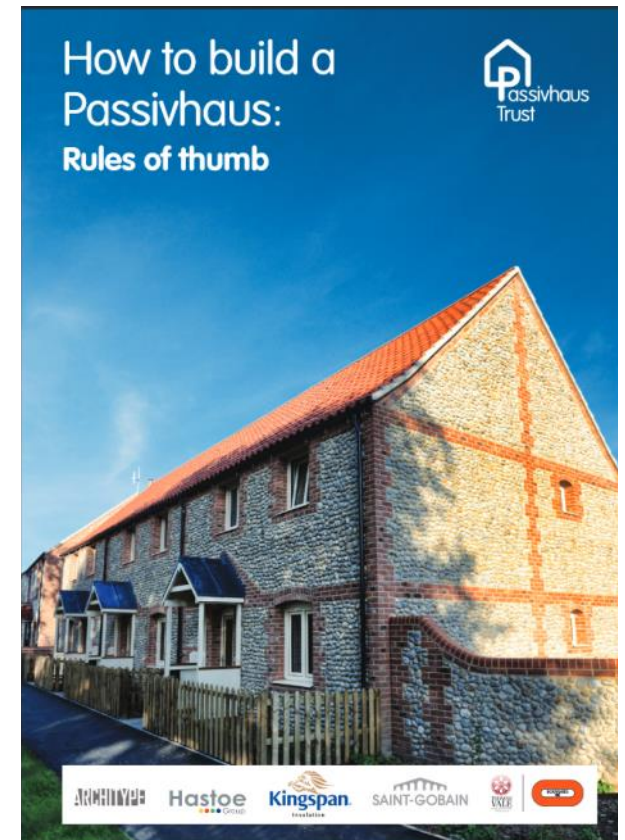
A dedicated, on-site Quality Assurance Champion

Key role to ensure the home will meet the **airtightness target**, by ensuring:

- Continuity of insulation
- Wind barrier installed correctly
- Airtightness products installed correctly

In addition they:

- Arrange pressure tests
- Arrange tool box talks
- Review buildability/ sequencing
- Carry out daily site inspections
- Responsible for material specifications being adhered to



Site Requirements

For our zero carbon aspirations to be met an enhanced site inspection process is required to ensure our new homes perform to their design targets.

Enhanced site inspections for Zero Carbon Homes

Buildings that are designed, constructed and certified to the Passivhaus Standard have repeatedly been shown to perform “as-predicted” because they have rigorously adhered to stringent **quality assurance standards**.

Enhanced site inspection requirements should be applied to all developments and not be restricted to those aiming for Passivhaus Certification. In an attempt to eliminate the performance gap across the board.

“Detailed site reports that support a useful, practical and fully functional feedback loop are invaluable. Discussing the contents of the reports with site managers, rather than simply handing over the document, is critical to establishing this feedback loop. The key thing here is the fact that, compared to standard practice, a closer working relationship is required for Passivhaus projects.”¹

A typical Project Checklist is shown, right. This highlights the key elements to be covered in detail in the site inspection reports. It is important that a photographic record is held of all materials on site with their labels visible. A strict **change control procedure** is required to prevent substitutions undermining the energy performance of the completed homes.

1 - How to Build a Passivhaus - Rules of Thumb

Core components of a Passivhaus Project Management checklist

By failing to recognise the boundary between a certification process and the design and construction process individual projects are at risk and may encounter difficulties. In part this may be because the industry has become used to certification systems that are less rigorous and have permitted this gap to go unobserved.

Listed below are the major components that are included on a Passivhaus Project Management checklist. Each component, and its constituent sub-components, should be coordinated with relevant BS EN standards. When a building is to be certified it is vital that this checklist is developed and agreed with an approved Passivhaus Certifier.

Photographic evidence of the construction should be gathered at key stages by appropriate members of the design and construction team. The Passivhaus consultant should assist with agreeing the regime for compiling evidence, on a project specific basis.

Training/toolbox talks (pre-start)

- Site storage
- Workmanship
- Activities to be undertaken
- Sequencing of activities

Ductwork protected from site debris during storage.



Insulation installation – materials and workmanship

- Walls, roof, floor, windows
- Junctions
- Services

Check construction tolerances. Insulation is encapsulated tightly between internal and external leaf to avoid thermal bypass.



Windtightness – materials and workmanship

- Primary wind barrier system
- Window installation
- Service penetrations

Wind barrier installed in a manner that allows easy inspection and remediation during construction.



Airtightness – materials and workmanship

- Primary air barrier system
- Window installation
- Service penetrations

Air barrier installed in a manner that allows easy inspection and remediation during construction.



Services – materials and workmanship

- MVHR unit installation
- MVHR ductwork & silencers
- DHW
- Pipes and plumbing
- Heat sources
- Controls

Ductwork protected from site debris during installation.



Builders' work

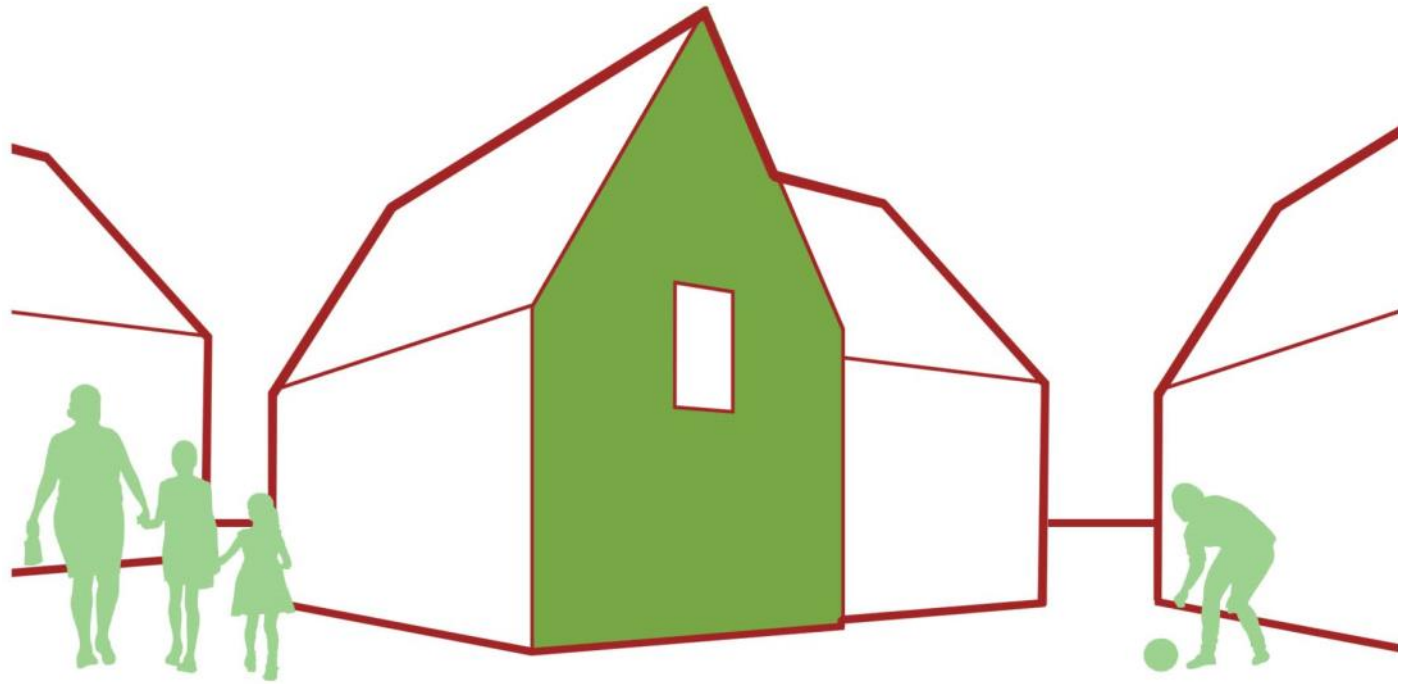
- Joinery (door over/undercuts etc)

Air transfer provision is checked against design drawings and specification.



6.0

Post Completion



Soft Landings and Post Occupancy Evaluation



This section outlines the minimum requirements to meet the Mandatory Design Goal to ‘continue to monitor a selection of completed houses to ensure the specific levels that they were designed to perform at are being achieved’. While this is a requirement for all projects, major developments are expected to utilise the full BSRIA Soft Landings Framework¹.

There is clear evidence that the actual energy performance of our new homes in the UK does not match with the design. A recent report by the Passivhaus Trust² sets out the evidence and demonstrates that the average home is likely to use around 40% more energy than predicted, with heating demand sometimes 2 to 3 times greater.

The council is committed to monitoring completed homes to better understand the performance being achieved. Findings from this important work will be used to inform future developments and future iterations of this Technical Specification.

Post Occupancy Evaluation (POE) Soft Landings (Stage 5)

POE is part of our continuous improvement process as a council and at its best can impact all the parties involved in the creation of our projects. It:

- Develops insights

- Sets and manages expectations
- Provides follow-through and feedback throughout the life cycle of a building
- Informs and learns from related projects

There is no universal approach, the POE must be tailored to suit the needs of each project.

The questions we are aiming to answer through our POE:

- How well is the building working?
- How well does it compare with its peers?
- Where can it be improved?
- What lessons can be learned?

For all projects

A post occupancy support statement will be required to demonstrate how residents and estates teams on a scheme will be supported post

construction. This will need to include detail relating to the green elements of buildings in particular and how people will be supported in using this technology, all technology requires education no matter how ‘simple’.

The following POE must be provided as a minimum:

1. **An occupant survey** (can be an online survey) – so one can tell what people think and feel about the buildings and the internal environment.
2. **An energy survey** (can be via bills)
3. **A walk-through survey** (site attendance required) – where the building is examined by experts in discussion with users.

These three techniques form the backbone of our POE.

1 - BSRIA Soft Landings Framework: <https://www.bsria.co.uk/services/design/soft-landings/>

2 - Passivhaus: the route to zero carbon, March 2019

Soft Landings and Post Occupancy Evaluation



1 - Occupant Surveys

The structured online survey will be sent out after 12 months of occupation so responses can cover occupant experiences across a full annual weather cycle. the following topics should be covered:

- Thermal comfort and ventilation (summer and winter)
- Lighting and noise
- Personal control
- Space, design and image
- Lifestyle
- Environmental issues

Note for major projects this should be a licenced BUS¹.

Following analysis of survey responses, a report will be presented to the council with a diagnosis of outcomes and recommendations for remedial action where appropriate.

2 - An Energy Survey (can be via bills)

This survey will throw light on much more than one might think: not just energy performance and greenhouse gas emissions, but specification, build quality, commissioning, control, management, maintenance, record-keeping and occupant satisfaction.

Ideally bills/ data will be collected at 6, 12, 18, 24, 30, 36 months after initial occupation, providing 3 years of data. This data should be presented back to the occupants and design team every 12 months. The occupant newsletter is a good forum to feedback this back to the occupiers.

If the evaluation highlights a significant discrepancy between design and operational performance, then recommendations should be made for further diagnosis and/or remedial work to resolve the issues and close the performance gap.

3 - A walk-through survey

An initial walk-through and semi-structured interview conducted with a selection of the new home owners shortly after occupation. During the walk-through the building is examined by experts in discussion with the occupants. Experts in this instance can be a number of professionals from the project team.

Topics from the walk-through and semi-structured interview are included here for reference:

1. House
 - ⇒ The handover process/ user manuals
 - ⇒ Flexibility and use of space
 - ⇒ Comfort and control
 - ⇒ Lighting and noise
2. Heating and Ventilation
 - ⇒ Understanding
 - ⇒ Use
 - ⇒ Maintenance
 - ⇒ Comfort and control

1 - The BUS (Buildings in Use Surveys) methodology was developed by the Usable Buildings Trust and is owned by Arup. It is available for other firms to use under licence www.busmethodology.org.uk

Soft Landings and Post Occupancy Evaluation



Additional Soft Landings (Stage 5) requirements for all major developments

Defined as ten or more dwellings or a site area of 0.5 hectares or more, the **BSRIA Soft Landings Framework** should be utilised to provide support from the design stage through to the post occupancy stage.

This will require the development and implementation of a Soft Landings Plan and subsequent reporting through the provision of Soft Landings Reports.

Feedback to residents must be incorporated into the Soft Landings Plan. As a minimum this should include a residents bi-annual newsletter. This must be provided to the council for us to distribute to residents. The newsletter can be used to:

- Request energy bills
- Include seasonal tips for getting the most out of the homes
- Include MVHR filter change reminders, where this is not carried out by the council
- Provide information on renewables or other technologies in the homes
- Provide performance updates

Enhanced Monitoring for Major Developments

In the buildings sector, data enables decision-making. Organisations that measure and manage their energy use are more likely to implement energy efficiency improvements. Good data on domestic building energy use enables owners to compare themselves to their neighbours and enables the delivery team and developers to learn about the energy efficiency of their buildings.

There are two key areas where major developments are required to incorporate monitoring, these are:

1. Energy in kWh/m².year broken down into space heating, hot water and total energy use (and by energy source if this varies)
2. Health through indoor air quality monitoring of: Temperature, Relative Humidity (RH), Carbon Dioxide levels (CO₂)

In addition, where possible water use should be monitored.

If renewable and/ or low carbon technologies are designed the performance of these must be monitored.

To demonstrate compliance implementation of a Post Construction Monitoring and Evaluation

Framework should be submitted to the council, setting out which key performance indicators will be monitored and the mechanics of how this monitoring will be undertaken.

Monitoring reports to be submitted for discussion and review following a year's post occupation monitoring. Monitoring may continue for up to 3 years Post Completion, to be agreed with the council pending the outcome of the first year of post occupation monitoring.

Handover Requirements



This section looks at the processes and protocols required to ensure a smooth handover of homes, setting them up to achieve their optimum performance

Pre-handover Stage (Soft Landings Stage 3)

The main purpose of the pre-handover stage is to help to ensure that by the time the homes are handed over they are not just physically complete, but ready for operation.

A building readiness sub-programme therefore needs to be developed in good time, and well ahead of the start of commissioning work. Activities by the design and building team must also include static commissioning (such as inspections of airtightness details and envelope pressure tests).

Commissioning of building services needs extending to include, for example, MVHR, metering installations and effective user interfaces. Great care needs to be given to demonstration, training and documentation.

The contractor is expected to manage the **building readiness programme**. This needs to be prepared well in advance of any of the residents moving in.

Site completion and commissioning activities need to be coordinated, guides written, and other records finalised. This should include the setting-up of energy meters and the verification of data recorded by any energy monitoring software, where included.

Handover and Initial Aftercare Stage (Soft Landings Stage 4)

The contractor is responsible for providing a programme for anticipated property handovers. Written notice is to be forwarded to the Council at least eight weeks in advance of any forthcoming handovers (12 weeks in respect of very sheltered housing schemes). The Council lets most of its properties a week or less after handover or shortly after. Any alteration to the handover schedule must be informed at least four weeks prior to the expected handover date.

Handover meetings will be held on site and must be attended by the Development Agent, consultant,

contractor, representatives from The Council's Development and Housing Management Departments and representatives from the BDC/MSDC Property Services Team. At this meeting instruction on the operation of the heating system, other appliances and any ongoing servicing requirements will be demonstrated by the contractor.

The contractor should allow for potential residents to view their properties prior to handover. If access to all properties is not available then at least one of each property type should be available for viewing. It is expected that viewings would be at least one month prior to handover.

The properties viewed will remain in the possession of the contractor throughout the viewing period. The contractor will ensure that the company's insurances fully cover visitors to the site.

Prior to handover the Council and its Development

Handover Requirements



Agent will require an extremely high standard of finish and expect that:

- All work and services have been completed and access provided.
- All windows, external door, internal doors, cupboard and drawers should open and close satisfactorily.
- All locks, handles and catches should operate easily and all necessary keys should be supplied.
- Sanitary fittings and glass are free from damage and manufacturer's labels and have been thoroughly cleaned.
- Splashes of mortar, paint and the like have been removed from internal and external surfaces.
- Floors have been cleaned and are suitable to accept floor coverings.

- Rubbish and debris have been removed from the property and all communal areas.
- The property should be thoroughly cleaned to The Council's satisfaction including a 'sparkle' clean so the property is ready for a tenant to move straight in.

Building User Guidance

In addition the operating instructions set out in the subsequent section, contractors are required to provide specific User Guidance, appropriate for the design.

Information should be presented to be as engaging as possible. By using visual material, and clear succinct text, information can be presented in a way that is accessible and appropriate for the intended audience.

User Guide Contents

- **Introduction** – this should be brief and cover what is different about this house and how to live in / use / manage this home.
- **How to Look After your Home** - description of how this building is designed to work, key systems, what maintenance is required
- **What to do if...?** - FAQ type section describing what to check and what to do if it's a bit cool, or too warm, or stuffy etc.
- **How to fix things** - details of what to do and/ or who to contact if things aren't working (e.g. changing the MVHR filters)

Handover Requirements



Posters should be provided to supplement the User Guide to cover any other 'unusual' features in the home. Posters must be provided laminated or printed on plastic board and mounted inside of the cupboard containing the technology/ feature being explained, where this is not possible it should be mounted inside the main storage cupboard. Some poster content examples are provided below.

Key information for the MVHR Poster:

- Contact numbers for faults, general queries, filter changes
- Summary of basic operation
- Diagram for filter changes

Key information for a Passivhaus Poster:

- Summary of:
 - ⇒ what a Passivhaus is
 - ⇒ blind controls
 - ⇒ below internal door ventilation
- Heating System with images (boiler/ ASHP. HWC, control panel, electric shower)
- Ventilation with images (fresh air vent, extract air vent, control panel, MVHR unit, windows, future provision of services)
- Airtightness summary and wall diagram explaining wall fixings

Warranties and Guarantees



All works are to be designed and executed in accordance with the requirements of the designated warranty provider (designated by the Council and its representatives), Building Regulations, and the Construction Design & Management Regulations 2015 as in force at the date of commencement of contract.

A building guarantee, will be provided including contractor's insolvency cover and 12 years structural defect insurance, professional fees and ancillary costs.

All registration and insurance fees are the responsibility of the contractor and must be in place prior to the certification of the first valuation. Evidence will be required.

All consultants' and contractor's appointments will be executed under a deed and will be required to carry Professional Indemnity Insurance as follows: -

Scheme Value	Cover Required
Under £800,000	£1m
£800,001 - £1,800,000	£2m
£1,800,001 - £2,800,000	£3m
£2,800,001 - £3,800,000	£4m
£3,800,001 - £4,800,000	£5m
£4,800,001 - £5,800,000	£6m

Collateral Warranty will be required for any design function carried out by the contractor or their sub-contractors. The Council accepts un-amended forms of the JCT or CIC suite of warranty documents and will be executed as a deed. All warranties (Architect, Engineers, Contractor, Sub-Contractor etc.) will be required to be in place before consultants' fees will be paid. The Council reserves the right to withhold any amounts due to the contractor in respect of the works to be undertaken by the relevant consultant, sub-contractor, etc. where said Collateral Warranty is

outstanding. Collateral Warranties will be signed and in place prior to handover.

The Employer's Agent will be responsible for checking that requirements, such as insurances, warranties, performance bond, etc. are provided as stated in the Contract Documents; and will highlight to The Council any payment request inclusive of consultant, sub-contractor, etc. work where said Collateral warranty is outstanding.

Contractors will be required to carry Public Liability Insurance cover of £10,000,000, unless stated otherwise in the Employer's Requirements.

Once the New Homes Ombudsman is operational, all developers will be required to be registered under this scheme. At the time of writing the date for this new role, as set out in the Building Safety Bill is unknown.



Contract Defect and Rectification Procedures (page 1 of 3)

At least two weeks prior to handover the developer/contractor will provide the Council with a 24-hour emergency telephone number for emergency defects. If the developer/contractor fails to respond within the required time The Council will carry out the repair and re-charge the developer/contractor or deduct the cost from the retention held.

The Council's response times for day to day repair and maintenance matters are to be included as a contract requirement, and will include the payment of compensation by contractors where they fail to perform to the required standards, or the deduction of retention should the defect have to be rectified by an alternative contractor.

The Council's requirements in respect of this matter are as right.

Priorities
E (emergency) - 24 hours (including 1 day RIGHT TO REPAIR)
U – 3 day RIGHT TO REPAIR
1 (urgent) - 5 working days (including 7 day RIGHT TO REPAIR)
2 (routine) – 20 days
12 (other) – 60 days

Rectification of Defects – Right to Repair

The prescribed periods are detailed as follows:-

Defect	Prescribed period (in working days)
Total loss of electric power.	1
Partial loss of electric power.	3
Unsafe power or lighting socket, or electrical fitting.	1
Total loss of water supply.	1
Partial loss of water supply.	3
Total or partial loss of gas supply.	1
Total or partial loss of space or water heating between 31 October and 1 May.	1
Total or partial loss of space or water heating between 30 April and 1 November.	3
Blocked or leading foul drain, soil stack, or (where there is no other working toilet in the dwelling house) toilet pan.	1
Blocked sink, bath or basin.	3
Tap which cannot be turned.	3
Leaking from water or heating pipe, tank or cistern.	1
Mechanical extractor fan in internal kitchen or bathroom not working.	5

Contract Defect and Rectification Procedures (page 2 of 3)

The Council's and/or its Development Agent and the contractor will record all meter readings on the day of handover and send copies to The Council. Payment of services used prior to handover and informing the services provider of the change of occupier will be the responsibility of the contractor.

All services are to be left connected for the in-going resident but turned off at the mains. During the winter months, however, heating systems are to be left on tick-over in all properties to prevent freezing up.

The Council will not accept handovers in the last two full weeks of December prior to Christmas or until the Friday of the first full week in January.

All de-snagging should be completed by the day prior to handover and contractor's compound and equipment should be removed.

Three sets of keys are to be provided for collection prior to handover. All keys are to be properly labelled with the postal number of the property. In addition, all window, meter box and radiator bleed keys should be left in the kitchen drawer or as agreed with The Council and/or its Development Agent.

All operating instructions for the heating system, together with information packs from the water authority, electricity, gas and oil to be provided for incoming residents, must be given to The Council. Full copies of all instruction documents should be provided in the Health and Safety file and handed to The Council upon handover. The contractor will arrange a demonstration of the heating system and other technologies.

It must be ensured that any system full commissioning procedures are carried out including flushing out the system and balancing as required. As well as providing the instruction manual, a full system description manual in bound copy format showing workings, names and makes of principal components should be provided to The Council.

Prior to handover and again at the end of the defects period, a test must be made of the distribution pipework to check for water loss.

All appropriate test certificates must be provided to the Council the day before handover. Failure to produce these may result in the handover being refused and the contractor being charged for any temporary accommodation required by incoming

tenants.

On completion of the works, the lead consultant/contractor shall provide the information listed in Appendix 2 at practical completion or before to enable The Council to meet its funding conditions, maintain its properties in the future and ensure that its Quality Assurance procedures are maintained.

Should any of the contractor's requirements not be met, The Council reserves the right to refuse handover in accordance with the JCT contract. If handover is refused, the contractor may be liable for reasonable costs incurred by residents unable to take occupation of the property on the notified date.

Defects Period

At the end of the defects period, the contractor and lead consultant should arrange for all properties to be inspected. The Council will expect to be represented at the inspection and agree the final defects list.

All works identified during the defects inspection

Contract Defect and Rectification Procedures (page 3 of 3)

should be completed within an agreed timescale reasonable to the level and type of defects to be rectified. If the contractor fails to complete these works within the agreed time period, The Council or its Development Agent will agree one further date and if the works remain outstanding beyond this new date, The Council will undertake such works and deduct the cost from the retention monies held.

7.0

Appendices



Appendix 1

Design Guide

Housing Design Guide

May 2022





This document has been prepared by multidisciplinary design practice Hamson Barron Smith on behalf of, and in close collaboration with, Babergh and Mid Suffolk District Councils and is designed to work alongside existing council policies.

This document is due for review 2024

"Places affect us all - they are where we live, work and spend our leisure time.

Well-designed places influence the quality of our experience as we spend time in them and move around them.

We enjoy them, as occupants or users but also as passers-by and visitors. **They can lift our spirits by making us feel at home, giving us a buzz of excitement or creating a sense of delight.**

They have been shown to affect our health and well-being, our feelings of safety, security, inclusion and belonging, and our sense of community cohesion."

National Design Guide; Open Government Licence



Introduction

Our Councils are committed to delivering a housing pipeline to benefit the residents of Babergh and Mid Suffolk. We recognise the important role that the Council play in defining emerging housing quality, design and sustainability to provide a positive legacy for the places in which we reach, together with the environment and standard of living for residents.

This Housing Design Guide sets out a clear and ambitious design framework which captures characteristics in design that we will aim to adopt generally in our projects, and further aspirational objectives that we hope to incorporate where suitable, viable and beneficial.

This Housing Design Guide reflects the high-level design outcomes we aspire to and shall be used to redefine the Councils developments in the future. The Guide is to be read in conjunction with the Technical Specification.

The Housing Design Guide and Technical Specification respond to industry movement in design standards, residents expectations and the recently declared Climate Emergency.

This Design Guide is established around four key design topics, referencing the National Design Guide Characteristics:

- Context and Identity
- Movement, Nature and Public Spaces
- Homes and Buildings (Including the Build Form and Uses)
- Towards Zero Carbon (Resources and Lifespan)

Introduction

Context and Identity

Context and Identity looks at how our work can enhance the existing surroundings with attractive and distinctive developments. This relates to the holistic design character of the development. It explores aspirational objectives and common themes that we will actively look to incorporate.

Movement, Nature and Public Spaces

Movement, nature and public spaces covers specific principles relating to these topics. It looks at ways we can enhance accessibility and ease of movement around our developments. The ways in which we can both enhance and optimise the role of nature in our built environment. And the ways we will champion a safe, social and inclusive public realm.

Homes and Buildings (Including the Build Form and Uses)

Homes and Buildings looks at principles we will incorporate to develop a coherent pattern of development, which is both mixed and integrated. It sets goals to ensure our buildings will be functional, healthy and sustainable.

Towards Zero Carbon (Resources and Lifespan)

In 2019 all Suffolk Local Authority members declared a 'climate emergency'. As part of this, the Suffolk Climate Change Partnership, SCCP, will work together with partners across the county and region towards the aspiration of making the county of Suffolk carbon neutral by 2030. This section sets positive and ambitious goals for meeting this pledge, delivering efficient and resilient developments made to last.



All Developments

Innovation is encouraged across all scales of development, with Design teams encouraged to meet as many 'we aspire to' statements as practical in addition to all of the 'mandatory' statements. With additional requirements for major developments as outlined below.

The approach taken will vary dependent on the nature, scale, location and context of each proposal. The 'we aspire to' statements are included to inspire innovation and the pursuit of higher standards by providing examples of how the councils development objectives can be addressed. These approaches are all underpinned by industry best practice.

Major Developments

Classification

Major developments are defined as ten or more dwellings or a site area of 0.5 hectares or more.

Additional Requirements

At least **one 'we aspire to' statement** must be met under each of the following topic headings:

- Movement, Nature and Public Spaces
- Homes and Buildings (including Built Form and Uses)

And at least **two 'we aspire to' statements** must be met under:

- Towards Zero Carbon (Resources and Lifespan)

Design teams will be expected to outline their approach to meeting the selected aspirational goals and how these will be monitored to ensure success and to inform future council projects and iterations of the Design Guide.



Context and Identity

We will...

- Consider not just the past but also the future ways we will live and interact within our communities for the 21st Century.
- Design our new homes so they are visually attractive and delight their occupants and other users.
- Create neighbourhoods that have a positive influence to their surrounding context.
- Design our new homes to enhance and compliment the surrounding context.
- Develop neighbourhoods through public engagement that provides a cohesive environment (extending beyond the built form) that everyone can identify with.
- Design homes that create character and identity in form and build.





Movement, Nature and Public Spaces

We will...

- Promote walking and cycling that connects to local community facilities.
- Design public spaces that feel safe, secure and attractive for all to use and enjoy.
- Detail all external fixings and street furniture to be robust and hard-wearing to minimise ongoing maintenance and repairs.
- Incorporate home zones within our neighbourhoods to promote fully inclusive environments that are focused on the pedestrian and the aging populations.
- Integrate and enhance existing natural environments to enrich the sense of place to the local community.
- Provide a calculated net gain for biodiversity on all our developments

We aspire to...

- Provide a range of good quality outdoor spaces that will encourage a wide variety of activities, well-being and interaction, social and civic inclusion.
- Use permeable surfaces and sustainable urban drainage to reduce and manage water run-off. Create green corridors throughout new neighbourhoods to encourage areas of play, food production and recreation.
- Prioritise areas of nature within new developments to address climate change mitigation and resilience.
- Provide external areas that range from public parks to shared spaces and private gardens.
- Provide opportunities for food growing on all our developments





Homes and Buildings (Including the Built Form and Uses)

We will...

- Take account of the demographic profile and specific needs of our occupants.
- Design our homes to respond to the ageing population and ensure high levels of accessibility and adaptability are incorporated throughout all new developments.
- Provide housing to good design quality with high levels of naturally daylight that connects with its private external environment, to promote health and well-being to its occupants.
- Design our homes to be practical and last for generations with a minimum design life of 60 years.
- We will promote recycling through well designed and integrated storage areas which facilitate ease of use and collection.
- Design a variety of housing types that are tenure blind and socially inclusive, affordable housing will not be visually distinguishable from market housing in terms of build quality, materials, details or levels of amenity space or privacy.
- Provide homes and developments where people feel safe and secure.

We aspire to...

- Create areas of new sustainable development that are accessible to local public transport, services and facilities.
- Design comfortable housing that exceeds the minimum National Space Standards.
- Provide dedicated Working From Home, WFH, space in all of our new homes.





Towards Zero Carbon (Resources and Lifespan)

We will...

- Adopt a fabric first approach for all new buildings to reduce the need for energy consumption reducing fuel poverty, make best use of the efficient renewable energy creating homes that are 'zero-carbon ready'.
- Select building materials considering their carbon footprint, whole life cost and ease of repair and maintenance.
- Provide sustainable features that are utilised and can be operated with ease by the occupants.
- Continue to monitor a selection of completed houses to ensure the specific levels that they were designed to perform at are being achieved.
- Work with the Suffolk Climate Change Partnership, SCCP, and our partners across the county and region towards the aspiration of making the county of Suffolk carbon neutral by 2030.
- Reduce water use within homes through carefully specified fittings and water butts.
- Create a legacy of buildings where communities establish a sense of ownership and belonging.
- Plan for long term stewardship by all stakeholders for buildings that can adapt to the changing needs of the occupants and evolving technologies.
- Use Space Heating Demand as the primary metric to drive improvements in energy efficiency.
- Install the most appropriate renewable energy resources and consider renewable energy supplies.





We will...

- Meet the requirements of the Building Regulations Part L 2022, developments must achieve a reasonable reduction in carbon emissions of at least 31% measured against the 2016 amendments to Building Regulations Part L
- Provide an electrical car charging point to all new in-curtilage car parking areas.
- Out of curtilage parking will include the installation of infrastructure for EV charging

We aspire to...

- Meet Zero Carbon targets in all our future new homes.
- Reduce water use within homes through grey water recycling.
- Meet the Passivhaus Standard or equivalent.
- Provide all our new homes with filtered fresh air with heat recovery (MVHR)

Appendix 2

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Appendix 3

List of Abbreviations

ACH@50Pa - Air Changes per Hour at 50 Pascals

ASHP - Air source heat pumps

BMSDC - Babergh and Mid Suffolk District Councils

CHP - Combined Heat and Power

D&B - Design and Build

D&QT - Design and Quality Team

EDPM - ethylene propylene diene monomer

ER's - Employer's Requirements

GSHP - Ground source heat pumps

HBS—Hamson Barron Smith

JV - Joint Venture

LED - Light Emitting Diode

LETI - London Energy Transformation Initiative

M&E - Mechanical and Electrical

MMC—Modern Methods of Construction

MVHR - Mechanical Ventilation with Heat Recovery

NHBC - National House Building Council

NDSS - Nationally Described Space Standard

PHPP - Passivhaus Planning Package

PVC-U - Poly Vinyl Chloride, un-plasticised

SAP - Standard Assessment Procedure

SCCP - Suffolk Climate Change Partnership,

SuDS - Sustainable Drainage Systems

SVP - Soil vent pipe

TRVs - Thermostatic Radiator Valves

VOC - Volatile Organic Compound

WFH - Working From Home