

Plan Compliant Housing

June 2007



build with ease



celcon

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Aircrete /aerkri:t/ noun., adj.

1. autoclaved, aerated concrete (AAC) 2. (cel)lular (con)crete (CELCON). One of the lightest forms of concrete with structural, thermal, sound, fire and freeze/thaw properties, extensively used in Europe where known as 'gasbeton'. Used in the UK since the 1950s; today known as 'aircrete'. Comprises pulverised fuel ash (PFA), sand, cement, aluminium powder, lime and water. Used as blocks in a range of thicknesses and face formats for internal and external walls above and below dpc and as infill in beam and block floors; used as a material for reinforced floor elements.



Introduction

With demand for affordable housing in the UK so high and a key element of many housing developments, H+H UK in conjunction with calfordseaden have produced a range of standard house types to Housing Corporation Plan Compliant requirements.



calfordseaden
construction & property consultants



Constructed using H+H UK's Rå House method, a weathertight masonry shell is built using one of our local and fully trained Recommended Contractors. The blockwork is built using H+H UK's Thin-Joint system, a recognised Modern Method of Construction (MMC), intermediate floors constructed from either cassette or engineered I-Joists, finished with roof trusses, felt and fly battens to offer a weathertight working environment.

This build method offers the registered social landlord (RSL) a robust construction that can meet or surpass all the current Building Regulations (structure, fire, thermal and acoustic) whilst matching the speed of build offered by framed construction.

For further information relating to the approved Standard House Types and their Housing Quality Indicators (HQI) please visit www.hhcelcon.co.uk





Rå House

Rå House is a brand new approach to masonry housebuilding. Utilising a Recommended Contractor with their teams of expert multi-skilled operatives, they quickly and efficiently build a weathertight masonry shell. Making use of some of the most innovative building materials a Rå House combines H+H UK's Thin-Joint system with other advanced materials such as:

- Engineered I-joist or cassette intermediate floors
- Roof trusses, felt and batten
- Celcon Foundation blocks – optional
- Celcon Flooring System (ground floors) – optional

The construction utilises local contractors whose understanding of the products and build process reduces waste of both time and materials on-site, whilst offering a quality finished build.

Rå House components have excellent sustainability credentials and are supplied by companies who are committed to minimising the impact of their business on the environment.





Rå House – the components



Celcon Aircrete

Leading the field in research and development, we have helped transform Celcon aircrete into the versatile building material of today. Our products include building blocks in Standard, Solar and Hi-Strength grades, as well as innovative building systems such as the Thin-Joint and Celcon Flooring Systems (CFS) as well as Rå House.

Celcon aircrete itself can be used to build the structure of a house and is designed to meet our own exacting quality standards (our factories are ISO 9001 and ISO 14001 compliant) as well as the Building Regulations for foundations, floors and walls.

Celcon aircrete blocks are load bearing yet lightweight to ensure a fast construction. Versatile to suit innovative, eco-friendly design and yet reduce wastage on-site. They also provide excellent thermal and sound insulation and are tough enough to resist fire, frost, water and sulfates.

Celcon aircrete is manufactured using up to 80% recycled materials, with most production waste recycled back into the process. Once built, aircrete constructions require minimal or no maintenance. When the building has reached the end of its required life, the aircrete elements can be recycled as aggregates for new constructions.

It is lightweight to transport and offers beneficial thermal mass and excellent thermal insulation, thus helping to reduce the energy consumption of buildings and can achieve a A+ rating in the new Green Guide to Housing Specification.

Combined with a dedicated personal service, comprehensive technical support and free UK delivery, our products fulfil all the requirements of modern innovative construction.

Celcon Flooring System (optional extra)

The Celcon Flooring System is produced using the latest aircrete manufacturing technology, and offers all the benefits of a suspended floor with all the attributes of Celcon aircrete.

Unstressed, reinforced elements are cut to length at our factory and, together with Floor Edge Units, provide a robust and very flat floor which is quickly installed on site.

The Celcon Flooring System is manufactured from aircrete, so excellent thermal performance is obtained, often meeting Part L of the Building Regulations without the need for additional insulation. Foundation blocks will further enhance this benefit.

Once grouted, the Celcon Flooring System forms a secure, level platform that may be loaded out and built off immediately. A variety of finishes can be applied, including traditional and 5-10mm self-levelling screed.

The Celcon Flooring System is approved by the BBA and recognised by the NHBC.



Rå House – the components continued

H+H UK's Thin-Joint System

H+H UK's Thin-Joint System is an on-site construction method that can match the speed of framed construction without the lead-time. The Celcon Thin-Joint System combines the Celcon Plus block range of high quality accurately dimensioned aircrete blocks with Celfix, a specially developed pre-mixed and bagged thin layer mortar.

As a classified Modern Method of Construction (MMC), this well established NHBC approved system utilises the fast setting Celfix mortar. With an initial setting time of around 15 minutes, storey height panels can be achieved in one lift and structurally loaded within 1-2 hours. Therefore a building can be constructed faster and to a better quality, with follow-on trades starting work sooner in a weatherproof environment.

The H+H UK's Thin-Joint System enhances the benefits of Celcon aircrete, particularly thermal and acoustic insulation as well as excellent air tightness. It also has a Local Authority Building Control type approval certification.

The system can be used for the construction of:

- Cavity walls (internal and external leaf)
- Solid walls
- Partition walls
- Separating walls
- Flanking walls

Intermediate Floor Solutions

The Rå House plan compliant first floors are designed in conjunction with iLevel™ Trus Joist® TJI® joists which have uniform, consistent moisture content and do not split, bow or twist. The result is a predictable, repeatable and long lasting floor performance that meets all the relevant standards and Building Regulations, including the latest requirements of Part E.

TJI® joists use continuous Microllam® laminated veneer lumber (LVL) flanges, routed to accommodate the Performance Plus™ OSB centre web. Both the Microllam® LVL flanges and the Performance Plus™ OSB web material are brought together in a continuous, high-speed process, using a waterproof adhesive under heat and pressure to form a structurally efficient, dimensionally stable I-section.

All iLevel™ Trus Joist® TJI® joists are certified by the Sustainable Forestry Initiative (SFI) with full Chain of Custody (CoC) processes in place. The SFI Certification scheme is fully recognised by the Programme for the Endorsement of Forest Certification schemes (PEFC).

Floor Cassettes

iLevel™ Trus Joist® TJI® joists are at least half the weight of traditional floor solutions helping to reduce the size of foundations. They are also installed in a fraction of the time. Available in long lengths, they speed up installation and increase floor rigidity by eliminating laps over beams and walls leading to a design using floor cassettes.

The iLevel™ floor system is proven to be cost effective and, on a fully installed basis, is highly competitive. The use of pre-manufactured floor cassettes have been designed into these 'build compliant' houses from the start to allow quick and simple installation of the intermediate floor. This complements the process of continuous build seen when using the H+H UK Thin-Joint solution in the Rå house build process.

iLevel™ floor and roof solutions are supplied with a complete service and support package, from first design conception through on site installation, to after sales customer satisfaction. This total service is supplied through iLevel™ Trus Joist®.



www.ilevel.eu





about calfordseaden

calfordseaden is a multi-disciplined construction and property consultancy working across the private and public sectors in the UK housing, building and construction industries.

As a multi-disciplinary Practice we provide a comprehensive range of services comprising chartered surveying, project management, architecture and master planning, civil and structural engineering, mechanical and electrical engineering and health and safety advice.

Innovation in Construction

calfordseaden have pioneered the use of modern methods of construction since the early 1990s. Over this period of time we have made considerable investments in the research and development of such methods, and have been involved in a number of significant initiatives including:

- Designing and developing Housing Corporation approved and accredited standard dwelling templates, for both manufacturers and registered social landlords;
- Appointed by English Partnerships as Cost Consultant and Competition Co-ordinator for the 'Building The £60,000 House – Design for Manufacture Competition';
- Being extensively involved in SMARTLife, which involves the construction of 100 affordable houses, developed through three different forms of construction. We are monitoring the three methods of construction and their service installations through to and beyond when residents take occupation of their new homes. The stakeholders involved in this innovative research project include Home Group, BRE, English Partnerships, The Housing Corporation, Cambridgeshire County Council and Fenland District Council.
- Helping a consortium of Housing Associations win the Housing Corporation's Gold Award for Innovation in Procurement by producing a template range of large panel timber frame houses and flats.
- Being commissioned by clients to report on market conditions pertaining to the use of modern methods of construction throughout the UK;
- Evolving partnering arrangements and developing relationships with other manufacturers and suppliers making a specific commitment to advanced housing system manufacture and MMC, both from indigenous and overseas sources; and
- Working closely with contractors and suppliers to ensure proper training of the construction workforce, both on and off-site and appropriate quality control and performance checks for products at all stages of the manufacturing and construction process.



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www.calfordseaden.co.uk

Designed Standard House types

The drawings on the following pages have been produced in association with calfordseaden, whom have liaised with the Housing Corporation to produce the following range of approved Standard House types.

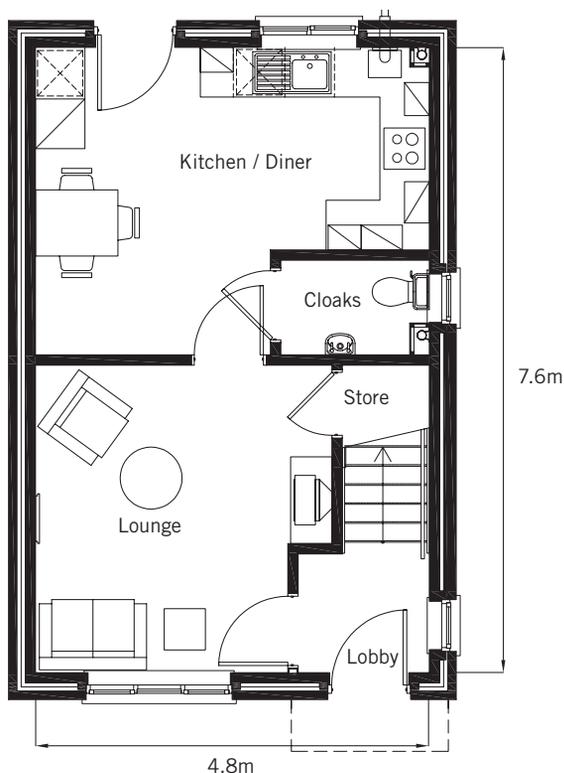
They are designed to optimise construction efficiency using the following products:

- **H+H UK's Thin-Joint System**
- **Engineered I-Joists or Cassette floors**
- **The Celcon Flooring System (optional)**
- **Celcon Foundation Blocks (optional)**

These Standard House Types offer the Registered Social Landlord (RSL) the benefit of a robust traditional build with a speed of build matching framed construction techniques, which can easily meet or surpass the requirements of the current Building Regulations.

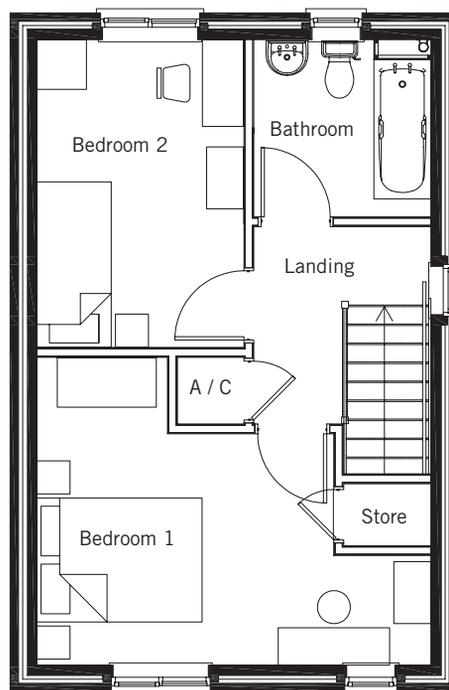
Rå House type one

2 bedroom 3 person narrow frontage – 72.24 m²



Ground Floor

Kitchen / Diner	15.2 m ²
Lounge	12.5 m ²
Cloaks	2.2 m ²



First Floor

Bedroom 1	13.1 m ²
Bedroom 2	9.3 m ²
Bathroom	4.6 m ²
Store	0.79 m ²
A / C	0.64 m ²

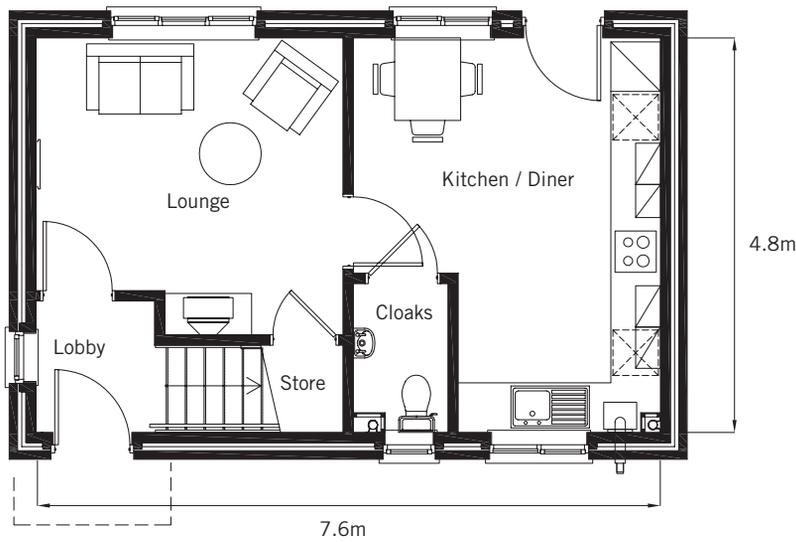
Housing Quality Indicator (HQI) SCORE

Unit Size:	60%
Unit Layout:	58%



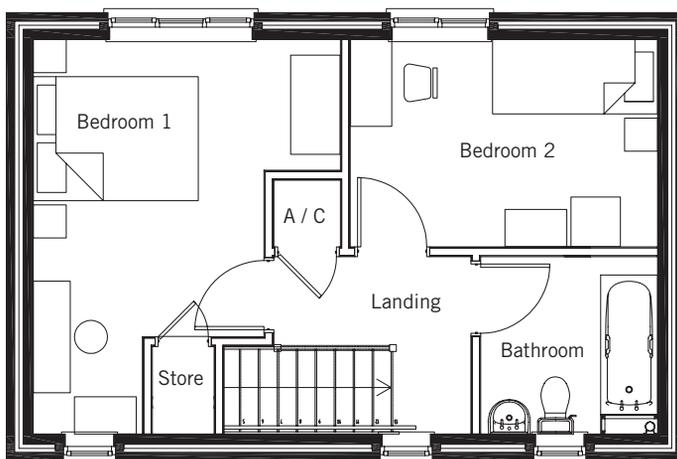
Rå House type two

2 bedroom 3 person wide frontage – 72.24 m²



Ground Floor

Kitchen / Diner	15.2 m ²
Lounge	12.5 m ²
Cloaks	2.2 m ²



First Floor

Bedroom 1	13.1 m ²
Bedroom 2	9.3 m ²
Bathroom	4.6 m ²
Store	0.79 m ²
A / C	0.64 m ²

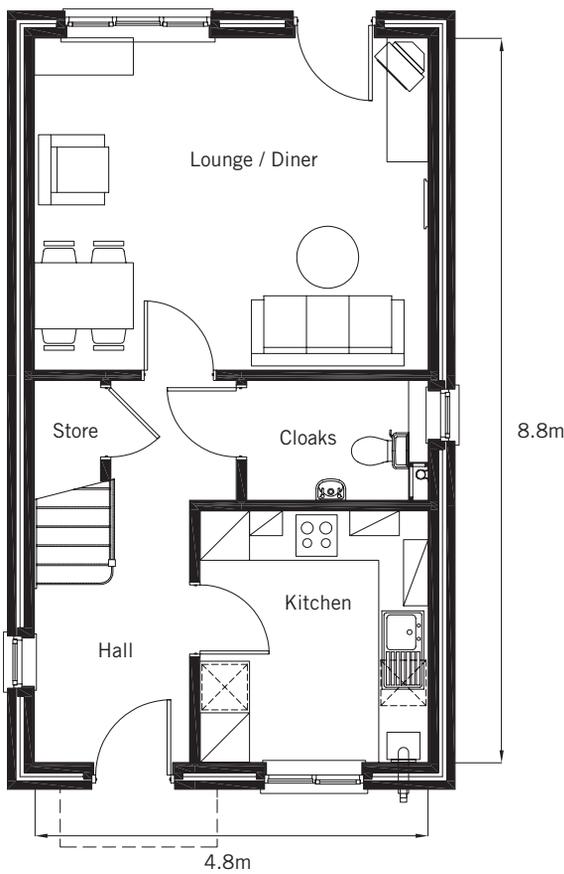


Housing Quality Indicator (HQI) SCORE

Unit Size:	60%
Unit Layout:	59%

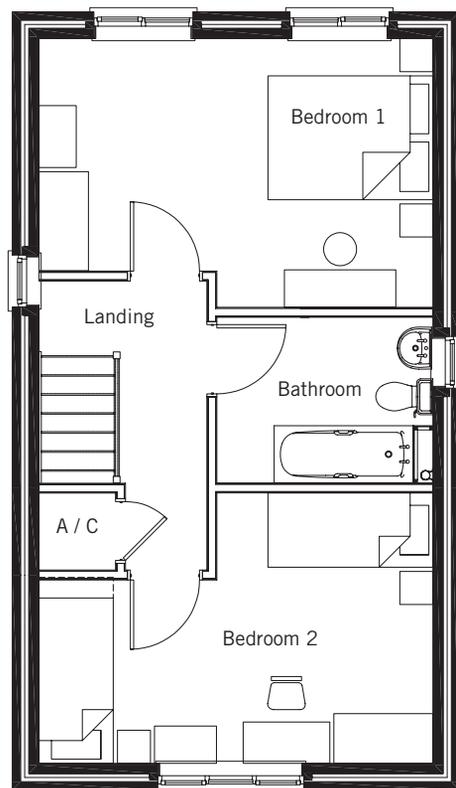
Rå House type three

2 bedroom 4 person narrow frontage – 83.73 m²



Ground Floor

Lounge / Diner	19.2 m ²
Kitchen	8.4 m ²
Cloaks	3.2 m ²



First Floor

Bedroom 1	14.6 m ²
Bedroom 2	13.3 m ²
Bathroom	5.2 m ²
A / C	0.86 m ²

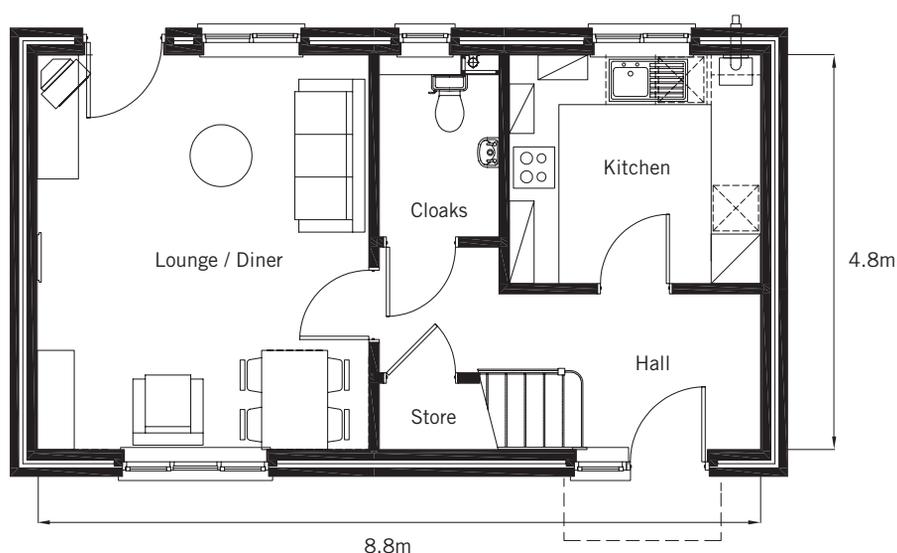
Housing Quality Indicator (HQI) SCORE

Unit Size:	79%
Unit Layout:	56%



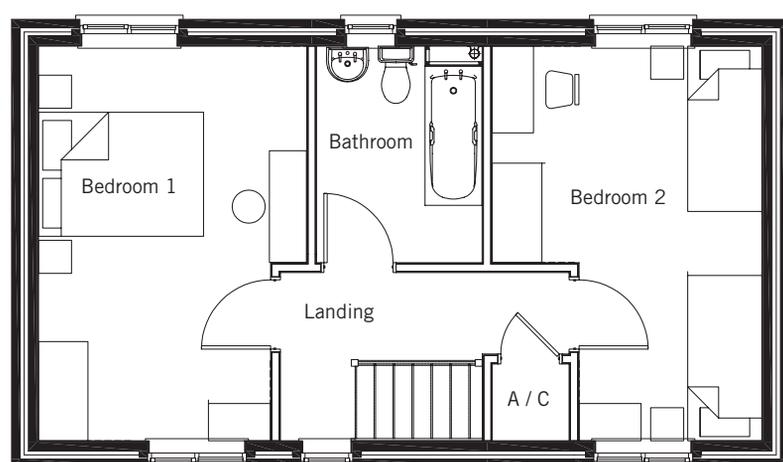
Rå House type four

2 bedroom 4 person wide frontage – 83.73 m²



Ground Floor

Lounge / Diner	19.2 m ²
Kitchen	8.4 m ²
Cloaks	3.2 m ²



First Floor

Bedroom 1	14.6 m ²
Bedroom 2	13.3 m ²
Bathroom	5.2 m ²
A / C	0.86 m ²

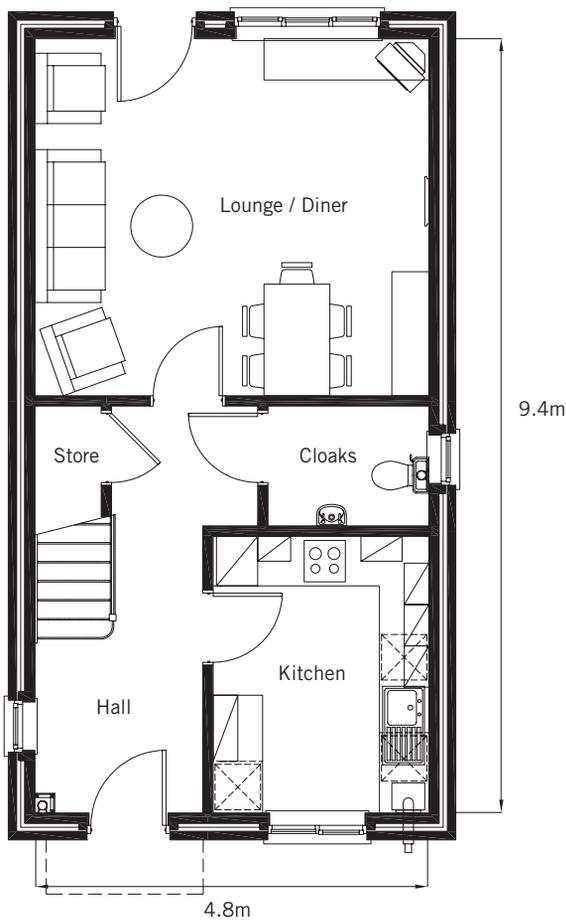


Housing Quality Indicator (HQI) SCORE

Unit Size:	79%
Unit Layout:	55%

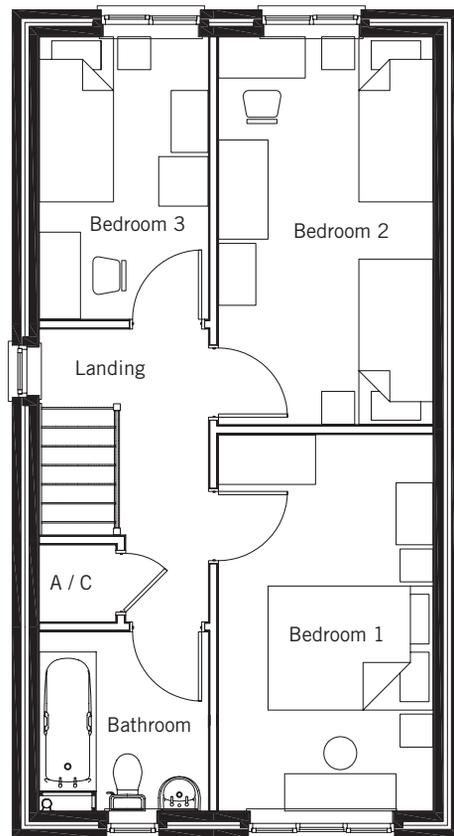
Rå House type five

3 bedroom 5 person narrow frontage – 89.46 m²



Ground Floor

Lounge / Diner	20.6 m ²
Kitchen	8.8 m ²
Cloaks	2.8 m ²



First Floor

Bedroom 1	11.8 m ²
Bedroom 2	12.2 m ²
Bedroom 3	7.0 m ²
Bathroom	4.4 m ²
A / C	0.86 m ²

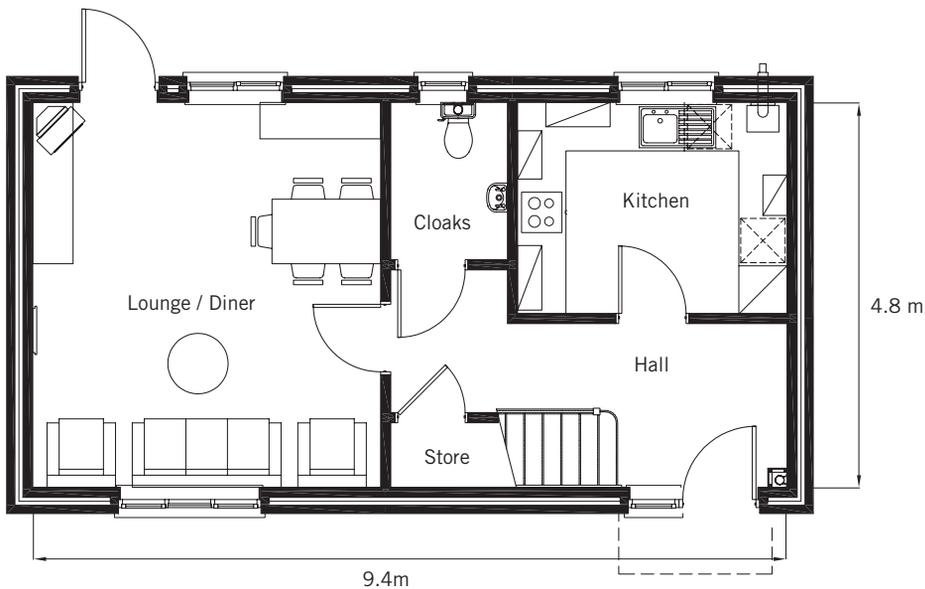
Housing Quality Indicator (HQI) SCORE

Unit Size:	60%
Unit Layout:	53%



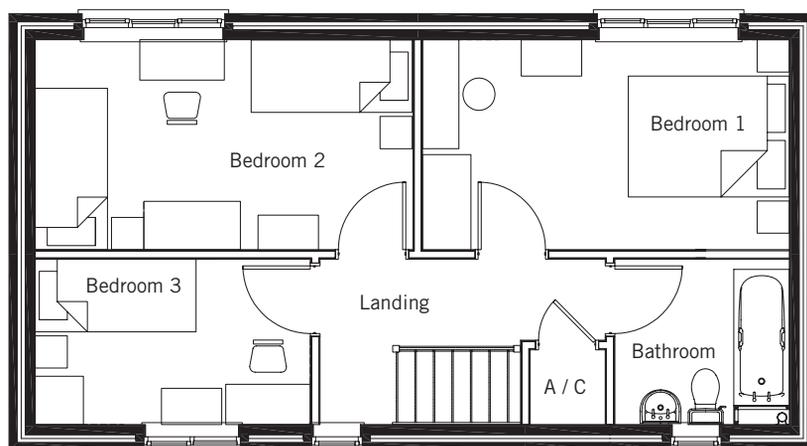
Rå House type six

3 bedroom 5 person wide frontage – 89.46 m²



Ground Floor Layout

Lounge / Diner	20.6 m ²
Kitchen	8.8 m ²
Cloaks	2.8 m ²



First Floor

Bedroom 1	11.8 m ²
Bedroom 2	12.2 m ²
Bedroom 3	7.0 m ²
Bathroom	4.4 m ²
A / C	0.86 m ²

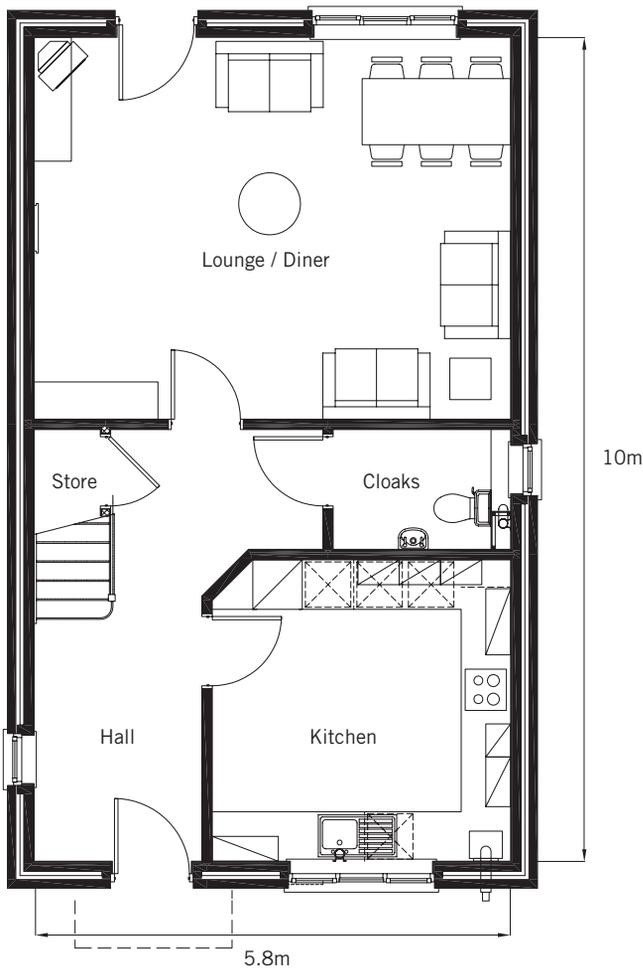


Housing Quality Indicator (HQI) SCORE

Unit Size:	60%
Unit Layout:	53%

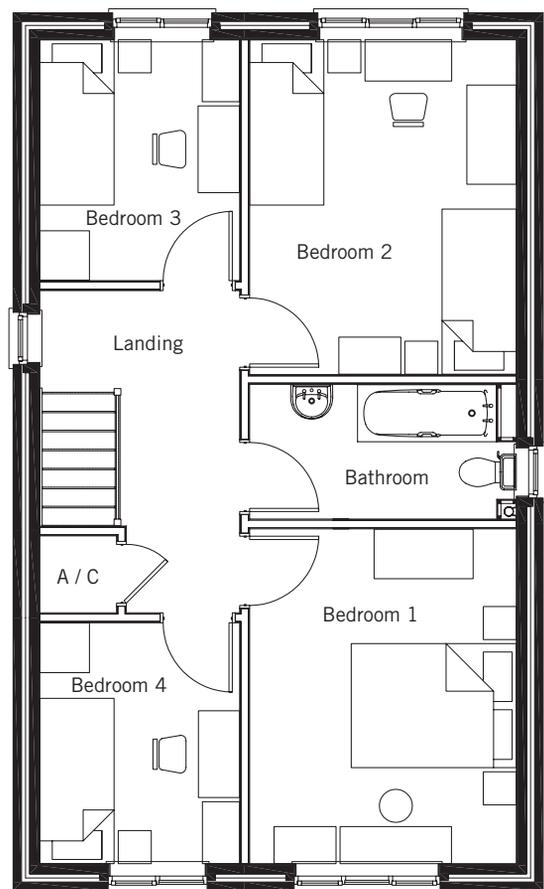
Rå House type seven

4 bedroom 6 person narrow frontage – 115.14 m²



Ground Floor

Lounge / Diner	26.7 m ²
Kitchen	13.1 m ²
Cloaks	3.1 m ²



First Floor

Bedroom 1	13.1 m ²
Bedroom 2	13.1 m ²
Bedroom 3	7.0 m ²
Bedroom 4	7.0 m ²
Bathroom	5.2 m ²
A / C	0.86 m ²

Housing Quality Indicator (HQI) SCORE

Unit Size:	79%
Unit Layout:	55%



Housing Quality Indicators

All of the H+H UK templates accommodate the Housing Corporation requirements in respect of unit size, unit layout and unit accessibility.

The Housing Quality Indicators (HQI's) system is a measurement and assessment tool designed to allow potential housing schemes to be evaluated on the basis of quality rather than simply cost, and is a fundamental measure by which the Housing Corporation determines funding for development of affordable homes.

The HQI provides an assessment of quality of the key features of a housing project in three main categories:

- Location
- Design
- External environment

These three categories produce ten Quality Indicators that make up the HQI system and, of these, four highlighted below are essential for funding assessments:

- 1 Location
- 2 Site – Visual impact, layout and landscaping
- 3 Site – Open space
- 4 Site – Routes and movement
- 5 Unit – Size**
- 6 Unit – Layout**
- 7 Unit – Noise, light, services and adaptability**
- 8 Unit – Accessibility within the unit**
- 9 Unit – Energy, Green and Sustainability Issues
- 10 Performance in Use

The two remaining key indicators have not been scored as they are determined by elements outside the control of H+H UK.

These Indicators are not a substitute for compliance with statutory requirements, such as the Building Regulations. These regulations, as well as other mandatory or recommended regulations (for example SAP, Design of Lifetime Homes, Secured by Design and BREEAM), are the basis for much of the material in the Indicators.

Other guidance of fundamental importance to the HQI system is the Scheme Development Standards (SDS) prepared by the Housing Corporation, and the important work on Standards and Quality produced by the National Housing Federation (NHF), with the support of the Joseph Rowntree Foundation.

To ensure that the HQI system can be updated as basic standards evolve and adapt over time, each Indicator is independently scored, however, an aggregate score can be calculated. Each indicator is evaluated within a range of levels and mix of ways of providing good quality, so there are many different ways of achieving a 'high' score.



For further reading see the Housing Corporation website
www.housingcorp.gov.uk



For further information regarding
H+H UK aircrete products please visit
our website

www.hhcelcon.co.uk

or contact the following departments:

Sales

For sales enquiries or to find your local
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Tel: 08705 143820

Fax: 08705 143841

Technical

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Tel: 01732 880580

Fax: 01732 880581

Email: tsd@celcon.co.uk

Marketing

For other publications advising on the
correct use of H+H Celcon products

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