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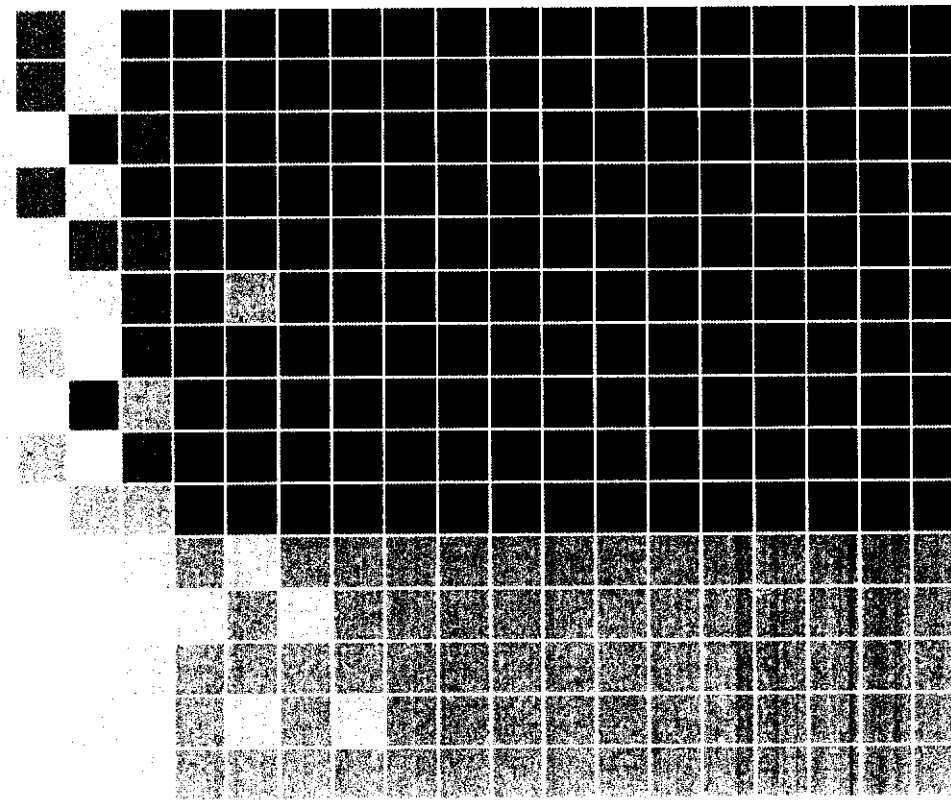

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Code for Sustainable Homes 2006 Pre-assessment
Kenyon Lane, Moston

Newbury Homes
26 November 2007

CODE FOR SUSTAINABLE HOMES 2006 PRE-ASSESSMENT

Kenyon Lane, Moston

Prepared by :-

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1.0 ASSESSMENT SUMMARY

A pre-assessment has been undertaken on the proposed residential development at Kenyon Lane, Moston using the Code for Sustainable Homes.

The Code for Sustainable Homes was launched in December 2006 with the publication of 'Code for Sustainable Homes: A step-change in sustainable home building practice' (Department for Communities and Local Government 2006). This introduced a single national standard to be used in the design and construction of new homes in England, based on the Building Research Establishment's Ecohomes scheme.

The assessment was undertaken using the Code for Sustainable Homes, Version 1.1, October 2007.

The pre-assessment identifies the 'tradable' credits which are likely to be achieved based upon the current design proposals. The development can achieve a weighted score of 53.9 'tradable' credits.

The final rating is determined by the number of 'tradable' credits achieved and the performance against the following mandatory standards which have specific performance criteria for each Code Level:-

- Percentage improvement in energy performance over Part L1A
- Calculated water consumption based on the sanitary fitting specification
- Provision of an external area of sufficient size for waste storage
- Adoption of a waste recycling plan by the contractor during construction
- Achieving a surface water run-off rate no higher than the existing site conditions

The initial SAP calculations show the overall energy performance will be 10% better than the minimum standard required by Part L1A, which is Code Level 1. All other issues will meet the minimum mandatory standards for Code Level 3.

As the mandatory standard of energy performance is no higher than Code Level 1, and more than 36 'tradable' points have been achieved the development will achieve an overall rating of **Code Level 1** as shown within Section 3.

For all of the credits which are likely to be achieved, suitable documentary evidence will need to be provided to the assessor to allow the credits to be awarded at the design and post construction stages.

An overview of the credit criteria is show in Section 4.

2.0 CREDIT SUMMARY

Ref	Issue	Credits Available	Credits Likely
Ene 1	Dwelling Emission Rate*	15	1
Ene 2	Building Fabric	2	2
Ene 3	Internal Lighting	2	2
Ene 4	Drying Space	1	1
Ene 5	Energy Labelled White Goods	2	2
Ene 6	External Lighting	2	2
Ene 6	Low and Zero Carbon Technologies	2	0
Ene 7	Cycle Storage	2	1
Ene 8	Home Office	1	1
Wat 1	Internal Potable Water*	5	3
Wat 2	External Water Use	1	0
Mat 1	Environmental Impact of Materials*	15	6
Mat 2	Responsible Sourcing – Basic Elements	6	0
Mat 3	Responsible Sourcing – Finishing Elements	3	0
Sur 1	Reduction of Surface Water Run-off*	2	0
Sur 2	Flood Risk	2	2
Was 1	Household Waste Storage and Recycling*	4	4
Was 2	Construction Site Waste Management	2	1
Was 3	Composting	1	0
Pol 1	Global Warming Potential of Insulants	1	1
Pol 2	NO_x Emissions	3	3
Hea 1	Daylighting	3	0
Hea 2	Sound Insulation	4	0
Hea 3	Private Space	1	1
Hea 4	Lifetime Homes	4	4
Man 1	Home User Guide	3	3
Man 2	Considerate Constructors Scheme	2	1
Man 3	Construction Site Impacts	2	2
Man 4	Security	2	2
Eco 1	Ecological Value of Site	1	1
Eco 2	Ecological Enhancement	1	1
Eco 3	Protection of Ecological Features	1	1
Eco 4	Change in Ecological Value of Site	4	3
Eco 5	Building Footprint	2	1

* Issue has mandatory minimum code standards

3.0 CODE RATING

The Code Rating is calculated from the credit score from each of the weighted sections of the assessment as shown below:-

	Credits Available	Credits Likely	% of Available Credits Likely	Weighting Factor	Section Points Score (Weighted)
Energy	29	12	41.4	36.4	15.1
Water	6	3	50.0	9.0	4.5
Materials	24	6	25.0	7.2	1.8
Surface Water	4	2	50.0	2.2	1.1
Waste	7	5	71.4	6.4	4.6
Pollution	4	4	100.0	2.8	2.8
Health & Wellbeing	12	5	41.7	14.0	5.8
Management	9	8	88.9	10.0	8.9
Ecology	9	7	77.8	12.0	9.3
			TOTAL		**53.9**

The initial assessment identifies the 'tradable' credits which are likely to be achieved based upon the current design proposals. The development can achieve a weighted score of 53.9 'tradable' credits.

0%	36	48	57	68	84	90
Unrated	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
'Tradable' Code Points	53.9					

The initial SAP calculations show the overall energy performance will be 10% better than the minimum standard required by Part L1A, which is Code Level 1. All other issues will meet the minimum mandatory standards for Code Level 3.

As the mandatory standard of energy performance is no higher than Code Level 1, and more than 36 'tradable' points have been achieved the development will achieve an overall rating of **Code Level 1**.

4.0 ACTION LIST

The action list below provides an overview of the Code for Sustainable Homes credit criteria, and number of credit which have been targeted for this scheme.

<table>
<tr><th>CREDIT REQUIREMENTS</th><th>Credits Likely</th></tr>
<tr><td>Ene 1 Dwelling Emission Rate

Credits are awarded based on the percentage improvement in the Dwelling Emission Rate (DER) over the Target Emission Rate (TER).

<table>
<tr><th>Mandatory Level</th><th>% improvement of DER over TER</th><th>Credits</th></tr>
<tr><td>Level 1</td><td>≥10%</td><td>1</td></tr>
<tr><td></td><td>≥14%</td><td>2</td></tr>
<tr><td>Level 2</td><td>≥18%</td><td>3</td></tr>
<tr><td></td><td>≥22%</td><td>4</td></tr>
<tr><td>Level 3</td><td>≥25%</td><td>5</td></tr>
<tr><td></td><td>≥31%</td><td>6</td></tr>
</table>

The DER figure is taken from a design stage SAP 2005 worksheet for the design stage assessment and from an 'as built' SAP 2005 worksheet at the post construction stage.

Dwellings should be assessed on an individual basis and all dwellings must show compliance with the minimum standard for the required code level (including worst case dwellings). For Code Level 3 the mandatory improvement is ≥25% better then the TER. The only exception to this being flats, where the average DER can be used for dwellings which are contained within the same building fabric providing that they are of the same energy type (i.e. utilise the same building services strategy).</td><td>1</td></tr>
<tr><td>Ene 2 Heat Loss Parameter

Credits are awarded based on the Heat Loss Parameter for each dwelling taken from the SAP 2005 calculations. One credit is awarded where the HLP is ≤1.3; two credits are awarded where the HLP is ≤1.1.</td><td>2</td></tr>
<tr><td>Ene 3 Internal Lighting

Credits are awarded for the provision of fixed dedicated energy efficient internal light fittings. Two credits are awarded where 75% of fixed internal fittings are dedicated and energy efficient. The fitting must be dedicated in that it must be capable of only accepting lamps having a luminous efficacy greater than 40 lumens per circuit Watt. The fixing must be permanently fixed to the ceiling or wall. Tubular fluorescent and compact fluorescent lighting fittings would normally meet this requirement. Lighting fittings for GLS tungsten lamps with bayonet cap or Edison screw bases, or tungsten halogen lamps would not comply.</td><td>2</td></tr>
</table>

CREDIT REQUIREMENTS	Credits Likely
Ene 4 Drying Space Credits are awarded based on the provision for drying space for each dwelling type. This space (internal or external) should be secure. <u>Flats</u> A heated space with adequate, controlled ventilation, complying with Building Regulations Approved Document F (Ventilation). Rooms that commonly meet these requirements are a bathroom or utility room. The fixing/fitting needs to be a permanent feature of the room. Internal drying spaces are not allowed in the following rooms: Living rooms, kitchens, dining rooms, main halls or bedrooms.	1
Ene 5 Energy Labelled White Goods Where the following standards are met be white goods:- • Fridges, freezers and fridge/freezers = A+ rating under the EU Energy Efficiency Labelling Scheme: • Washing machines and dishwashers = A rating • Washer dryers and tumble dryers = B rating.	2
Ene 6 External Lighting Where all external space lighting, including lighting in the common areas, is provided by dedicated energy fittings. Space Lighting is the normal lighting required to illuminate a space when in use outside the home for example in outbuildings such as garages and external spaces such as paths, patios, decks, porches, steps and verandas. Where all security light fittings are designed for energy efficiency and are adequately controlled such that all burglar security lights have either: • A maximum wattage of 150W AND, movement detecting control devices (PIR) AND daylight cut-off sensors. OR • All other security lighting has dedicated energy efficient fittings AND is fitted with daylight cut-off sensors OR timers. Both space and security lighting should be provided to allow both credits to be achieved. <u>Flats</u> For flats, fittings serving the following areas should be included in the assessment of space lighting: Communal lobbies, main external entrances, internal entrance porches, external steps and pathways. These areas should be equipped with dedicated fluorescent fittings and should be controlled by a time clock or daylight sensor. Hallways, landings, stairwells, internal corridors and garages should be equipped with dedicated fluorescent fittings that are controlled by push button time switches/PIR sensors or equivalent. Specific communal rooms (laundries, cycle and other storage spaces etc) should be equipped with dedicated fluorescent fittings and manual switching or occupant sensors.	2

CREDIT REQUIREMENTS	Credits Likely
Ene 7 Low and Zero Carbon (LZC) Technologies Where energy is supplied from local renewable or low carbon energy sources funded under the Low Carbon Building Programme (or similar), or is designed and installed in a manner endorsed by a feasibility study prepared by an independent energy specialist and there is a:- • 10% reduction in carbon emissions as a result of this method of supply (1 credit) • 15% reduction in carbon emissions as a result of this method of supply (2 credits)	0
Ene 8 Cycle Storage Where either individual or communal cycle storage is provided that is adequate, safe, secure and weather-proof for the storage of 1 cycle for 2 bedroom dwellings.	1
Ene 9 Home Office Credits are awarded on the basis of the provision of space and services that enable a room to be used effectively as a home office. This is defined as the minimum size (1.8m wall length) to allow a desk and filing cabinet or bookshelf to be installed, with space to move around and open the door (the 1.8m wall size requirement can, in some circumstances, be altered if drawings can prove that a desk can be fitted in any other type of arrangement, i.e. alcove or similar, fulfilling all the above criteria). The following services must be provided in the suitable room intended as a home office: • Two double power sockets; • Two telephone points (or double telephone point) or one telephone point where the dwelling is connected to cable or broadband is available at the address. • Window • Adequate ventilation, either through an openable window or with alternative ventilation such as passive stack, etc. For dwellings with one or two bedrooms or studio homes, a suitable room may be in the living room, one of the bedrooms or any other suitable area in the home such as a large hall or dining area.	1

CREDIT REQUIREMENTS	Credits Likely
Wat 1 Internal Potable Water Use Mandatory Requirement Credits are awarded based on the predicted average household water consumption (calculated using the Code Water Calculator) for the Dwelling type in accordance with the table below:-	3

Mandatory Level	Calculated Water Consumption (litres/person/day)	Credits
Level 1 & 2	<120	1
	<110	2
Level 3 & 4	**<105**	**3**
	<<90	4
Levels 5 & 6	<80	5

Wat 2 External Water Use To encourage the recycling of rainwater and reduce the amount of mains potable water used for external water uses. Where a correctly specified system to collect rainwater for external/internal irrigation use has been provided to a dwelling with a garden, patio or communal garden space (examples of such systems include rainwater butts and central rainwater collection systems). The specification of the rainwater collector should meet the following criteria: • No open access at the top of the collector, (a childproof lid is allowed), • Provision of a tap or other arrangement for drawing off water, • Connection to the rainwater downpipes with an automatic overflow into the conventional rainwater drainage system. • A means of detaching the rainwater downpipe and access provision to enable cleaning Size requirements for communal gardens: • 1 litre/m^2 of land allocated to the dwelling, up to a maximum of 30litres/dwelling. The allocated land can either be planted (including grass) or left as unplanted soil and can be either split into plots or communally maintained. • There is a minimum requirement of 200 litres/communal garden.	0

CREDIT REQUIREMENTS	Credits Likely
Mat 1 Environmental Impact of Materials Mandatory Requirement Where at least three of the following five key elements achieve a relevant Green Guide rating from the 2007 version of *The Green Guide* of A+ to D: • Roof – B • External Walls - A • Internal Walls – B / A • Upper and Ground Floors – C / C • Windows - C The Code for Sustainable Homes calculator tool is used to determine the number of credits (from a possible fifteen) for the above specifications. Six credits are likely to be achieved.	6
Mat 2 Responsible Sourcing of Materials – Basic Building Elements Up to six credits are awarded where it can be shown that key building elements are responsibly sourced including: - • Frame • Ground floor • Upper floors (including any loft boarding) • Roof (structure and cladding) • External walls (including external cladding) • Internal walls (including internal partitions) • Foundation/substructure • Staircase (includes the tread, rises and stringers) Responsible sourcing for timber elements is considered to be legally sourced timber with a full chain of custody in line with FSC or PEFC requirements. For other major construction elements, responsible sourcing is considered to be procurement from supplier who have an Environmental Management System (e.g. to ISO14001 or EMAS) operating covering the key processes and supply chain process.	0
Mat 3 Responsible Sourcing of Materials – Finishing Elements Up to three credits are awarded where 80% of the assessed materials in the following Finishing Elements are responsibly sourced: • Stair • Window • External & internal door • Skirting • Panelling • Furniture • Fascias • Any other significant use	0

CREDIT REQUIREMENTS	Credits Likely
Sur 1 Reduction of Surface Water Run-off from the Site	
Mandatory Requirement (all code levels) Ensure that run-off rates and annual volumes of run-off post development will be no greater than the previous conditions for the site (Mandatory requirement for Code Level 3).	
One credit is awarded where rainwater holding facilities/sustainable drainage systems (SUDs) are used to provide attenuation of water run-off to either natural watercourses or surface water drainage systems of the following:- • 50% attenuation of water run-off from hard surfaces • 50% attenuation of water run-off from roofs	0
Attenuation methods may include: holding ponds, swales, reed beds, permeable paving - in areas where local geological and hydrological conditions allow, local or centralised soakaways, run-off from roofs collected as a part of a rainwater harvesting system, run-off from roofs directed to a local soakaway or other holding facility such as tanks, ponds, swales and green roofs.	0
Sur 2 Flood Risk	
Two credits are achieved as the site is located in an area with a low annual probability of flooding, as shown by the Environment Agency Flood Maps. Low annual probability of flooding is an area where the chance of both river and sea flooding each year is <0.5% (1 in 200) or less.	2

CREDIT REQUIREMENTS	Credits Likely
Was 1 Household Waste Storage and Recycling Facilities	
Mandatory Requirement (all code levels) The space allowed for waste storage should be sized to hold the larger of the two (by volume) of the following:- • All external containers provided under the relevant Local Authority/recycling schemes. Containers should not be stacked to ensure ease of access and use • The minimum capacity of waste storage as calculated from BS 5906 (Code of Practice for Storage and On-Site Treatment of Solid Waste from Buildings, 2005) All containers must be accessible to disabled people, particularly wheelchair users and sited on a hard, level surface.	
Four credits are awarded where two of the following are achieved:- • A local authority collection scheme is in place (with pre/post collection sorting). • Three internal storage bins for recyclable waste, located in an adequate internal space with a minimum total capacity of 30 litres (no individual bin is smaller than 7 litres). Internal recycling bins should be located in a dedicated non obstructive position. This should be in a cupboard in the kitchen, close to the non-recyclable waste bin, or located near to the kitchen in a utility room or connected garage.	4
Was 2 Construction Site Waste Management	
Mandatory Requirement (all code levels) A Site Waste Management Plan must be produced and implemented. This will require the monitoring of waste generated on site and the setting of targets to promote resource efficiency in accordance with the relevant guidance. Specific targets are not required.	
One credit is awarded where the Site Waste Management Plan includes procedures and commitments for minimising waste generated on site accordance with the relevant guidance.	1
One further credit is awarded where the Site Waste Management Plan includes procedures and commitments to sort, re-use and recycle construction waste, either on site or through a licensed external contractor.	0
Was 3 Composting	
Credits are awarded where home composting facilities are provided in houses with gardens or Local Authority kitchen waste collection/communal/community composting service in other dwelling types. The composting facilities should be suitable for normal domestic, non-woody garden, food and other compostable household waste. All facilities should be accompanied by information explaining how they work.	0

CREDIT REQUIREMENTS	Credits Likely
Pol 1 Global Warming Potential of Insulants Credits are awarded where all insulating materials in the elements of the dwelling listed below avoid the use of substances that have a Global Warming Potential (GWP) of greater than 5 (manufacture or installation): • Roofs: Including loft access • Walls, internal and external including lintels and all acoustic insulation) • Floors (including ground and upper floors) • Hot water cylinder, pipe insulation and other thermal stores • Cold water storage tanks where provided • External Doors	1
Pol 2 NO_x Emissions Credits are awarded where the dry NOx emissions (0% excess oxygen) arising from the operation of space heating and hot water systems for each Dwelling Type are ≤40mg/kWh.	3
Hea 1 Daylighting Credits are awarded for the dwelling meeting the criteria below:- • Kitchens must achieve a minimum average daylight factor of at least 2% • All living rooms, dining rooms and studies (including any room designated as a home office under Ene 9 - Home Office) must achieve a minimum average daylight factor of at least 1.5% • 80% of the working plane in kitchens, living rooms, dining rooms and studies (including any room designated as a home office under Ene 9 - Home Office) must receive direct light from the sky.	0
Hea 2 Sound Insulation Credits are awarded for achieving higher standards of sound insulation than those given in Approved Document E as follows:- • 1 credit where airborne sound attenuation values are at least 3dB higher and impact sound attenuation values are at least 3dB lower than minimum standards • 3 credits where airborne sound attenuation values are at least 5dB higher and impact sound attenuation values are at least 5dB lower than minimum standards • 4 credits where airborne sound attenuation values are at least 8dB higher and impact sound attenuation values are at least 8dB lower than minimum standards This can be demonstrated through either a commitment to carry out a programme of pre-completion testing based on the *Normal programme of testing* described in Approved Document E for every group or sub-group* of houses or flats, meeting the performance standards stated above or a commitment to use constructions for all relevant building elements that have been assessed and approved by Robust Details Limited, and found to achieve the performance standards stated above;	0

CREDIT REQUIREMENTS	Credits Likely
Hea 3 Private Space Where outdoor space (private or semi-private) has been provided that is of a minimum size that allows all occupants to sit outside allows easy access to all occupants, including wheelchair users accessible only to occupants of designated dwellings. An outdoor space could be: a private garden, a communal garden or courtyard, balconies, roof terraces or patios, and should be adjacent or in close proximity to the dwelling. The space must be designed in a way that makes it clear that the space is only to be used by occupants of designated dwelling(s). This could be achieved by using the buildings themselves, fencing, planting or other barrier to seal off the space. The following minimum space requirements apply:-: • Private space: 1.5 m^2/bedroom • Shared space: minimum 1m^2/bedroom	1
Hea 4 Lifetime Homes Credits are awarded where the developer confirms that all of the principles of the Lifetime Homes Checklist (Points 1-16) have been complied with. This will need to be undertaken at the design and post construction stages.	4
Man 1 Home User Guide One credit is awarded for the production of a Home User Guide in line with CSH requirements in alternative accessible formats. An additional credit is awarded where the guide also covers information relating to the site and its surroundings in line with CSH requirements.	3
Man 2 Considerate Constructors Scheme Where there is a commitment to achieve the standard required by a nationally or locally recognised certification scheme such as the Considerate Constructors Scheme. A target score of 24-32 points is targeted.	1
Man 3 Construction Site Impacts Two credits are awarded where there is a commitment and strategy to operate site management procedures on site in line with four of the following best practice requirements:- • Monitor, report and set targets for CO_2 production or energy use arising from site activities • Monitor and report CO_2 or energy use arising from commercial transport to and from site; • Adopt best practice policies in respect of air (dust) pollution arising from site activities; • Adopt best practice policies in respect of water (ground and surface) pollution occurring on the site; • 80% of site timber is reclaimed, re-used or responsibly sourced with a chain of custody.	2

CREDIT REQUIREMENTS	Credits Likely
Man 4 Security Credit is awarded where an ALO/CPDA has been appointed to provide advice early in the design stage to ensure that the requirements of Section 2 - Physical Security of Secured by Design – New Homes are met. At Post Construction Stage confirmation will be required from the ALO/CPDA that their recommendations have been incorporated in the design.	2
Eco 1 Ecological Value of Site Where the development site is confirmed as land of inherently low ecological value. Any land of ecological value outside the construction zone but within the development site will remain undisturbed by the construction works. This can be demonstrated by meeting the criteria within the CSH checklist or where an Where an independent ecological report of the site, prepared by a Suitably Qualified Ecologist (such as an IEEM or IEMA member, or a professional with other equivalent experience who is subject to peer review), states that the construction zone is of low or insignificant ecological value.	1
Eco 2 Ecological Enhancement Where a Suitably Qualified Ecologist has been appointed to recommend appropriate ecological features that will positively enhance the ecology of the site and where the developer adopts all key recommendations and 30% of additional recommendations.	1
Eco 3 Protection of Ecological Features Where all existing features of ecological value on the development site potentially affected by the works, are maintained and adequately protected during site clearance, preparation and construction works. The credit can be awarded by default where the site has been classified as having low ecological value in accordance with Eco 1 - Ecological Value of the Site AND no features of ecological value have been identified.	1
Eco 4 Change in Ecological Value Up to four credits are awarded where the resulting change in ecological value before and after development is measured, and the overall change in species per hectare is: • Minor negative change: between -9 and -3 species per hectare – one credit • Neutral: between -3 and +3 species per hectare – two credits • Minor enhancement: between +3 and +9 species per hectare – three credits • Major enhancement: greater than +9 species per hectare – four credits	3

CREDIT REQUIREMENTS	Credits Likely
Eco 5 Building Footprint Credits are awarded where the ratio of combined internal floor area of all dwellings on the site to their footprint (as measured by the total ground floor internal area). <u>Flats</u> • One credit - where the Net Internal Floor Area: Net Internal Ground Floor Area is greater than or equal to 3:1 • Two credits:- Where the Net Internal Floor Area: Net Internal Ground Floor Area is greater than or equal to 4:1 Net internal area includes the area of all habitable spaces: halls, stairwells, cupboards, internal partitions, habitable loft space and basements. Areas that normally count towards the footprint include conservatories, garages, permanent outhouses, communal garages or storage rooms and any other permanent buildings used by the occupants.	1