

Home Quality Mark

Consultation

July 2015

Give us your views and be
part of our new standard



Foreword

From Dr Peter Bonfield, OBE

Be part of the national quality mark for new homes

The Home Quality Mark (HQM) is an important and timely scheme; I urge industry and the wider public to engage with BRE by responding to this consultation. Housing is one of today's key priorities, and we as an industry need to ensure that homes are built with people at the heart of design, ensuring that the right homes are built for our changing climate and demographics.



With Government's primary focus on numbers, it is left to industry to focus on quality, performance and standards. Consumers need to be able to trust that the homes that we build work for them, their families and the community around them. We need to get the message out to the public that we know how to build quality, sustainable homes and create positive, thriving neighbourhoods that those homes are situated in.

The only way industry can do this is to collaborate and the development of the Home Quality Mark is a great example of this. BRE is the only organisation that has the technical expertise, the links to industry, government and the wider housing and construction sectors to ensure that the Home Quality Mark helps to deliver great homes to our communities. This collaboration, whether with developers, designers, consultants, industry representatives, the social or financial sectors mean HQM is relevant to today's and tomorrow's demands.

But technical standards are not enough on their own, and the development of HQM has led to a change at BRE, with a new emphasis on communication. The collaboration is not only on technical standards, but also on how homes are marketed, financed, sold and rented.

Using a simple star rating, the mark will give a householder clear indications of the home's overall running costs, how it will protect their health and wellbeing, its resilience to flooding and overheating, and its environmental footprint. It will demonstrate how digitally connected a home is and it will help everyone understand the long term quality and performance of a new build home.

As CEO of the BRE Group I thank all those many people and organisations involved so far in the development of HQM.

This consultation marks another milestone in the development of HQM, it is not the final product but will give you more of an insight into the detail. Constructive feedback is always welcome; this is what makes the schemes relevant. Thank you in advance for doing this, and helping us all build more quality, sustainable homes.

Introduction to HQM consultation

The Home Quality Mark is a rigorous and relevant standard to give householders the tools and reassurance to make the smart choice when buying or renting a home. At the same time it provides home builders with the tools to aim high and differentiate their product. The mark provides a common language, framework and trust to ensure that we are building the right homes for people.

This consultation provides an opportunity for you to engage with the technical development of HQM, to ensure that it is relevant for today's and tomorrow's homes.

How to Respond

We welcome comments from industry professionals, representative organisations, those outside the sector and of course members of the public. The best way to respond is via the questionnaire which is available at www.homequalitymark.com/consultation2015. If you have any further comments or questions please respond to hqm@bre.co.uk.

The closing deadline for response is Friday 4th of September.

What happens next?

Comments and suggestions from this consultation exercise will be fed into the development of HQM and used to inform the final version of the standard, which we intend to publish in October 2015. At this time the scheme will also open for licence applications from potential HQM assessors, registration of sites for assessment and subsequently applications for formal certification of assessments.

The research that underpins the development of HQM is outlined here;
<http://www.homequalitymark.com/research>

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1) Structure and Context of Home Quality Mark

The Home Quality Mark is a national mark that will give those buying or renting new homes the confidence that they are choosing a well built, cost-effective home that is designed and built to exceed expectations.

The Home Quality Mark will give homes an overall star rating, as well as further indicators focusing on "My Cost, My Wellbeing and My Footprint". The example scorecard below gives an indication of how this may look.

The issues that the scorecard brings up are customisable, depending on which particular areas the home scores well in. Over time the information (not scoring) can be personalised, giving people information relevant to them. For example providing energy cost for their occupation levels, in a similar way that car manufactures provide MPG figures for Urban, Extra Urban and Combined.



Home Quality Mark 4 Star Home

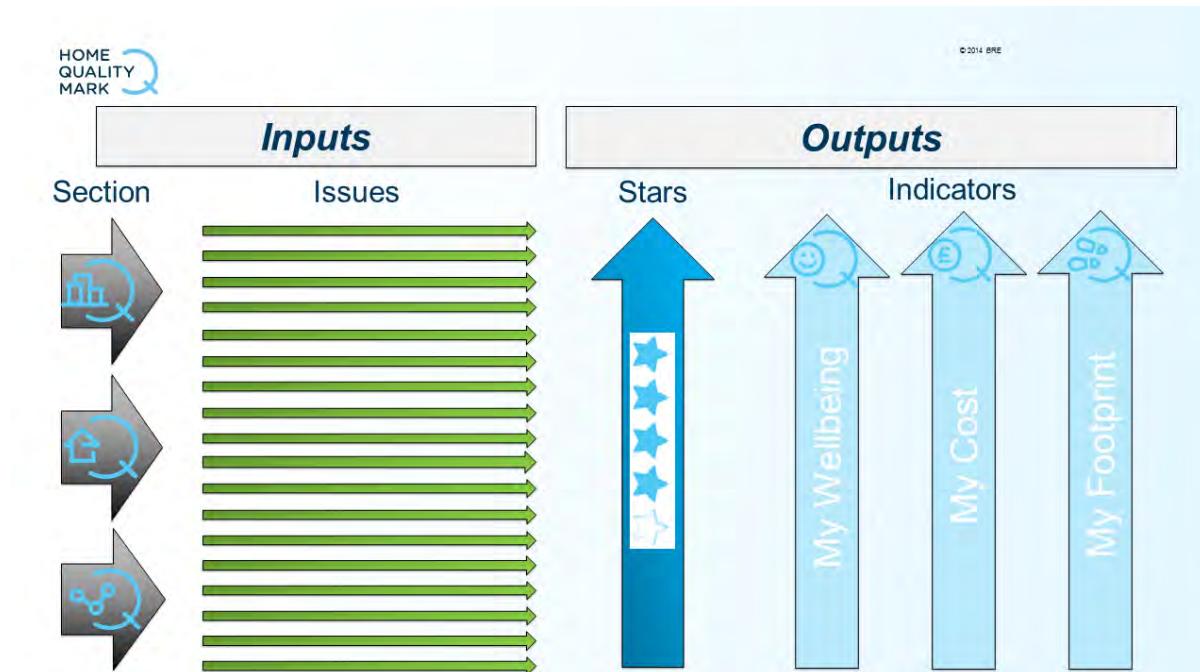
Example



An Excellent new home. Achieving this Mark means that the home is designed and built to have very low running costs, many positive impacts upon your health and wellbeing, all with an extremely low impact upon our environment.



During the development of HQM it quickly became apparent that the way that the general public understand and relate to issues concerning their home and community is different to the way that industry understands them. Potential occupiers do not think about sustainability and quality issues in the same way as regulations and planning systems, which are based on outcomes when they are looking to purchase or rent a home. HQM ties these two sets of priorities by presenting results in a consumer facing score card ‘output’ which is different to the “inputs” (structured around industry facing sections and issues), as highlighted in the diagram below.



For industry, Home Quality Mark is structured into 3 sections;

- Our Surroundings,
- My Home
- Knowledge Sharing.

This structure is beneficial for a number of reasons; Firstly for simplicity, allowing thought to be focused on the land, the building or the process of building; as appropriate but secondly to allow pre-approval and ‘deemed to satisfy’ routes of compliance and so ensure that its application is adding value, not repetition. Finally, the structure aligns with Building Information Modelling (BIM), and specifically UNICLASS 2015 to aid efficient assessment processes in the future.

2) Pre-Approval and deemed to satisfy routes

HQM has been designed to encourage pre-approval of solutions and processes that are 'deemed to satisfy' the standards of the scheme. This helps to ensure greater flexibility, reducing repetition in application and evidence whilst maintaining robustness of the process and its outcome.

There are a number of ways in which this can be achieved;

- Pre-Approval within the "My Home" section for common elements of house design and where elements of the home are manufactured off-site.
- Pre-Approval for company processes quality control and customer support systems for issues within the "Knowledge Sharing" section.
- Site outline scoring within the "Our Surroundings" section, linking with BREEAM Communities for larger scale developments.
- Recognition of established certification schemes to provide evidence of compliance across issue(s) where these have been pre-approved as being comparable to the HQM requirements; for example, schemes under consideration include; Passivhaus, Saint Gobain Multi-Comfort, HBF Customer satisfaction survey, Considerate Construction, Secure by Design and potentially more.

3) Providing data to others

As well as accepting data and certification from other schemes to facilitate cost - effective assessment, a key element that we are exploring is the potential for HQM to provide access to aggregated data for other stakeholders. This will develop overtime, but could for example be used by home builders for Corporate Social Responsibility (CSR) reporting and marketing as well as financial institutions including mortgage lenders, investors and insurers as another means of measuring risk and informing relevant policies and investment decisions.

4) Process and robustness of assessment

To ensure independence, competence and impartiality in its application HQM will follow the same processes and governance as our other 3rd party certification schemes such as BREEAM. BRE Global is working hard to reduce the burdens associated with this system through greater digitisation and flexibility in the application of processes. Therefore HQM operations, including quality assurance and certification of assessments and assessor competency will follow international standards on conformity assessment, to which BREEAM is already accredited by the UK Accreditation Services (UKAS).

5) Scope of HQM

The Home Quality Mark is a scheme designed and developed for new build housing in the UK. The BREEAM UK Domestic Refurbishment scheme applies to refurbishment of existing buildings. Once the HQM is operational, we will seek to understand how the benefits of HQM can be used for existing homes in the UK and new and existing homes internationally, aligning or evolving with current BREEAM schemes in these areas.

6) Devolved regions

HQM will be operational in all UK constituent countries (England, Wales, Scotland, Northern Ireland and other Crown Dependencies that use SAP). Differences in technical standards will occur where there is a difference in baseline Building Regulations. In Scotland, HQM will also align with and show performance against Domestic Section 7 Sustainability.

7) Building Regulations and Warranties

The Home Quality Mark allows developers to show performance above and beyond Building Regulations, in all cases Building Regulations must be complied with.

In order to provide consumers with additional quality control, Home Quality Mark will have a mandatory requirement for a Latent Defects Warranty for all homes built. We will continue to work with the warranty providers to ensure suitable level of requirements for this warranty is provided.

8) The Technical Standard

As described above, HQM is structured into three main sections; Our Surroundings, My Home and Knowledge Sharing. This consultation document outlines the proposed technical criteria and assessment methods that make-up these sections. As this is a consultation document first and foremost it should not been seen as a final technical guide or used to demonstrate and communicate performance of a dwelling against HQM.

Once we have received and incorporated feedback from this consultation process, the content of the scheme may change. Furthermore, issues are not set out in sufficient detail to allow formal assessment, this is particularly true of those issues where we are asking specific questions of industry via this consultation process.

A key technical principle of HQM is that of “rigour”, A number of issues have more than one route available for achieving credits. These are described as either foundation or comprehensive. This allows credits to be awarded where some evidence is available (but the credits are capped in such instances), but where there is greater confidence in the level of performance as a result of the robustness of evidence available, more credits can be awarded.

9) Scoring

The scoring for HQM has been based on the same weightings and scoring methodology that underpin BREEAM albeit tailored to the needs of the new build housing sector. Industry has already been consulted on this process and these weightings will be revisited on a regular basis to ensure that they continue to represent a consensus view of relative priorities. Where potential to impact specific BREEAM categories is different in the domestic sector, this has been justified.

In HQM the total score is out of 500 credits – and the weightings are accounted for within the credit allocation, meaning that credits are of equal value across the whole scheme. This creates a simple way of comparing issues and determining their contribution to an overall star rating.

In order to create the right balance of credits, a certain proportion of credits must be achieved in each section in order to achieve particular star ratings.

The indicator scoring has been consulted on over the course of the development of HQM, with private and social house builders, assessors and other experts. It is something that we welcome further feedback on.

10) How each issue is organised

Each Home Quality Mark issue is structured as follows:

Aim

This outlines the intention of the issue.

Benefits

Key benefits and values for the householder.

Context

This section outlines why the issue is relevant and the development of quality homes in sustainable communities.

Issue Summary

This section gives a summary table of the key topics being assessed in the issue and the associated credits available.

Assessment Criteria

This section outlines the criteria the issue is assessed on. Where home complies with the assessment criteria, as determined by the Home Quality Mark assessor, the relevant number of HQM credits can be awarded.

Compliance Notes

These notes provide additional guidance that supports the application and interpretation of the main assessment criteria, including how to assess compliance in specific situations.

Evidence

This outlines typical examples of the type of information that must be provided by the developer and given to the HQM assessor. This enables the assessor to verify the development's performance against the assessment criteria and award the relevant number of credits.

Additional Information

This section contains information that supports the application of the assessment criteria and compliance notes, including relevant definitions and any other relevant information.

Appendices

The Appendices provide supporting information such as references, checklists or guidance referred to in the Home Quality Mark.

For the purposes of this consultation document we have focused on the Aim, Benefits, Context and Criteria sections with some content from other sections where it is necessary to explain the proposed approach. Although we have not included evidence requirements at this stage, we would welcome any thoughts on how this should be tackled for each issue.

Our Surroundings

1.01.01 - Land use and visual impact

Aim

To determine and enhance the site context in terms of the site conditions and landscape features in the surrounding area

Benefit

- By preserving and enhancing important landscape features on the site, the sense of place in the local area is maintained, helping to integrate the home with the existing community.

Context

Being aware of potential issues and challenges related to the site and its previous uses can reduce the likelihood of unforeseen barriers and limitations to the construction process, which could compromise the layout and design of the homes. This may impact the time and cost to plan and build the homes, subsequently these costs would have to be absorbed, affecting profit margins. Furthermore, encouraging consideration of the impact of the home on the surrounding landscape can help to promote better integration of the home.

Criteria Summary

Topics covered in this issue

ref	title	credits
1	Contamination investigation	1
2	Remediation	1
3-4	Landscape and visual impact	1
5-8	Attractive Design	2
Total available Credits:		5

Criteria

Contamination investigation –For 1 credit

For homes being assessed as part of a larger development

1. A site investigation is carried out to identify any issues relating to contamination associated with the development site. This should include mitigation recommendations, where applicable.

Remediation - For 1 credit

2. Where contamination issues are identified as part of Criterion 1; mitigation recommendations are implemented.

Landscape and visual impact –For 1 credit

For homes being assessed as part of a larger development

3. A landscape and visual impact assessment is undertaken by a member of the design team. This takes account of the current landscape features in the area and the potential impact of the development on the surrounding area, covering the following:
 - a. Topography and viewpoints
 - b. Historical features or heritage assets
 - c. Natural wildlife and recreation assets, such as water features or bodies, open and green space and woodland
 - d. Any built structures contributing to the landscape

- The appropriate members of the project team are informed on the outcomes of the landscape and visual impact assessment and should demonstrate how any challenges have been accounted for within their design plans.

Attractive Design –For 2 credits

- During the design of homes and, where applicable, public realm, the developer liaises with the local authority to gain input and identify any existing local design guidance.
- The designs of homes and public realm, where applicable, can be demonstrated to:
 - Acknowledge and use local authority input or guidance
 - Embody local character OR distinctive design
- Where there is variation in design of buildings on site related to different types of tenure, this does not result in lower level of perceived quality.

For homes being assessed as part of a larger development

- In the design of buildings and public realm on site, the developer must consult with the intended residents (where known) and with the local community from the surrounding areas to identify appropriate distinctive design and local character and their expectations for new homes.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Ground contamination- site investigation	<p>A preliminary investigation (desk study and site reconnaissance) has been carried out by a contaminated land specialist to identify any potential land contamination issues with the site, which has been carried out in line with BS 10175: 'Investigation of potentially contaminated sites - Code of practice'. Where the preliminary investigation shows that the site is unlikely to be affected by significant contamination, no further investigation is required.</p> <p>Where the preliminary investigation has identified potential land contamination issues, the contaminated land specialist has performed a site investigation and risk assessment to determine the presence and levels of any contamination affecting the site and makes recommendations on any remediation required.</p> <p>Again the site investigations must be performed in accordance with BS 10175: 'Investigation of potentially contaminated sites - Code of practice'.</p> <p>The credits for site investigation can still be awarded where no contamination has been identified.</p>
CN2	Where mitigation is not possible (see criterion 2)	Where mitigation is not possible, relevant information is passed on to the project team relating to associated risks and to inform the site design and layout to account for this. This is only accepted in places where it has been confirmed by an expert that there is no level of mitigation that will alleviate the contamination issues but this does not affect the entire site and therefore there is still the potential to build on parts of the site.

CN3	A landscape and visual impact assessment	<p>An appropriate member of the design team, such as the landscape architect or the lead architect for the site, carries out a landscape and visual impact assessment. The scale of the assessment should reflect the size and influence of the development, identifying the surrounding area likely to be impacted. The assessment should focus on the priority landscape features in the local area, as identified by the local authority and/or local heritage and wildlife associations/bodies and should consider the sensitivity of and impact on each identified feature as follows:</p> <p>Sensitivity:</p> <ul style="list-style-type: none"> - quality and maturity of the feature, - rarity of the feature i.e.: is it of local, regional, national or global importance - statutory or regulatory limitations/ requirements relating to the resource <p>Impact:</p> <ul style="list-style-type: none"> - scale of development, and the physical extent of the impact, - duration of impacts i.e. temporary (short, medium or long term) or specific to the construction and operation phases. <p>A landscape and visual impact assessment carried out in line with the Guidelines for Landscape and Visual Impact Assessment Third Edition is considered compliant with this issue.</p>
CN4	Topography and viewpoints	Aspects of topography that should be considered in the landscape and visual impact assessment are as follows: <ol style="list-style-type: none"> obstructions of views removing or restricting access to a view point
CN5	Historical features or heritage assets	Guidance should be sought from local heritage associations as to the important features surrounding the site and how the development may impact these.
CN6	Natural wildlife and recreation assets	Guidance should be sought from local wildlife associations as to the important features surrounding the site and how the development may impact these.
CN7	Local character	Local character should be determined based on the following elements found on site and in the area surrounding the assessed home or development: <ol style="list-style-type: none"> building materials, colour and architectural style building layout, scale and forms where appropriate, continuity between building style within the development and the surrounding area retention or inclusion of historic features locally relevant construction detailing
CN8	Distinctive design	Distinctive design should be adopted in areas of regeneration or where the current local character is limited or considered to be of low value. Where distinctive design is being used the approach should be discussed with the local authority. Distinctive design is considered to be a clear deviation from the local character and can be demonstrated in a number of different ways as follows: <ol style="list-style-type: none"> The design is short listed in a regional or national level design competition recognised by industry. A design review carried out with any one or more of the following: <ol style="list-style-type: none"> local community representatives, academics, architects from other practises, professional architectural bodies or institutions.

Checklists, Illustrations, Diagrams & Tables

None.

Definitions

Contamination

Contamination is defined as any solid, liquid or gaseous material in, or on the ground (including groundwater) to be covered by the development, which is classed as a hazard and therefore presents an unacceptable risk to human health and the environment. The definition also includes land significantly infested by invasive plant species (see definition below).

Contaminated land specialist

Contaminated land specialist is an individual that holds a degree or equivalent qualification in chemistry, environmental science or management, earth sciences, civil engineering or a related subject, and has a minimum of three years relevant experience (within the last five years) in site investigation, risk assessment and appraisal. Such experience must clearly demonstrate a practical knowledge of site investigation methodologies and understanding of remediation techniques and national legislation on the subject; as well as acting in an advisory capacity to provide recommendations for remediation.

Public realm

Areas of the built and natural environment where the public has free access, encompassing all; streets, squares and other rights of way; open spaces and parks; and the 'public or private' spaces where public access is unrestricted (at least during daylight hours).

Remediation

Activity undertaken to prevent, minimise, remedy or mitigate the risk caused by contaminated land to human health or the environment.

1.01.02 – External spatial design

Aim

To promote efficient and functional design and layout of external space.

Benefit

- Efficient and multifunctional external space can allow occupants to maximise the functionality of their space making it a more desirable place to live.
- The ability for people to easily navigate their surroundings, encourages active travel and promotes integration and a sense of place.

Context

It is important for a home to have enough space to serve the various required functions, increasing the sale value of the home. Space efficiency of a home can be maximised through the provision of multifunctional space and the elimination of isolated or redundant spaces. It is also important to make sure that the site is easy to navigate and movement is not inhibited by existing or new infrastructure, this supports the integration of a development.

Criteria Summary

Topics covered in this issue

ref	title	credits
1	Efficient use of space	2
2	For homes being assessed as part of a larger development	2
3-4	Navigation	3
Total available Credits:		7

Criteria

Efficient use of space –For 2 credits

1. Space efficiency is maximised by providing multifunctional space and by ensuring that redundant external spaces and routes on the plot are designed out or minimised as far as possible, considering the following as a minimum:
 - a. Isolated spaces
 - b. Spaces with limited or no function
 - c. Poorly sized or proportioned spaces
 - d. Unnecessary pathways around the homeNote: one space may fall under a number of the above points.

For homes being assessed as part of a larger development - For 2 credits

2. For larger developments the points in criterion 1 should be considered for the whole site including the areas of public realm.

Navigation –For 3 credits

For homes being assessed as part of a larger development

3. Routes for both pedestrians and cyclists must allow for easy orientation and navigation with consideration to all users, including the disabled, elderly and children. Plans should demonstrate how the following have been incorporated or addressed:
 - a. appropriate signage on main routes to key facilities
 - b. clearly identifiable focal points to support orientation
 - c. a lack of uniformity in the design and layout of the development.
 - d. eliminating dead ends.

4. The development layout ensures that movement around the development area and into key neighbouring areas is not inhibited by infrastructure, such as railways, roads, sustainable drainage systems etc. and supported by safe pedestrian routes.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Multifunctional space	<p>Multifunctional space is a space that is capable of providing multiple functions in the same location but not necessarily simultaneously. Multifunctional space is included in the design, integrating key functions in a single location to maximise the efficient use of space. Multifunctional space should not compromise the aesthetics or function and can be demonstrated by integrating at least two of the following functions:</p> <ul style="list-style-type: none"> 1. General storage 2. Waste storage 3. Parking spaces 4. Cycle storage 5. Other transport functions 6. Growing space 7. Drying space 8. Recreational space 9. any other required function <p>An example of simultaneous multifunctional space is an area providing permeable car parking i.e. a space that functions as a form of SuDS and also a parking space. An example of a multifunctional space that doesn't function simultaneously would be an external area that contains a collapsible drying space which could be used as recreational space when drying is not required.</p> <p>Functional external space includes the provision of any external space relating to the following issues or categories:</p> <ul style="list-style-type: none"> b. 1.03 Outdoors c. 2.04.01 Drying Space
CN2	BREEAM Communities assessment	Where a BREEAM Communities assessment has been completed and at least 2 credits have been achieved in TM02 Safe and Appealing Streets, then this will contribute towards criteria 3-4 in this issue, provided that as built evidence is provided.

Definitions

Easy orientation and navigation

Easy orientation refers to being able to easily locate or position yourself in an area through the use of the built environment and key features or focal points. For example distinctive corner buildings or landmarks can provide a good form of orientation.

Focal points

Focal points refer to features of local interest including; facilities, heritage assets, amenities or other valuable community assets situated within the development or within the surrounding area.

This may include:

a. shops

- b. historical landmarks
- c. commercial or educational centres,
- d. sports or recreation facilities,
- c. dedicated open spaces,
- d. community meeting areas
- e. key transport facilities
- f. cultural features such as art installations

Isolated spaces

Isolated spaces include those that are:

- a. cut off or inaccessible
- b. too far away from the homes they were designed to serve

Poorly sized or proportioned spaces

Spaces that are too small for the desired function or spaces where the proportions restrict the function (e.g. gardens shaped with narrowing angles or not enough room for the required waste storage)

Spaces with limited or no function

Spaces that do not provide a function or cannot be used for the purpose of specific activities such as recreation, ecological value, waste storage, growing space etc.

Unnecessary pathways around the home

Pathways that do not serve a purpose for the home, either multiple pathways for the same purpose or pathways that do not link to key functions or do not lead to key services or focal points. Minimising unnecessary pathways around the home, results in the prioritisation of direct links to functional areas.

Public Realm

Areas of the built and natural environment where the public has free access, encompassing all; streets, squares and other rights of way; open spaces and parks; and the ‘public or private’ spaces where public access is unrestricted (at least during daylight hours).

Safe pedestrian routes

A route deemed to be safe and accessible for all pedestrian users (including the disabled, elderly and children). They take into account physical limitation of those who may use them, for example providing steps appropriately supported by sloped access and drop curves positioned at crossing points. These routes and associated spaces are appropriately sized, with good visibility of the route ahead.

Alongside these principles they should also meet the following requirements:

- a. Where required, lighting design must be in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas (rural areas are exempt from this requirement).
- b. At crossing points there must be appropriate pedestrian crossings (e.g. zebra or pelican crossings) in place or a clear line of sight for at least 50m in each direction on roads with a 30mph speed limit or 100m in each direction on roads with greater than 30mph speed limit).
- c. On roads with a speed limit of 30mph (or higher) there is a clearly defined footpath.
- d. All footpaths provided should be at least 900mm wide. In rural areas, on single track roads, a grass verge can be accepted in place of a footpath.
- e. On roads with low traffic levels and a speed limit of 20mph or below, it is acceptable for the pedestrian’s routes to use the road carriageway.

1.02.01 - Accessible Public Transport

Aim

To recognise and encourage developments with good proximity to public transport networks, in turn promoting ease of access for occupants.

Benefits

- Using public transport encourages active travel, helping to improve people's health.
- Encouraging the use of public transport supports social cohesion in the local area, contributing towards a sense of safety in the area.
- By using public transport instead of private car the occupants' carbon footprint and associated negative environmental impacts will be reduced.
- Using public transport can be cheaper than the cost of owning and running a car.

Context

We have all experienced poor access to public transport and traffic congestion, adding in some cases, hours onto our travel times but also negatively impacting on air quality. It is not a new concept that reducing our reliance on cars and increasing our use of public transport offers a way to relieve congestion and reduce the associated negative environmental impact. However it is not just about having capacity in our public transport but also about ensuring that the public transport is accessible for all and operates at convenient times to meet our needs.

Criteria Summary

ref	title	credits
1	Access to public transport	14
2	Home Information	2
Total available Credits:		16

Criteria

Access to public transport –For Up to 14 credits

1. Homes are awarded credits based on the accessibility to public transport nodes that link to key local amenities and community focal points. Credits are awarded based on the Public Transport Accessibility Index (AI)¹ as shown in Table 1.

Table 1: Public Transport Accessibility Index (AI) scores and associated number of credits

Credits	AI Rural Location	AI Semi-Urban Location	AI Urban Location
3	1	-	-
6	2	3	4
10	4	5	8
14	6	8	12

Home Information –For 2 credits

2. 2 credits are available for providing home information on accessible public transport (see 3.01.02 Home information)

¹ PTAL <http://www.webptals.org.uk>

Methodology

The methodology for calculating the Accessibility Index uses Transport for London's Public Transport Accessibility Level (PTAL) method, itself based on a methodology developed in 1992 by the London Borough of Hammersmith and Fulham. For a detailed description of the PTAL methodology see the 'Measuring Public Transport Accessibility Levels Summary' document. The Public Transport Accessibility Index is calculated based upon the following key elements:

- a. The distance (m) from the homes main entrance to each compliant public transport node
- b. The public transport types serving the compliant node e.g. bus or rail
- c. The average number of services stopping per hour at each compliant node.

The AI can either be calculated for each home or where the client does not want to assess the AI for each home, the calculation should assume the 'worst case', i.e. by using the home which is furthest away from each transport node to determine the AI.

Calculating the average number of services

For the purpose of the calculation, the frequency of public transport is the average number of services per hour. This is calculated by determining the number of stopping services at the node during the peak times divided by the number of hours within that period.

For example: in a rural location at peak time within proximity of a bus stop with 12 stopping services during the peak periods (i.e. the 6 hours of peak time as defined in CN1) is $12/6 = 2$ services per hour in peak times (equivalent to an average service frequency of approximately 30 minutes).

Distance to transport node

Distance should not be measured 'as the crow flies' and must be measured via a safe pedestrian route from the main building entrance to the nearest compliant transport node.

Multiple transport nodes

Where there is more than one transport node serving the home, located at different proximities, e.g. one node at 400m and another at 600m, then each node should be assessed.

Services that operate from more than one node within proximity of the home, i.e. two separate bus stops served by the same bus, must be considered only once - at the node in closest proximity to the home. Different services at the same node can be considered as separate.

Multiple services

Where a transport node is served by more than one service going to a local urban centre, the frequency between services can be used as the frequency for assessment. For example, where there are three services, each with a 30 minute frequency but each follows on 10 minutes after the other, and then the frequency used for assessment purposes would be 10 minutes.

Bidirectional routes

Routes will be bidirectional; however for the purpose of calculating the index, consider only the direction with the highest frequency (in accordance with the PTAL methodology).

Homes in Greater London

Transport for London hosts a Planning Information Database that allows users to search for a specific London location by street name, co-ordinates or postcode and then calculate the Accessibility Index (AI) for that location. The total AI is confirmed for the Point of Interest (POI) within the summary report, which can be downloaded and used as evidence of compliance for the assessed building. Please refer to www.webptals.org.uk

Compliance Notes

ref	Title	Note
CN1	Peak and off-peak service times	<p>For weekdays the following peak and off peak hours apply:</p> <p>Peak hours: between 06:30 09:30 and 16:00 19:00 Off-peak hours: between 09:30 16:00 and 19:00 06:30</p> <p>For weekends all times in the day are considered off-peak.</p>
CN2	Off-peak services	<p>During off-peak hours, the service level of public transport should not reduce to less than a quarter of the on-peak service.</p> <p>For rural locations services between midnight and 5am are exempt from this requirement.</p>
CN3	Phased development	<p>In the case of a large phased development where new transport facilities will be provided, but at a later stage than the home being assessed, the assessment can consider such facilities, provided that a commitment has been made to provide these transport facilities. This can be demonstrated either within the general contract specification or in the form of a Section 106 agreement. This must outline that the transport facilities will be available for use by the time 25% of the development (either within a phase or over all phases) has been completed and is ready for occupation.</p>

Definitions

Accessibility Index

A measure that provides an indicator of accessibility and density of the public transport networks for an individual home. The index can be influenced by the proximity and diversity of the public transport network and the frequency of service at the accessible node.

Compliant public transport nodes

A compliant node includes buses, trams, trains, tubes and other variations of public transport. The service stopping at each node must provide transport from, or onward travel to, either an urban centre, major transport node or a community focal point e.g. doctor's surgery, library, school or village centre. Only local services should be assessed and any national public transport services should be excluded from the analysis, unless such a service can be said to provide a local commuter service.

Safe pedestrian routes

A route deemed to be safe and accessible for all pedestrian users (including the disabled, elderly and children). They take into account physical limitation of those who may use them, for example providing steps appropriately supported by sloped access and drop curves positioned at crossing points. These routes and associated spaces are appropriately sized, with good visibility of the route ahead.

Alongside these principles they should also meet the following requirements:

- a. Where required, lighting design must be in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas (rural areas are exempt from this requirement).
- b. At crossing points there must be appropriate pedestrian crossings (e.g. zebra or pelican crossings) in place or a clear line of sight for at least 50m in each direction on roads with a 30mph speed limit or 100m in each direction on roads with greater than a 30mph speed limit).
- c. On roads with a speed limit of 30mph (or higher) there is a clearly defined footpath.
- d. All footpaths provided should be at least 900mm wide. In rural areas, on single track roads, a grass verge can be accepted in place of a footpath.
- e. On roads with low traffic levels and a speed limit of 20mph or below, it is acceptable for the pedestrian's routes to use the road carriageway.

Rural locations

A rural location is defined as a site clearly not within or on the boundary of an urban location with a population of less 5,000 people.

Semi-urban locations

A residential or mixed use area with a population of less than 10,000 people, located within a continual tract of predominantly built-up land or a location bordering an urban area.

Urban locations

An urban area with a population of 10,000 people or more, located within a tract of predominantly built-up land.

CONSULTATION

1.02.02 - Alternative sustainable transport options

Aim

To provide alternative sustainable transport options and the associated facilities to reduce the dependency on traditionally fuelled cars.

Benefit

- The cost of cycling or running an electric car is often less than the cost of maintaining and running a traditionally fuelled car.
- Providing cycling facilities encourages active travel, improving peoples health.
- Providing cycling facilities and electric car charging points will help to encourage clean travel and therefore help to improve the air quality of the local area.

Context

Supporting the provision of alternative sustainable transport options can play a critical role in allowing people to travel around their local area, while reducing associated carbon emissions and improving air quality. Providing sustainable transport facilities gives home owners the option to use sustainable alternative forms of transport. Furthermore cycling supports healthier lifestyles and has a knock on effect of reducing the volume of cars on the roads and the associated congestion.

Criteria Summary

ref	title	credits
1-3	Cycle storage	6
4	Cycle networks	2
5 - 7	Electric charging points	3
8	Home information	1
Total available Credits:		15

Criteria

Cycle storage –For Up to 6 credits

1. Where cycle storage is provided for individual homes or in a communal setting, credits can be awarded based upon the size of the home and the number of cycle spaces provided, as detailed in Table - 2

Table -2: Number of cycle storage units per home and the associated credits.

Dwelling size	3 credits	6 credits
Studios or 1 bedroom	1 cycle space for every two homes is provided (where the assessment is only covering one home then one cycle space is required)	1 cycle space per home
2 and 3 bedroom	1 cycle space per home	2 cycle spaces per home
4 bedrooms and above	2 cycle spaces per home	4 cycle spaces per home

2. Compliant cycle storage should be either clearly associated with the home or in communal settings, within close proximity to the homes entrance.
3. There is a safe pedestrian route from the cycle storage to the entrance. This includes where cycle storage is provided in communal locations.

Cycle networks –For 2 credits

4. The home is connected to a safe cycle route via a safe pedestrian route.

Electric charging points –For 3 credits

5. The home has access to a dedicated electric charging point or a communal charging point is located within close proximity to the home.

For apartment blocks

6. At least 5% of all parking spaces provided contain electric charging points that are available to all occupants.

For homes being assessed as part of a larger development

7. Where dedicated electric charging points are not provided for all homes, at least 5% of shared parking spaces provided contain communal electric charging points.

Home information –For 1 credit

8. 1 credit is available for providing home information on alternative sustainable transport options (see 3.01.02 Home information)

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Close proximity	Within 50m of the homes entrance or no further than from the homes entrance to the nearest car parking space. This should be measured via the route and not 'as the crow flies'.
CN2	Facilities not dedicated to the home.	Facilities (cycle storage and electric vehicle charging points), not dedicated to the home can still be considered compliant where: a. the home is on an existing site with existing compliant facilities in close proximity b. the home will form part of a larger development, which will contain compliant facilities in close proximity. The number of facilities must be large enough to cater for the occupants of the assessed home, in addition to the occupants of any existing or other new homes that will share those facilities.
CN3	Phased Development	Where alternative transport facilities cannot be installed at construction stage, due to phasing of the works, compliance may still be demonstrated provided that: a. Clarification and justification is given for why the facilities are not currently available. b. A written contractual agreement is in place to provide compliant facilities within a clear and justifiable time scale. Facilities must be available for use by the time 25% of the development (either within a phase or over all phases) has been completed and is ready for occupation. c. Alternative or temporary facilities for bikes are provided in the meantime that allow them to be easily stored and removed, with the ability to be locked securely.
CN4	BREEAM Communities assessment	Where a BREEAM Communities assessment has been completed and credits have been achieved in TM05 Cycling Facilities then credits may be awarded for the cycle storage section in this issue, provided that as built details are available. Where a BREEAM Communities assessment has been completed and credits have been achieved in RE07 Transport

		Carbon Emissions, the need for facilities identified through the feasibility study and transport plans may align with the criteria here for electric charging points. Credits may be available provided that as built details are available.
CN5	Cycle route	A compliant cycle route should meet one or more of the following: a. single track roads (particularly applicable to a rural setting) b. roads with low traffic volumes and speeds (30mph) c. shared cyclist and pedestrian routes a minimum of 3m wide. d. dedicated cycle lanes (segregated or unsegregated from roads), with one-way cycle lanes being a minimum of 1.5m wide and two-way cycle lanes a minimum of 3m wide) ²
CN6	Cycle storage locations	Cycles may be stored in any of the following: a. Garage or shed b. Internal private spaces, such as dedicated space in a utility room c. External or internal communal cycle store d. Proprietary system.
CN8	Cycle storage requirements	Compliant cycle storage spaces are defined as those that meet the following: a. spaces in racks, that are covered overhead and where the racks are fixed to a permanent structure (building or hard standing). b. within a locked structure The distance between each cycle rack and surrounding obstructions (e.g. walls) allows for bikes to be easily stored and accessed. Cycle racks must be a minimum of: a. 2m long x 0.75m wide for one bike b. 2m long x 1.5m wide for two bike c. 2 m long x 2.5m wide for four bikes d. If hanging systems are provided, the space requirements are flexible but the system must allow each cycle to be removed independently. Access from the bike storage area to a pedestrian or cycle route is not permitted through the home.
CN9	Communal cycle storage requirements	For communal storage the following applies in addition to the compliant cycle storage requirements: a. Communal cycle storage must be located within 100m of the nearest cycle route. The route from the homes entrance to cycle storage should comply with the safe pedestrian routes. b. The cycle storage in communal locations has adequate lighting. The lighting must be controlled during daylight hours.

Definitions

Safe pedestrian routes

A route deemed to be safe and accessible for all pedestrian users (including the disabled, elderly and children). They take into account physical limitation of those who may use them, for example providing steps appropriately supported by sloped access and drop curves positioned at crossing points. These routes and associated spaces are appropriately sized, with good visibility of the

² <http://www.sustrans.org.uk/sites/default/files/images/files/migrated-pdfs/ltn208.pdf>

route ahead.

Alongside these principles they should also meet the following requirements:

- a. Where required, lighting design must be in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas (rural areas are exempt from this requirement).
- b. At crossing points there must be appropriate pedestrian crossings (e.g. zebra or pelican crossings) in place or a clear line of sight for at least 50m in each direction on roads with a 30mph speed limit or 100m in each direction on roads with greater than 30mph speed limit).
- c. On roads with a speed limit of 30mph (or higher) there is a clearly defined footpath.
- d. All footpaths provided should be at least 900mm wide. In rural areas, on single track roads, a grass verge can be accepted in place of a footpath.
- e. On roads with low traffic levels and a speed limit of 20mph or below, it is acceptable for the pedestrian's routes to use the road carriageway.

CONSULTATION

1.02.03 - Local amenities

Aim

To ensure occupants have access to a range of key amenities in the local area and to reduce dependency on private transport.

Benefits

- Access to key amenities within walking distance of the home will help to reduce the occupants cost of travel to access these amenities.
- Providing key amenities close to the home encourages active travel, supporting an occupant's health and wellbeing, community cohesion and sense of place.
- Walking or using public transport to access local amenities could help to reduce the occupants' carbon footprint in comparison to private car use.

Context

With the increase in out-of-town shopping centres and the increasing dependency on private transport to get around, there has been a decline in town centres that provide everyday amenities within a walkable distance or via good public transport options. Where new homes are planned for an area they should be supported by appropriate local amenities, saving occupants travel time and helping to promote community cohesion and a sense of place.

Criteria Summary

ref	title	credits
1	Key local amenities	8
2-3	Beneficial Local Amenities	8
4	Home Information	3
Total available Credits:		19

Criteria

Key local amenities –For Up to 8 credits

1. Three or more of the following amenities are located within walking distance of the home, via safe and convenient routes:
 - a. Administrative services, e.g. post office, bank or cash point
 - b. Health services, e.g. GP, health centre, pharmacy
 - c. Small scale retail services, e.g. grocers, butchers, corner shops, etc.

Beneficial Local Amenities –For Up to 8 credits

2. Criterion 1 has been achieved.
3. Two or more of the following amenities are located within 30 minutes of the home via a safe and convenient route or via public transport:
 - a. Purpose built recreation or leisure
 - b. Primary or early education
 - c. Large scale retail—eg. restaurants, cinemas, clothes shops etc.
 - d. One or more community facilities—eg. Community hall or a library

Home Information –For 3 credits

4. 3 credits are available for providing home information on local amenities (see 3.01.02 Home information)

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	For homes being assessed as part of a larger development	For homes being assessed as part of a larger development the 'worst case' can be used to determine the number of credits awarded, i.e. by using the home which is furthest away from each local amenity.
CN2	Local amenities.(See criteria 1 and 3)	The number of local amenities can include several different amenities from the same group; however you cannot count more than one of the same amenity. For example a post office and a cash machine (both administrative amenities) can be counted, however having two cash machines cannot be counted twice.
CN3	Collective amenities	One type of amenity may also exist within or as part of other amenities, e.g. a grocery store in a petrol station, cash point or pharmacy in a supermarket etc. It is not a requirement of this issue that each amenity is 'standalone'.
CN4	Phased development	In the case of a large phased development, where new amenities will be provided, but at a later stage than the home being assessed, the assessment can consider such amenities, provided that a commitment has been made to provide these. This can be demonstrated either within the general contract specification or in the form of a Section 106 agreement. This must outline that the amenities will be available for use by the time 25% of the development (either within a phase or over all phases) has been completed and is ready for occupation.
CN5	BREEAM Communities Assessment	Where a BREEAM Communities assessment has been completed and credits have been achieved in SE06, the local needs identified within the consultation may align with the criteria within this issue, in which case credits can be awarded for this, provided that as built details are available.

Definitions

Community facilities

Internal spaces which are inclusive to the majority of users who will occupy the home or development. The facility will serve to facilitate community activities.

Walking Distance

Walking distance for the purpose of this issue is 650m via a safe pedestrian route. This should be measured via the route and not 'as the crow flies'.

Safe pedestrian routes

A route deemed to be safe and accessible for all pedestrian users (including the disabled, elderly and children). They take into account physical limitation of those who may use them, for example providing steps appropriately supported by sloped access and drop curves positioned at crossing points. These routes and associated spaces are appropriately sized, with good visibility of the route ahead.

Alongside these principles they should also meet the following requirements:

- a. Where required, lighting design must be in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas (rural areas are exempt from this requirement).
- b. At crossing points there must be appropriate pedestrian crossings (e.g. zebra or pelican crossings) in place or a clear line of sight for at least 50m in each direction on roads with a 30mph speed limit or 100m in each direction on roads with greater than 30mph speed limit).

- c. On roads with a speed limit of 30mph (or higher) there is a clearly defined footpath.
- d. All footpaths provided should be at least 900mm wide. In rural areas, on single track roads, a grass verge can be accepted in place of a footpath.
- e. On roads with low traffic levels and a speed limit of 20mph or below, it is acceptable for the pedestrian's routes to use the road carriageway.

CONSULTATION

- The appropriate members of the project team are informed on the outcomes of the landscape and visual impact assessment and should demonstrate how any challenges have been accounted for within their design plans.

Attractive Design –For 2 credits

- During the design of homes and, where applicable, public realm, the developer liaises with the local authority to gain input and identify any existing local design guidance.
- The designs of homes and public realm, where applicable, can be demonstrated to:
 - Acknowledge and use local authority input or guidance
 - Embody local character OR distinctive design
- Where there is variation in design of buildings on site related to different types of tenure, this does not result in lower level of perceived quality.

For homes being assessed as part of a larger development

- In the design of buildings and public realm on site, the developer must consult with the intended residents (where known) and with the local community from the surrounding areas to identify appropriate distinctive design and local character and their expectations for new homes.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Ground contamination- site investigation	<p>A preliminary investigation (desk study and site reconnaissance) has been carried out by a contaminated land specialist to identify any potential land contamination issues with the site, which has been carried out in line with BS 10175: 'Investigation of potentially contaminated sites - Code of practice'. Where the preliminary investigation shows that the site is unlikely to be affected by significant contamination, no further investigation is required.</p> <p>Where the preliminary investigation has identified potential land contamination issues, the contaminated land specialist has performed a site investigation and risk assessment to determine the presence and levels of any contamination affecting the site and makes recommendations on any remediation required.</p> <p>Again the site investigations must be performed in accordance with BS 10175: 'Investigation of potentially contaminated sites - Code of practice'.</p> <p>The credits for site investigation can still be awarded where no contamination has been identified.</p>
CN2	Where mitigation is not possible (see criterion 2)	Where mitigation is not possible, relevant information is passed on to the project team relating to associated risks and to inform the site design and layout to account for this. This is only accepted in places where it has been confirmed by an expert that there is no level of mitigation that will alleviate the contamination issues but this does not affect the entire site and therefore there is still the potential to build on parts of the site.

CN3	A landscape and visual impact assessment	<p>An appropriate member of the design team, such as the landscape architect or the lead architect for the site, carries out a landscape and visual impact assessment. The scale of the assessment should reflect the size and influence of the development, identifying the surrounding area likely to be impacted. The assessment should focus on the priority landscape features in the local area, as identified by the local authority and/or local heritage and wildlife associations/bodies and should consider the sensitivity of and impact on each identified feature as follows:</p> <p>Sensitivity:</p> <ul style="list-style-type: none"> - quality and maturity of the feature, - rarity of the feature i.e.: is it of local, regional, national or global importance - statutory or regulatory limitations/ requirements relating to the resource <p>Impact:</p> <ul style="list-style-type: none"> - scale of development, and the physical extent of the impact, - duration of impacts i.e. temporary (short, medium or long term) or specific to the construction and operation phases. <p>A landscape and visual impact assessment carried out in line with the Guidelines for Landscape and Visual Impact Assessment Third Edition is considered compliant with this issue.</p>
CN4	Topography and viewpoints	Aspects of topography that should be considered in the landscape and visual impact assessment are as follows: <ol style="list-style-type: none"> obstructions of views removing or restricting access to a view point
CN5	Historical features or heritage assets	Guidance should be sought from local heritage associations as to the important features surrounding the site and how the development may impact these.
CN6	Natural wildlife and recreation assets	Guidance should be sought from local wildlife associations as to the important features surrounding the site and how the development may impact these.
CN7	Local character	Local character should be determined based on the following elements found on site and in the area surrounding the assessed home or development: <ol style="list-style-type: none"> building materials, colour and architectural style building layout, scale and forms where appropriate, continuity between building style within the development and the surrounding area retention or inclusion of historic features locally relevant construction detailing
CN8	Distinctive design	Distinctive design should be adopted in areas of regeneration or where the current local character is limited or considered to be of low value. Where distinctive design is being used the approach should be discussed with the local authority. Distinctive design is considered to be a clear deviation from the local character and can be demonstrated in a number of different ways as follows: <ol style="list-style-type: none"> The design is short listed in a regional or national level design competition recognised by industry. A design review carried out with any one or more of the following: <ol style="list-style-type: none"> local community representatives, academics, architects from other practises, professional architectural bodies or institutions.

Checklists, Illustrations, Diagrams & Tables

None.

Definitions

Contamination

Contamination is defined as any solid, liquid or gaseous material in, or on the ground (including groundwater) to be covered by the development, which is classed as a hazard and therefore presents an unacceptable risk to human health and the environment. The definition also includes land significantly infested by invasive plant species (see definition below).

Contaminated land specialist

Contaminated land specialist is an individual that holds a degree or equivalent qualification in chemistry, environmental science or management, earth sciences, civil engineering or a related subject, and has a minimum of three years relevant experience (within the last five years) in site investigation, risk assessment and appraisal. Such experience must clearly demonstrate a practical knowledge of site investigation methodologies and understanding of remediation techniques and national legislation on the subject; as well as acting in an advisory capacity to provide recommendations for remediation.

Public realm

Areas of the built and natural environment where the public has free access, encompassing all; streets, squares and other rights of way; open spaces and parks; and the 'public or private' spaces where public access is unrestricted (at least during daylight hours).

Remediation

Activity undertaken to prevent, minimise, remedy or mitigate the risk caused by contaminated land to human health or the environment.

1.03.01 - Ecology review

Aim

To identify existing ecology on site and understand the likely impacts of the development and construction process, in order to inform an appropriate approach for maintaining and enhancing the ecology.

Benefit

By gaining a good understanding of the ecology surrounding your home, the developer can make informed decisions as to how to protect and improve the existing ecology on the site to ensure it is there for you to enjoy and benefit from.

Context

There are legal requirements relating to certain species and habitats present within the UK. Developers are responsible for identifying the presence of these species and habitats and following the related legal requirements. However there is more that can be done to protect and enhance ecology. The National Planning Policy Framework (NPPF)¹ promotes “the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets.” In order to do this, we must have a good understanding of the ecology on a site and how it links to the wider area.

Criteria Summary

There are two routes to demonstrate compliance against ecology criteria within the Home Quality Mark; foundation and comprehensive routes. These two routes represent varying degrees of rigour. The route selected will depend on the size of the development and whether or not a suitably qualified ecologist will be employed as part of the development work. More credits are available through the more rigorous comprehensive route, recognising that a suitably qualified ecologist has been employed and influenced the development.

Note: The Comprehensive route should be used on larger developments.

ref	title	credits
1	Legal requirements relating to ecology	Pre-requisite
3	Foundation Route	Up to 2 credits
4 - 5	Survey and Recommendations	1
7	Supporting local biodiversity records	1
8	Comprehensive route	Up to 5 credits
9 - 11	Ecologists survey and recommendations	3
12 - 13	Early appointment of suitably qualified ecologist	1
14 - 15	Local biodiversity records	1
Total available Credits:		5

¹ National Planning Policy Framework 2012
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/211695.0.pdf

Criteria

Legal requirements relating to ecology –pre-requisite

1. Where protected species or habitats, or conservation designations have been identified, the developer confirms that the appropriate protection is followed in line with relevant EU and UK legislation.
2. Where invasive species have been identified, the developer confirms that the appropriate removal, treatment or disposal requirements are followed in line with the relevant EU and UK legislation.

Foundation Route

3. Criteria 1 and 2 are achieved.

Survey and Recommendations – For 1 credit

4. A local wildlife expert has been engaged with to survey ecology on site and identify applicable local guidance and provide recommendations to maintain and enhance ecology on site.
5. The local wildlife expert has identified which recommendations are key and confirmed that all recommendations have been made prior to the construction phase.

Supporting local biodiversity records - For 1 credit

6. Criteria 1 to 5 are achieved.
7. Information collected as part of the local wildlife expert survey is entered into the local biodiversity records centre database.

Comprehensive route

8. Criteria 1 and 2 are achieved.

Ecologists survey and recommendations –For 3 credits

9. A suitably qualified ecologist is appointed to carry out an ecology survey of the site.
10. The suitably qualified ecologist confirms that the scope of the ecology survey is in line with Appendix F – Guidance for relating an ecology survey to the Home Quality Mark.
11. The survey should contain recommendations to maintain and enhance ecology on site. Recommendations are grouped as high, medium or low priority by the suitably qualified ecologist.

Early appointment of suitably qualified ecologist - For 1 credit

12. Criteria 9-12 are achieved.
13. The suitably qualified ecologist is appointed as early as possible, prior to site clearance and construction.

Local biodiversity records - For 1 credit

14. Criteria 9-12 are achieved.
15. Information collected as part of the ecology survey is entered into the local biodiversity records centre database by the suitably qualified ecologist.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Survey	For both the foundation and comprehensive routes the survey can include the use of existing information where deemed appropriate (up to date and from a reliable source) by the

		<p>suitably qualified ecologist or the local wildlife expert.</p> <p>The comprehensive route survey should be carried out in line with Appendix F.</p> <p>The foundation route can also follow Appendix F but where this is not feasible it should cover the following as a minimum:</p> <ul style="list-style-type: none"> a. The survey should identify species and broad habitats on site and make recommendations in line with CN2. b. The survey should account for the whole site and be completed at an appropriate time, in terms of seasons, when it is possible to determine the presence, or evidence of the presence, of different plant and animal species.
CN2	Recommendations	<p>Recommendations made by the suitably qualified ecologist / local wildlife expert should include recommendations that promote the:</p> <ul style="list-style-type: none"> a. protection and mitigation of site ecology (in line with the ecological mitigation hierarchy) b. enhancement of ecology c. removal or limitation of invasive or diseased species, pests and harmful weeds where appropriate. This relates to species other than those covered by legislation. d. where appropriate, integration of ecological design within built structures has been achieved. <p>For recommendations relating to the construction phase ensure that:</p> <ul style="list-style-type: none"> a. areas of the site that are to be protected are marked-off accordingly b. all those working on site have been briefed on the protection measures put in place and the areas that are not accessible. <p>The recommendations should:</p> <ul style="list-style-type: none"> a. address any negative impacts and constraints identified in the ecology survey b. cover both the construction and operation phase c. consider the likelihood of the desired outcomes d. account for long-term maintenance or management implications e. consider the relationship with landscaping objectives and site maintenance approaches that may impact on ecology on site. <p>Note: Recommendations made as part of the ecology survey are implemented as part of the 1.03.02 Maintaining and enhancing ecological value issue</p>
CN3	Key recommendations (foundation route only)	<p>Under the foundation route, key recommendations for the ecology on site are determined by the local wildlife expert and will include approaches they deem as priority in order to maintain, protect and enhance the current ecological value of the site. Key recommendations identified as priority might include:</p> <ul style="list-style-type: none"> a. those recommendations likely to have the largest impact b. recommendations linked to species of local significance/priority species and habitats c. recommendations that will impact not only on the site but also the connectivity in surrounding areas.
CN4	Protection of trees and hedges	Where recommendations have been made regarding the protection of trees and hedges, they should be in accordance with BS 5837:2012 Trees in relation to design, demolition and construction.
CN5	Protection of	Where recommendations have been made regarding the

	watercourses and wetland areas	protection of watercourses and wetlands they should be in accordance with Pollution Prevention Guidelines 05.
CN6	Harmful weeds	Harmful weeds ² include: a. common ragwort b. spear thistle c. creeping or field thistle d. broadleaved dock e. curled dock f. any others specific to the local context as identified by the suitably qualified ecologist or local wildlife expert.
CN7	Integration of ecological design within or on built structures	Where deemed appropriate by the suitably qualified ecologist or local wildlife expert, ecological solutions are integrated within or on built structures. This could be demonstrated through: a. Green roofs or walls b. Vegetated car parking bays c. Vegetated SuDS systems d. Bird or bat boxes fixed or integrated to the building

Definitions

Biodiversity Action Plans (BAPs)

Biodiversity action plans operate at different levels across the UK. For the purposes of this issue we are referring to local biodiversity action plans developed and managed by local authorities, which outline species and habitats of local importance, including actions and initiatives to protect and support these.

Habitat connectivity

Habitat connectivity refers to the degree to which the size and distribution of patches of habitat facilitate animal movement and other ecological flows. Better habitat connectivity improves the relative ease with which species can move through the landscape.

Irreplaceable natural habitat

Areas of irreplaceable natural habitat are those that are of particular significance in terms of age, uniqueness and / or species diversity and therefore there is the possibility that once lost they cannot be replaced. Ancient woodland is a good example of irreplaceable natural habitat.³

Keystone species

A keystone species is a plant or animal that plays a unique and crucial role in the way an ecosystem functions. Without keystone species, the ecosystem would be dramatically different or cease to exist altogether.⁴

Priority species and habitats

“Species and habitats identified as being most threatened and in need of conservation action. In England, Wales and Scotland habitats and species of principle importance for the conservation of biodiversity” are listed respectively in section 41 and 42 of NERC Act 2006; in section 2 of Nature Conservation (Scotland) Act 2004; and in Northern Ireland, Priority Species List 2010.”⁵ Please note that this is different from the experts grouping of high, medium and low priorities.

² Planning portal: <http://planningguidance.planningportal.gov.uk/blog/guidance/natural-environment/biodiversity-ecosystems-and-green-infrastructure/>

³ National Geographic:
http://education.nationalgeographic.co.uk/education/encyclopedia/keystone-species/?ar_a=1

⁴ BS 42020:2013 Biodiversity Code of Practice for Planning and Development.

CIEEM EclA Guidelines

www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/EclA_Guidelines/TGSEclA-EclA_Guidelines-Terrestrial_Freshwater_Coastal.pdf

CIRIA 2011 c691 Working with wildlife: Guidance for the construction industry

⁵ <http://jncc.Defra.gov.uk/page-5717>

On-site (foundation route)

For the purposes of the foundation route, on-site areas are considered to be private gardens, communal gardens and any other landscaped areas between the individual plots that form part of the larger development.

Local wildlife expert

A local wildlife expert can be an individual or group from bodies such as The Wildlife Trust, The Royal Horticultural Society, a biodiversity officer from the local authority etc. to inform the adoption of locally relevant ecological measures that enhance the ecological value of the site.

Local guidance

Local guidance can be sought from recognised bodies such as the local Wildlife Trust or Local authority etc.

Construction zone

The construction zone includes any land used for buildings, hard standing, landscaping, site access or where construction work is carried out (or land is being disturbed in any other way), plus a 3m boundary in either direction around these areas. It also includes any areas used for temporary site storage and buildings. If it is not known exactly where buildings, hard standing, site access, temporary storage and buildings will be located, it must be assumed that the construction zone is the entire development site.

Enhancement opportunities

Enhancement is often considered to be the next step following on from the mitigation hierarchy and is considered to be a measure that contributes towards a net gain in biodiversity for the site. A measure should only be considered as enhancement when it results in an improvement over and above what is required to achieve mitigation or compensation. Enhancement can be in relation to improving the condition of an existing species, the introduction of a new species, the creation of an entirely new habitat that contributes towards a net gain in biodiversity or an intervention that improves the links between natural spaces within or beyond the site boundary.⁶

Invasive species

Invasive species are non-indigenous or non-native species (e.g. plants or animals) that adversely affect the habitats they invade economically, environmentally or ecologically.⁶

Mitigation hierarchy

The mitigation hierarchy is a recognised and a generally accepted approach to protecting and maintaining the ecological value of a site where possible. The hierarchy favours avoidance of ecological harm or protection to avoid harm, followed by mitigating unavoidable impacts and considers compensation as a last resort. Recommendations for maintaining the ecological value of the site should be made in line with mitigation hierarchy, avoidance should always be the first option and should only be ruled out where it has been confirmed that it is not feasible. Furthermore compensation measures should be implemented on-site and ideally timed so that the compensation measure is established before the loss occurs.⁶

Protected species

“Species identified as species of European Community interest and in need of strict protection or protected by national wildlife legislation.”⁶

Suitably qualified ecologist

An suitably qualified ecologist is defined as an individual who:

1. Holds a degree or equivalent qualification (e.g. N/SVQ Level 5) in ecology or a related subject
2. Is a practising ecologist, with a minimum of three years' relevant experience (within the last five

⁶ BS 42020:2013 Biodiversity Code of Practice for Planning and Development.

CIEEM EclA Guidelines

www.cieem.net/files/Resource_Library/Technical_Guidance_Series/EclA_Guidelines/TGSEclA-EclA_Guidelines-Terrestrial_Freshwater_Coastal.pdf

CIRIA 2011 c691 Working with wildlife: Guidance for the construction industry

years). Such experience must clearly demonstrate a practical understanding of factors affecting ecology in relation to construction and the built environment, including acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures. Examples of relevant experience are ecological impact assessments, Phase 1 and 2 habitat surveys, and habitat restoration experience should also be demonstrated to be complementary to the habitat type identified for the site.

3. Is covered by a professional code of conduct and subject to peer review. Peer review is defined as the process employed by a professional body to demonstrate that potential or full members maintain a standard of knowledge or experience required to ensure compliance with a code of conduct and professional ethics.

Appendix F – Guidance for relating an ecology survey to the Home Quality Mark

Before using this guidance and completing the form please read the following:

1. This document is to be used for Home Quality Mark assessments, where a suitably qualified ecologist has been appointed and produced an ecology survey as part of a proposed development. (This document can also be used by a local wildlife expert where they have chosen to use this framework.)
2. As a suitably qualified ecologist may have been appointed to carry out ecology surveys without being aware that a Home Quality Mark assessment has been, or is to be conducted. In this case this document can be used to assist a Home Quality Mark assessor to relate the contents of such a survey to the ecology criteria of the Home Quality Mark.
3. The assessor is to use this completed document in conjunction with the latest issue of the Home Quality Mark Scheme Document and information provided by the developer or client to carry out the assessment of the Home Quality Mark ecology issues.

There are 4 sections (sections A - D) in this document:

1. Section A requires contact details for the suitably qualified ecologist.
2. Section B1 determines whether the appointed ecologist is 'suitably qualified' (under the Home Quality Mark); and if not, section B2 determines whether the survey has been verified by an ecologist who is 'suitably qualified'.
3. Section C provides the ecologist and the Home Quality Mark assessor with the required scope of the ecology survey. Alternatively this can be demonstrated by meeting the guidance detailed at the beginning of the section. If 'no' is recorded against anything in section C then the contents of the ecology survey cannot be used to determine compliance with the Home Quality Mark criteria, unless a full justification is provided by the ecologist demonstrating why the required content is not applicable.
4. Section D requires the signature of the appointed ecologist who has completed this document.

Section A: Contact Details

Contact details
Ecologist's Details
Company name:
Company address:
Contact name:
Contact telephone number:
Ecology survey reference:

Section B1: Expert's qualifications

1. Do you hold a degree (or equivalent qualification, e.g. N/SVQ level 5) in an ecology related subject?

Yes

No

If yes, please provide details

Note: Depending on the ecological content (minimum 60%), the following degrees might be considered relevant: Ecology, Biological Sciences, Zoology, Botany, Countryside Management, Environmental Sciences, Marine and Freshwater Management, Earth Sciences, Agriculture, Forestry, Geography, Landscape Management.

2. Are you a practising ecologist with a minimum of 3 years relevant experience within the last 5 years?

Yes

No

If yes, please provide details

Note: Relevant experience must clearly demonstrate a practical understanding of factors affecting ecology in relation to construction and the built environment; including, acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures. Examples of relevant experience are: ecological impact assessments; Phase 1 and 2 habitat surveys and habitat restoration.

3. Are you bound by a professional code of conduct and subject to peer review?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

If yes, please provide details

Note: a full member of one of the following organisations will be deemed suitable: Chartered Institution of Water and Environmental Management (CIWEM); Institute of Ecology and Environmental Management (IEEM); Institute of Environmental Management and Assessment (IEMA); Landscape Institute (LI).

Note: Peer review is defined as the process employed by a professional body to demonstrate that potential or current full members maintain a standard of knowledge and experience required to ensure compliance with a code of conduct and professional ethics.

If 'no' has been answered for any question in Section B1 then the Home Quality Mark requirement for a 'suitably qualified expert' has not been met. The ecology survey CANNOT be used to assess the Home Quality Mark ecology issues unless it is verified by an individual who is 'suitably qualified' (see section B2).

Section B2: Survey verification

Details on how to verify an ecology survey for a Home Quality Mark assessment:

1. The individual verifying the survey must provide written confirmation that they comply with the definition of a 'suitably qualified ecologist' (as detailed in Section B1).
2. The verifier of the survey must confirm in writing they have read and reviewed the survey and found it to:
 - a. represent sound industry practice
 - b. report and recommend correctly, truthfully, and objectively
 - c. be appropriate given the local site conditions and scope of works proposed
 - d. avoid invalid, biased, and exaggerated statements.

Written confirmation from the third party verifier on all the points detailed under 1 and 2 above (for section B2) must be included in an appendix to this guidance.

If the appointed expert does not meet the criteria of a 'suitably qualified ecologist' and the survey has not been verified by an individual who does meet these criteria, then the survey CANNOT be used as evidence of compliance with the ecology related Home Quality Mark issues.

Section C: Contents of the ecology survey

The content of the ecology survey should either be in line with EclA guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) or meet the following checklist.

Parts	Contents of the ecology survey	Yes	No	Applicable section of the ecology survey
1.	<p>The survey should identify, where applicable:</p> <ul style="list-style-type: none"> • both flora and fauna species (including those in or on buildings and within water bodies) • broad habitat types • species or habitats of local importance, including those considered locally as priority habitats and species and those identified in local biodiversity action plans • irreplaceable natural habitat • features that support ecological connectivity. 			
2.	<p>The survey should, where applicable, make use of locally available information such as:</p> <ul style="list-style-type: none"> • Local biodiversity record centre • Local biodiversity action plans • Local guidelines available from wildlife trusts and the local authority 			
3.	<p>The survey has been carried out:</p> <ul style="list-style-type: none"> • At an appropriate time, in terms of seasons, when it is possible to determine the presence, or evidence of the presence, of different plant and animal species. • For a suitable duration and over a suitable area that reflects the zone of influence of the construction process (construction zone) and the planned development (this may include areas that are affected beyond the site boundary). • Using an appropriate methodology and making use of best practice guidance where available. 			
4.	<p>The survey considers, where applicable:</p> <ul style="list-style-type: none"> • Impacts of the planned development on species, habitats and their connectivity. Considering the; extent, duration, reversibility and knock on effects of the impacts. • Species and habitat interdependencies and resources that support any given species or habitat (clearly identifying keystone species). • The viability of species and habitats in terms of their: <ul style="list-style-type: none"> ◦ Population size and condition (diseases etc.) ◦ Ability to adapt to current and predicted environmental conditions and human disturbance (e.g. climate change) • Constraints and risks to ecology including: invasive 			

	<p>species, diseased species and contamination, habitat fragmentation.</p> <ul style="list-style-type: none"> • Impacts specific to the construction process on species, habitats and their connectivity including as a minimum the risk of: <ul style="list-style-type: none"> ○ Isolation of habitats or species ○ Physical damage to species and habitats (e.g. severing of roots) ○ The transportation of invasive or diseased species on construction vehicles ○ Light and noise pollution affecting species, considering nocturnal species ○ The pollution of water bodies or courses. 			
5.	<p>The survey contains recommendations in line with CN2.</p> <p>Note: Such advice is to include, and go beyond, compliance with all current EU and UK legislation relating to protected species and habitats.</p>			

Section D: Signature of validation

I confirm the information provided in this document is truthful and accurate at the time of completion.

Name of ecologist:

Signature of ecologist:

Date:

1.03.02 - Maintaining and enhancing ecological value

Aim

To ensure that the existing ecological value of the site is maintained, protected and enhanced during both the construction and occupation phases and that risks to the ecological value of the site are eliminated or managed effectively.

Benefit

- Maintaining and improving the ecology on site and in the surrounding area will help to improve the health and wellbeing of the occupants. There is evidence in support of the benefits of having access to the natural environment, in any form, demonstrating a reduced risk of heart disease, improvements in self-esteem and reduced depression.⁷
- Ecology is essential for processes such as primary production and water cycling and can have considerable economic value and value in the provision of 'cultural services'.⁸
- As outlined in the 1.03.06 Recreational Space, access to and recreation in the natural environment can provide physical, mental and social benefits.⁷ By considering ecology we can identify the opportunity to preserve and enhance this natural environment.

Context

Ecology is fundamental to the provision of all ecosystem services. Although it may not be obvious, ecology directly and indirectly sustains our lives. The biodiversity associated with ecology is essential for primary production and nutrient and water cycling, which in turn supports the provision of food. Biodiversity can support processes such as pollination and seed dispersal, as well as have considerable value in the provision of 'cultural services', supporting our cultural identity. By considering ecology we can identify the opportunity to preserve and enhance this natural environment. Furthermore interaction with the natural environment is important for increasing people's awareness of the benefits that the natural environment can provide.⁹

Criteria Summary

There are two routes to demonstrate compliance against ecology criteria within the Home Quality Mark; foundation and comprehensive routes. These two routes represent varying degrees of rigour. The route selected will depend on the size of the development and whether or not a suitably qualified ecologist will be employed as part of the development work. More credits are available through the more rigorous comprehensive route, recognising that a suitably qualified ecologist has been employed and influenced the development.

ref	title	credits
1	Foundation route	Up to 5 credits
2 - 3	Protect and enhance ecology	5
4	Comprehensive Route	Up to 15 credits
5 - 6	Protect and enhance ecology during the construction and operation phases	12
7 - 9	Protecting against invasive or diseased species on site	3
Total available Credits:		15

⁷ Natural England (2009) Our National Health Service

⁸ Natural Capital Collation (2015) The Economic Case for Investment in Natural Capital in England
<http://nebula.wsimg.com/8755553ec25d9cd0dc9407fa5e4aa408?AccessKeyId=68F83A8E994328D64D3D&disposition=0&alloworigin=1>

⁹ UK National Ecosystem Assessment Follow-on: Synthesis of Key Findings 2014

Criteria

Foundation route –pre-requisite

1. Criteria 1-6 are achieved in 1.03.01 Ecology Review

Protect and enhance ecology –For Up to 5 credits

2. Credits are awarded based on the implementation of recommendations identified in the foundation route ecology survey (1.03.01 Ecology review), as shown in Table 1.2- 1

Table 1.2-1 Proportion of recommendations implemented and the associated credits available

Proportion of recommendations implemented	Credits available
At least 50% of the recommendations made by the local wildlife expert have been implemented (including all key recommendations identified).	3
All of the recommendations from the local wildlife expert have been implemented.	5

3. Protection measures required during the construction phase should ensure:
 - a. areas to be avoided are marked-off and sign-posted accordingly
 - b. all staff and subcontractors are briefed on the protection measures put in place and the areas that are not accessible.

Comprehensive Route –pre-requisite

4. Criteria 9-12 are achieved in 1.03.01 Ecology Review.

Protect and enhance ecology during the construction and operation phases –For Up to 12 credits

5. Credits are awarded based on the implementation of protection, mitigation and enhancement measures identified in the comprehensive route ecology survey (1.03.01 Ecology review) covering the construction and operation as shown in Table 1.2- 2.

Table 1.2-2 Proportion of recommendations implemented and the associated credits available

Credits	Requirements
Protection and mitigation recommendations	
3	All high priority recommendations
5	All high and medium priority recommendations
6	All high, medium and low priority recommendations
Enhancement recommendations	
3	All high priority recommendations
5	All high and medium priority recommendations
6	All high, medium and low priority recommendations

Note: Credits for protection and mitigation and the credits for enhancement can be awarded independently.

6. Protection measures required during the construction phase should ensure:
 - a. areas to be avoided are marked-off and sign-posted accordingly
 - b. all staff and subcontractors are briefed on the protection measures put in place and the areas that are not accessible.

Protecting against invasive or diseased species on site –For 3 credits

7. Where diseased or invasive species (in addition to those dealt with by legislation) have been identified as posing a specific risk, the recommendations of a suitably qualified ecologist have been followed.
8. Removal, limiting or disposal of invasive, pest and diseased species (e.g. cutting and spraying, root removal, etc.) has been carried out in line with best practice guidance or following the advice of a suitably qualified ecologist.
9. Plant species used for landscaping purposes are either:
 - a. Native species OR
 - b. Non-native species which do not pose an invasive risk or contribute to the invasive risk of another species, as confirmed by a suitably qualified ecologist.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Construction process	The construction process includes site clearance, preparation and construction works.
CN2	Cases where protection is not required	Protection is not required (with the exception of protected species) where; <ul style="list-style-type: none">• the suitably qualified ecologist confirms that the feature in question does not add to the ecological value of the site• protection would not be viable as the result of low abundance or poor condition or health (e.g. diseased) of the species.
CN3	Protection measures	Protection measures may include: erection of fences or wildlife exclusion barriers, translocation or temporary shelters.
CN4	Best practise guidance	Best practise guidance can be sought from the non-native species secretariat under their management and guidance section: http://www.nonnativespecies.org/index.cfm?sectionid=53
CN6	Protection recommendations relating to invasive and diseased species	For the purposes of this issue, protection relating to diseased or invasive species is considered to be separate to the protection of existing valuable ecology onsite. Where the suitably qualified ecologist has made protection recommendations relating to diseased and/or invasive species, implementation of these recommendations is recognised under criteria 7 - 9.

Definitions

Enhancement opportunities

Enhancement is often considered to be the next step following on from the mitigation hierarchy and is considered to be a measure that contributes towards a net gain in biodiversity for the site. A measure should only be considered as enhancement when it results in an improvement over and above what is required to achieve mitigation or compensation. Enhancement can be in relation to improving the condition of an existing species, the introduction of a new species, the creation of an entirely new habitat that contributes towards a net gain in biodiversity or an intervention that improves the links between natural spaces within or beyond the site boundary.¹⁰

Invasive species

Invasive species are non-indigenous or non-native species (e.g. plants or animals) that adversely affect the habitats they invade economically, environmentally or ecologically.¹⁰

Mitigation hierarchy

The mitigation hierarchy is a recognised and a generally accepted approach to protecting and maintaining the ecological value of a site where possible. The hierarchy favours avoidance of ecological harm or protection to avoid harm, followed by mitigating unavoidable impacts and considers compensation as a last resort. Recommendations for maintaining the ecological value of the site should be made in line with mitigation hierarchy, avoidance should always be the first option and should only be ruled out where it has been confirmed that it is not feasible.

¹⁰ BS 42020:2013 Biodiversity Code of Practice for Planning and Development.

CIEEM EclA Guidelines

www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/EclA_Guidelines/TGSEclA-EclA_Guidelines-Terrestrial_Freshwater_Coastal.pdf

CIRIA 2011 c691 Working with wildlife: Guidance for the construction industry

Furthermore compensation measures should be implemented on-site and ideally timed so that the compensation measure is established before the loss occurs.¹¹

Protected species

“Species identified as species of European Community interest and in need of strict protection or protected by national wildlife legislation.”¹¹

Suitably qualified ecologist

An suitably qualified ecologist is defined as an individual who:

1. Holds a degree or equivalent qualification (e.g. N/SVQ Level 5) in ecology or a related subject
2. Is a practising ecologist, with a minimum of three years' relevant experience (within the last five years). Such experience must clearly demonstrate a practical understanding of factors affecting ecology in relation to construction and the built environment, including acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures. Examples of relevant experience are ecological impact assessments, Phase 1 and 2 habitat surveys, and habitat restoration experience should also be demonstrated to be complementary to the habitat type identified for the site.
3. Is covered by a professional code of conduct and subject to peer review. Peer review is defined as the process employed by a professional body to demonstrate that potential or full members maintain a standard of knowledge or experience required to ensure compliance with a code of conduct and professional ethics.

CONSULTATION

¹¹ BS 42020:2013 Biodiversity Code of Practice for Planning and Development.

CIEEM EclA Guidelines

www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/EclA_Guidelines/TGSEclA-EclA_Guidelines-Terrestrial_Freshwater_Coastal.pdf

CIRIA 2011 c691 Working with wildlife: Guidance for the construction industry

1.03.03 - Ecological management

Aim

To support on-going management of ecology on site and ensure that the approach for ecology remains appropriate.

Benefit

By ensuring that landscaped areas continue to be maintained and managed appropriately this acts to:

- support the aesthetics of the development
- ensure continued realisation of the benefits outlined in the previous ecology issues.

Context

The implementation of recommendations to protect and enhance ecology, often require management to secure the desired outcomes. Successful management approaches help to preserve the long term value of the development.

Criteria Summary

There are two routes to demonstrate compliance against ecology criteria within the Home Quality Mark; foundation and comprehensive routes. These two routes represent varying degrees of rigour. The route selected will depend on the size of the development and whether or not a suitably qualified ecologist will be employed as part of the development work. More credits are available through the more rigorous comprehensive route, recognising that a suitably qualified ecologist has been employed and influenced the development.

ref	title	credits
1	Foundation route	Up to 1 credit
2	Home information	1
3	Comprehensive Route	Up to 4 credits
4	Ecological management	4
Total available Credits:		4

Criteria

Foundation route

Home information –For 1 credit

10. 1 credit is available for providing ecology home information through the foundation route (see 3.01.02 Home information)

Comprehensive Route –pre-requisite

For homes being assessed as part of a larger development

11. Within the issue 1.03.02 Maintaining and enhancing ecological value, 6 credits are achieved as a minimum.

Ecological management –For 4 credits

12. The suitably qualified ecologist collates information to be passed onto those who will have the responsibility of maintaining landscaped areas, during the handover phase. This includes,

where applicable, information on:

- a. the species and habitats of local importance on site (identified in the ecology survey) and advice on how to manage these.
- b. the site conditions identified in the ecology survey (e.g. soil type, drainage, exposure the sun, wind etc.) and what species would be suitable for different landscaped areas on site. (Note: where 1.03.04 Growing space has been achieved this should include edible species suitable for the growing space).
- c. the recommendations already implemented to protect, maintain and enhance the ecological value of landscaped areas and any associated long term management approaches to ensure the impact of the recommendations are realised.
- d. any additional practical guidance for the long term management of ecology on site.

13. Where the developer will not be responsible for the longer term management of the site, a landscape management company, or equivalent, are appointed. The contract with the management company (or equivalent) should:
 - a. cover five years as a minimum
 - b. outline the responsibilities for parties involved, for example the local authority, the developer or the landscaping management company appointed.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Long term management of the site	Where the developer will be involved with the site long term they can fulfil the role of the landscape management company.
CN2	Practical information relating to management requirements	This could include information relating to appropriate methods/approaches to: <ol style="list-style-type: none">1. pruning regimes for flowering species2. coppicing and vegetation clearance3. non-chemical biological control options
CN3	Landscaped areas	Landscaped areas refer to all vegetated areas on the development site that are not part of a private garden. For example: communal gardens, street and parking landscaping, green infrastructure, play areas, parks etc.

Definitions

Protected species

“Species identified as species of European Community interest and in need of strict protection or protected by national wildlife legislation.” ¹²

Suitably qualified ecologist

An suitably qualified ecologist is defined as an individual who:

1. Holds a degree or equivalent qualification (e.g. N/SVQ Level 5) in ecology or a related subject
2. Is a practising ecologist, with a minimum of three years' relevant experience (within the last five years). Such experience must clearly demonstrate a practical understanding of factors affecting ecology in relation to construction and the built environment, including acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures. Examples of relevant experience are ecological impact assessments, Phase 1 and 2 habitat surveys, and habitat restoration experience should also be demonstrated to be complementary to the habitat type identified for the site.
3. Is covered by a professional code of conduct and subject to peer review. Peer review is defined

¹² BS 42020:2013 Biodiversity Code of Practice for Planning and Development.

as the process employed by a professional body to demonstrate that potential or full members maintain a standard of knowledge or experience required to ensure compliance with a code of conduct and professional ethics.

CONSULTATION

1.03.04 - Growing space

Aim

To provide dedicated growing space to allow occupants the opportunity to grow their own food and have access to edible local produce.

Benefit

- The use of growing space can reduce the amount that occupants have to spend on groceries and improve access to good quality produce.¹³
- Eating freshly grown produce and being involved in gardening and physical activity can help to improve people's physical and mental health.¹⁴
- Communal growing space can help to support community cohesion, as well as educate the local community on the benefits of locally grown seasonal produce as part of a healthy balanced diet.¹⁵
- The provision of local growing space, reduces the number of food shopping trips helping to reduce the occupants carbon footprint, from a reduction in transport emissions.

Context

Growing space provides the opportunity to grow and have access to edible local produce. Not only are there health benefits to eating freshly grown produce but occupiers could also benefit in terms of reduced grocery bills. Growing space can also support a more general feeling of health and well-being and community cohesion, as well as educate the local community on the benefits of locally grown seasonal produce as part of a healthy balanced diet. Furthermore the provision of growing space will help to buffer against food shortages and make use of land that would otherwise be paved or provide little other function.^{15 16}

Criteria Summary

ref	title	credits
1	Provision of growing space	1
4	Home information	1
5	Initial planting	1
6	Expert input	1
9	Ownership and maintenance	1
Total available Credits:		5

Criteria

For homes being assessed as part of a larger development

Provision of growing space –For 1 credit

1. The local authority and local growing initiatives or groups have been consulted to determine the demand for growing space in the local area.
2. Where the consultation identifies a demand for growing space, compliant growing space is provided in a communal location on the development site.
3. The growing space should encompass equipment storage areas or be located close to an area on the development site appropriate for storage.

¹³ Faculty of Public Health (2004) Food Poverty and Health

¹⁴ Natural England (2009) Our National Health Service

¹⁵ Sustain (2014) The benefits and food growing for health and wellbeing.

¹⁶ Soil Association: Local Food Routes A summary report of Food futures

Home Information - For 1 credit

4. Home information is provided to occupants on the growing space (see 3.01.02 Home information)

Initial planting –For 1 credit

5. Dedicated growing space is planted with edible species ready for the handover phase, which:
 - a. are suitable to the location and season
 - b. will require low maintenance.

Expert input –For 1 credit

6. Criteria 1 – 3 are achieved.
7. Expert advice is sought at the design stage to inform the design of the growing space covering the following:
 - a. Additional design advice relating to compliant growing spaces.
 - b. Species suitable for initial planting, taking account of the local weather and soil conditions (see criterion 5).
 - c. How growing space can complement the biodiversity within the area, for example providing additional habitat.
8. Expert advice is sought at the handover stage to provide advice to users on the growing space provided. This should cover the following:
 - a. A growing strategy to make the most of seasonal variations in availability and suitability of different food types.
 - b. Information on maintaining growing space and, where applicable, species already planted.

Ownership and maintenance –For 1 credit

9. A suitable management company is appointed or responsibilities for maintenance are agreed with the local authority or community allotment association (or equivalent).
10. Where criterion 8 has been met, this advice is provided to those responsible for the management.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Growing space	<p>Growing space can be considered as any one or more of the following:</p> <ol style="list-style-type: none">a. Allotmentsb. Community gardens or community orchardsc. Raised beds dedicated for growing food - this is a particularly useful approach where the soil conditions are poor as they can be artificially filled with good quality soild. Greenhouse or polytunnele. Intensive green roofs and walls
CN2	Compliant growing space	<p>The growing space provided should, where applicable:</p> <ol style="list-style-type: none">a. be a clearly designated growing space e.g. use of signs, planting or fencing around the perimeterb. be located within 500m of the entrance from all homes on site ¹⁷c. be provided with an equivalent minimum of 50m² for every 10 homes. ¹⁸d. ideally be south facing and not in an area that is heavily shadede. sheltered from the wind on the perimeter e.g. trees, hedges or other boundary protectionf. designed to be accessible to all users, for example through the provision of raised bedsg. located near to a rain water collection system , such as a

		rainwater butt.
CN3	Expert advice	Expert advice may be provided by an ecologist or landscape architect employed on site or a local wildlife expert (see 1.03.01 Ecology review). This can be an individual or group from bodies such as The Wildlife Trust, The Royal Horticultural Society, a biodiversity officer from the local authority or representatives from a local community garden group (e.g. allotment association) etc.
CN4	Low maintenance	<p>Low-maintenance plants can survive in the local conditions with minimal external input. For example where:</p> <ul style="list-style-type: none"> a. little or no watering is required outside of natural rainfall b. they can withstand local wind speeds c. little or no pruning is required d. minimal physical exertion is needed to obtain the harvest <p>Some examples of low maintenance crops that may be appropriate are: apple trees, tomato plants, strawberry plants etc.</p>

Definitions

Intensive green roofs

Intensive green roofs are designed to be accessible for either food growing or other recreational activities. Intensive green roofs will require deeper soil levels to support shrubs, perennials and even trees. Beds for growing can be incorporated into the roof at the time of design and construction or they can be added as containers after completion or in conversion projects. Loading capacity for green roofs should be addressed at the design stage.¹⁹

Larger developments

For the purposes of this issue a larger development is defined as a development of 10 homes or more.

¹⁷ Brighton and Hove City Council (2011) Food Growing and Development. http://www.brighton-hove.gov.uk/sites/brighton-hove.gov.uk/files/downloads/ldf/PAN6-Food_Growing_and_development-latest-Sept2011.pdf

¹⁸ <http://www.allotmoreallotments.org.uk/legislation.htm>

¹⁹ Brighton and Hove City Council (2011) Food Growing and Development. http://www.brighton-hove.gov.uk/sites/brighton-hove.gov.uk/files/downloads/ldf/PAN6-Food_Growing_and_development-latest-Sept2011.pdf

1.03.05 - Recreational space

Aim

To provide occupants with access to outdoor recreational space, promoting community cohesion, activity and wellbeing.

Benefit

- Access to and recreation in the natural environment can provide people with physical, mental and social benefits, such as increasing the level of exercise undertaken, reducing stress levels and increasing social cohesion and sense of place in the local community.²⁰
- The provision of private external space provides the opportunity of overspill from indoor activities.

Context

Homes with access to sufficient recreational space are often more desirable, increasing the value of the home. Good access and a wide range of recreational activities can act to promote the health and wellbeing of people in the community and enhance community cohesion and the desire to live in an area. Furthermore the provision of recreational space promotes interaction with the natural environment, important for increasing people's awareness of the benefits the natural environment can provide.²⁰

Criteria Summary

ref	title	credits
1	Accessible public recreational space	1
2	Private space	5
3	Communal space	2
4	Management strategy	1
Total available Credits:		9

Criteria

Accessible public recreational space –For 1 credit

1. The home is within walking distance of publicly accessible external space.

Private space –For Up to 5 credits

2. Private external space is provided that is clearly associated with the home and has a minimum length of 10m. Credits are awarded for private external space based on the areas detailed in Table 1.2- 2.

Table 1.2-2 Private external space requirements

Number of bedrooms per home	3 credits	5 credits
Up to two three	50m ²	70m ²
Three to four	10m ² per additional bedroom	20m ² per additional bedroom
Five and above	5m ² per additional bedroom	10m ² per additional bedroom

²⁰ Natural England (2009) Our National Health Service

Communal space –For Up to 2 credits

3. The home is provided with communal external space that should be clearly associated with the home and should meet the following:
 - a. Areas of communal space should be over 50m2.
 - b. Credits are awarded for communal space based on the areas detailed in Table 1.2 - 3.

Table 1.2-3 Communal external space requirements:

1 credit	2 credits
10m ² per bedroom	15m ² per bedroom

Management strategy –For 1 credit

4. There is a management strategy in place for communal space before practical completion of the project. This can be met through any of the options below:
 - a. The developer sets up a residents association with funding arrangements.
 - b. The developer or owners hand over the maintenance responsibility for new or existing areas of open space to the local authority or another appropriate body, with arrangements to fund future management and maintenance.
 - c. The local authority or developer makes an arrangement with a suitable third party for long-term management.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Private and communal external spaces	<p>Up to 7 credits can be achieved where homes have access to both private and communal space that meet the highest criteria levels for both private and communal space.</p> <p>Where a mix of private and communal space is provided there must be no clear distinction between different tenure types, for example providing private housing with private space and affordable housing with communal space would not be compliant.</p> <p>The private requirements given in Table 1.2- 2 are cumulative. For example for a house that has 4 bedrooms to achieve 3 credits it must have 70m² of private external space (e.g. 50m²+ 2 x 10m²).</p>
CN2	Local authority requirements	If the local authority have set requirements for external space, then whichever requirements are higher (local authority or HQM) must be achieved.
CN3	Communal external spaces	<p>The following requirements apply for communal external space:</p> <ol style="list-style-type: none"> a. Communal external space should not be segregated by tenure. b. Any communal spaces provided for more than 50 dwellings, should be at least 1,000m². c. The communal space should be fit for the activities it is intended to support, for example, if an area has been designated for children's play ensure the topography, surveillance and location in relation to homes is appropriate. d. Communal space associated with the home should be within close proximity (see Definitions) to the entrance of the home.
CN4	Private balconies	Where balconies are provided the total area of communal space associated with the homes can be reduced by the size of the balcony, provided that: <ol style="list-style-type: none"> a. the balconies have an area greater than 5m² and a width

		<p>greater than 1.5m.</p> <p>b. only the area of one balcony per home can be subtracted from the total area of communal space.</p> <p>c. a minimum of 10m² of communal space per flat is still provided.</p>
CN5	Public external spaces	<p>Compliant public external space must be:</p> <p>a. publicly accessible and free of charge²¹</p> <p>b. a minimum of 2ha in size 300m from the site boundary (via a safe pedestrian route) and be suitable and fit for recreational purposes or activities or at least one accessible 20 hectare site within two kilometres of home²¹</p> <p>Compliant public external spaces can include:</p> <p>a. Green park spaces</p> <p>b. Sports fields</p> <p>c. Woodland</p> <p>d. Nature reserves, SSSI etc.</p>

Definitions

Communal space

Space that is accessible to the occupants of several homes and clearly associated with the development itself.

Private space

Space that is accessible only to the occupants of an individual home and is accessible directly from an entrance to the home.

Close proximity

For the purposes of this issue, close proximity is defined as a location no more than 100m from an entrance to the home via a safe pedestrian route.

Safe pedestrian routes

A route deemed to be safe and accessible for all pedestrian users (including the disabled, elderly and children). They take into account physical limitation of those who may use them, for example providing steps appropriately supported by slopped access and drop curves positioned at crossing points. These routes and associated spaces are appropriately sized, with good visibility of the route ahead.

Alongside these principles they should also meet the following requirements:

- a. Where required, lighting design must be in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas (rural areas are exempt from this requirement).
- b. At crossing points there must be appropriate pedestrian crossings (e.g. zebra or pelican crossings) in place or a clear line of sight for at least 50m in each direction on roads with a 30mph speed limit or 100m in each direction on roads with greater than 30mph speed limit).
- c. On roads with a speed limit of 30mph (or higher) there is a clearly defined footpath.
- d. All footpaths provided should be at least 900mm wide. In rural areas, on single track roads, a grass verge can be accepted in place of a footpath.
- e. On roads with low traffic levels and a speed limit of 20mph or below, it is acceptable for the pedestrian's routes to use the road carriageway.

Note: Pedestrian routes that are outside of the development site and therefore not within the control of the developer do not need to meet the above requirements however it must be demonstrated that there is a pedestrian route that does allow access to the recreational space.

²¹ Nature Nearby: "Accessible Natural Greenspace Guidance", Natural England 2010 p8

1.04.01 - Flood risk

Aim

To promote housing development in low flood risk areas or where located in areas of high or medium flood risk encourage measures to minimise the impact of flooding.

Benefit

- Promotes locating developments to reduce the chance of experiencing a flooding event
- Encourages measures to protect your home if a flooding event does occur
- Helps protect the environment against the transport of harmful substances found in the home during a flood event

Context

When a home floods it can have serious consequences financially, socially and environmentally.

In the winter months of 2013/2014 severe weather across the UK resulted in widespread flooding, during which 8,342 households were impacted and claims are expected to be around £427.5 million¹. The met office have suggested that under future climate change projections, the UK may see an increase in flood risk from various sources².

The best way to prevent flooding is to locate development in areas at a low risk of flooding. Where this is not possible, installing appropriate flood resistance and resilience measures are key to reduce the impact of a flooding event.

Designing in these measures can help reduce the impact of a flooding event and the need for costly remedial or retrofit works.

Criteria Summary

ref	title	credits
1 - 5	Flood risk	For Up to 16
6	Home information	2
Total available Credits:		18

¹ The Met Office (incl. figures for UK rainfall)
www.met-office.gov.uk

² The Met Office (incl. figures for UK rainfall)
www.met-office.gov.uk

Criteria

The criteria for this issue must be applied to the development site.

For Up to 16 credits

Low risk – 16 credits

1. Where a site-specific flood risk assessment (FRA) confirms the development site is situated in a flood zone that is defined as having a low annual probability of flooding from all sources (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration.
2. Where two credits have been achieved for SE03 Flood Risk Assessment in BREEAM Communities, then nine credits can be automatically achieved for sites located in low risk flood zones.

Medium or high risk – 10 credits

3. Where a site-specific FRA confirms the development site is situated in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration, AND
4. To increase the resilience and resistance of the development to flooding, one of the following must be achieved:
 - a). The ground level of all habitable parts of the dwelling and access to both the site and dwellings, are designed so that they are at least 600mm above the design flood level of the flood zone in which the development site is located OR
 - b). The final design of the dwelling and the wider site reflects the recommendations made by an appropriately qualified person in accordance BS85500:2015.
5. Where one credit has been achieved for SE03 Flood Risk Assessment in BREEAM Communities, then six credits can be automatically achieved for sites located in high or medium risk flood zones.

Home information – For 2 credits

6. Two credits are available for providing home information relating to flood resilience measures in place (see 3.01.02 Home information)

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Alternative standards and recommendations from an appropriate statutory body	<p>None of the credits can be awarded where the assessed development has proceeded against the recommendation of the statutory body on the basis that the flooding implications are too great (this includes a recommendation given by the statutory body even where such a recommendation cannot or is not statutorily enforced).</p> <p>Where the local authority (or other statutory body) has set more</p>

		rigorous criteria than those above these must be met in order to achieve the relevant credits.
CN2	Functional flood plain	<p>Credits for locating in a flood zone of 'medium or high annual probability' cannot be awarded where the dwellings is located in the functional flood plain.</p> <p>A functional flood plain is defined in the current best practice national planning guidance for each country. If the building assessed is or has been defined as 'water-compatible development', confirmation should be provided from the local planning authority that they are satisfied with the proposals before credits can be awarded.</p>
CN3	Existing flood defences	<p>In an area protected by existing flood defences (designed to withstand a certain magnitude of flooding) the appropriate number of flood risk credits can be awarded where the defences reduce the risk to 'low' or 'medium' and the following condition is met:</p> <p>a. The relevant agency confirms that, as a result of such defences, the risk of a flood event occurring from a particular sources is reduced to low or medium risk. If firm confirmation is not provided then the credits cannot be awarded.</p> <p>Please note that flood risk from all sources must be 'low' or 'medium' for credits to be awarded.</p> <p>A statutory body's local or regional office may be able to provide more information on existing defences in the area in which the assessed development is located.</p>
CN4	Third party defences	<p>There are many landscape feature defences, owned by third parties, which due to their location act as a flood defence by default, e.g. motorway, railway embankments, walls etc. It can be assumed that such embankments will remain in place for the lifetime of the development, unless the assessor or project team have reason to believe otherwise.</p> <p>For walls, assurance must be sought that the wall is likely to remain for the design life (60 years) of the dwellings.</p>
CN5	600mm threshold	<p>It is accepted that, for dwellings located in medium and high risk flood zones, areas of the car park and site access may be allowed to flood and therefore fall below the 600mm threshold. In such cases credits are still achievable provided one safe access route to the site, and the ground floor of the habitable parts of the dwellings can be maintained (i.e. they are 600mm above the design flood level) to ensure the dwellings and site do not become an 'island' in the event of a flood.</p> <p>Where the development has been permitted and the ground levels of the topography and infrastructure immediately adjacent to the development site fall below the 600mm threshold, credits can still be awarded, provided there are no other practical solutions for access to the site above this level and the assessed dwellings, and access to them on the development site, meet the assessment criteria. As much of the external site area as possible (or as required by an appropriate statutory body) should be designed at or above the threshold.</p>
CN6	Level of detail required in the FRA for smaller sites	For developments of less than 1 ha (10,000m ²), the level of detail required in an acceptable FRA will depend on the size and density of build. This will range from a brief report for small, low-density developments, to a more detailed assessment for a high-density development of 2000–10,000m ² .

		For example, for very small developments (2000m ² and less), an acceptable FRA could be a brief report carried out by the contractor's engineer confirming the risk of flooding from all sources of flooding, including information obtained from the Environment Agency, water company or sewerage undertaker, other relevant statutory authorities, site investigation and local knowledge.
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Definitions

Flood zones by country

Definition	England	Wales	Scotland
Low annual probability of flooding	Zone 1—less than 1 in 1000 chance of river and sea flooding (< 0.1%).	Zone A—considered to be at little or no risk. Zone B—if site levels are greater than the flood levels used to define adjacent extreme flood outline.	Little or no risk area. As defined for England.
Medium annual probability of flooding	Zone 2—between 1 in 100 and 1 in 1000 chance of river flooding (1% – 0.1%) and between a 1 in 200 and 1 in 1000 chance of sea flooding (0.5% – 0.1%).	Zone B—if site levels are not greater than the flood levels used to define adjacent extreme flood outline. Zone C—equal to or greater* than 0.1% (river, tidal or coastal flooding). * For the purposes of HQM assume upper probability of flooding no greater than that specified for England Zone 2.	Low to medium risk area Watercourse, tidal or coastal flooding in the range 0.1% – 0.5% (1:1000– 1:200).
High annual probability of flooding	Zone 3a—high probability 1 in 100 or greater chance of river flooding (> 1%) and a 1 in 200 or greater chance of flooding from the sea (> 0.5%). Zone 3b The Functional Floodplain Land where water has to flow or be stored in times of flood.	Zone C1—* *for the purposes of HQM assume the same lower and upper probability of flooding as that specified for England Zone 3a. Zone C2— * *for the purposes of HQM assume the same as that for England Zone 3b.	Medium to high risk areas Annual probability of watercourse, tidal or coastal flooding: greater than 0.5% (1:200).
Please note: Northern Ireland PPS15 does not categorise flood risk zones and there are no similar publicly available flood maps covering Northern Ireland (NI). Assessments in NI will therefore need to rely on-site-specific flood risk assessments, or other relevant data or surveys, to determine the extent of flood risk for a specific development, and use the same definitions as those outlined for England. The Northern Ireland Department of Environment or Rivers Agency may offer further advice or recommendations in this respect www.doeni.gov.uk and www.riversagencyni.gov.uk			

Current best practice national planning guidance

These are current at the time of publication:

Planning Practice Guidance - Flood Risk and Coastal Changes – England;

Planning Policy Statement 15 – Northern Ireland;

Scottish Planning Policy 7 - Scotland;

Technical Advice Note 15 - Wales.

Flood risk assessment (FRA)

A study to assess the risk of a site flooding, and to assess the impact that any changes or development on the site will have on flood risk to the site and elsewhere.

A FRA should be prepared according to relevant planning policy and technical guidance documents. The FRA must account for future climate change and detail any necessary adaptation measures where or if required.

Where more than five years have passed since the FRA was carried out, evidence would be required to demonstrate that the basis of the FRA has not changed in that time.

Sources of flooding

The FRA must detail the risk of flooding from the following sources:

1. Streams and Rivers: Flooding that can take place from flows that are not contained within the channel due to high levels of rainfall in the catchment.
2. Coastal or Estuarine: Flooding that can occur from the sea due to a particularly high tide or surge, or a combination of both.
3. Groundwater: Where the water table rises to such a height where flooding occurs. Most common in low-lying areas underlain by permeable rock (aquifers), usually due to extended periods of wet weather.
4. Sewers and highway drains: Combined, foul or surface water sewers and highway drains that are temporarily overloaded due to excessive rainfall or blockage.
5. Surface water: The net rainfall falling on a surface (on or off the site) which acts as run-off which has not infiltrated into the ground or entered into a drainage system.
6. Infrastructure failure: Canals, reservoirs, industrial processes, burst water mains, blocked sewers or failed pumping stations.

Design flood level

The maximum estimated water level during the design storm event including an allowance for climate change in line with current best practice national planning guidance. The design flood level for a site can be determined through either known historical data or modelled for the specific site.

Design flood event

Historic or notional flood event of a given annual probability, against which the suitability of a proposed development is assessed and mitigation measures, if any, are designed.

Appropriately qualified person

A person with qualifications and experience to recommend relevant site-specific flood prevention measures.

Where complex flooding calculations and prevention measures are required, this must be a specialist hydrological engineer.

Habitable parts of dwelling

All spaces (e.g. living and dining rooms, kitchens, bathrooms, bedrooms etc.) that are integral for the dwelling occupants to continue living in the dwelling in the event of a flood occurring.

References

The Met Office (incl. figures for UK rainfall)
www.met-office.gov.uk

CONSULTATION

1.04.03 - Managing the impact of rainfall

Aim

To encourage the management of rainfall from new developments to help reduce the risk of flooding and impact on the local environment and that downstream of the site by minimising the rate and volume of run-off, and improving run-off water quality.

Benefit

- Helps reduce the risk of flooding
- Encourages methods to clean run-off thus protecting the environment against transfer of pollutants found on hard surfaces (e.g. oil)

Context

Flooding in the United Kingdom is increasingly occurring due to a range of factors including; development encroaching on areas prone to flooding, decreasing permeability of the landscape through increased hard surface areas and increased rainfall. These are likely to become more severe as a result of climate change. Development can impact flood risk through increased run-off especially from hard surfaces. The Met Office who predict a very significant increase in the incidence of flooding over the next century as a result of climate change³.

The rate of run off has a major impact on the local environment through variations in water levels, flow rates and water quality. More widely, the overall volume of water run-off is a key factor in controlling flooding risks downstream.

Criteria Summary

ref	title	credits
1 - 3	Managing the rate and volume of run-off	10
4	Water quality	2
5 - 6	Designing for maintenance and operation	2
7	Home information	2
Total available Credits:		16

Criteria

To achieve credits for this issue, the criteria must be applied to the development site.

Managing the rate and volume of run-off – For Up to 10 credits

Foundation route – capped at 3 credits

1. The change in impermeable area of the development site is calculated in accordance with the methodology section and achieves the following:

Change in impermeable area	Credits
>5% increase	0
>0 - 5% increase	1

³ The Met Office (incl. figures for UK rainfall)
www.met-office.gov.uk

0 - 5% reduction	2
>5% reduction	3

Intermediate route – capped at 6 credits

2. Peak rate of run-off hydraulic calculations for the development site are completed:
 - a. by an appropriately qualified professional,
 - b. in accordance with best practice (as outlined in the methodology section)
 - c. including a 30% allowance for climate change
 - d. for the all events up to and including 100 year event
 - e. demonstrate that the following peak rate of run-off benchmarks have been met (via single or multiple discharge points):

Post-development peak rate of run-off equivalent to: Credits

≥10% pre-development	4
Pre-development	5
Greenfield	6

Note: to reduce the risk of blockage, flow rates at a single discharge point are not required to go below 5l/s

Comprehensive route – capped at 10 credits

3. Peak rate of run-off AND volume of run-off hydraulic calculations for the development site are completed:
 - f. by an appropriately qualified professional,
 - g. in accordance with best practice (as outlined in the methodology section)
 - h. including a 30% allowance for climate change
 - i. peak rate of run-off - for the all events up to and including 100 year event
 - j. volume of run-off - all events up to and including the 100 year event, of 6 hour duration
 - k. demonstrate that the following peak rate of run-off AND volume of run-off benchmarks have been met (via single or multiple discharge points):

Post –development peak rate AND volume of run-off equivalent to: Credits

Pre-development	8
Greenfield	10

Note: to reduce the risk of blockage, flow rates at a single discharge point are not required to go below 5l/s

Water quality – For 2 credits

4. The run-off from all hard surfaces on the development must receive an appropriate level of treatment before being discharged from the development site in accordance with The SuDS Manual to minimise the risk of pollution. Where treatment levels are introduced to gain credits, section 3.3 and chapter 5 of The SuDS Manual (CIRIA C697, 2007) should be referred to for guidance.

Designing for maintenance and operation – For 2 credits

5. The drainage system must be designed to take account of the operation and maintenance requirements of both surface and subsurface components, allowing for any personnel, vehicle or machinery access required to undertake this work.
6. Establish agreements for the ownership, operation and maintenance of all drainage for the design life of the development.

Home information – For 2 credits

7. Two credits are available for providing rainfall management home information (see 3.01.02 Home information)

References

The Met Office (incl. figures for UK rainfall)
www.met-office.gov.uk

References

The Met Office (incl. figures for UK rainfall)
www.met-office.gov.uk

CONSULTATION

1.04.02 - Security

Aim

To promote the design of developments where people feel safe and secure — where crime and the fear of crime do not undermine quality of life or community cohesion.

Benefit

- The design of your home and surrounding area include measures to help reduce the risk of crime
- Infrastructure has been included in your home to allow you to install an intruder alarm at a later date

Context

A feeling of safety and security are essential to successful, sustainable communities. Freedom from crime and the fear of crime has a major impact on the quality of life.

Criteria Summary

ref	title	credits
1	Pre-requisite	0
2 - 4	Security features	2
5 - 6	Additional security features	1
7	Home information	1
Total available Credits:		4

Criteria

Pre-requisite

- A suitably qualified security specialist (SQSS) conducts an evidence-based security needs assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent).

Security features – For Up to 2 credits

- Up to two credits are awarded where a suitably qualified security specialist (SQSS) develops a set of recommendations based on the Security Needs Assessment which are incorporated into the design of the development and implemented during construction. Credits are awarded as follows:

Design and layout – 1 credit

- Recommendations have been provided and implemented based on the principles of Crime Prevention Through Environmental Design (CPTED) or in accordance with the criteria set out in Section 1 of Secured by Design New Homes.

Physical security – 1 credit

- Recommendations for the performance of physical security products have been provided and implemented and are risk-commensurate (see relevant definitions) in accordance with the risk identified in the SNA and based on the standards named in Approved Document Q: Security of Dwellings. Products subject to those recommendations shall carry third party certification to the relevant standard.

Additional security features - For 1 credit

5. Each dwelling is provided with an alarm system, AND
6. The development-wide lighting scheme conforms to the relevant parts of BS 5489:2013.

Home information – For 1 credit

7. A credit is available for providing home information relating to security measures in place (see 3.01.02 Home information)

Definitions

Security needs assessment (SNA)

The project and site specific assessment of security needs, including:

1. A visual audit of the site and surroundings, identifying environmental cues and features pertinent to the security of the proposed development.
2. Formal consultation with relevant stakeholders, including the suitably qualified security specialist (as applicable), in order to obtain a summary of crime and disorder issues in the immediate vicinity of the proposed development. Crime data is also publicly accessible at www.police.uk.
3. Identify risks specific to the proposed development and its inhabitants or users.
4. Identify any detrimental effects the development may have on its surroundings and the existing community.

The purpose of the assessment is to aid decision-making and allow the identification of proportionate appropriate security measures and recommendations. Any deviation from those recommendations shall be justified, documented and agreed with a suitably qualified security specialist.

Risk commensurate

In this context, recommendations for physical security performance shall be based on whether a potential criminal is likely to be concerned with creating noise during forced entry, and the required level of resistance to attack of the product. The 'Standards Matrix' categorises the compatible standards in relation to these considerations (see table X standards matrix).

Suitably qualified security specialist (SQSS)

Each of the following are, at present, deemed to meet this definition:

1. Crime Prevention Design Advisors (CPDA) or Architectural Liaison Officers (ALO), a current list of which may be found at www.securedbydesign.com.
2. A specialist registered with a Home Quality Mark recognised third party accreditation scheme for security specialists.
3. A practising security consultant that meets the following requirements:
 - a. Minimum of three years relevant experience within the last five years. This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, relevant to residential development.
 - b. Hold a suitable qualification relevant to security.
 - c. Maintains (full) membership to a relevant professional body or accreditation scheme that meets the following:
 - i. Has a professional code of conduct, to which members must adhere to; and
 - ii. ongoing membership is subject to peer review.

Organisations, associations or scheme operators who wish to have their membership recognised as a 'third party accreditation scheme for security specialists', should review their current status (and therefore their members) against the requirements above and, where they feel they are compliant, contact BRE Global Ltd with the relevant information or evidence.

References

PAS 24:2012

Enhanced security performance requirements for doorsets and windows in the UK. BSI, 2012.

LPS 1175: Issue 7

Requirements and testing procedures for the LPCB approval and listing of intruder resistant building components, strong points, security enclosures and free-standing barriers. BRE Global Limited, 2010.

LPS 2081: Issue 1

Requirements and testing procedures for the LPCB approval and listing of building components, strong points, security enclosures and free-standing barriers offering resistance to intruders attempting to use stealth to gain entry. BRE Global Limited, 2015.

CONSULTATION

My Home

2.02.01 - Energy performance and cost

Aim

To improve energy performance and reduce costs associated with the running of the home and encourage increased rigour in calculating these.

Benefit

- To allow you to compare the potential energy performance and cost of running the home with other new build homes
- To allow you to make decisions that reduce your impact on the environment by encouraging energy efficiency
- To encourage home designs that reduce running costs

Context

It is well established that the energy efficiency of homes has significant impacts on human health with estimates of around 2.33 million households in England suffering from fuel poverty (2014)¹. It is a major contributor to global CO₂ emissions with homes contributing a significant proportion of the UK's total carbon emissions.

This makes reducing CO₂ emissions and energy costs a key challenge for homes in the UK and an essential part of meeting the government's target to reduce CO₂ emissions by 80% by 2050² (against 1990 levels).

As such, HQM focuses on encouraging energy efficient design and construction and ensuring that homeowners/tenants are well informed on how their home should be operated so that the home's energy performance potential can be realised in practice.

Criteria Summary

ref	title	credits
1	Comprehensive route	8
2	Home energy performance ratio (HEPR)	20
3	Energy costs	20
4	Energy champion	8
5	Monitoring and controls	4
6	Home information	4
Total available Credits:		64

Criteria

The energy performance and cost calculations are carried out at the individual home level and account for any associated heated common areas subject to an SBEM assessment through national Building Regulations relating to Energy performance.

Energy averaging is not permitted for the purposes of the HQM.

¹ Department of Energy & Climate Change: Annual Fuel Poverty Statistics Report, 2014

² Climate Change Act 2008: Chapter 27

Comprehensive route – For 8 credits

1. Credits can be awarded where the comprehensive route (see methodology section) has been used in the energy performance and cost calculator. This is to recognise where more accurate inputs have been entered into the calculations.

Home energy performance ratio (HEPR) – For Up to 20 credits

2. Credits can be awarded according to the HEPR (calculated in accordance with the methodology section using the energy performance and cost calculator), to assess an improvement over building regulations against the homes:
 - a. heating and cooling energy demand
 - b. primary energy consumption
 - c. total resulting CO₂ emissions

Energy costs – For Up to 20 credits

3. Credits can be awarded according to the energy costs (calculated in accordance with the methodology section using the energy performance and cost calculator)

Energy champion – For 8 credits

4. An energy champion is appointed prior to the detailed design of the home (i.e. RIBA Stage 2), who is contractually required to:
 - a. attend all key design team meetings
 - b. disseminate all information relating to the energy strategy to the construction staff (i.e. through toolbox talks)
 - c. be on site throughout the build (as a minimum at key stages of the construction process e.g. installation of windows) to ensure the home is constructed in line with the energy strategy outlined in the design specification (e.g. ensuring correct thermal bridging details, continuity of insulation etc.)
 - d. monitor and report on progress relating to the energy strategy to all relevant stakeholders
 - e. monitor all testing on site relating to the energy strategy

Monitoring and controls – For 4 credits

5. Credits are available for providing monitors and controls relating to energy (see 3.01.03 Monitoring and controls)

Home information – For 4 credits

6. Credits are available for providing home information relating to energy measures in the home and how to maximise the benefits of these (see 3.01.02 Home information)

Methodology

Selecting the rigour route

For this issue, two routes are available which relate to the level of information used to complete the energy performance and cost calculations: the foundation route, and the comprehensive route.

Where using the foundation route the number of credits that can be achieved in this issue will be capped as the ‘comprehensive route’ credits (see criterion 1) will not be achievable.

For both routes it is proposed that SAP software will be adapted to produce an HQM data output which can be uploaded into BREEAM projects to prevent duplication of data entry.

- Foundation route

The information used in this route is based on standard SAP inputs ONLY.

For each assessed home:

1. Upload your HQM data output into the online HQM assessment tool
2. Award credits as displayed in the energy performance and cost calculator

- Comprehensive route

The information used in this route is based on SAP inputs AND additional bolt-on inputs.

For each assessed home:

1. Upload your HQM data output into the online HQM assessment tool
2. Complete the bolt-on inputs (as outlined in 2.02.01 - Table 1)
3. Award credits as displayed in the energy performance and cost calculator
4. Award the 'Comprehensive energy calculations' credits

Home energy performance ratio (HEPR) - calculation methodology

The HEPR is an output from the energy performance and cost calculator on which credits are awarded.

The HEPR considers three metrics:

1. heating and cooling energy demand (the fabric performance)
2. primary energy consumption (system efficiency)
3. total resulting CO₂ emissions

For each metric, the homes actual performance is compared against the relevant national building regulations compliant standard (i.e. a baseline), and the comparison expressed as a percentage improvement.

The percentage improvement for each metric is then compared against a best practice performance level for modelled stock of house types, and then 'translated' into a ratio of performance for each metric. These ratios are then weighted for each metric and added together to determine a single overall HEPR.

The energy performance and cost calculator will automatically generate the HEPR (using the inputted data according to the chosen rigour route).

The methodology summarised above will be described in greater detail in a supporting HQM guidance document.

Energy costs – calculation methodology

The energy costs output from the energy performance and cost calculator forms the basis on which credits are awarded.

The data on which the energy costs output is calculated is dependent on the rigour route selected.

For the foundation route, the SAP rating is used. For the comprehensive route, the cost index is used (a comparable number calculated using the additional bolt-on inputs).

The energy performance and cost calculator will automatically generate the energy costs (using the data according to the chosen rigour route).

The methodology summarised above will be described in greater detail in a supporting HQM guidance document.

Heated common areas

Any heated common areas (assessed under ADL2a) must be included in the energy performance and cost calculations.

The performance of the heated common areas will be distributed equally across the total number

of homes served by this area.

Where heated common areas are present, the BRUKL outputs must be uploaded into the online HQM assessment tool.

The energy performance and cost calculator will automatically account for the BRUKL data within the homes outputs.

The methodology summarised above will be described in greater detail in a supporting HQM guidance document.

Checklists & Tables

2.02.01 – Table 1

Bolt-on inputs	Required data
Internal lighting	For each light: No. of bulbs Efficacy (lm/W) Circuit Watts/lamp
Hot Water	For all baths and showers: No. of fittings Flow rate of each fitting
Appliances	The kWh/annum figure (taken from the EU energy label) for each of the following appliances (where specified): Fridge Freezer Fridge/freezer Wine storage appliance Washer/dryer Washing machine Tumble drier Dishwasher Oven
Appendix Q	For any Appendix Q technologies: Energy consumed by technology + fuel type Energy saved by technology + fuel type <i>Further details of the source of this data will be provided in a supporting HQM guidance document.</i>

2.02.02 - External lighting

Aim

To encourage the use of energy efficient external lighting, and thereby reduce carbon emissions and energy costs associated with the dwelling.

Benefit

Energy efficient external lighting and appropriate lighting controls can reduce energy costs and associated carbon emissions. If installed correctly it also helps to reduce the amount of obtrusive light and light pollution to adjacent neighbouring properties.

Context

External lighting in domestic applications is important for a number of reasons. Its functions can include basic safety and security for occupants and visitors during hours of darkness. It can also mark the access route from street or car park to the entrance, create a pleasant environment around the buildings after dark or facilitate the identification of buildings.

Applying good practice also avoids overuse of external lighting or the use of inefficient equipment which can contribute to light pollution and increased energy bills.³

Criteria Summary

ref	title	credits
1	Energy efficient external lighting	2
2	Monitoring and controls	1
3	Home information	1
Total available Credits:		4

Criteria

Energy efficient external lighting – For 2 credits

1. A) All domestic external lighting, where provided, uses light fittings (including lamps) with an average initial luminous efficacy not less than 60 luminaire lumens per circuit Watt.
B) Where installed, presence detectors are compatible with the lamp type used as very frequent switching can reduce the life of some lamp types.
C) The amount of spill light is minimised by using light fittings with a maximum upward light ratio of 5% per fitting

Monitoring and controls – For 1 credit

2. A credit is available for providing monitors and controls relating to external lighting (see 3.01.03 Monitoring and controls)

³ Paul Littlefair, BR 209 Site Layout Planning for Daylight and Sunlight - A guide to good practice (2011)

Home information – For 1 credit

3. A credit is available for providing home information relating to external light fittings and controls (see 3.01.02 Home information)

Definitions

Luminous efficacy (in luminaire lumens per circuit Watt)

The ratio between the luminous flux produced by an entire luminaire (light fitting) (in lumens) and the total power consumed by the lamps and the control gear contained within the luminaire (Watts).

Daylight sensor

A type of sensor that detects daylight and switches lighting on at dusk and off at dawn.

Presence detector

A sensor that can turn lighting on when a presence is detected in the scanned area, and off after a pre-set time when no presence is detected.

Time switch

A switch with an inbuilt clock which will allow lighting to be switched on and off at programmed times.

External lighting

External lighting includes both normal space lighting, which is required to illuminate a space when in-use, and security lighting, which is typically used to deter burglars or intruders and protect the property. It can be used outside the entrance to the home, in outbuildings such as garages and external spaces such as paths, patios, decks, porches, steps and verandas.

Lighting specification or lighting design

A switch with an inbuilt clock which will allow lighting to be switched on and off at programmed times.

Upward light ratio

Ratio of the light emitted above the horizontal, to the total light emitted by the luminaire.

2.02.03 - Low and zero carbon technologies

Aim

To maximise the cost and carbon saving benefits of LZCT generation and storage by encouraging best practice when selecting and installing LZCT systems, or alternatively provide the infrastructure for these to be retrofitted in a cost effective and efficient way.

Benefit

Encouraging occupants to use and maintain LZCT systems in line with best practice guidelines will ensure that they maximise system output and minimise their running costs. Being able to generate and store some of the energy used in the home instils a sense of achievement and independence, especially in view of being less reliant on energy suppliers and fluctuating energy prices.

Context

The LZCT issue recognises good practice in relation to the installation of LZCTs and integration of design features to support potential future retrofits. Credits are awarded in relation to the process used in the decision process, i.e. is there a feasibility study and how detailed is it, will recommendations be implemented and are there any retrofit, storage and performance monitoring features. Please note direct performance benefits from installing LZCT will be recognised within the energy performance and cost issue as a result of the energy calculations

Criteria Summary

ref	title	credits
1 - 2	Feasibility study	3
3 - 4	Design and Installation of LZCTs	3
5	Energy storage	1
6	Monitoring and controls	1
7	Home information	1
Total available Credits:		9

Criteria

Feasibility study – For Up to 3 credits

Foundation route – capped at 1 credit

1. An independent assessment prepared by an appropriately qualified professional (AQP) which ensures that:
 - a. Detailed consideration of all possible LZCTs (without specifying particular products), with reference to the intended occupancy where known and including reasons for rejection or adoption;
 - b. Energy saving / generation and financial return predictions based upon industry-recognised methodologies
 - c. Technical performance is assessed over a twelve month period and takes account of variations in energy demand and the seasonal availability of renewable energy sources under realistic weather conditions.
 - d. Any advice provided is independent and where possible, the outcomes are repeatable.
 - e. Energy, carbon and cost savings are quantified.
 - f. A financial appraisal has been undertaken which includes payback information and whole life costs.

Comprehensive route – up to 3 credits

2. Where appropriate, a comprehensive and repeatable feasibility study is conducted which ensures the following:
 - a. Basic feasibility criteria are met
 - b. Uses recognised evaluation tools and methodologies where the outcomes can be replicated if undertaken by others using those tools and methodologies.
 - c. All feasibility aspects of proposed installations (without specifying particular products) are provided, including sizing, integration with the building and with other LZC and non-LZC systems.
 - d. Pictorial rendering for planning and aesthetic considerations.

Design and Installation of LZCTs – For Up to 3 credits

Foundation route – capped at 2 credits

3. Where LZCTs are not installed, infrastructure has been installed to assist with the retrofit of viable LZCTs in future, in line with 2.02.03 - Table 1.

Comprehensive route – up to 3 credits

4. Where LZCTs are designed and installed in line with the following:
 - a. Technologies are installed in line with the feasibility study findings
 - b. Are designed and installed by a certified installer (see Relevant Definitions) to recognised industry best practice standards
 - c. Systems meet recognised product, design and installation standards.
 - d. Designers and installers provide proof of suitable qualification for community, district heating and CHP sized systems.
 - e. Installers shall undertake precautionary checks for unintended consequences (e.g. breach of fire barriers, overvoltage)
 - f. Installed systems are correctly tested and commissioned.

Energy storage – For 1 credit

5. Where energy storage or conversion of energy systems (e.g. renewable heat or electricity storage) are installed to account for surplus energy generation from LZCTs and the systems are in line with the following:
 - a. Storage systems are appropriately sized to reflect the type and size of installed LZCTs, taking account of likely energy demand.
 - b. Storage systems are inherently saved and do not have adverse environmental impacts
 - c. There are opportunities to utilise renewable energy when its availability exceeds on-site demand.
 - d. Energy 'exported' to the grid and/or top-up electricity or heat provided by conventional back-up systems is minimised.
 - e. Where appropriate smart systems may be employed if there is scope to influence energy demand patterns to match the availability of renewable energy.

Monitoring and controls – For 1 credit

6. A credit is available for providing monitors and controls relating to LZCTs (see 3.01.03 Monitoring and controls)

Home information – For 1 credit

7. A credit is available for providing home information relating to installed LZCTs (see 3.01.02 Home information)

Compliance Notes

ref	Title	Note
CN1	Industry best practice	<p>Industry best practice for LZCT's are as follows:</p> <p>Photovoltaics (PV): IET code of practice Solar Thermal (ST): MIS3001 and associated references Small Wind: MIS3003 / BWEA standards (now Renewable UK) Heat pumps: MIS3005 Biomass: MIS3004 Micro-CHP: MIS3007 A technical guide to district heating, Robin Wiltshire, Jonathan Williams and Paul Woods, BRE Trust, 2014</p>

Checklists & Tables

2.02.03 – Table 1: LZCT Infrastructure table

LZCT	Mounting space on roof	Ducts/conduits for future cabling	Space for additional coils and cylinders	Isolation points on boilers	Provision of space for hydraulic interface units (HIUs)
Photovoltaic (PV)	X	X			
Solar	X		X		
Solid Biomass				X	
Heat Pumps				X	
Community Heating				X	X

References

http://www.microgenerationcertification.org/images/MCS_001_Issue_2.5_MCS_Contractor_Certification_Scheme_Requirements.pdf, May 2015

DC isolators for photovoltaic systems - A good practice guide, Steve Pester, BRE Trust, 2014

A technical guide to district heating, Robin Wiltshire, Jonathan Williams and Paul Woods, BRE Trust, 2014

BRE Trust Digest DG 489 Wind loads on roof-mounted photovoltaic and solar thermal systems, Paul Blackmore, revised 2014

BRE Trust Digest DG 531 Making the most of renewable energy systems, John Holden, 2014
BRE Trust Digest DG 532-2 Renewable energy sources - How they work and what they deliver:

Part 1: Photovoltaics, John Holden and Abhilash Rajan, 2014

Part 2: Wood fuels, John Holden, 2014

Part 3: Electrically driven heat pumps, John Holden and Patrick Robinson, 2014

Part 4: Solar thermal hot water systems, John Holden, 2014

Zero Carbon Strategies - For tomorrow's new homes, Zero Carbon Hub, NHBC Foundation, 2013

2.02.04 – Impact on Local Air Quality

Aim

To promote the use of the most efficient heating and hot water generating appliances and to minimise their impact on local air quality.

Benefit

Better air quality protects human health and sensitive ecosystems.

Context

Better air quality protects human health and sensitive ecosystems. It also links to the Local Air Quality Management (LAQM) framework for local authorities, established through the Environment Act in 1995 and the Environment Order (2002) for Northern Ireland.

The main sources of air pollutants are dominated by road transport and large combustion plants, especially those used for electricity generation. Although the problem is concentrated in town and city centres, heavy traffic can lead to breaches of air quality standards even in urban areas.

Whilst UK wide emissions of most air pollutants have fallen significantly, research has confirmed that concentrations of common air pollutants remain high in many urban areas. This is due to the localised nature of air pollution and the difficulty to manage emissions from the road transport sector, as the benefits of increased car efficiency are offset by the rising number of vehicles.

Air pollution and climate change are linked as they share common sources, combustion processes from vehicle engines, power generation, homes and industry. The main air pollutants in the UK are particulate matter (PM2.5 and PM10), nitrogen dioxide (NO₂), ozone (O₃), sulphur dioxide (SO₂) and ammonia (NH₃). The most significant greenhouse gas, due to the quantity released, is carbon dioxide (CO₂). Managing these sets of emissions will need to take into account that the reduction in one set of emissions, i.e. CO₂ to limit the impact on climate change, could lead to an increase in others, i.e. oxides of nitrogen (NO_x) and particle matter (PM2.5 and PM10), adding local air pollutants.

Ways to manage emission levels include the promotion of ultra-low-carbon vehicles, renewable energy sources and energy efficiency measures. Providing heating and hot water using combustion processes will need to be managed carefully, especially when using solid fuels like biomass and oil. The suggested assessment criteria therefore consider the different fuel types and whether a site is connected to the gas grid.

Criteria Summary

ref	title	credits
1 - 5	Fuel type	8
6	Local transport plan	3
Total available Credits:		11

Criteria

Fuel type – For Up to 8 credits

Natural gas – up to 8 credits

- Where the heating and/or hot water demand is met using a natural gas fired appliance the following NO_x emission requirements shall be met:

Dry NOx level (mg/kWh)
≤70 (6 credits)
≤56 (7 credits)
≤38 (8 credits)

Heat pumps – 5 credits

2. Where the heating and/or hot water demand is met using a heat pump (brine/water to water or air to water) then the NOx emissions for the local air quality can be considered as 0 mg/kWh providing that:
 - a. Seasonal space heating energy efficiency does not fall below 125% AND
 - b. The refrigerant used has a Global Warming Potential (GWP) of ≤10 OR
 - c. The refrigerant used has a Direct Effect Life Cycle CO₂ equivalent emissions (DELC CO₂e) of ≤100kgCO₂e

Biomass – up to 5 credits

3. Where the heating and/or hot water demand is met using a biomass fired appliance and there is not a gas network grid, the following NOx emission requirements shall be met:

Dry NOx level (mg/kWh)
≤508 (3 credits)
≤328 (4 credits)
≤220 (5 credits)

In order to achieve maximum credits for biomass, the following criteria must be met:

- a. The appliance shall achieve a sessional efficiency of at least 77%
- b. The biomass fuel is locally sourced (within 75 miles)
- c. The fuel is from a sustainable source i.e. Forest Stewardship Council (FSC) and Programme for Endorsement of Forest Certification (PEFC) OR
- d. The fuel is self-supply or co-operative supply with adequate seasoning and biomass sustainability policies

Oil – up to 5 credits

4. Where the heating and/or hot water demand is met using an oil fired appliance and there is not a gas network grid, the following NOx emission requirements shall be met:

Dry NOx level (mg/kWh)
≤180 (3 credits)
≤120 (4 credits)
≤100 (5 credits)

Mix of fuel types – up to 5 credits

5. Where there is a mixture of fuel types used to provide the space heating and/or hot water:
 - a. Determine the percentage of each fuel source used. If a secondary source is less than 8% of the overall load then it can be ignored.
 - b. Calculate the average NOx emissions for the whole system in mg/kWh of dry NOx at 0% excess oxygen
 - c. Calculate the NOx rates for the number of credits, multiply the fuel NOx levels with the percentage of each of the fuel types and add them together to determine the levels for the credits.

Example

A gas boiler is providing 80% of the annual heat for space heating and hot water. There is a secondary system of a biomass stove, making up the remaining 20%.

Gas NOx levels
 $70 \times 80\% = 56\text{mg/kWh}$
 $56 \times 80\% = 45\text{mg/kWh}$
 $38 \times 80\% = 30\text{mg/kWh}$

Biomass NOx levels
508 x 20% = 102mg/kWh
328 x 20% = 66mg/kWh
220 x 20% = 44mg/kWh

Therefore the fuel mix NOx levels would be;

56 + 102 = 158mg/kWh for 3 credits
45 + 66 = 111mg/kWh for 4 credits
30 + 44 = 74mg/kWh for 5 credits

Local transport plan – For 3 credits

6. There will be additional recognition for providing links to issues within Movement and Connectivity, i.e. providing maximum movability with minimum impact on local air quality. Recognising good access to public transport, providing adequate storage for cars and bikes and access to electric charging points.

Methodology

Conversion factors

Manufacturers should supply dry NOx emissions data in mg/kWh. Where this is not possible the assessor should use the following conversion factors to convert figures in mg/m³, ppm or wet NOx (derived using data from BS EN 297:1994). It should be noted that these conversion factors assume worst-case efficiencies and are likely to give a high estimate. This could have the effect of lowering the number of credits achieved.

1. Figures in mg/m³ should be multiplied by 0.857 in order to show emissions in mg/kWh. A conversion may also be necessary for data not calculated at 0% excess oxygen.
2. Figures in parts per million (ppm) should be multiplied by 1.76 in order to show emissions in mg/kWh. A conversion may also be necessary for data not calculated at 0% excess oxygen
3. Figures in mg/MJ should be multiplied by 3.6 in order to show emissions in mg/kWh (1 kWh = 3.6 MJ). A conversion may also be necessary for data not calculated at 0% excess oxygen.

The assessment criteria are based on dry NOx values – almost all manufacturers quote emissions in dry NOx. However if wet NOx figures are supplied, these should be converted to dry NOx. This can be done by multiplying wet NOx figures by 1.75.

Excess oxygen correction

If a NOx emission rate is quoted by the manufacturer in mg/m³ or ppm, then it should be established at what % oxygen this emission was made. The greater the amount of excess oxygen in the flue gases at the time of measurement, the more ‘diluted’ the NOx. It is therefore important to convert any emission rate back to 0% excess oxygen. For the purpose of this assessment, use the following conversion factors for the most frequently used rates supplied by manufacturers:

% excess O₂ / Conversion ©

3% / x1.17

6% / x1.4

15% / x3.54

Conversion factor c = 20.9 / (20.9 – x)

Where x = % excess O₂ (NOT excess air) and 20.9 is the percentage of O₂ in the air.

Compliance Notes

ref	Title	Note
CN1	Biomass	Where the home is on a development that is off mains gas, credits can be awarded for biomass where the NOx emissions arising from the operation of space heating and hot water systems, meets the outlined benchmarks. This is to recognise that systems off mains gas offer reduced scope for the selection of low NOx solutions. If the biomass installation is registered under the Renewable Heat Incentive (RHI) then it will meet the criteria for at least 1 credit automatically.
CN2	Heat pumps	Where the heating and/or hot water demand is met using a heat pump (brine/water to water or air to water) then the NOx emissions for the local air quality can be considered as 0 mg/kWh providing that: <ol style="list-style-type: none"> Seasonal space heating energy efficiency does not fall below 125% AND The refrigerant used has a Global Warming Potential (GWP) of ≤10 OR The refrigerant used has Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤100kgCO2e
CN3	Gas and biomass CHP	Provided the NOx emissions per unit of electricity generated is lower than the NOx emissions biomass CHP per unit of electricity supplied from the grid, gas and biomass CHP will always achieve 3 credits by default. This is because the electricity generation offset from the grid by the CHP unit, will always reduce the average NOx emissions for the CHP unit to less than zero.
CN5	Community Heating	In the case of a District Heating System, the dry NOx rating figure in mg/kWh for the community heating system should be used to assess the credit. In practice, this figure may be very high, therefore preventing achievement of the credits. The figure cannot be scaled down based on the number of dwellings served by the system since the same amount of NOx will be produced in supplying 1 kWh whether or not the system services 1 dwelling or 100 dwellings. Where communal heating systems intended to supply a dwelling under assessment are due to be commissioned within 18 months from completing the dwelling, then they should be used as the heat energy source for calculations under this credit, rather than the interim heat energy supply measure (which should also be noted). The communal system (e.g. CHP, District Heating etc) must be the primary heating energy source for the dwelling once in operation. Evidence to confirm that future activation of such plant will occur within a reasonable period must be provided, it might be part of the planning consent or form part of energy sales contracts. Community heating systems that incinerate waste usually have NOx emission rates higher than the levels set to achieve any BREEAM credits.
CN6	Zero NOx Emission Energy Sources	Any zero NOx emission energy source which directly contributes to the total space heating and hot water energy supply can be added to the total space heating and hot water energy demand from SAP in order to further reduce the average figure for NOx emissions. An example of this might include on-site solar power generation directly linked into hot water or heating storage system.
CN7	Other systems	For any other system not covered, or for clarification on how to estimate dry NOx levels, please contact HQM Technical

		Support
CN8	Secondary Space/Water Heating Systems	If a secondary space and / or water heating system supplies less than 8% of the dwelling's combined total space heating and hot water demand, it can be ignored.
CN9	NOx Figures	If the figures are not stated in dry NOx and/or in mg/kWh as required, apply any necessary conversion/correction factors required to convert the NOx figure(s) stated for the heating system/s accordingly.
CN10	Open Flue	No credits may be awarded for open flue heating or hot water systems.
CN11	Green Tariffs	Commitments to use a Green tariff to supply electricity to heat the building or power heat pumps are not recognised in this issue due to the uncertainty that this electricity will be zero emission. There are a number of suppliers offering electricity from 100% renewable sources, however some green tariffs might offer a lower percentage. They usually provide electricity made up from a fuel mix made up of coal, natural gas, nuclear, renewable and others, with a commitment to fund future renewable projects. Once the occupant has moved in they have a legal right to switch their energy provider at any point, hence opt out of the green tariff.

References

- Solid Fuel and Air Quality: An Update for Local Authorities, Environmental Protection UK, 2013
 Air Quality and Climate Change: Integrating Policy in Local Authorities, Environmental Protection UK, 2011
 Biomass and Air Quality Guidance for Scottish Local Authorities, Environmental Protection UK-Scotland, 2010
 Air Pollution: Action in a Changing Climate, Department for Environment, Food and Rural Affairs (DEFRA), 2010

2.01.01 - Indoor pollutants

Aim

To maximise occupant comfort and minimise discomfort and health effects arising from indoor air pollutants.

Benefit

- Encourages the removal or reduction of air pollutants resulting from construction that can negatively impact your health before you move in

Context

Building materials, coatings and furnishings are significant sources of indoor air pollution, in particular, formaldehyde and volatile organic compounds (VOCs). A wide range of VOCs can be emitted from building materials, especially during the first two years of a new building¹. The amount of pollution emitted into indoor air can be reduced by selecting building materials, coatings and furnishings with low pollutant content and low emission performance. The EU Ecolabel² for paints and varnishes is a suitable third party accredited demonstration of a 'limited amount of volatile organic compounds'.

Household products: (deodorants, air fresheners, cleaning fluids and polishers); cosmetics (deodorants, powders, bathing products); and hobby activities: (adhesives, paints and varnishes) are also significant sources of indoor air pollution, but lie outside the scope of the Home Quality Mark.

Criteria Summary

ref	title	credits
1	Minimising airborne formaldehyde from all sources	tbc
2	Minimising VOC and SVOC emissions from paints and varnishes	tbc
3	Using only paints and varnishes displaying the EU Ecolabel	tbc
Total available Credits:		9

Criteria

Minimising airborne formaldehyde from all sources – For tbc credit/s

1. Meeting the World Health Organisation³ recommended guideline for indoor exposure to formaldehyde from all sources:
 - a. An indoor air quality test is carried out post construction, and before home occupation in accordance with the appropriate British Standards (see CN1), AND

¹ Yu C and Crump D. (2002). VOC emissions from building products: sources, testing and emission data. BRE Digest 464, Part 1. Bracknell, IHS BRE Press.

² Official Journal of the European Union. (2014). Establishing the ecological criteria for the award of the EU Ecolabel for indoor and outdoor paints and varnishes. Commission decision of 28 May 2014. L 164/45 Volume 57, OJEU, 3 June 2014.

³ World Health Organisation (WHO) (2010). Guidelines for indoor air quality: Selected pollutants. Executive summary, pp. xvi-xxv. World Health Organisation, Geneva; 2010, <http://ncbi.nlm.nih.gov>

b. The concentration of formaldehyde in indoor air should not exceed 0.08 ppm, or 0.1 mg/m³ (100 µg/m³)

Minimising VOC and SVOC emissions from paints and varnishes – For tbc credit/s

2. Using paints and varnishes which meet the VOC and SVOC targets for the EU Ecolabel, (but not necessarily all the other Ecolabel requirements)

Using only paints and varnishes displaying the EU Ecolabel – For tbc credit/s

3. Using only paints and varnishes which meet all EU Ecolabel requirements

Compliance Notes

ref	Title	Note
CN1	Minimising airborne formaldehyde from all sources	An indoor air quality test should be carried out post construction, and before home occupation in accordance with the following standards: <ul style="list-style-type: none"> • BS ISO 16000-4:2011 Indoor air. Determination of formaldehyde. Diffusive sampling method⁴ • BS ISO 16000-3:2011 Indoor air. Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air. Active sampling method⁵
CN2	Minimising VOC emissions from paints and varnishes	Only paints (indoors and out) and varnishes which meet the VOC and SVOC content requirements of the EU Ecolabel should be specified and used. Documentation showing proof of testing and compliance with the 'new limits' column of Table 7 in the EU Ecolabel criteria proposal report
CN3	Using only paints and varnishes which have an EU Ecolabel	Produce the EU Ecolabel associated with the intended paints and varnishes to demonstrate that only paints (indoors and out) and varnishes carrying an EU Ecolabel will be specified and used.

Definitions

Volatile organic compounds (VOC)

Volatile organic compounds of boiling points (at 760 mm Hg) between 68 °C (n-hexane) and 250 °C⁶ (n-hexadecane).

Semi-volatile organic compounds (SVOCs)

Semi-volatile organic compounds of boiling points (at 760 mm Hg) between 251 °C and 400 °C⁶.

⁴ British Standards Institution (2011). Indoor air. Determination of formaldehyde. Diffusive sampling method. BS ISO 16000-4:2011. BSI. Accessed online 21 May 2015

⁵ British Standards Institution (2011). Indoor air. Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air. Active sampling method. BS ISO 16000-3:2011. BSI. Accessed online 21 May 2015

⁶ Kougoulis J S, Kaps R, Dodd N and Walsh B (2013). Revision of EU European Ecolabel for Indoor and Outdoor paints and Varnishes: EU Ecolabel criteria proposal technical report. Draft report available from www.susproc.jrc.ec.europa.eu, accessed 26 May 2015

2.01.07 - Temperature

Aim

To evaluate a home's risk of overheating early in the design, and give occupants tools to operate their home at the preferred temperature.

Benefit

- Encourage design that reduces the likelihood of experiencing negative health impacts of overheating
- Promote more thorough investigation of the risk of overheating in your home
- Encourage provision of information about how to manage the temperature of your home and maximise your comfort within it
- Encourage provision of controls that are easy to understand and use

Context

Effective temperature regulation is an integral part of ensuring a comfortable home environment.

An important aspect of ensuring this is by providing appropriate temperature controls to occupants, in addition to relevant information that communicates how the controls work.

Ensuring effective temperature regulation is also dependent on the home being designed to allow for seasonal changes, occupier preferences and global climate change, which are expected throughout the lifetime of the home.

The importance of effective temperature regulation has been emphasised by the increased risk of overheating⁷, which is partly as a result of making homes more energy efficient through greater insulation and reduced air leakage. If overheating is not managed appropriately, the results can be fatal⁸.

As such, encouraging thorough consideration of temperature control, early in the design process, is essential for revealing when homes are at risk of overheating and implementing appropriate measures to manage this risk.

Criteria Summary

ref	title	credits
1 - 2	Overheating analysis	9
3	Climate change allowance	5
4	Monitoring & controls	3
5	Home information	2
Total available Credits:		19

⁷ Zero Carbon Hub, Overheating in homes – drivers of change, March 2015

⁸ NHBC, Overheating in new homes – a review of the evidence, 2012

Criteria

Overheating analysis – For Up to 9 credits

Foundation route – capped at 6 credits

1. The HQM overheating tool has been completed prior to the detailed design of the home (i.e. RIBA Stage 2), and achieves:

HQM overheating tool result:	Credits
Minor	6
Slight	3
Medium	No credits can be awarded under the foundation route where this result has been achieved.
High	In these scenarios, to achieve credits for 'overheating analysis', the comprehensive route must be followed.

Comprehensive route – up to 9 credits

2. Compliant full dynamic thermal comfort modelling has been completed prior to the detailed design of the home (i.e. RIBA Stage 2), and demonstrates a low risk of overheating

Climate change allowance – For 5 credits

3. An allowance for climate change has been included in the overheating analysis in accordance with best practice guidelines

Monitoring & controls – For 3 credits

4. Credits are available for providing monitoring and controls relating to temperature (see 3.01.03 Monitoring and controls)

Home information – For 2 credits

5. Credits are available for providing home information relating to temperature control measures in place (see 3.01.02 Home information)

Methodology

Foundation route

For this issue, the foundation route requires the completion of the HQM overheating tool. Once completed, this tool will provide an output on which credits are awarded.

The information used in the HQM overheating tool is based on SAP inputs AND additional bolt-on inputs.

It is proposed that SAP software will be adapted to produce an HQM data output which can be uploaded into BREEAM projects to prevent duplication of data entry.

For each assessed home:

1. Upload your HQM data output into the online HQM assessment tool
2. Complete the bolt-on inputs (as outlined in 2.01.07 – Table 1).
3. Award credits as displayed in the HQM overheating tool

The HQM overheating tool will output one of the following results, and credits are awarded according to the foundation route criteria benchmarks:

- a. Minor
- b. Slight
- c. Medium
- d. High

The methodology summarised above will be described in greater detail in a HQM guidance document

Comprehensive route

Further guidance will be issued regarding the requirements for this route.

Checklists & Tables

2.01.07 – Table 1: HQM overheating tool data inputs

Topic	Required inputs
Surroundings	<i>Currently under development</i>
Mechanical Ventilation	
Natural Ventilation	
Blinds & Curtains	
Communal Heating	
User Factors	

2.01.08 - Ventilation

Aim

To encourage specification of adequate and appropriate ventilation systems, and provision of any associated operational support to reduce the risk of pollutant and moisture build up indoors that can negatively impact occupant health

Benefit

- Encourages designs that reduce the risk of pollutant and moisture build up in your home and the negative health impacts associated with this
- Provides you with tools to easily control the ventilation systems in your home
- Rewards use of systems that you can maintain easily yourself

Context

It is widely accepted that the quality of the indoor environment can impact occupant health.

The quality of the indoor environment is a complex combination of both externally and internally generated pollutants, which may be compounded by occupant behaviour. Personal preferences also impact significantly on the acceptability of ventilation levels. The design of the ventilation system must therefore be robust and controllable by the occupants so that a healthy internal environment can be achieved and maintained.

Increasing levels of building airtightness mean that the ventilation system must be capable of providing effective continuous ventilation to all areas of a home, for all levels of likely occupancy and without nuisance to avoid issues of poor air quality, stuffiness and high pollutant levels including VOCs and mould spores.

Criteria Summary

ref	title	credits
1	Ventilation air intakes	4
2 - 4	Ventilation rates	4
5	Maintenance	4
6	Monitoring & controls	2
7	Home information	1
Total available Credits:		15

Criteria

Ventilation air intakes – For 4 credits

1. The home's ventilation air intakes are located in accordance with guidance outlined in Ventilation for Healthy Buildings: Reducing the impact of urban air pollution, 2011⁹

Ventilation rates – For 4 credits

2. Criterion 1 has been achieved, AND
3. Ventilation rates outlined in Building Regulations for ventilation (see definitions) are achieved with a maximum practical assumed occupancy (see Methodology section), AND

⁹ Kukadia, V. and Hall, D. Ventilation for Healthy Buildings: Reducing the impact of urban air pollution, 2011

4. The criterion in 2.01.05 - Internal and External Noise relating to ventilation systems have been achieved

Maintenance – For 4 credits

5. Where any of the ventilation systems installed require maintenance:
 - a. It can be completed safely by the occupant (in accordance with manufacturer's instructions and any other safety regulations)
 - b. Any parts of the ventilation strategy requiring maintenance are accessible
 - c. The required maintenance can be carried out without the need for specialised tools
 - d. Occupants are automatically notified when maintenance is required (where achieved via monitors and controls, 3.01.03 Monitoring and controls criteria must be met)
 - e. Details of the required maintenance are in 3.01.02 Home information.

Monitoring & controls – For 2 credits

6. Credits are available for providing monitoring and controls relating to ventilation (see 3.01.03 Monitoring and controls)

Home information – For 1 credit

7. Credits are available for providing home information relating to ventilation control measures in place (see 3.01.02 Home information)

2.01.02 - Daylight

Aim

To promote good daylighting, thereby improving occupant's quality of life and reducing energy used to light the home

Benefit

- Provides mental and physical benefits (i.e. improving mood, quality of sleep etc.)
- Helps lower energy costs and environmental impact by reducing the need for artificial light

Context

Surveys have shown that people like sunlight, as around 90% of participants commented that they appreciate having sunlight in their homes. The lack of natural light is also the third most cited cause of dissatisfaction living in a home, after high energy bills and lack of space, and deemed more important than access to amenities, work and schools.

The sun is seen as providing light and warmth, making rooms look bright and cheerful and also having a therapeutic, health promoting effect. In the winter, solar heat gain can be a valuable resource, reducing the need for space heating.

However excessive sunlight in summer can lead to overheating, which can be controlled by using moveable shading (particularly external shading such as awnings or shutters), by carefully designed overhangs or other fixed shading elements, or, exceptionally, soft coat low emissivity glass with a high light transmittance but low heat transmittance (this will reduce useful winter solar gain too).

Criteria Summary

ref	title	credits
1	Average daylight factor (kitchens)	3
2	Average daylight factor (living spaces)	3
3	View of sky	2
Total available Credits:		8

Criteria

Average daylight factor (kitchens) – For 3 credits

1. All kitchens achieve a minimum average daylight factor of at least 2%.

Average daylight factor (living spaces) – For 3 credits

2. All living rooms, dining rooms and studies achieve a minimum average daylight factor of at least 2%.

View of sky – For 2 credits

3. 80% of the working plane in each kitchen, living room, dining room and study receives direct light from the sky.

Methodology

Average daylight factor

The average daylight factor can be calculated using the following equation:

$$D F = M W \theta / (A * (1 - R * R))$$

Where:

W = total glazed area of windows or rooflights (not included frames)

A = total area of all the room surfaces (ceiling floor, walls and windows)

R = area-weighted average reflectance of the room surfaces

M = a correction factor for dirt

T = glass transmittance factor

θ = angle of visible sky

Guide values

Guide values for a typical dwelling with light-coloured walls are as follows (for more accurate values, refer to CIBSE Lighting Guide 10):

R \boxtimes = 0.5

M \boxtimes = 0.96 (vertical glazing that can be cleaned easily)

0.88 (vertical glazing with a balcony or overhang above)

0.92 (sloping glazing)

0.88 (horizontal glazing)

T = 0.68 (double glazing with low-emissivity coating)

0.6 (triple glazing)

θ Angle of visible sky

The angle of visible sky θ is the angle subtended, in the vertical plane normal to the window, by the visible sky from the centre of the window.

For long obstructions parallel to the window:

$$\theta \boxtimes = 90 \boxtimes - a \boxtimes - b$$

Where:

$\tan(a) = H / D$

$\tan(b) = T_w / H_w$

H_w = the height of the window

T_w = the thickness of the wall

ID = the distance from the window to the obstruction

H = the height of the obstruction above the mid-height of the window

Note: where external obstructions are of complex geometry and cannot be approximated by a continuous object, it is advisable to use the methodology in 'Site layout planning for daylight and sunlight: a guide to good practice'. Individual trees can be ignored.

Open-plan rooms

Where two rooms form part of the same large space (e.g. an open plan kitchen-dining room), as no solid partition is present to block the distribution of the daylight, calculate the average daylight factor for the whole space (i.e. as one room).

Credits must be awarded by comparing the average daylight factor for the whole space to the relevant assessment criteria.

Two windows facing different obstructions

When two or more windows in a room face different obstructions (e.g. vertical windows and roof lights) or differ in transmittance, the average daylight factor must be found separately for each window, and the results summed.

Window below working plane

If part of a window lies below the working plane, the average daylight factor for that part of the window must be calculated separately to the part of the window above the working plane.

The average daylight factor for that part of the window must be calculated and multiplied by an additional correction factor before being added to the average daylight factor for the part of the window above the working plane.

The default correction factor is 0.15; appendix C of 'Site layout planning for daylight and sunlight: a guide to good practice'² gives additional correction factors for special situations.

Sun pipes

As a general rule, sun pipes should be treated as roof lights, i.e. if there are no obstructions use a θ of 180°. There are a wide range of light pipes on the market with different reflective linings and some include lenses or mirrors etc. If no transmission factor is stated, use T = 0.5 for a 1m length pipe and T = 0.25 for a 2m length pipe.

No-sky line

Step 1:

Plotting of the no-sky line or estimating the percentage of the working plane that receives direct light from the sky can be carried out using the methodology below, where the obstruction is opposite the window. As an approximation, obstructions that are parallel to the window can be considered infinite. The no sky-line will then be parallel to the window at a distance 'd' from the window wall, which can be calculated as follows:

$$d \times = xh / y$$

Where:

h = height of the window head above the working plane

y = height of the obstruction above the window head

x = distance from the window to the obstruction

Step 2:

Calculate the percentage of d of the room depth.

$$P \times = (d / \text{room depth}) \times 100$$

Any room where P ≥ 80 meets assessment criteria 3.

Note: Where obstructions are not horizontal, parallel to the window or considered infinite, 'Site layout planning for daylight and sunlight: a guide to good practice' gives a more accurate methodology.

Compliance Notes

ref	Title	Note
CN1	Calculation procedures	Average daylight factor Calculation procedures for average daylight factor are detailed in BS 8206 Part 2 and in 'Site layout planning for daylight and sunlight: a guide to good practice'. They give a formula for calculating average daylight factor (see "Methodology"). It is important that external obstructions are correctly modelled (see "Methodology").

		<p>As an alternative to using the formula for average daylight factor, computer simulation software can be used. It should use an overcast sky model with a minimum grid size of 250mm, extending over the whole working plane. Computer simulation is recommended for more complex room geometries, for example those with light shelves or redirecting glazing.</p> <p>No-sky line</p> <p>Plotting of the no-sky line or estimating the percentage of the working plane that receives direct light from the sky can be carried out using the “methodology”, using the guidance in Appendix D of ‘Site layout planning for daylight and sunlight: a guide to good practice’ (BRE 2011), or using a specialist computer simulation software.</p> <p>The “methodology” given in this issue is intended for situations where the external obstruction is wide, directly opposite the window, and parallel to it. It will give worst case results in situations where the external obstruction is directly opposite the window but is discontinuous. It cannot be used where the external obstruction is not parallel to the window (for example an extension next door which projects from the line of the window wall). In these cases the guidance in Appendix D of ‘Site layout planning for daylight and sunlight: a guide to good practice’ (BRE 2011), or specialist computer simulation software, should be used.</p>
CN2	Site or room level	<p>Calculations for this issue can be completed at either the:</p> <ol style="list-style-type: none"> 1. Site level – calculations are completed for a subset of selected worst case dwellings or rooms on the site, and credits are awarded to all dwellings based on the performance of these. OR 2. Room level – calculations are completed for all relevant rooms on site. Credits are awarded according to the performance of the actual rooms. <p>This decision is left to the design team as a preference is likely to be dependent on the particular site being assessed.</p>

References

- Housing standards and satisfaction: what the public wants, Ipsos MORI and RIBA survey results, April 2013
- P.J.Littlefair, BRE Trust ‘Site layout planning for daylight and sunlight: a guide to good practice’ 2nd edition, 2011
- CIBSE Lighting Guide 10
- British Standard BS 8206-Part 2. Lighting for buildings. Code of practice for daylighting. BSI, London, 2008
- Ticleanu C et al, ‘Lighting and health’ BRE Trust Report, Bracknell, IHS BRE Press, 2015 (to be published)

2.01.03 - Loss of daylight and sunlight to neighbouring dwellings

Aim

To encourage minimising the loss of daylight and sunlight to neighbouring dwellings as a result of overshadowing caused by a new building.

Benefit

- Minimises the impact of your home on your neighbours daylight and sunlight

Context

Daylight and sunlight have important health benefits. Exposure to high levels of light during the day aids the maintenance of circadian rhythms, especially in elderly people. This improves the quantity and quality of sleep and may benefit the cardiovascular system.

Daylight and sunlight have also been shown to improve mood and reduce depression, including seasonal affective disorder (SAD). Natural light is also seen as a way of connecting the internal areas of a dwelling with the outside, further enhancing those effects. On a practical level natural light can reduce the demand for electric lighting, reducing the occupants' electricity bills and associated carbon emissions.

Loss of daylight and sunlight constitutes an important environmental impact at the local level and it is therefore required by the local authority in many environmental impact assessments.

Criteria Summary

ref	title	credits
1	Loss of daylight to windows:	2
2	Loss of sunlight to windows of main living rooms	1
Total available Credits:		3

Criteria

Loss of daylight to windows: – For 2 credits

- At least one of the following is met for each main window to a living room, study, kitchen or bedroom of surrounding existing dwellings:
 - in cases where the new development effectively forms an extension to the existing window wall, the 45° approach in 'Site layout planning for daylight and sunlight: a guide to good practice' is met;

OR

 - the vertical sky component measured at the centre of the existing window is at least 27%, or at least 0.8 times its former value

Loss of sunlight to windows of main living rooms – For 1 credit

- At least one of the following is met for a main window to each main living room of surrounding existing dwellings that faces within 90° of due south:
 - the annual probable sunlight hours measured at the centre of the existing window is at least 25%, or at least 0.8 times its former value; and the winter probable sunlight hours

(September 21-March 21) is at least 5% or at least 0.8 times its former value;

OR

b. the annual probable sunlight hours measured at the centre of the existing window decreases by no more than 4% compared with the former value.

Default case

3. The credits above can be automatically awarded where at least one of the following is applicable:
 - a. the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window;
- OR
- b. each part of the new development, when measured in a vertical section perpendicular to the existing window, subtends an angle of no more than 25° to the horizontal.

References

- Littlefair P J "Site layout planning for daylight and sunlight: a guide to good practice" BRE Report BR209, Bracknell, IHS BRE Press, 2011
- 'BS 8206 Part 2: Code of practice for daylighting' British Standards Institution, London, 2008.
- Ne'eman E, Craddock J and Hopkinson R, 'Sunlight requirements in buildings-I. Social survey' Building and Environment 11 217-238, 1976.
- Littlefair P J 'Solar shading of buildings' BRE Report BR364, Bracknell, IHS BRE Press, 1999.

2.01.04 - Sunlight

Aim

To encourage new homes with good sunlight, to contribute towards a desirable indoor environment, and benefit occupant comfort and health.

Benefit

- Provides mental and physical benefits (i.e. improving mood, quality of sleep etc.)

Context

Sunlight has important health benefits. Exposure to high levels of light during the day aids maintenance of circadian rhythms, especially in elderly people. This improves the quantity and quality of sleep and may benefit the cardiovascular system.

Sunlight has also been shown to improve mood and reduce depression, including seasonal affective disorder (SAD).

Criteria Summary

ref	title	credits
1 - 2	Annual probable sunlight hours:	3
	Total available Credits:	3

Criteria

Annual probable sunlight hours: – For 3 credits

1. A main living room receives at least 25% of annual probable sunlight hours year round, with 5% of annual probable sunlight hours in the winter months.

Default case

2. This criteria is automatically achieved if a window to the main living room faces within 90 degrees of due south, does not have an overhang or other fixed shading around it, and no obstruction subtends an angle of more than 25° to the horizontal, measured in a section perpendicular to the window.

Methodology

Default case

If using the default case, the orientation of the window should be checked on plan to show that it is within 90° of due south, and a section drawn to show that no obstruction subtends more than 25° to the horizontal.

Alternatively the angle of obstruction α can be calculated from

$$\tan(\alpha) = H/D$$

Where:

D = distance from the line of the window wall (not necessarily the centre of the window) to the obstruction

H = height of the obstruction above the mid height of the window

The calculation of probable sunlight hours is carried out at the centre of the window on the inside face of the window wall. Sunlight blocked by the window reveals should not be included, but the effect of the window frames in blocking sunlight need not be taken into account. If a room has multiple windows on the same wall or on adjacent walls, the highest value of annual probable sunlight hours should be taken. If a room has two windows on opposite walls, the annual probable sunlight hours due to each can be added together.

Compliance Notes

ref	Title	Note
CN1	Calculation procedures	Annual probable sunlight hours can be calculated using the sunlight availability indicators in 'Site layout planning for daylight and sunlight: a guide to good practice' or a computer programme.
CN2	Main living room	A lounge, dining room or sitting room.
CN3	Site or dwelling level	Calculations for this issue can be completed at either the: 1. Site level – calculations are completed for a subset of selected worst case dwellings on the site, and credits are awarded to all dwellings based on the performance of these. OR 2. Dwelling level – calculations are completed for all rooms or dwellings on site. Credits are awarded according to the performance of the actual rooms or dwellings. This decision is left to the design team as a preference is likely to be dependent on the particular site being assessed.

References

- Littlefair P J "Site layout planning for daylight and sunlight: a guide to good practice" BRE Report BR209, Bracknell, IHS BRE Press, 2011
'BS 8206 Part 2: Code of practice for daylighting' British Standards Institution, London, 2008.
Ne'eman E, Craddock J and Hopkinson R, 'Sunlight requirements in buildings-I. Social survey' Building and Environment 11 217-238, 1976.
Littlefair P J 'Solar shading of buildings' BRE Report BR364, Bracknell, IHS BRE Press, 1999.

2.01.05 - Internal and external noise

Aim

To reduce noise disturbance to occupants and people in outdoor amenity areas by promoting low levels of sound from external noise sources and building services.

Benefit

- Encourages improved sound privacy within your home
- Helps protect from outdoor noise

Context

An important underlying quality of any home is the management of noise to improve comfort and privacy within homes. A home should also provide sufficient privacy and separation of sound in different spaces within the home, allowing people to use their home without compromising other sound sensitive spaces or activities.

It is widely recognised that noise exposure indirectly affects health and wellbeing, as it causes adverse feelings in most people affected. This can result in psychological stress, anxiety, irritability, sleep disorder and other biological and biophysical effects. These in turn can increase other risk factors like blood pressure and might even lead to clinical symptoms, like insomnia and cardiovascular diseases.

It is general practice to develop and demonstrate the noise control strategy to the satisfaction of the Local Planning Authority but spaces are not usually commissioned once completed. The lack of commissioning means there is potential for a performance gap between the intended and achieved outcome.

Criteria Summary

ref	title	credits
1	Pre-requisite	0
2 - 6	Internal noise levels	5
7 - 9	External noise levels	5
Total available Credits:		10

Criteria

Pre-requisite

1. A Suitably Qualified Acoustician (SQA) is appointed.

Internal noise levels – For 5 Credits

2. The home has been designed to meet the internal noise requirements outlined in Table 1 (see checklists and tables below). This ensures the internal comfort of occupants and limits disturbance from all sources of noise.
3. The heating and ventilation systems and supporting infrastructure (pipes, outlets etc.) specified within the dwelling must not contribute more than 30dB in habitable rooms and 35dB in non-habitable rooms. This should include where specified:
 - a. Mechanical ventilations systems

- b. Heat pumps (split unit systems)
 - c. Boilers and heating systems
4. Where possible, dishwasher and washing machines have been located in dedicated spaces such as a utility room.

Default cases

- 5. The internal noise credits are awarded automatically where the dwelling has achieved two credits under the SE04 'noise pollution' issue in BREEAM Communities and as built information has been provided.
- 6. The internal noise credits are awarded automatically where the planning authority has determined that there are no issues with environmental noise.

External noise levels –For Up to 5 credits

- 7. The dwelling has taken account of the potential sources of noise local to the development and the local authority has been consulted on potential points of disturbance.
- 8. The noise levels of external functional space do not exceed the requirements in Table 2 (see checklists and tables below).

Default case

- 9. The external noise credits are awarded automatically where the planning authority has determined that there are no issues with environmental noise.

Compliance Notes

ref	Title	Note
CN1	Verification of measurements and calculations by a suitably qualified acoustician	<p>Where a suitably qualified acoustician is verifying the acoustic measurements/calculations carried out by another acoustician who does not meet the SQA requirements, they must, as a minimum, have read and reviewed the report and confirm in writing that they have found it to:</p> <ol style="list-style-type: none"> 1. Represent sound industry practice 2. Be appropriate given the building being assessed and scope of works proposed 3. Avoid invalid, biased and exaggerated recommendations <p>Additionally, written confirmation that they comply with the definition of a Suitably Qualified Acoustician is required.</p>
CN2	Measurement tolerance	<p>When determining the indoor and external noise levels associated with the dwelling a degree of tolerance is allowed to account for measurements of uncertainty and variability in sound levels as follows:</p> <p>For internal ambient noise levels, a tolerance of + 3 dB is allowed. However the targets in table 1 should be achieved by the average of rooms within each group.</p> <p>For external ambient noise levels a tolerance of + 5 dB is allowed. However the targets in table 2 should be achieved by the average of all sources. However, where compliance is demonstrated through calculation, the tolerance should not be permitted.</p>

Checklists & Tables

2.01.05 – Table 1: Internal ambient noise requirements

Time of day	Habitable rooms	Non-habitable rooms
Day (day: 07:00 – 23:00)	35dB	35dB
Night (night: 23:00 – 07:00)	30dB (Bedrooms only)	35dB

2.01.05 – Table 2: Noise levels of external functional space

Credits	Requirements
3	55dB
5	50dB

References

British Standard BS 8233:2014 offers the most current guidance on domestic properties and is based on, and broadly aligned with, research developed by the World Health Organisation. It is generally used by Environmental Health Officers to inform Planning Officers of internal noise limits where traditional forms of ventilation may not be appropriate due to external noise sources. Similarly, in the event of complaint, BS 8233:2014 is generally cited as a reference for “good practice”.

2.01.06 - Sound insulation

Aim

To reduce noise disturbances by promoting good levels of sound insulation between neighbouring homes and different rooms within the home.

Benefit

- Reduces the chance of hearing your neighbours, or them hearing you
- Increases protection of noise from other rooms in your home

Context

An important underlying quality of any home is the management of noise to maximise comfort and privacy. This should allow rooms to be used as intended, without compromising sound sensitive spaces or activities.

Sound insulation is embedded within the current national building regulations, and minimum performance requirements are provided. The performance requirements vary across the UK but are found within Approved Document E (England and Wales), Section 5 of the Technical Handbook (Scotland) and Technical Booklet G (Northern Ireland). Within the relevant National Building Regulations, the issue of sound is split into two parts; firstly that of sound insulation between adjacent dwellings, and secondly between rooms within dwellings.

Criteria Summary

ref	title	credits
1	Sound insulation between dwellings	5
2 - 3	Sound insulation between rooms	5
Total available Credits:		10

Criteria

Sound insulation between dwellings – For Up to 5 credits

1. A programme of pre-completion testing by a compliant test body (see definition) OR all relevant building elements have been registered with Robust Details Limited, and these demonstrate that the assessed dwelling achieves the targets in Table 1 for airborne and impact sound insulation taking into account both separating walls and floors between homes.

Sound insulation between rooms – For Up to 5 credits

2. Credits are awarded based on the performance of the constructions used to form internal partitions and internal floors of the assessed dwelling against the targets in Table 2 for airborne and impact sound insulation as tested within an acoustics laboratory.

3. The SQA passes on critical information to relevant construction professionals outlining key issues that have the potential to reduce the sound insulation during the construction process, including as a minimum:
- Information on means to ensure sockets, switches, down lights and other services or other perforations maintain the acoustic performance where otherwise it may be compromised
 - Guidance relating to appropriate junction details at the head, foot and perimeter of the partition or floor
 - Checks to ensure that laboratory test report evidence submitted relates to the proposed and built construction (including all key components such as stud type and make, joist type, principle dimensions, board and insulation type and make) OR that the construction matches the standards outlined in the Scottish Government Building Standards Division in their publication "Example Construction and Generic Internal Constructions for use with Section 5: Noise - of the Technical Handbooks".

Checklists & Tables

2.01.06 – Table 1: Sound insulation levels for separating walls and floors

Credits	Airborne sound insulation DnT,w + Ctr (dB) (minimum values)	Impact sound insulation L'nT,w (dB) (maximum values)
	Separating walls and floors	Separating floors only
3	48	53
4	50	57
5	53	54

2.01.06 – Table 2: Sound insulation levels for wall and floor partitions

Credits	Airborne sound insulation Rw (dB) (minimum values)
	Wall and floor partitions
4	43
5	48

References

England

Where the criteria refer to the performance standards in building regulations, in England this is referring to Approved Document E: Resistance to the passage of sound 2003 edition, with amendments 2004, 2010 and 2013.

Northern Ireland

Where the criteria refer to the performance standards in building regulations, in Northern Ireland this is referring to Technical Booklet G Resistance to the passage of sound 2012 edition.

Scotland

Where the criteria refer to the performance standards in building regulations, in Scotland this is referring to Technical Handbook Section 5 Noise 2013.

Wales

Where the criteria refer to the performance standards in building regulations, in Wales this is referring to Approved Document E: Resistance to the passage of sound 2003 edition, with amendments 2004, 2010 and 2013.

2.03.01 - Environmental impact of materials

Aim

To reduce the burden on the environment from construction materials by recognising and encouraging measures to optimise material efficiency and the selection of materials with a low environmental impact (including embodied carbon) over the full life cycle of the building.

Benefit

Assessing against this issue can:

- help demonstrate the environmental considerations that have taken place within the specification of materials of the dwelling. This will be reflected in the footprint indicator.
- give an indication for the amount of CO₂e that arises from the selection of materials that are specified for cradle-to-grave and stages in-between.

When your home has been assessed against this issue it means that:

- The HQM scorecard will give an indication to the occupant about the level of attention that went into the environmental impact and the positive measures that have influenced how the home was built.

Context

Since the introduction of Part L into building regulations, CO₂e emissions from in-use operational energy consumption has been significantly reduced for dwellings. As this reduces, other aspects of the building design that release CO₂e are becoming increasingly more significant.

In addition to CO₂e, there are several other embodied environmental impacts within the materials and processes that occur during construction that should be considered when specifying materials.

Criteria Summary

The assessment of this issue will be based on whole building LCA. The impact of the dwelling's construction materials and processes will be measured and compared with a benchmark. The lower the dwelling's impact compared with the benchmark, the more credits can be awarded.

The measurement of the dwelling's impact will be carried out using an IMPACT Compliant tool. Only IMPACT Compliant tools may be used to ensure comparability between the dwelling's impact, those of other dwellings and the impact benchmarks which HQM will specify. The use of IMPACT Compliant tools will allow the user to select construction materials/products from a library and combine these with the quantities in the dwelling. The tool will use this information to calculate the dwelling's overall embodied impact. A free-to-use IMPACT Compliant tool will be made available to BREEAM Assessors when the scheme is launched. Commercial IMPACT Compliant tools, which have more features but use the same calculation methodology, may also be used. (see www.IMPACTwba.com)

The benchmarks to be used for comparison and the award of credits will be based on real dwellings built since 2006 using data gathered by the English Housing Survey. For more information on the benchmark metric see the [methodology section](#)

ref	title	credits
1	Percentage improvement above the benchmark	For Up to a capped result depending on the route of rigour
Total available Credits:		26

- **Foundation route**

A simplified route that requires less detailed information about the dwelling's design (but uses the same free-to-use IMPACT Compliant tool and credit award method). This route will require less time to complete but, as a result of being based on less detailed information, will have the number of possible credits capped.

- **Comprehensive route**

Where more information is provided the cap is raised up to the maximum available credits as recognition of rigour.

In addition, to encourage the take-up of EPD by the construction industry, HQM will recognise dwellings that incorporate a sufficient number of materials/products with a manufacturer specific EPD.

Percentage improvement above the benchmark –For Up to a capped result depending on the route of rigour

1. Where the dwelling calculation has achieved a percentage improvement above the average benchmark and the level of rigour is sufficient to award the output.

Performance benchmark credit table

% above benchmark	Awardable credits subject to cap
This will be set by the standard deviation from the English House Study results that determine the benchmark	
0%	1
	2
	3
	...
	...
	...
	24
	25
Maximum %	26

NOTE: The table above outlines the intent of how the thresholds will be set. The thresholds set against these credits will be released following this consultation. The benchmark impacts are being calculated using the EHS data and an IMPACT Compliant tool.

Methodology

Benchmark

It is proposed that the indicator used for measuring the dwelling's environmental impact will be EN 15804 compliant ecopoints. A supplementary EN 15804 compliant kgCO₂e result (the carbon footprint) will also be reported.

The benchmarks to be used for comparison and the award of credits will be based on real dwellings built since 2006 using data gathered by the English Housing Survey. The benchmark impacts are being calculated using this data and an IMPACT Compliant tool.

The impact of the dwelling will be normalised using a 'functional unit' of 1 occupant to allow dwellings of different sizes to be compared with each other and the benchmarks. The number of occupants per dwelling will be based on the average number of occupants per number of bedrooms in the dwelling. For example, a 1 bedroom dwelling has an average of 1.36 occupants so the dwelling's total impact will be divided by 1.36. The average number of occupants per number of bedrooms is taken from the 2011 census.

Conversion for assumed average occupancy

number of bedrooms see CN1	number of design occupants	UK average number of occupants ¹
1	1-2	1.36
2	3-4	1.93
3	4-6	2.55
4	5-8	3.03
5+	6-10	3.44

Compliance Notes

ref	Title	Note
CN1	Number of bedrooms	Where a home has an as-built number of bedrooms, this is the number to be used for the purpose of calculations and is to be consistent with other issues that are also derived from the number of bedrooms. Where there are rooms that are potentially able to become bedrooms, this may be reported in the Home Information and relate towards the recognition of adaptability in dwelling space but wouldn't influence this issue's output
CN2	Communal areas	Where dwellings are part of a building that includes shared communal areas, scoping will be defined following the consultation. The general principle is that the dwelling is assessed independently and the communal elements that contribute to the dwelling are apportioned to the number of dwellings in the building. For example a stack of 5 apartments will all share a roof, access and foundations. The apartments will be assessed for the elements that make up their enclosure. This principle is looking to align with the method used in energy issues.

¹ Contains public sector information licensed under the Open Government Licence v3.0. 2011

Census: Number of bedrooms, local authorities in England and Wales

QS411EW: 2011 Census: Occupancy rating (bedrooms), local authorities in England and Wales

References

- BS EN ISO 14020, Environmental labels and declarations – General principles.** [Report] = Environmental labels and declarations – General principles. / auth. BSi. - [s.l.] : BSi, 2001. - BS EN ISO 14020.
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- BS EN ISO 14040 Environmental management. Life cycle assessment. Principles and framework** [Report] = Life cycle assessment. Principles and framework / auth. BSi. - [s.l.] : BSi, 2006. - BS EN ISO 14040.
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2.03.02 - Life cycle costing of materials

Aim

To deliver whole life value from investment and promote economic sustainability by recognising and encouraging the use and sharing of life cycle costing and service life planning to improve design, specification and through-life maintenance and operation.

Benefit

Assessing against this issue can:

- help demonstrate the financial considerations that have taken place within the design and construction of the dwelling. Where decisions that have been taken that directly benefit the end user, this will be reflected in the cost indicator.
- the HQM scorecard could give the occupant an indication for the design considerations that impact the living costs and will provide information on the most significant decisions that have been made.

Context

The lack of data relating to capital and life cycle costs/benefits arising from more sustaining building design presents a major barrier to take-up of more sustainable solutions. This issue seeks to encourage the sharing of data to break down these barriers and ensure that the standard continues to encourage cost effective and financially beneficial solutions.

Where LCC has been carried out, there are some aspects that are of interest to the owner and occupant since the decisions made has an impact on them.

For the consultation, the criterion written below originates from the BREEAM New Construction 2014 Man-02 issue along with some tailored Home Quality Mark suggestions. As the Home Quality Mark is centred on being a consumer focussed standard, this issue presents opportunities for developers to utilise the information that may be found in such an analysis. So rather than being an issue which is solely aimed at the reasoning in the paragraphs above, we would like to open up the issue so that it can present value to homeowners and occupants, management facilities.

Criteria Summary

ref	title	credits
1	Foundation Route Elemental (entity, element and system) level life cycle cost plan	10
2	Comprehensive Route Component (system, product and material) level life cycle cost plan	15
3	Home information	2
Total available Credits:		18

Criteria

Foundation Route

Elemental (entity, element and system) level life cycle cost plan –For Up to 10 credits

1. A life cycle cost (LCC) analysis has been carried out prior to Process Stage 2 together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008

The LCC analysis shows:

An preliminary LCC plan for the project based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenarios e.g 60 years, 100 years

The fabric and servicing strategy for the project outlining services component in the form of an 'elemental LCC plan'

Comprehensive Route

Component (system, product and material) level life cycle cost plan –For Up to 15 credits

2. A component level LCC plan has been developed by Data Drop Stage 4 in line with PD 156865:2008 and include the following component types (where present):
envelope (windows, doors, roofing, external wall (see 2.03.03 Durability and resilience)
services
finishes
external spaces, e.g. hard landscaping, boundary protection

Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and system design and specification to minimise maintenance and future costs for the occupant and owner (where these two parties are different)

Home information – For 2 credits

3. Criteria 1 or 2 is completed, and summary information included in the Home Information

Capital cost reporting

Criteria 1 or 2 is completed, and the capital cost (£ per dwelling) and the scope of inclusion has been reported. Refer to Section 5 of PD 156865:2008 for potential indicators and metrics. Note: for housing, bedspace is quoted as being a common functional unit, we propose that this doesn't relate to the economics of a typical household. If this issue were attempting to compare one dwelling to another the functional unit as bedspace would be appropriate similar to methodologies proposed in other issues.

Methodology

General

The methodology for this issue is as per the referenced standard PD 156865:2008.

Capital cost reporting

With reference to [CN5](#) and the predicted capital cost definition, the scoping for capital cost must clearly define the inclusion and method of calculation and state whether it is an estimate or average. The following examples show acceptable calculation methods for how the resultant value can be described within the assessment.

$$\text{Approximate average cost per dwelling derived from site level} = \frac{\text{Site level cost}}{\text{number of dwellings in development}}$$

$$\text{Approximate average cost per dwelling derived from block level} = \frac{\text{Block level cost}}{\text{number of dwellings in block}}$$

$$\text{Accurate sum cost of dwelling} = \sum \text{the cost of elements that make up dwelling}$$

$$\text{Approximate average cost per dwelling} = \text{Average cost per floor area} \times \text{GIFA}$$

Compliance Notes

ref	Title	Note
CN1	Elemental life cycle cost reporting and maintenance strategy	Criteria 1 and 2 must declare the scope of the inclusion of elements LCC Plan. This may be reported using a classification system such as uniclass2 or uniclass2015
CN2	Home Information	Where design decisions have been informed by the LCC plan that place terms and conditions the occupant or owners, this must be communicated in the Home Information for credits to be awarded. (E.g. where warranties are used to input service life, and conditions on maintenance are related to the product warranties, for the LCC plan to be meaningful, the end user and occupant must be informed of this.) A summary of the supporting evidence such as the manufacturer literature may be made available in the HQM scorecard.
CN3	Appropriate examples	The option selected to demonstrate how life cycle costs have been minimised and critical value maximised must be appropriate in terms of its relative impact on project, operational and maintenance costs.
CN4	Pre-defined specifications	Where the building is constructed to a pre-defined standard specification, the LCC plan for this specification may be used to help demonstrate compliance.
CN5	Capital Cost Reporting	The scope for cost per dwelling must declare the scope and method of calculation for per dwelling (i.e. how have the shared areas been distributed to calculate a per dwelling value) At the design stage of assessment, where the final information is not available, the credit can be awarded where the client provides the predicted capital cost, including contingencies, and commits to providing this information for the later stages of assessment. At the final stage, if the final capital cost is not known, an appointed cost consultant may provide a best estimate. Capital cost will not explicitly be stated on the occupant's scorecard. For criterion 4, the scope of the inclusion of elements must be declared also see Predicted Capital Cost in the definitions section for more detail on scope. This may be reported using a classification system such as uniclass2 or uniclass2015.
CN6	Scope matching consistency across the HQM standard	Where the environmental impact of materials issue is being assessed, the assumptions about service life for an element, system, product or material must correlate with what is used within the LCC plan

Definitions

Life cycle cost (LCC)

The cost of an asset, or its parts throughout its life cycle, while fulfilling the performance requirements; a methodology for systematic economic evaluation of life cycle costs over a period of analysis, as defined in the agreed scope

Elemental LCC plan

This is commonly used for developing solutions at project level during option appraisals. Costs are normally at building elemental level on the entire asset. Information may be a mix of typical benchmark costs for key elements, comparative cost modelling or approximate estimates. It is expressed as cost per square meter of gross internal floor area (GIFA) and presented for elemental analysis, aligned to the level of capital cost plans.

Predicted capital cost

The capital cost for the building includes the expenses related to the initial construction of the building:

- Construction, including preparatory works, materials, equipment and labour
- Site management
- Construction financing
- Insurance and taxes during construction
- Inspection and testing

Costs relating to land procurement, clearance, design, statutory approvals and post-occupancy aftercare should not be included

Capital cost reporting

The lack of data relating to capital and life cycle costs/benefits arising from more sustaining building design presents a major barrier to take-up of more sustainable solutions. This issue seeks to encourage the sharing of data to break down these barriers and ensure that the standard continues to encourage cost effective and financially beneficial solutions. This information is collected to assist research into the cost and savings gained from the approaches taken to meet criteria. All data submitted will be treated as confidential and will only be used anonymously.

Component Level LCC Plan

A component level LCC is commonly used for cost planning specification choices of systems, elements and products during design development.

Component level LCC appraisal for service life planning at the feasibility stage requires the environment of the building and other local conditions to be identified, and the fundamental requirements to be met in planning the service life of the building. Decisions should be made on:

- the likely design life of the building (rather than the contractual design life)
- minimum functional performance criteria for each product over the building's design life
- components that must be repairable, maintainable or replaceable within the design life of the house.

Standardised method for life cycle costing (SMLCC) for construction

The guide PD 156865:2008 describes the standardised method of applying life cycle costing for construction procurement. The objectives of this guide are to provide:

1. A UK standard cost data structure for life cycle costing, which aligns with ISO 15686-5 and the Building Cost Information Service (BCIS) Standard Form of Capital Cost Analysis (SFCA) and industry recognised occupancy cost codes.

2. Life cycle costing practitioners with a standardised method of applying life cycle costing, applicable to the UK construction industry and to the key stages of the procurement process.

3. Process mapping the life cycle costing stages – to help structure how to plan, generate, interpret and present the results for a variety of different purposes and levels of life cycle cost planning.

4. Instructions on how to define the client's specific requirements for life cycle costing and the required outputs and forms of reporting – and to decide on which method of economic evaluation to apply.

5. Simplification and demystification – by providing practical guidance, instructions and definition, together with informative worked examples on how to undertake a more accurate, consistent and robust application of life cycle costing estimation and option appraisals, thereby creating a more effective and robust basis for life cycle cost analysis and benchmarking

References

PD 156865:2008 Standardised method of life cycle costing for construction procurement : a supplement to BS ISO 15686-5:2008 Buildings and constructed assets. Service –life planning – Part 5 life cycle costing

<http://www.arla.co.uk/info-guides/property-guides/deposit-protection-guide/wear-and-tear/>
<http://www.arla.co.uk/media/611166/private-rented-sector-code.pdf>

CONSULTATION

2.03.03 - Durability and resilience

Aim

To recognise and encourage adequate protection of exposed elements of the building and landscape, therefore minimising the frequency of replacement and maximising materials optimisation.

Benefit

Assessing against this issue it will:

- help demonstrate the products have been considered and specified according to their location to attempt to mitigate replacement. It gives the design team the opportunity to communicate what factors the specified materials have taken into consideration.
- help developers to build new homes that are robust enough to last their intended lifetime.

When a home has been assessed against this issue it means that:

- throughout the design of the home, the project team have looked durability of the materials they are specifying for a range of factors that they consider to have an impact. This information may be useful for inclusion in the shared knowledge part of the assessment and communicating with future occupants.
- by considering and extending the expected service life of a product, it also indirectly indicates environmental impacts will be reduced and may also serve as justification for the stated service life in both LCC and LCA issues.

Context

For the consultation, the criteria written below originate from the BREEAM New Construction 2014 Mat-05 issue along with some tailored Home Quality Mark suggestions.

The inclusion of this issue within the Home Quality Mark is to initially prompt the designers to include good practice at the outset and declare such considerations so that all future stakeholders may utilise the information to their own circumstances at a future point in time.

For this reason this issue does not intend to set minimum performance benchmarks of criteria since performance would typically be relative to the risk. For example, performance in coastal areas would need different consideration to that of inner city developments. Instead this issue bases the assessment on the declaration of the information and the scope that it has been designed for. This is with the aim that future interests can assess the information against their own particular criteria.

To maximize a building's performance it is essential that it is suitably protected from the impacts of the natural environment. Climate change can significantly accelerate the deterioration of materials used in a building. It is therefore important to consider the impact of climate change on the vulnerable areas within the built environment.

Impacts of climate change can be mitigated by good design and specification so that stakeholders can have increased confidence in the durability of new homes being built.

This issue may also aid the justification for adjusting service life within the [life cycle assessment](#) and [life cycle costing](#) issues.

Criteria Summary

ref	title	credits
1	Protecting vulnerable parts of the building from damage	10
2	Protecting exposed parts of the building from material degradation	13
Total available Credits:		23

Criteria

Protecting vulnerable parts of the building from damage –For Up to 10 credits

1. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external and landscape elements. This must include but not necessarily limited to:
Protection from the effects furniture moving along main access and circulation area such as main entrances, thoroughfares (corridors, lifts, stairs, doors etc.).
 - a. Protection against any internal movement within 0.1m of the internal building fabric in storage, corridor and kitchen areas.
 - b. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.
 - c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.

Protecting exposed parts of the building from material degradation –For Up to 13 credits

2. The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors. (See Methodology for the process to assess this criterion)

Methodology

Foundation route

Confirm and demonstrate the following has been carried out.

Environmental Factor	Element	Best Practice design measure	HQMLink
Wind	Roofs	Choose fixings for 5–10% higher wind loads	
Solar radiation	Openings (Windows , Skylights, doors etc.)	Choose materials with good UV resistance and	
	External walls	Selected materials resistant to cracking	
Settlement	Foundations	increase foundation depth on susceptible clay soils by ~0.5 m	
Driving rain	Openings (Windows , Skylights, doors etc.)	Specify Materials for higher levels of climatic exposure. Ensure fixing is water-tightness	
Flooding	Site location	My surrounding>resilience>Flooding has been assessed and has achieved credits	1.0401
Coast erosion	Site Location	do not build on vulnerable areas and the My surrounding>resilience>issue has been assessed and has achieved credits	1.0401
Water – consider water resources when planning new developments. Water companies to plan for climate change problems in south		My surrounding>resilience>... has been assessed and has achieved credits	1.0403
Humidity	Areas of the building susceptible to moisture	Ventilation – Plan for good ventilation AND My Home>Energy>Comfort>Ventilation issue has been assessed and has achieved credits	2.0101 2.0107 2.0108

Comprehensive route

Where [vulnerable elements](#) are identified, all criteria are applicable where credits are sought. Evidence associated with this issue may relate to other areas of the assessment.

Applicable building elements

Substructure: foundations
Substructure: lowest-floor
Substructure: basement and retaining walls

Superstructure: external walls
Superstructure: internal walls of circulation spaces
Superstructure: roof
Superstructure: upper floors & balconies

Superstructure: external openings
Superstructure: external finishes
Superstructure: external fixings
Superstructure: external hard landscaping

Spaces: circulation spaces (halls, corridors stair cores, lifts etc.)

The following outlines the process to assess criterion 2

1. Identify from the list of applicable building elements, the elements that are appropriate to assess.
2. Establish form the environmental factors list those factors that are likely to cause material degradation effects in the identified applicable building elements.
3. Confirm the design and specification incorporates ways to limit these degradation effects.
4. The assessor should use their professional judgement in determining whether the design team have adequately demonstrated that they have designed and specified materials and/or measures which will be effective in preventing unnecessary deterioration so reducing frequent replacements, repairs and maintenance through the life cycle of the building.
5. At post construction stage, where the design and specification measures installed differ from the proposal at design stage, the assessor must ensure that these measures still meet the aims of the criterion as detailed in point 4.

Environmental Factors to consider

Environmental factors
Environmental agents, including:
Solar radiation
Temperature variation
Water/moisture
Wind
Precipitation, e.g. rain and snow
Extreme weather conditions: high wind speeds, flooding, driving rain, snow
Biological agents, including:
Vegetation
Pests, insects
Pollutants, including:
Air contaminants
Ground contaminants

Material degradation effects (includes, but not necessarily limited to the following)

Corrosion
Dimensional change, e.g. swelling or shrinkage, thermal expansion
Fading/discolouration
Rotting
Leaching
Blistering
Melting
Salt crystallisation
Abrasion

References

- BRE Global.** 2014. NC-Materials. *BREEAM UK New Construction (2014) Technical Manual*. Watford, UK : s.n., 7 8 2014. Materials. – Mat 05 Durability of Materials
- BRE, FBE, Grave H, Philipson M.** 2000. *Potential Implications of Climate Change in the Built Environment*. s.l. : Construction Research Communications Ltd, 2000.
- BS 5234-2:1992**, Partitions (including matching linings). Specification for performance requirements for strength and robustness including methods of test

CONSULTATION

2.03.04 - Responsible sourcing

Aim

To recognise and encourage the specification and procurement of responsibly sourced materials and products.

Benefit

The risk of social, environmental and economic issues in the supply chain of the construction materials is reduced.

Context

A building must consider not only the environmental impacts but also the impacts of construction on the social and economic aspects of sustainability. This issue looks at rewarding for where products are specified that are verified by third party scheme operators that look at addressing the wider issues.

For the purposes of this consultation, the description below is only focussing on explaining the overall similarities and areas of difference in terminology and scope compared to the approach BREEAM New Construction 2014 has taken.

Criteria Summary

BREEAM New construction introduced three routes, in order to carry out the assessment; this is similar to what is proposed for the Home Quality Mark which is referred to as 'routes of rigour'.

Similarities

Foundation route (equivalent methodology to BREEAM NC 2014 route 1)

Since HQM has the potential for predicting quantities from basic information, it is likely HQM will be able to introduce a best guess for the quantities in this issue. This would be the equivalent to Route 1 in NC2014 where no quantity information is given.

Comprehensive route (equivalent methodology to BREEAM NC 2014 route 2)

When all estimates are overridden in the tool, this would be considered the equivalent to BREEAM NC Route 2 methodology.

Intermediate route (equivalent methodology to BREEAM NC 2014 route 3)

When there are a mix of overrides and estimates in the tool, this would be considered the equivalent to BREEAM NC Route 3 methodology.

Differences

There are a number of details such as thresholds and compliance notes that may need to be addressed for the domestic scale.

ref	title	credits
1	Legally harvested and legally traded timber	pre-requisite
2	Sustainable procurement plan	3
3-6	Responsible sourcing of materials (RSM)	20
Total available Credits:		23

Criteria

Legally harvested and legally traded timber –pre-requisite

1. All timber and timber based products used in the buildings meet the definition of 'legally harvested and legally traded timber'

Sustainable procurement plan –For Up to 3 credits

2. The designated Appropriate Qualified Professional (AQP) sources materials for the project in accordance with a documented sustainable procurement plan.

Responsible sourcing of materials (RSM) For Up to 20

Where the whole building score meets the percentage threshold of available points achieved as listed in the credit allocation table

Credit Allocation Table

% of available points achieved	credits
i% to be confirmed	1
j% to be confirmed	2
n% to be confirmed	n...
x% to be confirmed	19
y% to be confirmed	20

Methodology

Sustainable procurement plan

A sustainable procurement will consist of the following:

Risks and opportunities are identified against a broad range of social, environmental and economic issues as recognised within established framework standards.

Aims, objectives and targets to guide sustainable procurement activities.

The strategic assessment of sustainably sourced materials available locally and nationally. There should be a policy to procure materials locally where possible.

Procedures are in place to check and verify that the sustainable procurement plan is being implemented and adhered to on individual projects.

Calculation

The percentage of available points achieved is based on the following input information:-

3. Where responsible sourcing information has been provided for products within the ‘element scope’

AND EITHER

Foundation route

4. Basic spatial information for the dwelling is provided to generate an estimate for quantifying the amount of materials within the dwelling.

OR

Intermediate route

5. A mixture of estimates derived from the basic information and accurate quantities from material take-off schedules for products within the ‘elements scope’ have been provided.

OR

Comprehensive route

6. Accurate quantities for all products within the ‘elements scope’ have been provided.

Scope

Elements Scope

- Ceiling (including ceiling finishes)
- Door or window
- Floor (including floor finishes)
- Insulation
- Internal partition or internal walls (including finishes)
- Roof (including roof finishes)
- Structure, primary and secondary
- External wall (e.g. cladding, lining, render, including finishes)
- Building service
- Hard landscaping
- Other

Materials Scope

- Timber/ timber-based products(TBP)
- Concrete/ cementitious (plaster, mortar, screed etc.)
- Metal
- Stone/ aggregate
- Clay-based (pavers, blocks, bricks, roof tiles, etc.)
- Gypsum
- Glass
- Plastic, polymer, resin, paint, chemicals and bituminous
- Animal fibre/skin, cellulose fibre 10. Other

Compliance Notes

ref	Title	Note
CN1	Sustainable procurement plan	For design stage assessments where the AQP has not yet been appointed, a specification or a letter of intent from the party responsible for appointing the AQP must be provided confirming a requirement for the AQP to have in place a sustainable procurement plan
CN2	BREEAM recognised responsible sourcing certification schemes and their point scores	Guidance Note 18 available in the Resources section of the BREEAM website, provides a table of responsible sourcing certification schemes recognised under BREEAM, their scope and associated point scores. This table is reviewed on a regular basis and BREEAM assessors must ensure they use the current table.
CN3	Re-used materials	Where materials that are in-situ and are being re-used in the new development, these can be allocated ten points within the calculation. Re-used material from other sources does not fall under this description.
CN5	Foundation route Cut-off	To be confirmed.

References

2014, BRE, BREEAM New Construction 2014 – Mat 03 Responsible Sourcing

2.04.01 – Drying Space

Aim

To provide sufficient and convenient drying space that does not negatively impact on the air quality within the dwelling and reduces the need for mechanical drying.

Benefit

Providing adequate drying space reduces the need for tumble dryers and can therefore reduce the occupant's energy bills and carbon footprint. Adequate drying space can also improve the wellbeing of the occupants by reducing the risk of condensation build up and mould growth associated with respiratory illnesses.¹

Context

Mechanical drying of washing greatly increases a dwelling's energy use and associated costs. However many occupants are left with little choice as a result of inadequate ventilation for internal drying or insufficient dedicated and secure space for external drying. In many cases homes experience increased humidity, in turn increasing the likelihood of mould formation and illness.¹

Criteria Summary

ref	title	credits
1-3	Adequate internal or external drying space	3
Total available Credits:		3

Criteria

Adequate internal or external drying space – For 3 credits

1. An adequate internal or external drying space is provided. The drying space should contain a drying line with posts and footings, or fixings, with a length of:
 - a. 4m+ for a home with one to two bedrooms.
 - b. 2m+ per bedroom for a home with three or more bedrooms.
2. The internal or external drying space is secure.
3. The provision of drying space does not compromise the ventilation strategy for the building (See 2.01.08 Ventilation)

Methodology

None

Compliance Notes

ref	Title	Note
CN1	Adequate Drying Space	Compliant drying space can take one of the following forms: 1. A heated space with controlled intermittent extract ventilation. Extract ventilation must achieve a minimum extract rate of 30l/s and be controlled according to the requirements for intermittent extract ventilation defined in Building Regulations Approved Document F (this can include drying

¹ Design Guide: Healthy Low Energy Home Laundering (2011):
http://www.gsa.ac.uk/media/486640/mearu_laundry_design_guide.pdf

		<p>space located over a bath).</p> <p>2. An unheated area may also be acceptable, where calculations by an appropriate member of the Chartered Institution of Building Services Engineers (CIBSE), or equivalent professional, confirms that ventilation is adequate to allow drying in normal climatic conditions and to prevent condensation/mould growth.</p> <p>3. A secured external space with access restricted to occupants of the dwellings. The space should be accessed directly from an external door. Any fixings or fittings must be a permanent feature of the room or space.</p> <p>Radiators and towel rails do not comply as they have been designed to serve another function.</p> <p>Internal drying spaces in the following rooms do not comply:</p> <ul style="list-style-type: none"> a. Living rooms b. Kitchens c. Dining rooms d. Main halls e. Bedrooms
CN2	Secure Space	<p>For self-contained dwellings this is an enclosed space accessible only to the residents of the dwelling. The space should be accessed directly from an external door and any fixings or fittings must be a permanent feature of the space. For houses in multiple occupation (HMOs), communal drying space may be provided if such space is enclosed, is only accessible to the residents of the HMO and has a secure entrance.</p>

2.04.02 - Dwelling Space

Aim

To provide sufficient and effective internal space that supports the buildings function, as well as the occupant's usage and storage needs.

Benefit

Providing enough functional living space, e.g. a study area and a personal space for each occupant, can help occupants enjoy their everyday lives, as well as improve wellbeing.

Context

Space is a key factor when deciding to buy a new home. Spaces need to be well designed and adequately sized to meet every day and future needs. To accommodate this, our homes need to be designed to encourage flexibility and accessibility for all types of users and their associated requirements.

Criteria Summary

ref	title	credits
1	Nationally described space standards	2
2-3	Living space proportions and design	1
4	Flexible design	1
5	Accessible design	2
6	Inclusive design	2
7	Home information is provided	1
Total available Credits:		9

Criteria

Nationally described space standards –pre-requisite 2 credits

1. The home meets the Nationally Described Space Standard.²

Living space proportions and design –For 1 credits

2. Criterion 1 has been achieved.
3. The minimum requirements given in the “Minimum proportion and design requirements - Table 1” are achieved where applicable:

Table 1: Minimum proportion and design requirements ^{2, 3}

Room Type	Requirement
Bedrooms	All bedrooms are a minimum width of 2.75m.
Kitchens	A minimum width of 1.1m measured from the edge of fixed units e.g. between counter tops.
Living Rooms	All living areas should be a minimum width of 2.8m in homes with 2-3 bed-spaces and a minimum of 3.2m in homes with four or more bed-spaces.
Bathrooms	Minimum widths for specific fittings, where applicable (Building Regulations)

² DCLG Technical housing standards - nationally described space standard March 2015 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421515/150324_-_Nationally_Described_Space_Standard____Final_Web_version.pdf)

³ London Housing Design Guide 2010 (<https://www.london.gov.uk/sites/default/files/Interim%20London%20Housing%20Design%20Guide.pdf>)

	<p>approved document Part M):</p> <ul style="list-style-type: none"> a. Shower areas should be a minimum of 1000mm x 1000mm b. Baths should have a minimum width of 700mm c. Basins should have a minimum access zone width of 700mm. <p>These can be arranged in any configuration but must meet the following requirements:</p> <ul style="list-style-type: none"> a. Showers and baths should not impact or overlap with accessible space of 850mm x 750mm. b. Basins can project a maximum of 200mm into this accessible space.
Storage	<p>All homes must be provided with built in storage and this should meet the following requirements:</p> <ul style="list-style-type: none"> a. A minimum internal height of 2m. b. All storage spaces provided must have a minimum width of 0.5m.

Flexible design - For 1 credit

4. Internal functional space within the home offers flexible design options that meet every day needs and long term demands.

Accessible design –For 2 credits

5. The internal and external spaces associated with the home meet the optional requirements of the Building Regulations approved document Part M - Access to and use of buildings, Category 2 – “Accessible and adaptable dwellings”.⁴

Inclusive design –For 2 credits

6. The internal and external spaces associated with the home meet the optional requirements of the Building Regulations approved document M - Access to and use of buildings for Category 3 – Wheelchair user dwellings.⁴

Home information is provided –For 1 credit

7. 1 credit is available for providing dwelling space home information (see 3.01.02 Home information)

Methodology

None [Click here to enter text.](#)

Compliance Notes

ref	Title	Note
CN1	Flexible design options	<p>Flexible design options are intended to meet every day and long term requirements and allow potential adaptations in the future. The following examples would be considered suitable, credits are awarded if two or more of these can be met:</p> <ol style="list-style-type: none"> 1. For walls that split living spaces, ensuring they are partition and not load bearing so that rooms can be changed, for example an open plan kitchen or dining room. 2. The option to change room functionality easily within a

⁴ Building regulations part M 2015 - Access to and use of buildings:
[\(http://www.planningportal.gov.uk/buildingregulations/approveddocuments/partm/\)](http://www.planningportal.gov.uk/buildingregulations/approveddocuments/partm/)

		<p>dwelling, for example changing a study into a bedroom and maintaining compliance with the nationally described space standard.</p> <p>3. Where additional lintels are designed in to overcome structural modifications in future for intended space e.g. allow for the inclusion of windows to divide a room, allow for redistribution of structural loading.</p> <p>4. Potential for conversions or extensions (e.g. loft)</p>
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Definitions

Internal functional space

This refers to internal spaces defined in the nationally described space standard, which includes occupied space such as:

- a. Bedrooms
- b. Kitchens
- c. Living rooms
- d. Dining rooms
- e. Bathrooms

2.04.03 - Recyclable waste

Aim

To provide sufficient recyclable waste storage and disposal options to support the reduction of waste to landfill.

Benefit

Providing adequate recycling and composting facilities promotes the re-use and recycling of materials. This reduces the occupant's carbon footprint and promotes a convenient and sanitary way to manage waste.

Providing sufficient space for waste storage in a suitable location ensures that recyclable waste storage can be as inconspicuous as possible.⁵

Context

In order to encourage the reduction of waste to landfill, it is important to provide sufficient storage areas within the dwelling that reflect the recyclable waste streams that are collected by the local waste authority. This makes it as clear and convenient as possible for the occupant to separate waste accordingly.⁵

Criteria Summary

ref	title	credits
1	Consultation with the waste collection authority	2
2-3	Recyclable waste	6
4-5	Composting	3
6	Home information	2
Total available Credits:		13

Criteria

Consultation with the waste collection authority –pre-requisite 2 credits

1. Consultation with the waste collection authority was completed to determine the waste collection patterns, identifying the:
 - a. number of recyclable streams (including composting)
 - b. type and size of waste collection containers (e.g. dedicated wheelie bins, boxes, communal bins etc.)

Recyclable waste –For 6 credits

2. Dedicated internal space, with fixed units to store recyclable waste, is provided. The number of internal recyclable waste facilities should reflect the number of recyclable waste streams collected by the waste collection authority.
3. The combined capacity of internal recyclable waste facilities should be a minimum of:
 - a. 30 litres for homes with 1-2 bedrooms
 - b. 40 litres for homes with 3 or more bedrooms.

⁵ Household Waste Recycling Act 2003:

http://www.legislation.gov.uk/ukpga/2003/29/pdfs/ukpga_20030029_en.pdf

WRAP: Household food waste

http://www.wrap.org.uk/sites/files/wrap/Information%20sheet%20-reducing%20household%20food%20waste%20in%20the%20UK%202012_0.pdf

<http://www.wrap.org.uk/sites/files/wrap/WRAP%20Barriers%20Synthesis%20Full%20Report%20final%20121214%20PUBLISHED%20-%20PDF.pdf>

Composting –For 3 credits

4. All homes are provided with composting facilities, for garden and/or food waste, in the form of one or more of the following:
 - a. Individual home-composting facilities for composting waste.
 - b. Local communal facilities within close proximity of the home.
 - c. Composting collection services run by the waste collection authority.
5. All homes are provided with internal composting waste storage that is a minimum of 10 litres in volume.

Home information –For 2 credits

6. 2 credits are available for providing home information on waste collection; streams, locations and times (see 3.01.02 Home information)

Methodology

None

Compliance Notes

ref	Title	Note
CN1	Frequency of collection	Where collection frequencies are greater than once a week then the size of general waste storage can be amended accordingly.
CN2	Flats over five storeys	For flats over five storeys where communal chutes are being used should be compliant with BS 1703 for communal chutes—waste should be carried no more than 30m from the home entrance (excluding vertical distance).
CN3	Recycling and composting facilities	All recycling and composting waste facilities must be: <ol style="list-style-type: none">1. Located in a dedicated position.2. Easily accessible to all users.3. Integrated design achieving reduced visual impact.4. Storage locations are durable, low maintenance and cleanable.5. Managing odour and noise issues.6. Addressing health and safety issues (including fire and vermin).
CN4	Minimum volume for internal recycling bins	Each individual bin (provided for different recycling streams) must be a minimum of 10L in volume.
CN5	Close proximity	Within 500m from the main entrance to the homes via a safe pedestrian route.

Definitions

Waste Streams

Waste streams refers to the provision of different waste collections for different types of waste, for example paper, plastic, glass, food waste and general waste are all types of waste streams.

Safe pedestrian routes

A route deemed to be safe and accessible for all pedestrian users (including the disabled, elderly and children). They take into account physical limitation of those who may use them, for example providing steps appropriately supported by sloped access and drop curves positioned at crossing points. These routes and associated spaces are appropriately sized, with good visibility of the route ahead.

Alongside these principles they should also meet the following requirements:

- a. Where required, lighting design must be in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas (rural areas are exempt from this requirement).
- b. At crossing points there must be appropriate pedestrian crossings (e.g. zebra or pelican crossings) in place or a clear line of sight for at least 50m in each direction on roads with a 30mph speed limit or 100m in each direction on roads with greater than 30mph speed limit).

- c. On roads with a speed limit of 30mph (or higher) there is a clearly defined footpath.
- d. All footpaths provided should be at least 900mm wide. In rural areas, on single track roads, a grass verge can be accepted in place of a footpath.
- e. On roads with low traffic levels and a speed limit of 20mph or below, it is acceptable for the pedestrian's routes to use the road carriageway.

CONSULTATION

2.05.01 - Water efficiency

Aim

To reduce the consumption of mains water in the home through efficient fixtures and fittings and increasing occupant awareness.

Benefit

- Providing efficient fixtures and fittings can reduce occupants' water use.
- Using less water reduces the occupants' impact on water stress.

Context

The availability of water to meet occupier demands is a basic expectation for any home. We need to efficiently use our water supplies to minimise the impact of homes on water stress, thus ensuring availability for all. This is mainly influenced by how people use water in the home but can be aided by providing water efficient fittings, as well as recycling and reusing water within our homes. These measures will help to reduce the cost of water for occupants.

Criteria Summary

ref	title	credits
1	Water efficiency standards	8
2	Water re-use and recycling	2
Total available Credits:		10

Criteria

Water efficiency standards – For Up to 8 credits

1. Either five credits are awarded where the dwelling has achieved:

- a. The optional fittings standard (see Table 1 "Water fitting standards" below) set by the optional water efficiency requirement in the water efficiency standards in Building Regulations approved document part G
- b. a modelled water consumption of less than or equal to 110 litres per person per day.

OR

Eight credits are awarded where the dwelling has achieved:

- a. The "Advanced fittings standard" set out in Table 1: "Water fitting standards" below
- b. a modelled water consumption of less or equal of 100 litres per person per day.

Water re-use and recycling – For Up to 2 credits

2. Criterion 1 has been met
3. Rainwater or greywater recycling systems have been specified and it is demonstrated that there is sufficient water supplied by these systems to offset the demand for WC flushing for the home.

Compliance Notes

ref	Title	Note
CN1	Water fittings efficiency performance data	The water efficiency of fittings should be determined from the figure quoted on the European Water Label (see http://www.europeanwaterlabel.eu/)
CN2	Rainwater recycling is specified	Where rainwater recycling systems are specified, the system forms part of a surface water management strategy (see 1.04.03 Managing the impact of rainfall) and the system has been designed and installed in accordance with BS 8515:2009+A1:2013.
CN3	Greywater recycling is specified	Where greywater recycling systems are specified, the system has been designed and installed in accordance with BS 8525-1:2010.

Checklists & Tables

Table 1: Water fitting standards

Water fitting	Building regulations Part G2 optional fittings standard	Advanced fittings standard
WC	4/2.6 litres dual flush or less	4/2 litres dual flush (maximum 3 litres effective flushing volume)
Shower	≤ 8L/min	≤ 6L/min
Bath	≤ 170 litres	≤ 170 litres
Basin taps	≤ 5L/min	≤ 5L/min
Sink taps	≤ 6L/min	≤ 6L/min
Dishwasher	1.25L/place setting	1.25L/place setting
Washing machine	8.17L/kilogram	8.17L/kilogram

2.05.02 - Water leak isolation

Aim

To reduce the impact of water leaks, by making water isolation valves easily accessible and providing information to occupants on how to detect leaks.

Benefit

- Limits the damage made to the home caused by water leaks.

Context

Water leaks within the home can be damaging and costly to rectify, as they can be difficult to locate. Although there are leak detection systems available, they are too costly to install across all new homes. Instead leak identification and restriction measures should be encouraged, alongside home information.

Criteria Summary

ref	title	credits
1	Leak isolation	4
2	Home information	1
Total available Credits:		5

Criteria

Leak isolation – For 4 credits

1. Isolation valves and stop cocks within the home (or adjoining area) are located in an accessible place that allows hot and cold water to be isolated by hand, separately (switched on or off) for the following supplies:
 - a. Incoming supply to the home
 - b. Taps
 - c. Showers
 - d. Heating or hot water systems
 - e. Appliances (e.g. dishwasher, washing machine etc.)

Where a home is being fitted out, appliances linked to water supplies must be able to identify errors in fitting or system failure that could cause leaks. As a minimum, this must include dishwashers and washing machines, where specified.

Home information – For 1 credit

2. 1 credit is available for providing home information relating to water leak isolation measures in place (see 3.01.02 Home information).

Compliance Notes

ref	Title	Note
CN1	Accessible location	<p>Isolation valves must be located in an accessible location. This could be within a cupboard or access hatch, where the valve can be accessed without undue hazard or difficulty. The valve should be in close proximity to the appliance or fitting and clearly labelled.</p> <p>Examples of non-accessible locations are behind kitchen units or under floor boards.</p>

Definitions

Isolation valve

An isolation valve is a valve in a plumbing system that stops the flow of water to a given location for maintenance purposes. This enables the flow of water to a terminal fitting, appliance or whole system (e.g. a tap, washing machine, heating system or whole home) to be isolated to allow leaks to be isolated for maintenance or replacement of components or systems.

Knowledge Sharing

3.02.01 - Commissioning and fabric testing

Aim

To ensure that homes and the systems within them are performing as intended at completion by encouraging thorough testing and commissioning throughout the development process.

Benefit

- Ensuring that the building fabric and systems are working properly at an appropriate stage in the construction process avoids costly remedial works and delays during handover.
- Effective commissioning and testing avoids unnecessary warranty claims, maintains customer satisfaction and can also reduce maintenance costs and ensure optimal performance.
- Ensuring systems in the home run efficiently (e.g. the heating system) means lower energy costs and less carbon emissions
- Testing homes thoroughly and fixing problems early on can contribute to building high quality homes that stay comfortable and warm with little maintenance or energy use.

Context

Conducting rigorous testing and commissioning throughout the key stages of development is important for ensuring that the quality standards sought at design stage are realised. This is a key means of reducing the performance gap¹.

Although all controlled services that fall under the scope of regulations are required to be commissioned under Part L of building regulations, commissioning strategies are frequently over-optimistic in practice and, where not effectively managed at an appropriate time, can delay project completion, cause problems during handover and result in poor performance once the home is in use. Likewise, conducting testing (e.g. airtightness) towards the end of construction leaves little room for effective remedial works where homes are not performing as expected.²

This issue therefore encourages management of commissioning and testing from an early stage of the development. Recognition is given where roles and responsibilities are clearly identified and quality checks and remedial works are performed throughout the development, in line with best practice.

Criteria Summary

ref	title	credits
1 - 3	Commissioning	7
4	Fabric testing	6
Total available Credits:		13

¹ Zero Carbon Hub (2014) *Closing the gap between design & as-built performance. End of term report, July*. Available at: www.zerocarbonhub.org

² CIBSE (2003) *Commissioning Management*. London: CIBSE.

Criteria

Commissioning –For 7 credits

1. Where a suitably qualified commissioning specialist (see definition) has been appointed to:

- a. Devise a commissioning strategy that optimises the timeliness and nature of commissioning and testing activities in accordance with good practice (see CN1),
- b. Perform commissioning on the below building services and control systems (where present and appropriate) in accordance with good practice:
 - i. Lighting
 - ii. Heating
 - iii. Domestic hot water
 - iv. Ventilation (e.g. MVHR)
 - v. Air-conditioning systems
- c. Record commissioning reports and remedial works (see definition) as part of periodic milestone updates (e.g. data drops) and update the commissioning strategy accordingly
- d. Liaise with the project management team (including sustainability champion or HQM assessor where present – see 3.02.04 Communication issue).
- e. Verify that all building services and control systems (listed in criterion 1b, where appropriate) pass commissioning in accordance with their professional judgement, good practice and manufacturers' specifications.

2. Where complex or communal systems (see CN10) have been installed, a suitably qualified commissioning specialist (see definition) must have been appointed who is contractually obliged to at the developers expense:

- a. Conduct seasonal commissioning on all complex or communal (where present) building services and control systems (listed in criterion 1b) over the course of one year from the date of dwelling completion.
- b. Verify that systems and services pass commissioning at each stage of seasonal commissioning in line with their professional judgement, good practice and manufacturers' specification
- c. Carry out remedial works (see definition) out where systems and services do not pass commissioning

3. Where commitments have been made to conduct seasonal commissioning once the dwelling is occupied, it is demonstrated that details of these commitments will be communicated to occupants. These details must include the following (where appropriate);

- a. Approximate timescales for home visits
- b. Details of the actions to be carried out
- c. Reasons for seasonal commissioning to be carried out (e.g. condition of HQM rating, to ensure systems performing correctly at all times of the year etc.)
- d. Contact details for the company or persons responsible for carrying out seasonal commissioning.

Fabric testing –For 6 credits

4. Where a suitably qualified person (CN4) has been appointed to:

- a. Devise a fabric testing strategy that includes the following content:
 - i. Details of the suitably qualified person's credentials and roles and responsibilities for carrying out the strategy
 - ii. The fabric testing methods that will be used
 - iii. Approximate timescales of when fabric testing will be conducted

- b. Perform fabric testing on an appropriate sample of homes (CN9) relevant to the development, in line with the below methodology table (criteria i. – iv below)#
 - c. Perform periodic fabric testing and verification throughout the development process when remedial works can make the most impact to realising designed performance

Criterion	Methodology	Credits
i.	Airtightness testing	#
ii.	Early airtightness testing (i.e. before 1st fix)	#
iii.	Thermographics	#
iv.	Co-heating	#

Table ## Fabric testing options

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Good practice	For guidance on commissioning, refer to Building Regulations (Section 3 of Part L1A, 2010) good practice guidance from CIBSE Commissioning Codes (2003), Domestic Ventilation Compliance Guide 2010 edition and BSRIA guidance relating to Soft Landings (see reference list below).
CN2	Systems and services that do not require commissioning	Commissioning criteria does not apply to systems that do not require commissioning. Systems and services should be commissioned in line with appropriate good practice.
CN3	Dwelling type and size	The commissioning and testing approach is likely to vary according to the size and type of the development, which would be determined by the suitably qualified persons. For example, for communal systems, commissioning will be more extensive than individual dwellings (e.g. things like central plant rooms and extensive distribution pipework etc.).
CN4	Suitably qualified person	TBC (This may well be the same person as the suitably qualified commissioning specialist)
CN5	Airtightness testing	TBC
CN6	Early airtightness testing (i.e. before first fix)	TBC
CN7	Thermographics	TBC
CN8	Co-heating	TBC
CN9	Appropriate sample of homes	TBC
CN10	Complex or communal system	TBC

Definitions

Suitably qualified commissioning specialist

A suitably qualified commissioning specialist is someone with qualifications, experience and knowledge relevant to the building services and control systems of the particular development being assessed, in line with CIBSE commissioning Part M (2003).

Independent commissioning specialists are appointed where large and complex systems are being installed (e.g. communal heating system).

Remedial works

Where systems or services fail commissioning or are not performing as expected, remedial works are the measures taken to ensure systems and services pass commissioning. These measures may involve performing repairs and adjusting settings appropriate to the particular dwelling being commissioned. These measures may also involve providing guidance or advice to occupants, where poor performance is partly due to how they are interacting with their systems or services. The remedial works implemented must be in accordance with the recommendations made by the Commissioning strategy.

References

BSRIA Commissioning Guides: Application Guide 1/91

Commissioning of VAV systems in Buildings Application Guide 20/95

Commissioning of Pipework Systems Commissioning HVAC Systems: Guidance on the division of responsibilities (TM 1/88.1)

Commissioning of Air Systems. Application procedures for buildings Application Guide 3/89.3 Pre-Commission Cleaning of Pipework Systems (BG 29/2012) 3/89.3

Commissioning Water Systems application procedures for buildings Superseded AG

Commissioning Water Systems (BG 2/2010).Commissioning Job Book - A framework for managing the commissioning process (BG 11/2010)

BSRIA 'Domestic ventilation systems – a guide to measuring air flow rates'

CIBSE Commissioning Codes: Set of Seven Codes (2003):

CIBSE Commissioning Code A: Air Distribution Systems (1996 confirmed 2006). ISBN: 9780900953736

CIBSE Commissioning Code B: Boilers ISBN: 9781903287293

CIBSE Commissioning Code C: Automatic Controls ISBN: 9781903287132

CIBSE Commissioning Code L: Lighting (SLL Commissioning Code L). ISBN: 9781903287323

CIBSE Commissioning Code M: Commissioning Management. ISBN: 9781903287330

CIBSE Commissioning Code R: Refrigerating Systems. ISBN: 9781903287286

CIBSE Commissioning Code W: Water Distribution Systems ISBN: 9781906846152.

Zero Carbon Hub (2014) Closing the gap between design & as-built performance. End of term report, July. Available at: www.zerocarbonhub.org

3.02.03 - Awareness and training

Aim

To increase awareness of the issues that result in the 'performance gap' and promote training that minimises these.

Benefit

- Increases assurance that the home has been built to the standard it was designed

Context

The gap between designed and actual performance is well recognised as a key challenge for the building industry. Promoting awareness and providing effective training that deals with this performance gap, are essential for building high quality homes.

Indeed, the Zero Carbon Hub's research on 'closing the gap between design and as-built performance' found that one of the three primary contributors to the performance gap is a lack of understanding, knowledge and skills.¹

This issue therefore promotes the role that increasing awareness and training has on reducing the performance gap, for new and existing members of the building industry, in order to produce a better quality home and contribute to the broader efforts being made by industry to reduce the performance gap.

ref	title	credits
	TBC	TBC
Total available Credits:		5

Criteria

The specific criteria relating to this issue is still under development but it is recognised that promoting training and awareness is an important part of the building industry's challenge of reducing the performance gap. We would very much welcome any feedback regarding the approach that should be taken for this issue, including any specific criteria that should be considered (please see the consultation questions for making comments).

Currently, this section is likely to include recognition for the following aspects of awareness and training:

- Site operative and design team receiving specific performance gap, quality and best practice training
- CPD requirements
- Company level verification (e.g. Quality management systems in place)
- Contractor qualifications

¹ Zero Carbon Hub (2014) *Closing the gap between design & as-built performance. End of term report, July*. Available at: www.zerocarbonhub.org

3.02.04 - Communication

Aim

To promote meaningful collaboration, communication and management between stakeholders throughout the whole development process, in order to meet the desired performance targets.

Benefit

Reduces likelihood of the home's performance and quality being negatively impacted by a fragmented approach to construction and a lack of collaboration on site.

Context

The many stakeholders involved with a home's development make communication and collaboration an important aspect of producing quality homes that occupants are satisfied with and live up to design expectations¹.

Unclear allocation of responsibility and inadequate communication of information between trades are two of the three primary contributors to the performance gap identified by the Zero Carbon Hub and this issue focuses on overcoming these challenges².

Feedback from the construction industry and BRE's experience with BREEAM suggest that where a certification scheme like HQM is being used, it is increasingly beneficial for the scheme to be integrated early on into the planning and design stages of development.

Likewise, the early appointment of a qualified assessor is also important as they are able to contribute to the design process and monitor progress throughout the development, ensuring the scheme targets are on track for being achieved.

This issue therefore recognises where effective collaboration has been implemented early on and where appropriate individuals are appointed to monitor the progress against a clear set of performance goals throughout the development.

Criteria Summary

ref	title	credits
1	Project delivery team consultation	1
2-3	HQM assessor	1
4	Sustainability champion	1
Total available Credits:		3

¹ Good Homes Alliance (2012) *GHA monitoring programme 2009-11: Technical report. Results from Phase 1: Post-construction testing of a sample of highly sustainable new homes*. Available at: <http://www.building.co.uk/Journals/2012/01/06/b/j/GHA-Monitoring-Report-12-10-11.pdf>

² Zero Carbon Hub (2014) *Closing the gap between design & as-built performance. End of term report, July*. Available at: www.zerocarbonhub.org

Criteria

Project delivery team consultation –For 1 credit

1. Where, a performance strategy and performance targets (see CNs) have been developed prior to the detailed design of the home (i.e. RIBA Stage 2) and the strategy includes the following content:

- a. The home's development performance targets (see CNs)
- b. Design considerations (see CNs) to achieve the development's performance targets
- c. Individual roles and responsibilities (see CNs) that have been appointed to achieve the development performance targets

and where:

- d. All site operatives have attended a briefing from the project delivery team, which communicates the main aspects of the performance strategy before construction has begun
- e. A copy of the performance strategy is made available to the site manager for distribution to site operatives on request and
- f. Contact details are made available for the appropriate person or persons responsible for managing the strategy

HQM assessor –For 1 credit

2. Where an HQM assessor has been appointed early in the design process (by the preparation and brief, RIBA stage 1), and has:

- a. Formally agreed the HQM performance targets (see definition) with their client, and
- b. Attended all key design team meetings

3. Where an HQM assessor has been appointed to monitor progress against the formally agreed HQM performance targets throughout the development process, and formally report (see CN5) on progress to the client, developer and design team

Sustainability champion –For 1 credit

4. Where a sustainability champion has been appointed early in the design process (by the preparation and brief, RIBA stage 1) who:

- a. Collaborates with all relevant members of the project delivery team, and
- b. Is consulted on all key decisions affecting HQM issues throughout the development process

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Design Considerations	<p>This refers to any aspect of the design which feeds into a development performance target (see CNs). The project delivery teams need to be aware of design considerations as alterations to these are likely to have an impact on achievement of the development performance targets.</p> <p>As an example, insulation could be a design consideration. Changes to the type or amount of insulation used may impact the achievement of building regulations (ADL1a), parts of the</p>

		HQM, Passivhaus etc.
CN2	Individual Roles and Responsibilities	<p>These will vary according to the individual, their experience and their involvement in the project. However in defining the roles and responsibilities for each key phase of the project, the following must be considered:</p> <ol style="list-style-type: none"> 1. End user requirements (where known) 2. Aims of the design and design strategy 3. Particular installation and construction requirements or limitations 4. Occupiers budget and technical expertise in maintaining any proposed systems 5. Maintainability and adaptability of the proposals 6. Requirements for the production of project and end user documentation 7. requirements for commissioning, training and aftercare support
CN3	Project delivery team	<p>This must include all professionals with roles and responsibilities that may impact achievement of a development performance target (see CN2). This must include professionals involved throughout the construction process, from pre-planning through to handover.</p> <p>This may include (but is not limited to):</p> <ul style="list-style-type: none"> Representatives of the client or developer The principal contractor The architect Structural engineers Building services engineers Cost consultants Environmental consultants Project management consultants
CN4	Performance strategy	<p>A written strategy that outlines the following:</p> <ul style="list-style-type: none"> • Development performance targets • Design considerations to achieve the performance targets • Individual roles and • Responsibilities to achieve the development performance targets
CN5	Formally report	<p>This is a formal report delivered to the client, developer and design team which monitors and identifies progress against the agreed HQM performance target.</p> <p>The content and frequency with which reports are required should be formally agreed with the client or developer, but as a minimum must include the following:</p> <p>Frequency</p> <ul style="list-style-type: none"> • A pre-assessment estimator report by the preparation and brief stage (RIBA stage 1) • A report prior to the design stage submission • A report prior to the construction stage submission <p>Content</p> <ul style="list-style-type: none"> • Details of the star rating achieved • Details of the key indicators achieved • Details of the issues or credits pursued or achieved

Definitions

HQM performance targets

HQM performance targets refer specifically to the HQM star rating and key performance indicators targeted. This does not necessarily include individually targeted HQM issues or credits, which may be traded over the course of the project as it evolves.

In agreeing a HQM performance target it is recommended that individual HQM issues, credits and criteria are targeted or prioritised to ensure that the agreed performance target is achievable, and achieved without potentially costly alterations to the design at a later stage.

Development Performance Targets

This is any intended performance output targeted by the home.

Examples of this may include (but are not limited to):

- HQM star ratings and indicators
- Passivhaus
- Lifetime Homes
- Secured by Design
- Considerate Constructors
- etc.

Design Considerations

This refers to any aspect of the design which feeds into a development performance target (see CNs).

The project delivery teams need to be aware of design considerations as alterations to these are likely to have an impact on achievement of the development performance targets.

As an example, insulation could be a design consideration. Changes to the type or amount of insulation used may impact the achievement of building regulations (ADL1a), parts of the HQM, Passivhaus etc

3.02.05 - Waste arisings

Aim

To promote resource efficiency via the effective management and reduce the amount of material waste produced on site relative to construction activity

Benefit

Reducing waste provides dual benefits of reducing costs and environmental impacts of the construction process. The true cost of waste encompasses the cost of the product or material that is wasted, the cost of handling waste and the cost of waste management. While there may be revenue associated with the recycling of certain material streams, typically construction sites have to pay something for collection or processing of waste. Therefore, any waste not produced will avoid these three aspects of the true cost of waste. There are a number of general ways in which waste can be reduced, including:

- material efficiency
- designing out waste
- procurement (such as take back of packaging)
- site practices (including reuse of off-cuts).

Criteria Summary

ref	title	credits
1	Waste minimisation check list	1
2 or 3	Site Waste Reduction	For Up to 5
Total available Credits:		6

Criteria

Credits will start being awarded where the amount of waste being generated is less than a proposed benchmark. The percentage improvement and the level of rigour will determine the amount of credits.

Waste minimisation check list –For Up to 1 credit

1. Waste minimisation checklists completed by the appointed Appropriately Qualified Professional at the applicable project stages.

Site Waste Reduction – For Up to 5 credits

Foundation route –For Up to 4 credits

2. Where detailed monitoring and reporting of generated waste achieves an improvement above standard practice as set out in the table below:

Performance	credits
Where performance is in the top 50% of projects (better than standard practice)	1
Where performance in the top 25% of projects (good practice)	2
Performance in the top 10% of projects (exemplary practice)	3
Performance in the top 5% of projects (exemplary practice)	4

NOTE: The table above outlines the intent of how the thresholds will be set. The thresholds set against these credits will be released following this consultation.

Comprehensive route – For Up to 5 credits

3. Where detailed monitoring and reporting of generated waste achieves an improvement above standard practice as set out in the table below:

Performance	credits
Where performance is in the top 50% of projects (better than standard practice)	2
Where performance in the top 25% of projects (good practice)	3
Performance in the top 10% of projects (exemplary practice)	4
Performance in the top 5% of projects (exemplary practice)	5

NOTE: The table above outlines the intent of how the thresholds will be set. The thresholds set against these credits will be released following this consultation.

Methodology

Scope

The calculation of the benchmark is only set against construction non-hazardous waste and excludes both demolition and excavation waste.

The scope includes waste generated from the construction of the following elements, systems and products:

- External and site works (Utility; Transport, Roads Pavements; Street Furniture; Landscape; Boundary Elements, Retaining elements)
- Substructure (Foundations and basement elements) including preparatory form-work and shipment packaging
- Superstructure (Floors, Walls, Roofs, Openings, Stairs, etc.) including preparatory form-work and shipment packaging
- Services (Disposal services, Piped supply services, Mechanical and Electrical Systems) including shipment packaging from service products
- Fixtures and fittings (Shipment packaging from products)

The benchmark

The benchmarks will be looking at the amount of waste produced per project. The datasets that are available typically measure this in mass per project value. Other potential metrics could be per meter square, per dwelling; however these appear to create distortions for different size sites.

There are identifiable differences between the wastes generated associated with high rise developments and what is produced for low rise and we are considering the significance of this in the setting of the benchmarks.

Waste minimisation check list

Feasibility Stage -Waste minimisation action Record of decisions or actions taken	Expiry of task	RIBA Stage	suggested roles responsible
Undertake early and meaningful engagement with Waste planning authorities, to establish a collective vision and set of agreed priorities for the waste arisings that result from the construction process	PP_20_20_90 Preparation of design development procurement documentation	Up to 2	Client Design Team
Include waste minimisation initiatives and targets in tenders or contracts	PP_50_50_10 Data drop 3 documentation	Up to 5	Client Design Team
Engage with supply chain to look at ways of reducing waste	PP_50_50_10 Data drop 3 documentation	Up to 5	Client Design Team
*Other waste minimisation actions can be added to this check list		0-6	All Parties at any stage
Design Stage - Waste minimisation action Record of decisions or actions taken	Expiry of task		
Design for standardisation of components	PP_20_50_10 Data drop 3 concept design	Up to 2	Design Team
Consider use of BIM to aid waste reduction techniques	PP_20_90_40 Candidate appointment	Up to 2	Design Team
Design for off-site or modular build	PP_40_10 Technical design mobilization	Up to 4	Design Team
Design for flexibility, adaptability and future deconstruction	PP_30_20 Design development execution	Up to 3	Design Team
Design to use less materials	PP_50_20 Documentation execution	Up to 5	Design Team
If materials or products are available from demolition of existing buildings, these should be considered for use in the new build	PP_30_20 Design development execution	Up to 3	Design Team
*Other waste minimisation actions can be added to this check list		Up to 0-6	All Parties at any stage
Construction Stage -Waste minimisation action Record of decisions or actions taken	Expiry of task		
Avoid waste from excavation or groundworks, consider opportunities for zero cut and fill	PP_60_10_25 Site handover	Up to 6	Project Delivery Team
Return packaging for reuse	PP_60_20_30 Product acquisition and delivery	Up to 6	Project Delivery Team
Ask suppliers to take back surplus or offcuts	PP_60_10_25 Site handover	Up to 6	Project Delivery Team
Consider community reuse of surplus or offcuts	PP_60_10_25 Site handover	Up to 6	Project Delivery Team
Use of reusable temporary elements such as shuttering and protection	PP_60_10_60 Construction aids acquisition and delivery	Up to 6	Project Delivery Team

Foundation route

For Lower Rigour regular reporting of total waste generated to track against the project benchmark

Construction Waste monitoring report template

For phased developments

e.g. (Phase 1)

plot numbers

e.g. (Plots 1-10)

count of plots

e.g 10

		Substructure		Superstructure			
Start on Site Date:		Mobilisation Ground works:	First fix Date:	Second fix	Date:	Practical Completion Date:	
DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY
		Mo bil sat ion e.g. agreed interval % complete				PC	total kg/£
	Date						
Waste category 1 (kg / m ³)	target						
	amount						
Waste category 2 (kg / m ³)	target						
	amount						
Waste category x (kg / m ³) Repeat as required	target						
	amount						

Comprehensive route

For higher rigour, monthly reporting for waste arising is conducted and are associated with the source of waste by project work packages as follows:

- Groundworks and excavation
- Remediation
- External and site works
- Substructure
- Superstructure
- Services
- Fixtures and fittings

Construction Waste monitoring report template						
	e.g. (Phase 1)		plot numbers	e.g. (Plots 1-10)		e.g. 10 count of plots
	Substructure	Superstructure		Practical Completion Date:		
	Start on Site Date:	Mobilisation Ground works:	First fix Date:	Second fix Date:	Practical Completion Date:	
	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY
Mobilisation		monthly		PC		total kg/£
Work package association	Date					
Groundworks and excavation	target					
External and site works	target					
External and site works	target					
	amount					
	amount					
	amount					
	amount					

Compliance Notes

ref	Title	Note
CN1	Waste minimisation list	Check lists may be started at the earliest stage possible and is recommended this occurs before RIBA Stage 3. (PP-30). Attention should be drawn to the suggested expiry for individual tasks within the checklist and is recommended that they are integrated as soon as the relevant team is appointed.
CN2	Feasibility Stage - Waste minimisation action Record of decisions or actions taken	Eligibility of the credit associated with this check list does not expire until after stage RIBA stage 6 (PP_60_20_Construction execution) however is intended to occur around RIBA stage 2 (PP_20_10_30 Briefing Handover to Design team)
CN3	Design Stage - Waste minimisation action record of decisions or actions taken	Eligibility of the credit associated with this check list expires after RIBA stage 5 (PP_50_20 Documentation execution)however is intended to occur around RIBA stage 3 and be finalised by RIBA Stage 4 (PP_40_10 Commencement of technical proposals)
CN4	Construction Stage - Waste minimisation action Record of decisions or actions taken	Eligibility of the credit associated with this checklist expires after (PP_60_20_35 construction mobilisation) but is intended that most of the check list is carried out prior to RIBA stage 6(PP_60_10_25 Site handover)
CN5	Site waste reduction	The project waste arisings should be recorded and include construction, demolition and excavation waste. Excavation waste is excluded from the benchmark set.
CN6	Limited site space for segregation and storage	Where space on site is too limited to allow materials to be segregated, a waste contractor may be used to separate and process recyclable materials off-site. Similarly manufacturers' take-back schemes could also be used. Where this is the case, evidence must be produced which demonstrates that segregation of materials is carried out to the agreed levels and that materials are reused or recycled as appropriate. such evidence could be Environment Agency or Scottish Environment Protection Agency or Environment Agency Wales or Northern Ireland Environment Agency Waste Return Forms.
CN7	Waste collation from multiple satellite sites	In cases where the constructor has adopted a strategy that include multiple sites which collates the waste in a centralised location, The benchmark is based on the combined sites as if they are one development site. Sites that are not undertaking an HQM assessment which are collated in this manner are to be included in the benchmark
CN8	Waste from temporary support structures	Any waste generated on site for the purposes of the development (excluding demolition and excavation waste) must be taken account of in the assessment of this issue. If temporary support structures, or any other materials or systems brought to facilitate the construction of the building, enter the waste stream (albeit for recycling), then they will need to be classified as construction waste and therefore contribute to the construction waste and assessed against the benchmark for this issue. If the support structure or system or material is reused by the contractor

Definitions

High rise

The definition for this is to align broadly with characteristics that are used elsewhere in industry. For the purposes of this standard, this is considered to be when its height from ground level to the height of roof level is greater than [18] meters

References

- Building Towards Sustainable Homes** [Report] / auth. WWF-UK. - 2004.
- Construction Industry Key Performance Indicators** [Online] / auth. Centre for Construction Innovation. - <http://www.ccinw.com/kpizone/Home/index.php>.
- Key Performance Indicators** [Report] / auth. Glenigan; Constructing Excellence; Department for Business Innovation & Skills. - 2012.
- SHIFT** [Online]. - <http://www.sustainablehomes.co.uk/shift>.
- SMARTWaste. BRE** - <https://www.smartwaste.co.uk/>

CONSULTATION

3.02.06 - Diversion from Landfill

Aim

The aim of this credit is to minimise the impact on the environment, through diverting waste from landfill and enabling resources to be reused/recycled/recovered

Benefit

The key benefits from diverting waste from landfill are cost savings to the developer/house builder through paying less in landfill fees and potentially gaining revenue.

Context

Diversion of waste from landfill continues to be an important issue both in terms of cost and environmental impact.

Criteria Summary

ref	title	credits
1-2	Construction waste	3
3	Excavation waste	1
4	Demolition waste	1
5	Verification	1
Total available Credits:		6

Criteria

This issue bears a relation to Waste arisings and as such may need to have a linked mechanism that limits the credits awarded in this issue to dis-incentivise more waste being deliberately produced in order to divert it from landfill

There are a number of ways this can be done, the simplest being a pre-requisite for construction waste aspects of the issue.

Construction waste –For 3 credits

Where waste arising issue has achieved a minimum level (to be confirmed)

For 2 credit

1. Divert at least 80% of non-hazardous construction waste from landfill (by tonnes/volume)

For 3 credits

2. Divert at least 95% of non-hazardous construction waste from landfill (by tonnes/volume)

Excavation waste –For 1 credits

3. Divert at least 95% of excavation waste from landfill.

Demolition waste –For 1 credits

4. Where applicable requirements listed in pre-demolition audit checklist Table is met.
AND
Divert at least 90% of non-hazardous construction waste (by tonnes/volume) from landfill

Verification – For 1 credits

5. Where waste transfer station data that has been verified against PAS402 2013 ‘Waste resource management: specification for performance reporting’

Methodology

Construction waste

- This should include all waste, which is classified as waste, not material that is intended for reuse and is not classified as a waste.
- The amount that is diverted from landfill should be recorded in either tonnes and/or volume at regular intervals throughout the project.
- The house builder can choose the most appropriate template/system to capture this information but as a minimum should record the following:
 - Waste reused on and off site
 - Waste directly recycled
 - Waste sent to a waste transfer station
 - Waste recovered by a waste transfer station
 - Waste sent to landfill
- Waste that is beneficially reused at a landfill, should not be included in the diversion of waste from landfill figures, however it can be reported separately.
- Data from waste contractors/waste transfer stations should be checked against the Environment Agency's quarterly waste returns.

Additional compliance notes will apply to demolition waste which is aimed at identifying opportunities at an early stage. As this may not apply to all sites, this credit is regarded as additional rather than being a default and may have a relationship with other issues in the Home Quality Mark such as Ecology or Land Use related issues. The point we are considering with the awarding of demolition is solely recognising the diversion from landfill element and not whether it is re-used specifically in the development. If there is a re-use element that is intended to benefit the assessment of Embodied Impact, these areas are looking to be addressed elsewhere in the standard. Material efficiency in this context is likely to benefit in the My Home > Material chapter.

Demolition/Excavation/Construction Waste monitoring report template				
For phased developments	e.g. (Phase 1)	plot numbers	e.g. (Plots 1-10)	count of plots
				e.g. 10
	Substructure		Superstructure	
Start on Site Date:	Mobilisation Ground works:	First fix Date:	Second fix Date:	Practical Completion Date:
DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY
	e.g. agreed intervals % complete	e.g. 50%	e.g. agreed interval % complete	PC total
	Date			
	Amount (kg / m ³)			
	% re-used			
	% recycled			
	% sent to waste transfer station			
	% recovered from waste transfer station			
	% sent to landfill			
Waste category 1 Repeat as required	% waste reused at landfill (optional)			

Demolition waste

Compliance table 2 for demolition	
Should be undertaken in the design stage, preparation and brief (RIBA Plan of Works: Stage 1)	
Carried out by a competent third party (e.g. has undergone training in relation to undertaking a pre-demolition audit, has appropriate construction and waste knowledge)	
Identification of the key refurbishment/demolition materials.	
Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials. Findings to be shared with design team in terms of consideration of reusing materials on site.	
Completion of a standard template to record projected levels of demolition products and their recovery or disposal route.	
Setting of targets for reuse (onsite and offsite) for key products (this should be considered and evidenced as such)	
Setting of targets for recycling for key products	
Setting an overall diversion of waste from landfill figure	
Monitoring of demolition products and their management routes to record actual levels of recovery or disposal.	
Post demolition reporting of actual v. predicted.	
Evaluation of differences between actual v. predicted.	
Reference made to key documents such as the National Federation of Demolition Contractors (NFDC) DRIDs (Demolition and Refurbishment Information Datasheets), BRE methodology (nearly developed)	

Compliance Notes

ref	Title	Note
CN1	Waste classification	<p>This should include all waste, which is classified as waste, not material that is intended for reuse and is not classified as a waste</p> <p>*2011; Environment Agency; Hazardous Waste: Interpretation of the definition and classification of hazardous waste</p>
Responses to consultation will inform other compliance notes		

References

- Building Towards Sustainable Homes** / auth. WWF-UK. - 2004.
<http://www.wwf.org.uk/filelibrary/pdf/bts.pdf>
- Construction Industry Key Performance Indicators** / auth. Centre for Construction Innovation. - <http://www.ccinw.com/kpizone/Home/index.php>.
- Hazardous Waste: Interpretation of the definition and classification of hazardous waste [Report]** / auth. Environment Agency. - 2011.
- Key Performance Indicators** / auth. Glenigan; Constructing Excellence; Department for Business Innovation & Skills. - 2012.
- SHIFT.** - <http://www.sustainablehomes.co.uk/shift>.
- SMARTWaste. BRE** - <https://www.smartwaste.co.uk/>

3.02.07 - Construction energy

Aim

To reduce the amount of energy consumed during the construction process and associated emissions.

Benefit

The wider benefits include of assessing this issue is the overall reduction in energy use and associated cost of energy waste. On an industry level this would amount to a significant reduction.

Context

Carbon emissions from on-site activities are responsible for a third of the contractor sector's emissions.
The inclusion within the standard is to recognise where developers take measure to reduce their on energy consumption for on-site activities.
There is a wide variation across the housing sector for the amount of energy that is being used; therefore the standard doesn't propose to set a benchmark for the dwelling level at this stage.
There are factors that may be outside the project's control in energy consumption such as the ability to secure grid connection, weather considerations and the type of works required onsite.
Over the course of time, this is something that we would like to build on.

Criteria Summary

[Click here to enter Summary Intro].

ref	title	credits
1	Energy monitoring report template	1
2	Contractor's energy efficiency checklist	1
Total available Credits:		2

Criteria

Credits will be awarded where the house builder has taken active measures to identify, set target, monitor and report the amount of energy that has been produced during the construction phases of the dwelling

Energy monitoring report template –For 1 credits

1. Monitoring and reporting of energy usage onsite and setting of targets (Note – could add some guidance at later stage on targets to set)

Contractor's energy efficiency checklist –For 1 credit

2. Complete of the contractor's energy efficiency checklist at pre-construction and construction stage.

Methodology

Contractor's energy efficiency checklist

The contractor's energy efficiency actions checklist should be completed at both pre-construction and construction stage.

Stage	Energy efficiency action	Record of decisions/actions taken
Pre-construction stage	<p>Plan the energy requirements of a project Procure low CO₂ site accommodation Specify energy efficient plant Secure early, high capacity, electricity grid connection Co-ordinate monitoring with phasing programme and set the intervals at which the reporting will be taken at. *Other energy efficiency actions can be added to this checklist</p>	
Construction stage	<p>Deploy the right size generators (if generators are needed) Manage energy in a site office efficiently Undertake energy saving measures Install intelligent and efficient temporary electrics Avoid forced drying of wet trades Monitor and manage energy use *Other energy efficiency actions can be added to this checklist</p>	

Energy monitoring report template

Energy usage should be monitored at various intervals throughout the project and recorded. An agreed regular frequency of reporting should be agreed in advance and span from mobilisation to practical completion for each phase. Where staggered programme phasing is in place, each phase should be reported separately in a format consistent with the energy monitoring report template. Tools or templates that can output the same scope of content may be used to assess this issue. This should be undertaken using an appropriate template/tool with format :-

This should be in kWh and litres of fuel used as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. The total kgCO₂/project value (or floor area) should be reported.

Using the project value metric may be subject to the life cycle cost – capital cost reporting criteria and the outcome on this will be taken into account before finalising whether cost or floor area can or should be used

Energy monitoring report template		Substructure		Superstructure			
For phased developments	e.g. (Phase 1)	plot numbers	e.g. (Plots 1-10)		cou nt of plot s	e.g 10	
Start on Site Date:		Mobilisation	First fix Date:		Second fix Date:		Practical Completion Date:
DD/MM/YY	DD/MM/YY	Ground works:	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	
Mobilisation		e.g. agreed intervals % complete	e.g. 50%	e.g. agreed interval % complete		PC	total kgCO ₂ /£
Date							
Energy (in kWh or litre fuel)							
target reading							

Reference

- Building Towards Sustainable Homes** [Report] / auth. WWF-UK. - 2004.
- Construction Industry Key Performance Indicators** [Online] / auth. Centre for Construction Innovation. - <http://www.ccinw.com/kpizone/Home/index.php>.
- Key Performance Indicators** [Report] / auth. Glenigan; Constructing Excellence; Department for Business Innovation & Skills. - 2012.
- PAS402 2013 'Waste resource management: specification for performance reporting** [Report] = Waste resource management: specification for performance reporting / auth. BSi. - [s.l.] : BSi, 2013. - PAS402 .
- SHIFT** [Online]. - <http://www.sustainablehomes.co.uk/shift>.

SMARTWaste. BRE - <https://www.smartwaste.co.uk/>

3.02.08 - Construction water

Aim

To encourage the efficient use of water and to conserve resources.

Benefit

- Reduce wastewater disposal costs (e.g. sewer discharge, tanker removal).
- Reduce risk from potential water shortage, particularly in parts of England and Wales.
- Reduce need to tanker in water at relatively high unit cost.
- Reduce energy consumption (where water is heated or cooled).
- Reduce on site treatment costs (where water or wastewater is treated before use/discharge).

Context

Reducing site water use is cost effective and shows responsible use of this precious resource.

Criteria Summary

ref	title	credits
1	Water monitoring report template	1
2	Contractor's water efficiency actions checklist	1
Total available Credits:		2

Criteria

Water monitoring report template –For 1 credits

1. Monitor and report water usage onsite and set related targets

Contractor's water efficiency actions checklist –For 1 credits

2. Complete the contractor's water efficiency checklist.

Methodology

Contractor's water efficiency actions checklist

The contractor's water efficiency actions checklist should be completed at both pre-construction and construction stage.

Stage	Energy efficiency action	Record of decisions/actions taken
Construction stage	<p>Installing trigger guns to hoses</p> <p>Use efficient dust suppression techniques (general and road) such as fan misting systems</p> <p>Use efficient dust suppression techniques (general and road) such as fan misting systems</p> <p>Consider waste efficient wheel washing e.g. drive on systems</p> <p>Washing out/cleaning – consider efficient systems such as high pressure (low flow) washers</p> <p>Use of water efficiency fittings for urinals, toilets and taps</p> <p>Installing a rainwater harvesting system</p> <p>*Other water efficiency actions can be added to this checklist</p>	

Water monitoring report template

Water usage should be monitored at various intervals throughout the project and recorded. An agreed regular frequency of reporting should be agreed in advance and span from mobilisation to practical completion for each phase. Where staggered programme phasing is in place, each phase should be reported separately in a format consistent with the water monitoring report template. Tools or templates that can output the same scope of content may be used to assess this issue. This should be undertaken using an appropriate template/tool. This should be recorded in m3 arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. Where units of measurement differ the unit should be declared. A checklist should also be undertaken at the construction stage.

Water monitoring report template		plot numbers	e.g. (Plots 1-10)	count of plots	e.g. 10
For phased developments	e.g. (Phase 1)				
		Substructure	Superstructure		
Start on Site Date:	Mobilisation Ground works:	Date:	First fix Date:	Second fix Date:	Practical Completion Date:
DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY	DD/MM/YY
	e.g. agreed intervals % complete	e.g. 50%	e.g. agreed interval % complete	PC	total ltrs/£
	Date				
Water (ltrs)	target				
	reading				

Compliance Notes

ref	Title	Note
CN1	Staggered programme phasing	Where a staggered phased programme is in place, each phase should be reported separately in a format consistent with the energy monitoring report template.

References

- Water Efficiency in Construction - Auditing of water use on construction sites - [Report] / auth. WRAP. - 2012.
- WATER: The 2009 progress report on reducing water usage on construction sites [Report] / auth. Water Construction Board. - 2011.
- Business case for improving water efficiency during construction [Report] / auth. WRAP <http://www.wrap.org.uk/content/business-case-improving-water-efficiency-during-construction-1>
- PAS402 2013 'Waste resource management: specification for performance reporting' [Report] = Waste resource management: specification for performance reporting / auth. BSi. - [s.l.] : BSi, 2013. - PAS402.
- SMARTWaste. BRE - <https://www.smartwaste.co.uk/>

3.02.12 Considerate Construction

Aim

To promote the environmentally and socially considerate, and accountable management of construction sites.

Benefit

Where construction sites present competent management, efficiency, awareness of environmental issues and above all neighbourliness, this creates a positive image, not just for themselves but for the industry as a whole.

Context

The construction industry has a huge impact on all our lives, with most construction work taking place in sensitive locations. Sites are encouraged to care about appearance, respect the community, protect the environment, secure everyone's safety and value their workforce through this issue.

Criteria Summary

[Click here to enter Summary Intro].

ref	title	credits
1	Best practice	1
2	Significantly beyond best practice	2
Total available Credits:		[Credits2]

Criteria

Click here to enter text.

Best practice –For 1 credits

1. Where there is a commitment to meet best practice under a nationally or locally recognised certification scheme such as the Considerate Constructors Scheme.

Significantly beyond best practice –For 2 credits

2. Where there is a commitment to go significantly beyond best practice under a nationally or locally recognised certification scheme such as the Considerate Constructors Scheme.

Definitions

Alternative locally or nationally recognised schemes

An alternative scheme may demonstrate compliance by fulfilling the criteria stated in Checklist Man 2 for other locally and nationally recognised schemes. Any such scheme must be approved by the HQM service provider prior to assessment. This can be achieved by submitting a completed Checklist xxx- Compliance with an Alternative Scheme.

Best practice

Achieving a score of at least 5 in every section, and a total score between 25 and 34, of the Considerate Constructors Scheme's Code of Considerate Practice indicates that a site is being managed in accordance with best practice.

Alternative schemes demonstrate this where, in addition to meeting all the mandatory

requirements, 50 per cent of the optional items in Checklist xxx – Compliance with an Alternative Scheme, are addressed.

Considerate Constructors Scheme (CCS)

The Considerate Constructors Scheme is a UK certification scheme that encourages the considerate management of construction sites. The scheme is operated by the Construction Umbrella Bodies (Holdings) Ltd which consists of 2 members – Construction Products Association and Construction Industry Council. Points are awarded in increments of 1 over the following sections:

- Enhancing the Appearance
- Respecting the Community
- Protecting the Environment
- Securing everyone's Safety
- Caring for the Workforce

To achieve certification under this scheme, a score of at least 25 is required.

Significantly beyond best practice

Achieving a score of at least 7 in every section, and a total score of between 35 and 50 of the Considerate Constructors Scheme's Code of Considerate Practice indicates that a site is being managed significantly beyond best practice.

Alternative schemes demonstrate this where, in addition to meeting all the mandatory requirements, 80 per cent of the optional items in Checklist xxx – Compliance with an Alternative Scheme, are addressed.

References

Considerate Constructors Scheme. www.ccscheme.org.uk

3.01.01 - Aftercare

Aim

To provide aftercare support during early occupancy of the home, in addition to the provision of construction warranties, to help occupants resolve any early problems and get the most out of their new home

Benefit

- Ensures home systems are working efficiently and resolve problems when they're not.
- Helps occupants feel happy in their new home.
- Empowers occupants to manage their home in a sustainable way.

Context

Moving home is considered to be one of the most stressful events many people go through; not to mention the biggest financial investment people can make in their lives. Ensuring a smooth handover can therefore have a huge impact on an occupant's satisfaction and their experience of settling into their new home.

Providing initial and on-going support helps occupants to learn how to operate their home in the best way¹, and provides occupants an opportunity to report and resolve any problems that arise during the first few months and years of moving in. This opens up communication links between the developer and occupants, which is an important part of reducing the performance gap and better informing future design².

Aftercare can be provided in many different forms, some with more interaction than others. This issue encourages developers to interact more closely with occupants to improve customer satisfaction and continually review the success of the home through increased understanding of how people really live.

Criteria Summary

There are two routes to achieving credits in this issue. Up to 5 credits are available for meeting criteria via the foundation route or up to 8 credits via the comprehensive route. Credits are awarded according to the level and duration of support provided.

ref	title	credits
1	Aftercare Support	(pre-requisite)
	Support for one year (foundation route)	Up to 5
2	Remote support	3
3	Aftercare visits	4
4	On-site support	5
	Support for three years (comprehensive route)	Up to 8
5	Remote support	6
6	Aftercare visits	7
7	On-site support call	8
	Total available Credits:	8

¹ NHBC (2011) *How occupants behave and interact with their homes. The impact on energy use, comfort, control and satisfaction.* Milton Keynes: NHBC Foundation

² Bunn, R. & Usable Buildings Trust (2014) *Soft landings framework*. Bracknell: BSRIA Limited. Available at: <https://www.bsria.co.uk/services/design/soft-landings/>

Criteria

Aftercare Support – pre-requisite

1. Before any credits can be awarded via either route of rigour, it must be ensured that the following information must be provided to occupants when they move in:
 - a. Details of all aftercare support available to them. As a minimum, the following information must also be provided for each form of aftercare support:
 - i. A summary of all the type of aftercare support available to occupants
 - ii. How to use the aftercare support available to them
 - iii. Amount of time all types of support are available for and timescales of any specific visits or demonstrations that will be provided
 - iv. Contact details for the company or persons responsible for carrying out aftercare support

Foundation route

Support for one year –For Up to 5 credits

Where the foundation route has been taken, a maximum of 5 credits are available for providing aftercare support within the first year of occupation in line with the following types of support:

Remote support –For 3 credit

2. Where remote support is provided for the whole first year period (see CN2)

Aftercare visits –For 4 credits

3. Where criterion 2 is met and one initial aftercare visit (see CN3) is provided during the first 6 weeks and a second visit after 9 months

On-site support –For 5 credits

4. Where criterion 2 is met and on-site support (see CN4) is provided for the whole first year period

Comprehensive route

Support for three years –For 8 credits

Where the comprehensive route has been taken, a maximum of 8 credits are achievable for providing aftercare support within the first three years of occupation in line with the following types of support::

Remote support –For Up to 6 credits

5. Where remote support is provided for the whole three year period (see CN2)

Aftercare visits –For 7 credits

6. Where criterion 5 is met and one aftercare visit (see CN3) is provided during the first 6 weeks, a second visit after 9 months and annual visits for the following 2 years

On-site support –For 8 credits

7. Where criterion 5 is met and on-site support (see CN4) is provided for the whole first three year period

Methodology

None

Compliance Notes

ref	Title	Note
CN1	Aftercare support	<p>Aftercare support options for a development are likely to be site specific and dependent on a number of elements (e.g. duration of support, site size, occupancy type etc.).</p> <p>To achieve credits in this issue the support provided must be for all parts of the home (i.e. all build fabric, systems and services etc.) at each stage for which credits are being claimed and must be free for occupants to use. Credits will be withheld where aftercare support is offered as an optional feature of the home at an additional cost to the occupant.</p> <p>This issue awards credits according to the level of support being provided to occupants and have been categorised under the following terms:</p> <p>Remote support, Aftercare visit, On-site support</p> <p>Examples of the types of support that fall within the above categories are described in their respective compliance notes.</p> <p>Where forms of support are provided that are not listed as examples in the compliance notes for this issue, the assessor must be satisfied that these are providing appropriate support which meets the aim of this issue.</p> <p>Appropriate aftercare may be carried out by an independent organisation or by the developer.</p>
CN2	Remote support	<p>Remote support is support that occupants can use to get basic, whole home support that will help them to resolve problems and get advice of how to get the best use out of their home.</p> <p>Examples of remote support include (but are not limited to):</p> <ul style="list-style-type: none"> • Helplines • Interactive communication links (e.g. online portal) • Customer service
CN3	Aftercare visit	<p>This applies to aftercare where there is on-site support to help occupants to manage their home in the best possible way. Examples of this type of support include (but are not limited to):</p> <ul style="list-style-type: none"> • 'Walkabouts' • Review meetings • Practical demonstrations (e.g. of how to use and manage systems)
CN4	On-site support	<p>This applies to aftercare where on-site support is available to help occupants resolve problems and get the most out of their home. Examples of on-site support include (but are not limited to):</p> <ul style="list-style-type: none"> • resident on-site attendance • on-call support <p>On-site support does not need to consist of an individual or service located on-site at all times but this support must be available on request (e.g. an on-call individual who can come on-site within 24 hours to provide the necessary support).</p>

3.01.02 - Home information

Aim

To provide occupants with useful, accessible information that helps them to get the most out of their home and engage with their local environment and community.

Benefit

- Accessible home information provides all occupants with the guidance that helps them to get the most from their home and community from an early stage.
- Providing details of post-certificate commitments made by the developer, such as the aftercare support being provided, helps to ensure occupants take advantage of the support available to them. This can help to ensure their home performs to its potential, thus reducing maintenance costs, improving efficiency and greater occupant satisfaction.

Context

Making homes intuitive and simple to use is the best way of ensuring occupants get the most out of their home. An important part of this is by providing occupants with useful information that is accessible, user-friendly and helps them to get the best use out of their home¹.

The home information issue synthesises the criteria throughout HQM that relate to home information into one place. Communicating this information helps to translate the design benefits of homes directly to the people living in them².

This issue encourages communication between occupants, developers, the local community and the persons responsible for carrying out post-certification work on the homes (e.g. aftercare support, post occupancy evaluations, site-wide management and maintenance etc.).

Criteria Summary

The home information issue is separated into two main parts.

Part one outlines the core home information criteria (criterion 1) and credits are awarded within the home information issue itself.

Part two consists of issue specific home information criteria (criteria 2 to 17). The criteria for part two are outlined in the home information issue to provide a summary of all the home information that may be included as part of the HQM assessment.

Credits for the criteria in part two are awarded as part of the specific issue that they relate to (e.g. credits for ventilation home information are awarded as part of the ventilation issue).

Part two consists of issue specific home information criteria (criteria 2 to 17). The criteria for part two are outlined in the home information issue to provide a summary of all the home information that may be included as part of the HQM assessment.

¹ NHBC (2011) *How occupants behave and interact with their homes. The impact on energy use, comfort, control and satisfaction*. Milton Keynes: NHBC Foundation

² Bunn, R. & Usable Buildings Trust (2014) *Soft landings framework*. Bracknell: BSRIA Limited. Available at: <https://www.bsria.co.uk/services/design/soft-landings/>

ref	title	credits
1	Part one - Core home information	5
2	Part two - Issue specific home information	See below for credits available within individual issues
3	Accessible public transport	
4	Alternative sustainable transport options	
5	Local amenities	
6	Foundation ecology route	
7	Low and zero carbon technologies	
8	Resilience to flooding	
9	Security	
10	Managing the impact of rainfall	
11	External lighting	
12	Growing space	
13	Ventilation	
14	Dwelling space	
15	Recyclable waste	
16	Monitoring and controls	
17	Water leak isolation	
Total available Credits:		5

Criteria

Part one - Core home information

For 5 credits

1. Where it can be demonstrated that home information will be provided to the occupants of all dwellings when they move in, it must be available in an accessible format (CN1) and include the following information:
 - a. Contains operational and maintenance information for all components (see CN2) within the dwelling or building
 - b. Includes emergency contact details (see CN3) for the person or company responsible for any queries regarding the dwelling.
 - c. Where post certification commitments have been made regarding post occupancy evaluations, aftercare and/or commissioning (i.e. seasonal commissioning), home information must be provided as part of the specific issue criteria (see commissioning and testing, aftercare and post occupancy evaluation issues for more details).

Part two - Issue specific home information

2. Credits are awarded within individual issues for installing monitors and controls in line with the criteria outlined below. To achieve any of these credits, the installed monitors or controls must meet criterion 1 of the core monitoring and controls issue (part one above).

Accessible public transport

3. 2 Accessible public transport credits (criterion # of 1.02.01 Accessible Public Transport) for providing information regarding:

- a. All public transport connections available to occupants, accounting for all transport nodes that connect to key local amenities and community focal points, including:
 - i. Timetabling
 - ii. Distance and route to nearest nodes

Alternative sustainable transport options

- 4. 1 alternative sustainable transport credit (see 1.02.02 Alternative sustainable transport options, criterion 8) for providing information regarding:

- a. Nearby electric charging points and local cycle routes in the surrounding area that connect to key local amenities and community focal points, including:
 - i. Cycle route maps
 - ii. Distance to nearest route
 - iii. Nearest electric charging points

Local amenities

- 5. 3 local amenities credits (see 1.02.03 Local amenities, criterion 4) for providing information regarding:
 - a. The available amenities within the local area are shared with the homeowner, including:
 - i. The amenities available within 30 minutes walk via safe pedestrian routes or via public transport.
 - ii. The distance and transport options available to reach outlined amenities (see 1.02.01 Accessible Public Transport)

Foundation ecology route

- 6. 1 ecological management credit (see 1.03.03 Ecological management criterion 2) for information regarding:
 - a. The management and maintenance recommendations from the local wildlife professional.

Low and zero carbon technologies

- 7. 1 Low or zero carbon technologies (LZCT) credit (see 2.02.03 LZCT issue criterion 7) for providing information regarding:
 - a. Operation and maintenance guidance for LZCT systems and infrastructure installed.
 - b. Any support that is available from the designer or installer or manufacturer during occupancy
 - c. The design intent of each LZCT.
 - d. How systems can be expanded or adapted in the future (where appropriate).
 - e. Advice of ways that occupants can adjust their patterns of energy use to optimise the use of energy from LZCTs.

Resilience to flooding

- 8. 2 Resilience to flooding credits (see 1.04.01 resilience to flooding issue, criterion 6) for providing information regarding:
 - a. Flood resilience measures within the site boundary
 - b. Operation and maintenance guidance of the flood resilience measures in place (where they are not passive features).

Security

9. 1 Security credit (see 1.04.02 security issue, criterion 7) for providing information regarding:
 - a. Security features in the home and how to use them.
 - b. Location of the spur for installation of an alarm system and brief recommendations on types of systems to consider.
 - c. Details of local 'Neighbourhood' or 'Home Watch' schemes and neighbourhood policing team.
 - d. A summary of the Security Needs Assessment (SNA) and the recommendations implemented where criterion 1 and 2 of the security issue have been met.

Managing the impact of rainfall

10. 2 managing the impact of rainfall credits (see 1.04.03 managing the impact of rainfall issue, criterion 7) for providing information regarding:
 - a. Any specific drainage systems or strategies and how they should best be operated and maintained (if required). Where the home user is not responsible for operation or maintenance then this information should be passed onto the person or body responsible for maintenance.
 - b. An overview of the reasons for their use (e.g. environmental and economic savings) and restrictions on making alterations.
 - c. Emergency contact information must also be provided for the company or persons responsible for managing the drainage systems or strategies installed.

External lighting

11. 1 External lighting credit (see 2.02.02 external lighting issue, criterion 3) for providing information regarding:
 - a. Operation and maintenance guidance of external light fittings and controls installed.

Growing space

12. 1 Growing space credit (see 1.03.04 growing space issue, criterion 2) for providing information regarding:
 - a. The types of produce that have been planted and information on those that would grow well in the soil conditions.
 - b. Maintenance requirements.
 - c. Access restrictions e.g. allotments closed after daylight hours.

Ventilation

13. 1 ventilation credit (see 2.01.08 ventilation issue, criterion 7) for providing information regarding:
 - a. The designed ventilation system and its design intent
 - b. Operation and maintenance guidance of the ventilation systems installed including information on the location of any associated monitors and controls and how these should be used

Dwelling space

14. 1 dwelling space credit (see 2.04.02 dwelling space issue, criterion 7) for providing information regarding:
 - a. Any functional flexibility that has been designed into the spaces provided and any opportunity to expand on these.

Recyclable waste

15. 2 recyclable waste credits (2.04.03 recyclable waste issue, criterion 4) for providing information regarding:
 - a. Waste collection frequency, including details of arrangements over public holidays.
 - b. Communal storage areas, bin store locations.
 - c. Type of composting facilities provided.
 - d. The nearest waste disposal facilities such as bottle banks, clothes recycling and household hazardous, as appropriate.

Monitoring and controls

16. In the monitoring and controls issue, it is a pre-requisite to provide the below home information, before issues can be awarded in that issue (see 3.01.03 monitoring and controls issue, criterion 1f):
 - a. Operation and maintenance guidance of the specific monitors and controls installed, including how consumption data should be interpreted.

Water leak isolation

17. 1 water leak isolation credit (see 2.05.02 water leak isolation issue, criterion 2) for providing information regarding:
 - a. Domestic appliances and fittings provided with leak detection and isolation. This should include:
 - i. Advice on how to detect a leak,
 - ii. Common locations of leaks
 - iii. What to do in the event of a leak, such as how to shut off the water supply (e.g. information from the water authority)
 - iv. Details of who should be contacted (e.g. for social housing, it may be the RSL)
 - v. Details of the layout of pipework and location of shut-off valves.

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Accessible format	<p>The format in which the information can be presented is flexible (i.e. electronic, paper, audio etc.) but must ensure that the aim of this issue is met. To determine whether the format is accessible the assessor should consider the following as a minimum:</p> <ul style="list-style-type: none">• Appropriate language for occupants (in terms of terminology) and avoidance of jargon• Ability to obtain alternative formats (i.e. foreign languages, Braille, audio etc.)• User friendly. i.e. Physical means of accessing the home information (i.e. computer or internet access etc.)
CN2	Components	<p>This refers to any part of the dwelling for which information may be required to operate (or maximise its operation) or maintain it. Typically these components will be accompanied by manufacturers' literature.</p>
CN3	Emergency contact details	<p>As a minimum, this must include a telephone number for:</p> <ul style="list-style-type: none">• Emergency service information (i.e. police, fire brigade etc.)• Hospitals• The person or company responsible for any queries regarding the dwelling

3.01.03 - Monitoring and controls

Aim

To encourage efficient use of dwelling systems and services through the installation of monitors and controls that are user-friendly and informative.

Benefit

- Accurate monitoring of energy and water helps occupants to understand their consumption and manage and reduce running costs, CO₂ and water wastage.
- Providing intuitive ventilation and heating controls helps to keep homes comfortable
- Monitors inform occupants of when systems aren't working properly and help them to resolve any problems or seek help so they continue to get the most out of their home.

Context

Occupant behaviour is a vital aspect of fulfilling a home's potential and where monitors and controls are user-friendly and intuitive, can help shape behaviour to improve the efficiency and comfort of homes¹.

Monitors can also help to identify when systems and services are under-performing, in order to better realise designed performance and repair systems where necessary.

The extent that controls should be automated or manual is uncertain². Establishing a balance between automatic and manual controls is therefore an important part of achieving the aim of this issue, to ensure that monitors and controls are intuitive and easy to use.

Criteria Summary

The monitoring and controls issue is separated into two main parts.

Part one outlines the core monitoring and controls criteria (criterion 1) that must be achieved before any of the issue specific credits can be awarded from part two.

Part two consists of issue specific monitoring and controls criteria (criteria 2 to 6). The criteria for part two are outlined in the monitoring and controls issue to provide a summary of all the credits available within HQM for providing monitors and controls.

Credits for the criteria in part two are awarded as part of the specific issue that they relate to (e.g. credits for LZCT monitors are awarded as part of the LZCT issue).

ref	title	credits
1	Part one: Core monitoring and controls	Prerequisite
	Part two: Issue specific criteria for monitoring and controls	See below criteria for credits available within individual issues
2	Energy monitoring and controls	
3	Low and zero carbon technology monitoring	
4	Water efficiency	
5	Ventilation	
6	External lighting	
Total available Credits:		8

¹ NHBC (2011) *How occupants behave and interact with their homes. The impact on energy use, comfort, control and satisfaction.* Milton Keynes: NHBC Foundation

²NHBC (2012) *The impact of occupant behaviour and use of controls on domestic energy use.* Milton Keynes: NHBC Foundation.

Criteria

Part one: Core monitoring and controls

Pre-requisite

1. Where installed monitoring and control systems are:
 - a. Accessible and convenient (see CN1)
 - b. In a visible and logical location
 - c. Clearly associated with user control functions (i.e. it's clear what the systems are to be used for)
 - d. Self-charging or very long-term battery capacity, where applicable (see CN2)
 - e. Where appropriate, contain both automated and manual options.
 - f. Home information is provided for any monitors and controls installed, in line with the home information core criteria (see part one of home information issue)

Part two: Issue specific monitoring and controls

Credits are awarded within individual issues for installing monitors and controls in line with the criteria outlined below. To achieve any of these credits, the installed monitors or controls must meet criterion 1 of the core monitoring and controls issue (part one above).

Energy monitoring and controls

2. 4 energy performance and cost credits (see 2.02.01 energy performance and cost issue, criterion 6) where:
 - a. The home is provided with a smart meter and accompanying in-home display (IHD) unit to measure gas and electricity use in the home
 - b. the IHD unit displays:
 - i. Active tariff price for energy consumption (£ or kWh)
 - ii. Current mains energy consumption (in kWh for days, weeks and months)
 - iii. Cost data (in days, weeks and months)
 - iv. Current emissions

Low and zero carbon technology monitoring

3. 1 Low and zero carbon technologies (LZCT) credit (see 2.02.03 LZCT issue, criterion 7) where:
 - a. LZCT controls or monitors (e.g. Smart solutions) are installed and consist of the following features:
 - i. Meet MCS or other standards for control of renewable energy technologies and features to demonstrate performance (e.g. energy meters, instantaneous output)
 - ii. Details of the operational status of LZCTs are available to occupants at all times.
 - iii. Any faults or failures in system operation can be quickly identified (e.g. through indicator lamps or other alarm reporting processes)
 - iv. The availability (or non-availability) of renewable energy is displayed (in kWh)

Water efficiency

4. **issue specific criteria regarding water monitors or controls TBC**

Ventilation

5. 2 ventilation credits (see 2.01.08 ventilation issue, criterion 6) where controls and monitors have been specified which meet the following:
 - a. Have simple alarm conditions that identify when the ventilation system is not working or requires maintenance,
 - b. Repeaters for boost local to sources of pollution (i.e. kitchen, bathroom etc.)

- c. Sample change of speed with sufficient controllability to modify the continuous rate without having to go to boost.
- d. Indication of automatic or manual control functions (I.e. summer by-pass etc.)

External lighting

6. 1 external lighting credit (see 2.02.02 external lighting issue, criterion 2) where:
 - a. All domestic external lighting are automatically controlled (see CN3)
 - b. All external lighting will have the capacity to be controlled manually, by the occupant (e.g. manual time switches) (see CN3 and relevant definitions)

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Accessible and convenient	TBC
CN2	Self-charging or very long battery life	TBC
CN3	Automatic control	<p>An automatic external lighting control system that prevents operation during daylight hours through either a time switch or a daylight sensor (a manually switched lighting circuit with daylight sensor or time switch override is also acceptable for private dwellings) in addition to providing presence detection in areas of intermittent traffic (unless there are safety reasons).</p> <p>For external lighting not fitted with presence detectors, time switches must provide automatic switch off of lighting after a specified curfew hour, except in cases where there is a specific requirement for lighting to be left on all night.</p>

Definitions

Daylight sensor

A type of sensor that detects daylight and switches lighting on at dusk and off at dawn.

Presence detector

A sensor that can turn lighting on when a presence is detected in the scanned area, and off after a pre-set time when no presence is detected.

Time switch

A switch with an inbuilt clock which will allow lighting to be switched on and off at programmed times.

External lighting

External lighting includes both normal space lighting, which is required to illuminate a space when in-use, and security lighting, which is typically used to deter burglars or intruders and protect the property. It can be used outside the entrance to the home, in outbuildings such as garages and external spaces such as paths, patios, decks, porches, steps and verandas.

Lighting specification or lighting design

A switch with an inbuilt clock which will allow lighting to be switched on and off at programmed times.

CONSULTATION

3.01.04 - Post occupancy evaluation

Aim

To ensure that a home is meeting its expected performance and collect valuable information for stakeholders regarding dwelling performance and occupant satisfaction once homes are in use.

Benefit

- Improves occupant satisfaction and provides them with valuable information regarding the performance of their home and ways to improve this.
- Improve design and construction of future developments by those involved in the development.

Context

Dwellings that do not perform as designed can result in increased maintenance costs, poor occupant satisfaction and can limit dwelling performance.

Post occupancy evaluations (POEs) are increasingly recognised by building experts and government as effective ways to maximise performance and better inform the construction industry as a whole¹.

POEs involve the systematic collection of data and information from buildings. The information and data are collected by monitoring environmental conditions (e.g. temperature, noise, energy, water consumption, overheating risk), forensic walk-throughs or conducting surveys (e.g. occupant satisfaction questionnaires)².

Criteria Summary

This issue is split into two parts:

The first part (criterion 1) awards credits where there is a commitment for a POE to be conducted within 1 - 3 years of occupancy.

The second part (criterion 2) awards credits for where POE data will be collected from the home being assessed and is appropriately disseminated to relevant stakeholders.

ref	title	credits
1	Post occupancy evaluation	4
2	Home performance data	3
Total available Credits:		7

¹ NHBC (2011) *How occupants behave and interact with their homes. The impact on energy use, comfort, control and satisfaction*. Milton Keynes: NHBC Foundation

Jaunzens, D. et al (2003) *Digest 478 Building performance feedback: getting started*. Bracknell: IHS BRE Press.

For more information on the design quality method: <http://www.bre.co.uk> or page.jsp?id=1623

²Bunn, R. & Usable Buildings Trust (2014) *Soft landings framework*. Bracknell: BSRIA Limited.
Available at: <https://www.bsria.co.uk/services/design/soft-landings/>

Criteria

Post occupancy evaluation –For Up to 4 credits

1. Where there is a commitment for an appropriate individual (see CN5) to conduct a POE between one and three years after occupation, according to the methods outlined in the below table (Post occupancy evaluation credit structure) and where the following is met:
 - a. Results from the POE are used by the design team to compare the in-use performance with the design expectations (see CN2) to identify any re-commissioning activities required (3.02.01 Commissioning and fabric testing) and to share good practice and lessons learned in order to help fine tune future house type design and construction activities.
 - b. Details of any commitments are communicated to occupants during handover. These details must include the following (where appropriate):
 - i. Approximate timescales for home visits
 - ii. Details of the actions to be carried out
 - iii. Reasons for POEs to be carried out and their benefits
 - iv. Contact details for the company or persons responsible for carrying out POEs

Home performance data –For Up to 3 credits

2. Criterion 1 has been met.
 - a. POE feedback data or information is provided for between one and three years after occupancy. Credits are awarded in line with table # below (post occupancy evaluation credit structure)
 - b. POE feedback data is appropriately disseminated (see CN3) to:
 - i. Occupant
 - ii. BRE
 - iii. Developer

Table #: Post occupancy evaluation credit structure

Type of POE data (collected between 1 and 3 years)	Credits for POE (criterion 1)	Credits for data (criterion 2)
Monitoring of energy consumption (data in kWh or per person or m ²) and water consumption (data in litres per person per day) for one year.	1	1
Monitoring of humidity (%) and temperature (°C) (see CN6) for one year.	1	1
Occupant feedback data (see CN4)	1	1
Forensic walk-through to check that systems are being operated correctly, including the following as a minimum (where present): heating, ventilation systems, LZCTs and any general defects.	1	N/A

Methodology

None.

Compliance Notes

ref	Title	Note
CN1	Appropriate methods	<p>The following example methodologies or approaches are useful as guidance for how to conduct POEs and the general handover process in line with good practice¹:</p> <ol style="list-style-type: none"> 1. Design Quality Method 2. Design Quality Indicator 3. Building Performance Evaluation 4. Soft Landings framework <p>The above list is not exhaustive and as long as evidence demonstrates the criteria are met, other methodologies may be acceptable.</p>
CN2	Design expectations	<p>Design expectations would involve a breakdown of the key performance indicators calculated during the design stage of the project, such as energy consumption and temperature. These design expectations would be compared with actual performance for the dwelling in-use, to determine if re-medial works are needed.</p> <p>The intention of outlining these design expectations is to encourage building services and control systems to go beyond minimum performance by following a thorough commissioning procedure to help increase performance.</p>
CN3	Appropriately disseminated	<p>Where home performance data are collected, the findings must be disseminated to the following stakeholders:</p> <ul style="list-style-type: none"> • Occupants so they can compare home against others, identify where efficiency potential isn't being achieved and suggest general solutions of how to do this – e.g. via a smart meter or an interactive website • BRE to help them develop future versions of HQM • Developer to identify design flaws and to inform future design and business plans.
CN4	Occupant satisfaction	<p>The exact format of occupant satisfaction surveys is flexible but it must provide occupants with an opportunity to give feedback on the following aspects of their home as a minimum:</p> <ul style="list-style-type: none"> • Temperature (summer and winter) • Ventilation (summer and winter) • Lighting • Noise • Energy and water costs • Overall comfort • Overall quality

¹Design quality method http://www.bre.co.uk/or_page.jsp?id=1623

Design quality indicator: <http://www.dqi.org.uk/>

Building performance evaluation and soft landings framework:

<https://www.bsria.co.uk/services/fm/building-performance-evaluation/>

ref	Title	Note
CN5	Appropriate individual	TBC
CN6	Monitoring humidity and temperature	<p>Where humidity and/or temperature are being measured as part of environmental monitoring, they must be measured in a living room and at least one bedroom, over the course of one year.</p> <p>Readings must be recorded at least every hour.</p> <p>Temperature must be measured in °C Humidity must be measured in %</p>
CN7	Monitoring energy and water consumption	Energy and/or water consumption readings must be recorded at least every hour.

CONSULTATION