Department for Communities and Local Government

Housing Standards Review Consultation

Impact Assessment

August 2013
Department for Communities and Local Government

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Title: Housing Standards Review consultation	Impact Assessment (IA)
IA No: DCLG 1314	**Date:** 16/07/2013
Lead Department or Agency: Department for Communities and Local Government	**Stage:** Consultation
	Source of intervention: Domestic
Other Departments or Agencies:	**Type of measure:** Other
	Contact for enquiries: Simon Brown:
Summary: Intervention and Options	**RPC Opinion:** N/A

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present**	**Net cost to business per year** (EANCB on	**In scope of One-In, One-**	**Measure qualifies as**
£577m	£551m	£-59m	No	OUT

What is the problem under consideration? Why is government intervention necessary?

The problem under consideration is the large number of local and national housing standards which each local authority can require from house builders through the planning system. Housing standards are complex, and often overlap or contradict each other, or contradict parts of the Building Regulations themselves. Housing standards taken cumulatively increase the development costs for house builders and could be seen to obstruct growth as these additional costs can make some developments economically unviable. The various local standards are designed to tackle a range of different market failures in the construction of new homes. However, the lack of co-ordination across standards and the way they are introduced, modified and enforced undermines the effectiveness of efforts to correct for such market failures. This results in unnecessary costs being incurred by house builders and delays.

What are the policy objectives and the intended effects?

The policy objective is to simplify and rationalise the large number of local housing standards local authorities can apply to house builders, with the intended effect of reducing the burdens housing standards place on new developments. By removing the majority of local housing standards we will be eliminating a great deal of uncertainty, unnecessary delay and administrative costs associated with local housing standards. By reducing costs and burdens on house builders it is anticipated that more housing projects may now become economically viable as a result of a more streamlined and consistent set of housing standards being available for local authorities to use.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 1, Do Nothing will result in house builders needing to tackle a large range of different local standards which will add a significant and unnecessary burden to the build cost.

Option 2 proposes Nationally Described Standards to replace the large number of existing standards, which will ensure that a degree of local discretion in tackling a range of social and environmental issues will continue, though simplification and standardisation will substantially reduce the costs of building new homes. For energy, the proposal is for a Building Regulations only approach.

Will the policy be reviewed? It will/will not be reviewed. **If applicable, set review date:** Month/ Year

Does implementation go beyond minimum EU requirements?			Yes / No / N/A		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** Yes	**< 20** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:**		**Non-traded:**

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: _____ Date: 16/07/2013

Summary: Analysis & Evidence — Policy Option 2

Description: Streamlining and simplification of a number of local standards through creating a Nationally Described Housing Standard.

FULL ECONOMIC ASSESSMENT

Price Base Year 2013	PV Base Year 2013	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 528.4	**High:** 631.5	**Best Estimate:** 576.8

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	16.8		**16.8**
High	38.3		**38.3**
Best Estimate	28.7		**28.7**

Description and scale of key monetised costs by 'main affected groups'

Transition cost for business (£29m).

Other key non-monetised costs by 'main affected groups'

In some local authority areas, higher levels of environmental and social outcomes, which may be delivered in the do nothing option, may not be realised in option 2. These have not yet been monetised for this consultation IA. Space standard impacts have not been included in option 2 (see under non-monetised benefits section below for details).

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low		65.9	**528.4**
High		75.8	**631.5**
Best Estimate		70.6	**605.4**

Description and scale of key monetised benefits by 'main affected groups'

Lower build costs due to fewer and streamlined standards. This includes Code - energy (£93m), renewable target – Energy (£195m), Water (£21m), Access (£105m), and Security (£14m). There will also be additional process savings for businesses (£152m) and for public bodies (£26m). The benefits derived from process savings account for £242m (range £233m - £253m) of the total PV benefit.

Other key non-monetised benefits by 'main affected groups'

Space standard impacts have not been included in option 2. This is because there is no firm proposal at this stage for a specific space element in the proposed Nationally Described Housing Standard and the evidence base on the costs and benefits of different standards is at an earlier stage of development. Preliminary analysis is included towards the end of the Impact Assessment.

Key assumptions/sensitivities/risks **Discount rate** 3.5

Key assumptions have been made around unit costs and associated savings for building new homes. To aggregate these costs assumptions around build rate, proportion of homes built to different standards have been made and sensitivities undertaken to reflect uncertainty.
Under the benefits of removing the Code, in the energy section, we have only monetised the savings of the energy elements of the Code. As this is the most significant cost element in the Code being replaced by the proposed approach in option 2.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			In scope of	Measure
Costs: 3.3	**Benefits:** 67.3	**Net:** 64.0	No	IN/OUT/Zero net co

Evidence Base (for summary sheets)

Problem under consideration

1. The problem under consideration is the relatively large number of local and national housing standards which each local authority can require from house builders through the planning system. Housing standards are complex, and often overlap or contradict each other, or contradict parts of the Building Regulations themselves. The application of housing standards lead to uncertainty, delay and additional process and material costs for house builders because each local authority can require its own set of housing standards, in isolation from other authorities and national policy. This means house builders have to tailor their housing designs to the requirements of each local authorities' housing standards. As a result these housing standards taken cumulatively increase the development costs for house builders and could be seen to obstruct growth since the additional costs can make some developments economically materially less viable. Housing standards cause significant administrative costs for house builders because they have to invest significant resources in complying with the standards. House builders are also unable to achieve scale economies because of local housing standards, due to the wide range of requirements and interpretations each authority can require of house builders.
2. Except for the Code for Sustainable Homes, these standards are not owned by government and no mechanism exists to help local authorities focus on the best way to apply the standards, should they be necessary for a local area.
3. As the majority of these standards are not owned by government, the owners of these standards can update their standards with no advanced warning or transition time. This means house builders are operating in an ever changing and unpredictable environment meaning they have to invest a great deal of time ensuring they keep up date with the ever changing landscape of standards.
4. Each local authority can apply their own range of housing standards, meaning house builders have to invest significant time, effort and resources liaising and tailoring each of their developments to the particular standards of each local authority, adding a further layer of cost, complexity and bureaucracy for house builders. Uncertainty relating to technical requirements also increases real and perceived risk to developers.
5. Standards keep evolving. They are produced in the main by campaign or issue groups who perceive there are deficiencies with existing policy (in respect of any issue). So they make good the perceived deficiency by producing standards, and encourage authorities to apply them. There is therefore no theoretical end to new standards coming over the horizon, as policy and social issues change over time.

Rationale for intervention

6. The various local standards are designed to tackle a range of different market failures in the construction of new homes, including externalities, information failure, market power, agency split incentives and public goods issues.
7. However, the lack of co-ordination across standards and the way they are introduced, modified and enforced undermines the effectiveness of efforts to correct for such market failures. This results in unnecessary costs, uncertainty and delay being incurred by house builders.

8. A review by Sir John Harman in 2012 found that local housing standards tend to have been developed in isolation and without regard to each other. The review also found that the majority of standards are overly complicated and recommended a more structured and government led programme to negotiate between the various owners to deliver a more coherent set of requirements for home builders, consumers and authorities.

9. This consultation follows a review into local housing standards which flowed from the outcome of the Building Regulations sub-section of the Housing and Construction Red Tape Challenge theme. The Department established working groups which represented a wide range of partners from the house building sector, owners of these standards and local authorities. These working groups were split into 6 themes which looked at the particular issues facing each theme. The themes were: energy; water; access; security; space and process. The outcomes of these working groups are the policy options we will be consulting on in this Impact assessment.

10. The working groups considered all the possible permutations of options for the future of these standards, from “do nothing” through to integrating standards into the Building Regulations. They were tasked with finding ways to rationalise them as far as possible.

Policy objective

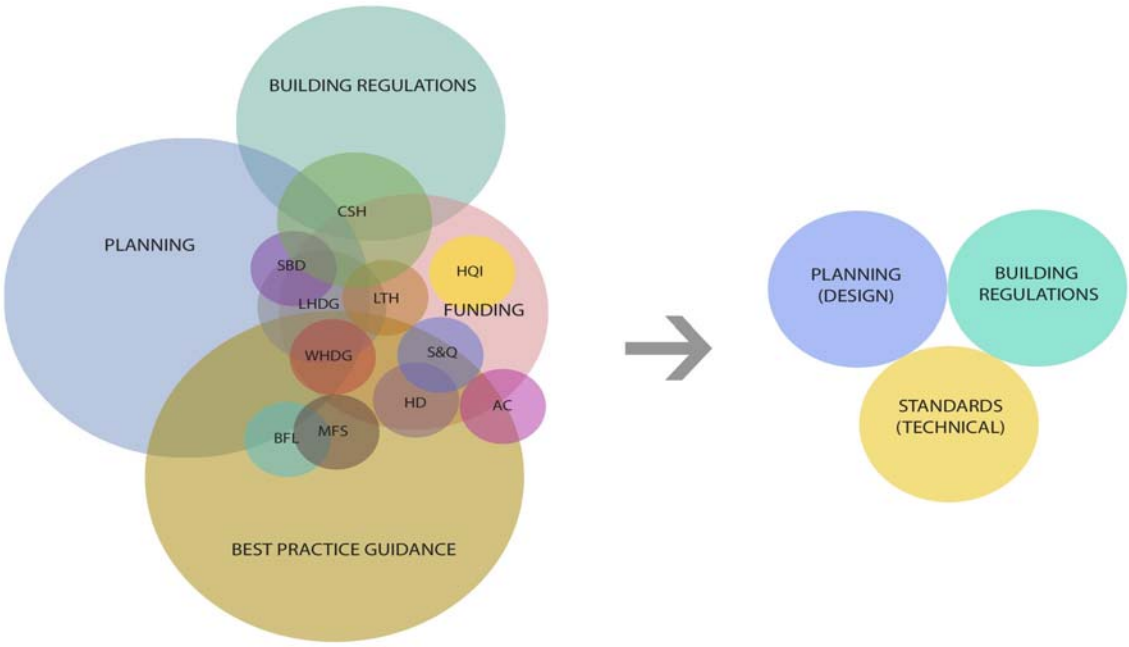
11. The policy objective is to simplify and rationalise the large number of local housing standards local authorities can apply to house builders, with the intended effect of reducing the burdens housing standards place on new developments. At the same time, the government wants to maintain social and environmental ambitions at a national level and encourage more local authorities to adopt clear national standards. This approach will deliver a level playing field for both local authorities and developers. By removing the majority of local housing standards we will be eliminating a great deal of uncertainty and administrative costs associated with local housing standards. By reducing costs and burdens on house builders it is anticipated that more housing projects will now become more economically viable as a result of a more streamlined and consistent set of housing standards being available for local authority use.

12. While the principal objective of the policy has been to rationalise the large number of housing standards, the working groups were asked to identify whether standards should be used at all, where a need or problem was identified. Therefore the second policy objective has been to identify and shape a simple standard where the government considers an area of the Building Regulations does not fully resolve a problem. Where this has been the case standards have been selected which will be our policy options.

13. A final objective of the review was to find a way to ensure authorities did not layer on additional standards, through the planning process, outside of those developed through the review. The consultation document therefore proposes that a policy statement is issued alongside the final version of the standards document, with the clear intention of stating that in future local authorities will be constrained to draw standards from this alone.

14. Figure 1 visualises the problem of the wide number of standards which coexist and overlap with Building Regulations, planning and best practice guidance. The diagram also presents the policy objective of a simplified new standards regime to complement, not overlap, Building Regulations and planning policies.

Figure 1 current standards and potential outcome



Background of housing standards

Energy

15. Part L of the Building Regulations sets minimum standards for new homes. The government recently announced that Part L standards are to be strengthened and now, for the first time, to ensure robust levels of thermal insulation will include a new mandatory fabric energy efficiency target in addition to a tougher Carbon Dioxide (CO_2) emission target.

16. The strengthened Part L CO_2 target is based on efficient services including low energy lighting throughout and a condensing boiler and a similar level of fabric performance to the full Fabric Energy Efficiency Standard (FEES) as recommended by the Zero Carbon Hub[1]. Whilst this will be the most cost effective and practical solution for most situations, it has been decided to set the new fabric energy efficiency target broadly in line with interim FEES. This is still a robust level of fabric performance but reflects concerns that full FEES may not currently be achievable in practice by all builders across the full range of home types; furthermore it does not generate particular constraints on any built forms.

17. In practice this means that builders may choose to build to the minimum fabric energy efficiency energy target with some additional renewable technology, or to a fabric performance akin to full FEES with no renewable technology (unless developers choose to provide this independently).

18. It was previously perceived that Part L minimum standards were felt to be lagging sustainability needs, this led to the creation of the Code for Sustainable Homes (and other design standards) being introduced. This led to a proliferation of local design standard requirements, over and above Building Regulations, resulting in complication, process cost, delay, uncertainty and in some cases, unreasonably over specified design

[1] http://www.zerocarbonhub.org/resourcefiles/ZCH-Defining-A-Fabric-Energy-Efficiency-Standard-Task-Group-Recommendations.pdf

requirements – which together, made some schemes considerably less economically viable.

19. The Code for Sustainable Homes sets 6 levels, across 9 standards, for new homes. The latest changes to Part L now raise the national minimum requirements for all new homes to between Code levels 3 and 4. Code levels 4, 5 and 6 do not now fit in with, or represent the government's definition of zero carbon. With the zero carbon standard being introduced from 2016, the energy proposal in this consultation would remove the option of including these Code levels in local authority plans.

20. The Planning and Energy Act 2008 allows local authorities to set specific plan targets to require that a proportion of energy used in the locality of development should be from low carbon or renewable sources. This requirement can be in addition to Code based local policies. The Act also allows local authorities to require a development connects to low carbon or renewable infrastructure outside of the locality of development (wind farms for example).

21. The government has stated in Budget 2013 that it would implement 'zero carbon homes' from 2016. Alongside the strengthening of Part L as a step on this journey, it has also promised a consultation on allowable solutions. The price of solar photovoltaics has fallen significantly in recent years as outlined in the May 2012 Parsons Brinkerhoff report "Solar PV Cost Update"[2] for the Department for Energy and Climate Change. The charts on page 12 of that report predict further reductions in price due to technology learning. The Government has recently issued a consultation on next steps toward zero carbon. This refers back to recommendations made by the Zero Carbon Hub on levels of carbon compliance for all new homes from 2016. The Hub recommendations for 2016 were based on including an element of building integrated renewables, when costs of renewables will be lower than they are now.

22. Given the moves towards zero carbon homes, the consultation proposal for energy is to move to a Building Regulations only approach. This will remove the energy standards and levels from the Code for Sustainable Homes and (over time) the removal of all local standards requiring on-site standards above Building Regulations. It is not proposing to remove the ability for local authorities to set plan requirements for connections to low carbon or renewable infrastructure – as this is an important planning consideration.

Water

23. There are a wide range of water use standards currently in circulation, setting standards over and above the national minimum as set in Part G of the Building Regulations. These standards require measures ranging from relatively small scale water efficiency equipment through to full blown rainwater and grey-water harvesting systems, and more. The Code for Sustainable Homes itself contains 6 levels of water standards. It is accepted there is a continuing need for minimum water efficiency levels in new homes. However the working group considered that a single level higher than Part G could potentially be justified in areas of exceptional water stress.

Access

24. Many new homes are currently subject to access and "Lifetime Homes" standards of one sort or another, including hybrid versions of Lifetime Homes, and a wide range of different wheelchair housing guides. These guides are produced by individual authorities or access groups, and set standards over and above the national minimum as set in Part M of the Building Regulations. It can be argued that there is a need for some guidance for

[2] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43083/5381-solar-pv-cost-update.pdf

practitioners about how to design homes to meet such needs. The working group accepted there was no need for such a diverse range of different material, given that it is all intended to address the same core problems. The group proposed all these standards are rationalised down into 2 core standards above Part M - an intermediate lifetime homes equivalent, and a wheelchair homes standard. These have been developed and are directly related to the three levels of the model space standards proposed for consultation by the working groups. Further explanation is in the space background.

Security

25. There is no Building Regulation currently covering the physical security of homes. However, as part of a range of measures to improve local security and reduce crime, authorities often apply Association of Chief Police Officers (ACPO's) "secured by design (SBD)" standards (Part 2). This sets a range of specific standards for door, window, and communal area security. It is also used in conjunction with a range of neighbourhood wide security measures (eg SBD Part 1). Assessment of compliance with SBD is provided by ACPO Architectural Liaison Officers. The new housing market currently provides a minimum level of security measures on most, but not all, new homes through housing warranty agreements. The working group has developed a rationalised set of standards to provide minimum and higher level options for security.

Space

26. Private housing tenure in England has historically never been subject to the requirements for space standards (typically minimum internal areas for new homes) though there is a long history of these requirements being made for affordable housing. However, in recent years, a number of local authorities have imposed space standards, sometimes across tenure with the London SPG now requiring that all properties meet a set of minimum requirements. Affordable housing is currently required to meet minimum standards set out in the Homes and Community Agency Housing Quality Indicators.
27. Design and Quality Standards for affordable housing were introduced in 2007, together with the accompanying Housing Quality Indicators. These aimed to measure the performance of housing against 10 indicators. 'Unit Size' and 'Unit Layout' measure the overall space provided within homes and the ability of each room to accommodate a specified set of furniture, fittings and activity zones.
28. This impact assessment presents a possible model space standard proposed by the space working group. While initial costings are included at the back of the impact assessment, these have not been integrated into the overall analysis of the Nationally Described Standard at this stage. This is because this consultation is not making a specific proposal. Also, the evidence base is not yet sufficiently developed. We are using this consultation to gather further evidence and views from consultees which will help inform further analysis for any future proposal and impact assessment.
29. The proposed three levels of the access standard are directly related to the three levels of the space standards proposed for consultation by the working groups. If the government decides to proceed with any of these space propositions, application of higher levels of space standards would be limited to particular circumstances, for instance where the need for higher accessibility standards could be robustly evidenced. They would not be applicable independently.

Description of options considered (including do nothing)

Option 1 – do nothing

30. This would fail to address the substantial costs facing house builders from the current structure of local standards. These costs impact on the potential for house builders to take advantage of market opportunities and impacts on viability of some sites, particularly in areas where land prices are low.

31. It is likely that in the absence of action to simplify and co-ordinate local standards there would be an increase in use and range of local standards over time. This would add further costs to house builders. The current size and rate of increase in these costs is uncertain. Initial estimates of these have been made below, assumptions on which these estimates are based have been explained and are being tested through this consultation. There is uncertainty regarding the extent and pace of introduction of new standards by local authorities as well as the extent of evolution of standards over time under the current situation. But the costs are likely to be substantial and grow over time. Limited sensitivity analysis to reflect some of this uncertainty has been undertaken.

Option 2 – simplify and rationalise local housing standards

32. Option 2 aims to significantly simplify and rationalise local housing standards. The proposed policy options are described below by each theme:

- accessibility – a two tier set of standards above Building Regulations within a Nationally Described Standard, providing for wheelchair and accessible housing. Includes a no standard option
- energy – no additional standards above Building Regulations
- water – a single additional standard above Building Regulations within a Nationally Described Standard, or a no standard option
- security – two options posed – a baseline and a higher level within a Nationally Described Standard, or a no standard option.

Space

33. For the purposes of this impact assessment option 2 does not include the monetised impact of including a space standard in the National Described Standards. This is because, at this stage, the consultation is not making a firm proposal for a specific space standard for inclusion but is putting forward a possible model space standard only for consideration at consultation. In addition, the evidence base is less well developed at this stage and the consultation will be used to gather evidence. To reflect this, an initial exploratory estimate of the impacts of this possible approach for space are explored, and sensitivity analysis undertaken, though it is not included in the summary sheet for Option 2.

Monetised and non-monetised costs and benefits of each option (including administrative burden)

Assumptions

34. For each of the options we will be presenting the direct extra over cost of each local housing standard. The extra over costs will be presented on a per property basis and have been broken down by 4 typical dwelling typologies (2 bedroom apartment; 2 bedroom terraced house; 3 bedroom semi detached house and 4 bedroom detached house). The extra over unit costs have been produced by consultants at EC Harris who have drawn upon their internal database which reflects tendering prices across circa £750 million of recent residential schemes of varying sizes, sizes and locations. EC Harris has supplemented their unit cost figures with discussions with DCLG and the working groups who have been contributing to this policy. The costs produced by EC Harris are presented in their Housing Standards Cost Report which is referenced at the end of this impact assessment. The consultation document supporting this package asks questions throughout about the analysis and assumptions made in this impact assessment. Consultation responses, together with any additional evidence supplied by consultees will be taken into account in undertaking further analysis for the final impact assessment.

35. The approach to estimating the value of the opportunity cost of time saved due to streamlining or removing standards is explained in detail in the section below on the costs and benefits of the Code for Sustainable Homes and then used consistently throughout the impact assessment.

36. Due to the level of uncertainty in estimating the number of homes likely to be built to each existing and then proposed new standard, we will use indicative assumptions and propose scenarios. We are interested in views on assumptions used and any evidence which could inform further analysis for the final impact assessment.

37. For this impact assessment the focus is on the change in direct costs arising from a removal or modification of each standard. Where a standard has been removed or streamlined it is possible that the social outcome delivered by the current standard will reduce. General planning policy may require some particularly important outcomes in any case even in the absence of its inclusion as a standard.

38. The costs and benefits of each option will be split by the relevant theme they fall into, which reflects the working groups established by the Department to critically analyse housing standards. The themes are: energy, water, security, access, process and space.

39. We have estimated housing growth over the 10 years of this policy ranging from 3% to 6% per year. This is indicative for modelling purposes for this impact assessment only and does not represent any forecast of future build expectations. The starting point of the housing growth estimate is the number of new houses constructed for the year 2012 of 115,620[3]. Table 1 below presents our estimates for the number of homes we estimate will be built over the 10 years of this policy.

[3] Table 244 for the calendar year 2012: https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building

Table 1 - Estimate of housing growth over 10 years of policy

Year	Low estimate (3%)	Mid estimate (4.5%)	High estimate (6%)
2014	122,661	126,260	129,911
2015	126,341	131,942	137,705
2016	130,131	137,879	145,968
2017	134,035	144,084	154,726
2018	138,056	150,567	164,009
2019	142,198	157,343	173,850
2020	146,464	164,423	184,281
2021	150,858	171,822	195,338
2022	155,384	179,554	207,058
2023	160,045	187,634	219,481
Total	**1,406,174**	**1,551,508**	**1,712,325**

Code for Sustainable Homes – Energy requirement

Benefits and costs

Option 1 - do nothing

40. The Code for Sustainable Homes[4] is a national standard for the environmental assessment method for rating and certifying the performance of new homes. The Code is a voluntary standard, measuring the sustainability of homes against nine design categories[5], and providing a rating on a six star system (the six Code levels). Each category is further sub-divided into a number of discrete issues, with a total of 54 issues across all nine design categories. Credits are scored against issues, with higher performance being rewarded with more credits, up to the maximum number of credits available for the issue. Many local authorities (estimated at around 50%) now require some level of Code compliance in new developments through their local plans, and Code level 3 is mandatory for social housing if a government grant is sought. Code level 4 must be achieved for schemes within London under the London Supplementary Planning Guidance (SPG) which superseded the London Housing Design Guide.

41. The Department commissioned EC Harris to assess the extra over costs of complying with the Code for Sustainable Homes on a per property basis. The extra over costs are the costs associated with complying with the Code, these additional costs are incurred by house builders in the private sector, though they may ultimately be passed back through lower land prices. We commissioned this work by EC Harris because previous estimates of the extra over costs associated with building to the Code were carried out in 2010 by Element Energy and Davis Langdon[6], we felt these numbers were out of date given technology change and industry learning. Table 2 displays EC Harris' estimates of the extra over costs of building to each level of the Code.

[4] https://www.gov.uk/government/policies/improving-the-energy-efficiency-of-buildings-and-using-planning-to-protect-the-environment/supporting-pages/code-for-sustainable-homes.

[5] The categories are: energy/carbon (7 standards labelled ENE1-7); water (WAT1-2); waste (WAS1-3); materials (MAT1-3); surface water run off (SUR1-2); and health and wellbeing (HEA1-4), which have mandatory performance standards; and pollution(POL1-2); ecology (ECO1-5) and management (MAN1-4). Details of the standards for each category can be found in the reference in footnote 2.

[6] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7810/1501290.pdf

Table 2 – Extra over costs associated with all standards in the Code for Sustainable Homes

Code Level	Flat	2B House	3B House	4B House
Code 1	£75	£0	£0	£0
Code 2	£75	£75	£75	£75
Code 3	£118	£143	£143	£143
Code 4	£1,437	£1,712	£2,147	£2,432
Code 5	£14,075	£16,050	£16,485	£16,770
Code 6	£18,010	£26,740	£27,610	£28,180

Source: EC Harris 2013: Housing Standards Review

42. The extra over costs per dwelling in table 2 are based on a medium sized development of 50 dwellings. EC Harris has assumed that house builders will select the most cost optimal credits to achieve each level of the Code. Table 3 presents the credits EC Harris have assumed house builders will select to achieve each level of the Code. The credits in table 3 are the basis for the extra over costs presented in table 2 above. When a credit first appears in table 3 against a Code level it is assumed this credit will also be required to achieve the subsequent higher Code levels. The exception to this is energy 1 (ENE 1), water 1 (WAT 1) and health 2 (HEA 2). When one of these credits reappears in the table it is because the cost has increased at that level of the Code. Taking ENE 1 as an example, this credit is presented at Code levels 4, 5 and 6 because the energy requirements of ENE 1 tighten at each Code level meaning it becomes more expensive to achieve at higher Code levels.

Table 3 – Code credits which have been allocated to each level of the Code for the cost estimates

Code Level	Flat	2B House	3B House	4B House
Code 1	WAS 1			
Code 2		WAS 1	WAS 1	WAS 1
Code 3	**WAT 1**	**WAT 1**	**WAT 1**	**WAT 1**
Code 4	**ENE 1**	**ENE 1**	**ENE 1**	**ENE 1**
	ENE 3	ENE 3	ENE 3	ENE 3
	ENE 4	ENE 4	ENE 4	ENE 4
	ENE 6	ENE 6	ENE 6	ENE 6
	ENE 8	ENE 8	ENE 8	ENE 8
	ENE 9	ENE 9	ENE 9	ENE 9
	WAS 3	WAS 3	WAS 3	WAS 3
	HEA 2	**HEA 2**	**HEA 2**	**HEA 2**
	ECO 3	ECO 3	ECO 3	ECO 3
Code 5	**ENE 1**	**ENE 1**	**ENE 1**	**ENE 1**
	WAT 1	**WAT 1**	**WAT 1**	**WAT 1**
	HEA 2	**HEA 2**	**HEA 2**	**HEA 2**
	ECO 4	ECO 4	ECO 4	ECO 4
Code 6	**ENE 1**	**ENE 1**	**ENE 1**	**ENE 1**

43. A significant cost associated with complying with the Code for Sustainable Homes is process and administrative costs of ensuring that a development fulfils the relevant criteria of the Code through the design and build procedure. Process costs can be extensive and very time consuming and can include:

    - undertaking technical calculations, such as related to energy or water usage
    - collating and reviewing compliance evidence, for example light fitting specifications, materials and traceability
    - producing specialist consultant reports, for example relating to day lighting and ecology.

44. EC Harris has investigated the time and administrative costs house builders incur when complying with the Code. EC Harris have provided a breakdown of the process cost associated with each credit of the Code in the annex of their cost report, which explains the hours required for various professionals to ensure compliance with the credit.

45. Estimates of hourly process costs are based on two sources, the EC Harris database of professional fees and the Annual Survey of Hours and Earnings[7,8]. Hourly rates have been calculated for the central case by attaching a 50% weighting to wage rates from the EC Harris professional fees database and a 50% weight to wage rates derived from the Annual Survey of Hours and Earnings.

46. The EC Harris database has been previously used as a source of evidence on the cost for workers in the construction industry. This reflects the value by the market of a professional including wage, on costs and other business costs to the organisation and is the rate a firm would charge someone else per hour of an individual's time. This approach is widely used in the construction industry. However, more generally in impact assessments the Annual Survey of Hours and Earnings (ASHE) forms the basis to estimate the cost of someone's time (plus an additional estimate of 30% for additional overheads such as pension contributions and national insurance contributions) [9].

47. We believe that neither approach is entirely satisfactory – the former potentially overestimates the cost of labour (not least because an individual will not be able to charge 100% of their time out at this charge out rate) and the latter undervalues the opportunity cost of being engaged in non-productive familiarisation (ie the lost income when someone is employed in non-income generating work). We have therefore assumed an hourly rate half way between the EC Harris industry estimate and the ASHE plus 30% approach. This method has been used in previous impact assessments and is consistently used to estimate the value of time savings throughout this impact assessment.

48. Using a combination of EC Harris' hourly wage rate and the ASHE hourly rate we have estimated a process cost for each Code level based on the credits being required. Further detail of the hours EC Harris assumed for each of the credits can be found in the appendix of EC Harris' report. Table 6 summarises the total process costs at each Code level and the unit process cost per dwelling.

[7] Annual Survey of Hours and Earnings (ASHE) ONS: http://www.ons.gov.uk/ons/rel/ashe/annual-survey-of-hours-and-earnings/2012-provisional-results/index.html

[8] Wage rates taken from ASHE have been scaled up to 2013 prices throughout this impact assessment based on HM Treasury GDP deflators

[9] Cabinet Office, Standard Cost Model, 2005, http://www.berr.gov.uk/files/file44503.pdf

Table 4 – Process costs of each Code level for all dwellings

Code Level	Total cost (50 dwellings)	Cost per dwelling
Code 1	£4,653	£93
Code 2	£4,653	£93
Code 3	£4,653	£93
Code 4	£5,003	£100
Code 5	£9,990	£200
Code 6	£9,990	£200
BRE fee	£1,850	£37

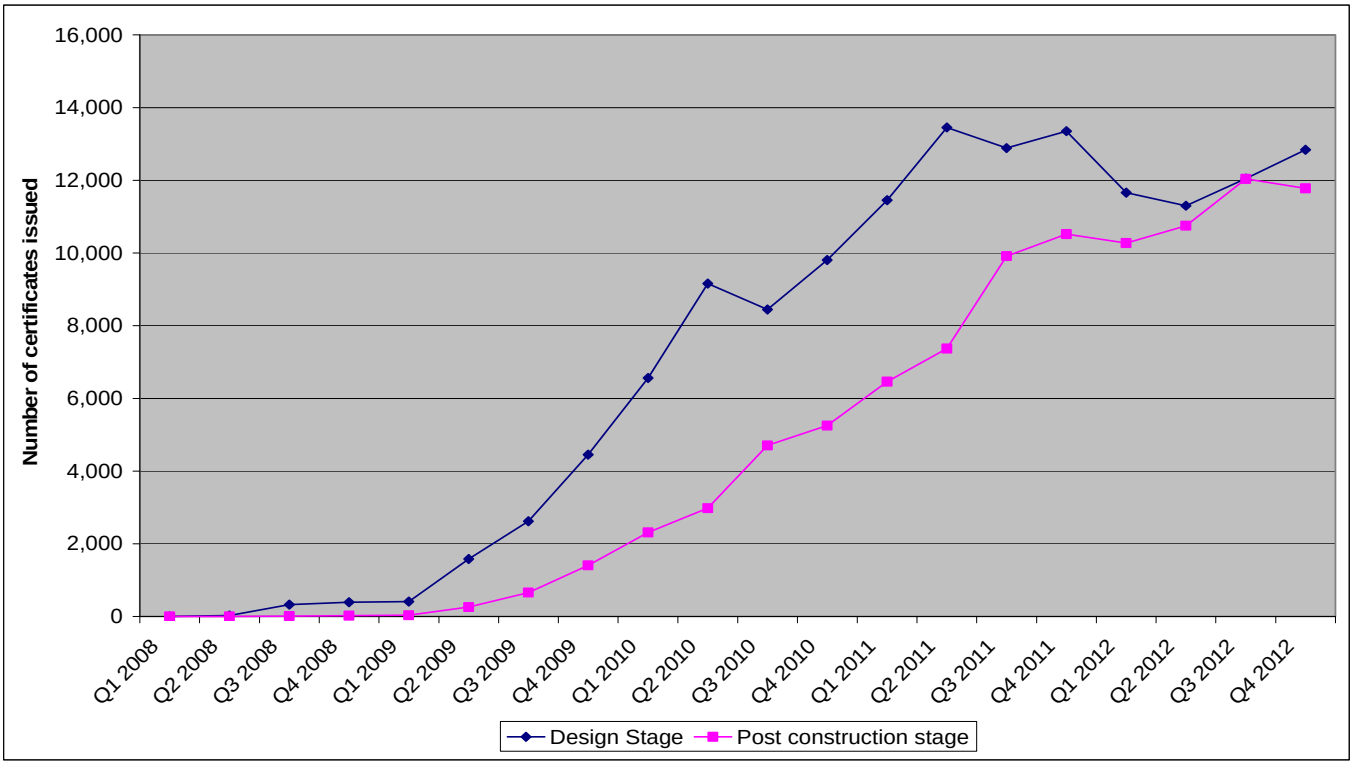
Note: the BRE fee is paid by the house builder for each dwelling on top of the process cost it incurs depending on which level of the code the builder is aiming for.

49. Table 4 shows the estimated process cost incurred by a house builder for each code level based on a 50 dwelling development. If a builder builds a new home to achieve code level 4 the estimated process cost per dwelling would total £100 and they would incur a BRE fee of £37 per dwelling, taking the total cost to £137 per dwelling.

50. The process cost associated with water (WAT 1) has been removed from this section of the impact assessment. We will account for the process cost associated with water in the water section of this impact assessment.

51. We have made an estimate of the number of Code homes under the 'Do Nothing' option using historical data of how many new homes have been built to the Code since its introduction in 2008. DCLG statistics present the number of homes which apply for Code status at the design stage and the post construction stage of development. Figure 2 presents the number of certificates issued each quarter in England at design stage and post construction stage.

Figure 2 - Number of design stage and post construction stage certificates issued each quarter in England



Source: DCLG Statistics[10]

[10] https://www.gov.uk/government/organisations/department-for-communities-and-local-government/series/code-for-sustainable-homes-statistics

52. The number of post construction certificates issued in England in 2012 reached 44,602. This represented 39% of new housing in England achieving a Code level from 1 to 6[11]. The number of homes incorporating the Code has increased each year. However, as figure 1 shows the growth in the number of homes incorporating Code standards at design stage has been flat from the end of 2011. So for the do nothing we assume that the number of homes incorporating the Code remains at 39% of the number of new homes built in England. This will still result in the absolute number of homes incorporating the Code increasing each year as we are estimating a 3-6% growth in the number of new homes every year over the 10 year appraisal period (see Table 1 above). This is an indicative estimate only. We have also assumed in the counterfactual that as the Building Regulations for energy tighten in 2013 and 2016 the number of Code homes built and the extra over costs associated with the Code diminish.

53. We estimate the number of homes in levels 1 and 2 to be zero as of 2014 and 2016 respectively as these levels become more similar to Building Regulations. We have also assumed a 1% annual decline in the number of Code level 3 homes, again this is because level 3 will become easier over time as the Building Regulations evolve. We assume that the proportion of Code level 4, 5 and 6 homes will increase each year which will take numbers away from level 3. This reflects a clear trend for local authorities to set higher standards in planning over time, presumably driven by assumptions around technology improvements and learning rates. Table 5 presents our estimates for the proportion of Code homes over the 10 years of the policy (years 2014 – 2023).

Table 5 - estimated proportion of homes at each Code level, 2014 - 2023

	Code Level						
Year	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
2012	*0.3%*	*0.5%*	*78%*	*20.41%*	*0.3%*	*0.21%*	*100.00%*
2013	0.1%	0.3%	72%	27%	0.5%	0.1%	100.00%
2014	0%	0.2%	71%	28%	0.6%	0.2%	100.00%
2015	0%	0.1%	70%	29%	0.7%	0.3%	100.00%
2016	0%	0%	69%	30%	0.8%	0.4%	100.00%
2017	0%	0%	68%	31%	0.9%	0.5%	100.00%
2018	0%	0%	67%	31%	1.0%	0.6%	100.00%
2019	0%	0%	66%	32%	1.1%	0.7%	100.00%
2020	0%	0%	65%	33%	1.2%	0.8%	100.00%
2021	0%	0%	64%	34%	1.3%	0.9%	100.00%
2022	0%	0%	63%	35%	1.4%	1.0%	100.00%
2023	0%	0%	62%	35%	1.5%	1.1%	100.00%

54. We assume that as Building Regulations tighten standards, for instance on energy, the proportion of homes being required by planning to build beyond the Building Regulations will diminish over time. We have made an initial indicative estimate of the rate at which homes which will incorporate the Code in the 'Do Nothing' option, will decrease from 2017. From 2017, 25% of homes are assumed to be no longer be required to be built to the Code. From 2020 we assume that 50% of the homes will no longer incur costs as a result of the Code. We continue to use the 50% figure up to the final year of this policy. Table 6 presents the number of homes which will be built to the Code in the do nothing option, assuming that 39% of homes built in Table 1 are built to Code standards and adjusting as Building Regulations change.

[11] Based on DCLG housing statistics, table 245: https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building

55. We have also assumed that costs will fall when new Building Regulation requirements are introduced in 2013 and 2016. For instance the extra over cost, beyond Building Regulations, of constructing a Code Level 5 home in say 2020 will be less than in 2014 because the zero carbon regulatory standard introduced from 2016 will already require a tighter standard. The impact of the Code will then diminish.

Table 6 - midrange number of Code homes in the do nothing by Code in England, 2014-2023

Year	Reduction in homes incorporating the Code due to assumed changes in the Building Regulations	Low estimate	Mid estimate	High estimate
2014	0%	47,318	48,706	50,115
2015	0%	48,738	50,898	53,121
2016	0%	50,200	53,188	56,309
2017	25%	38,779	41,686	44,765
2018	25%	39,943	43,562	47,451
2019	25%	41,141	45,523	50,298
2020	50%	28,250	31,714	35,544
2021	50%	29,098	33,141	37,677
2022	50%	29,971	34,633	39,938
2023	50%	30,870	36,191	42,334
Total		**384,306**	**419,243**	**457,553**

Option 2 - rationalise the number of housing standards

56. The proposed policy option for energy is for a solely Building Regulations approach to driving up energy performance in new homes, resulting in no additional standards for energy. Local authorities will not be able to require any energy standards above Building Regulations in the proposed system. This means that the Code for Sustainable Homes will no longer be a housing standard available to local authorities to require from new build homes. For the purposes of this section of the IA we have estimated the cost of only the Energy elements of the Code by excluding all other costs from Table 2. Standards in the current Code on water, access and security are proposed to be replaced by the Nationally Described Standards document which will be assessed separately in this impact assessment. We have not estimated savings from the other categories in the Code.

Table 7: Extra over costs of the Energy aspects of the Code by Level and house type.

Code Level	Flat	2 Bedroom Terrace	3 Bedroom Semi	4 Bedroom Detached
Code 1	£0	£0	£0	£0
Code 2	£0	£0	£0	£0
Code 3	£0	£0	£0	£0
Code 4	£954	£1,204	£1,639	£1,924
Code 5	£7,704	£10,954	£11,389	£11,674
Code 6	£11,639	£21,644	£22,514	£23,084

57. It is likely that local authorities will take time to update their plans and for the new policy to take effect, which will result in homes still being built to the Code in the early years of this policy. To account for this we have a fairly simple indicative assumption of a phase in

period from 2014 to 2016. We assume that 75%, 50% and 25% of the homes from the counterfactual will still be built to the Code in our proposed option 2 in 2014, 2015 and 2016 respectively. Further analysis will be undertaken for the final impact assessment to produce a better evidenced estimate of the transition to the new policy, following the consultation. Table 8 presents the number of homes which will still be built to the Code in the proposed option accounting for a 3 year phase in.

Table 8 - Number of homes still incorporating the Code in option 2

Year	Proportion of homes we anticipate incorporating the Code in the proposed option	Low estimate (3%)	Mid estimate (4.5%)	High estimate (6%)
2014	75%	35,489	36,530	37,586
2015	50%	24,369	25,449	26,561
2016	25%	12,550	13,297	14,077
2017	0%	0	0	0
2018	0%	0	0	0
2019	0%	0	0	0
2020	0%	0	0	0
2021	0%	0	0	0
2022	0%	0	0	0
2023	0%	0	0	0
Total		**72,407**	**75,276**	**78,224**
Number of homes removed		311,899	343,968	379,329

58. Table 8 illustrates that 72,000 to 78,000 (rounded) homes will still be built to the Code in option 2. This means that compared to the do nothing option 312,000 to 379,000 (rounded) homes will no longer be built to the Code over 10 years as a result of option 2. Using the costs of the energy element of the Code listed above we can quantify the construction cost savings, process savings and no longer having to pay a BRE fee for a Code certificate. We have assumed learning rates of 3% each year over the 10 years of the policy, as construction costs decrease in price due to technology improvements and industry learning how to incorporate standards more efficiently over time. These assumptions reduce the risk that we are overstating the policy savings from Option 2. Our approach is to be conservative regarding the number of homes no longer being built to the Code, this is due to us assuming a phase in period in option 2 and because we have reduced the number of homes in the counterfactual due to future tightening of the Building Regulations.

59. Applying the savings from the number of homes no longer having to incorporate the energy and process elements of the Code for Sustainable Homes results in midrange total present value benefits of **£92.6m** (range £85.2m - £101.4m) over the 10 year life of the policy. This results in an equivalent annual net benefit to business of **£10.8m** (range £9.9m - £11.8m).

60. The process saving of removing the Code represents a midrange total present value benefit of £39.1m (equivalently annualised figure of £4.5m). The process saving realised from removing the Code represents 42% of the total present value benefit.

The Planning and Energy Act

Benefits and costs

Option 1 – Do nothing

61. In 2008 the Planning and Energy Act enabled local authorities to set local plan policies for development in their area to set energy efficient standards that exceed Building Regulations. The Planning and Energy Act enables local authorities to set policies asking for a proportion of energy used in developments in their area to be from renewable or low carbon energy sources. Any policies should be based on national policy and should be reasonable. This section of the impact assessment will focus on the ability of local authorities to require a proportion of energy in new developments to be from renewable or low carbon sources in new homes.

62. The Planning and Energy Act became part of national planning law in 2008. The Act is based on "merton rule", a local planning policy which required new developments to generate at least 10% of their energy needs from on-site renewable energy equipment. Merton Council developed the rule and adopted it in 2003. Since then the Mayor of London and many councils have also implemented it (or similar sometimes more demanding targets). The requirement of an on-site renewable energy target can add significant costs to house builders and could have a significant impact on the economic viability of a development in some locations.

63. EC Harris have estimated the extra over costs of an on-site energy requirement based on renewable rates of 10% and 20%. EC Harris conclude, from their experience, that 10% and 20% renewable rates are the most commonly used renewable target in planning requirements. Table 9 presents EC Harris' estimates of the cost of the on-site energy requirement broken down by the 4 house typology we have specified.

Table 9 – extra over cost, per dwelling, of on-site energy requirement

	10% renewable rate	20% renewable rate
2B Apartment	£1,560	£3,120
2B House	£1,400	£2,800
3B House	£1,850	£3,608
4B House	£2,400	£4,600

Source: EC Harris 2013

64. These additional costs are based on 2010 Part L Building Regulations. Over the 10 years of the do nothing option the baseline Building Regulations will evolve to require more stringent energy efficiency criteria on new homes, which will reduce the extra over cost associated with a renewable target over the 10 years of the do nothing. In particular, as a result of a change to the Building Regulations in 2016 (the introduction of a zero carbon homes build standard) a continued renewable target is likely to require a much lower extra over cost. We assume a phase in period for zero carbon homes. To give an indicative estimate post 2017, we assume for the remaining policy period that only 5% of homes are built which have incorporated a renewable target and that the extra over cost is 50% of the previous cost.

65. We do not have firm data for the number of new homes which are required to meet a renewables requirement. We understand a number of local authorities are beginning to require a renewable energy target and evidence of planning policy indicates that more local authorities plan to incorporate renewable energy targets in their local plans in the future. In London we have estimated 63% of new homes would incorporate a 10% renewables target and 16% of homes would incorporate a 20% renewable target. It is assumed that the remaining 21% are below 10 dwelling developments and will not be required to meet a renewable energy target. For the rest of England we have assumed a growth in the take up of a renewable energy target for both the 10% and 20% renewable energy target. Table 10 presents the assumed take up of two renewable energy targets in London and the rest of England in the do nothing scenario.

Table 10 – Proportion of homes incorporating a renewable energy target

Location	Target	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
London	10% renewable energy	63%	63%	63%	38%	5%	5%	5%	5%	5%	5%
London	20% renewable energy	16%	16%	16%	9%	6%	5%	5%	5%	5%	5%
Rest of England	10% renewable energy	21%	22%	24%	14%	5%	5%	5%	5%	5%	5%
Rest of England	20% renewable energy	5%	6%	6%	4%	5%	5%	5%	5%	5%	5%

66. EC Harris has estimated a process cost associated with ensuring compliance with a renewable energy target. EC Harris estimate a mechanical and electrical engineer will need to spend 15 hours on a medium sized development to ensure compliance with a renewable energy requirement is achieved. Table 11 presents the range of the process cost associated with complying with a renewable energy target. We have again used EC Harris' hourly wage rate as the high estimate and ASHE plus 30% wage as the low estimate and used an average of the two as the midpoint.

Table 11 - Process cost of a renewable energy target

Professional	Total hours	EC Harris wage - high	ASHE - low	High cost	Low cost	Midpoint
Mechanical & Electrical Engineer / Sustainability specialist (100%)	15	£75	£26.80	£1,125	£402	£763
Total	**15**			**£1,125**	**£402**	**£763**
Cost per dwelling				*£22.50*	*£8.04*	*£15.27*

Option 2 - rationalise the number of housing standards

67. The proposed policy option for energy is for a solely Building Regulations approach to driving up energy performance standards. This means that local authorities will no longer

be able to include an on-site renewable energy targets on new homes in their local plans. The only costs associated with on-site renewable energy targets will be during a transition period where some new homes will incorporate on-site renewable energy targets, this is because local plans may take time to be updated, and/or because house builders have already sought planning permission to incorporate an on-site renewable energy target so will continue to incorporate the renewable energy target. We have made an indicative assumption of a phase in period in the first 3 years of this policy (2014 - 2017) to incorporate homes which will still be built in the proposed system. We have assumed that 75%, 50% and 25% of homes will continue to incorporate a renewable energy target in the 2014, 2015 and 2016 respectively. A learning rate has been assumed which reduces the costs in Table 9 over time as it is anticipated that the cost effectiveness of the renewables requirement will improve due to technology change.

68. The savings from removing renewable energy targets from local plans have been estimated over the ten years outlined in the table above. When aggregated using the assumptions outlined above, the total benefit from savings due to the removal of renewable energy targets is estimated at a present value benefit over 10 years of **£195.4m** (range £181.2m - £210.7m). This results in an equivalent annual net saving to house builders of **£22.7m** (range £21.1m - £24.5m).

69. The process saving for removing on-site renewable energy targets represents a total present value benefit over 10 years of £2.9m (equivalently annualised figure of £0.3m). The process benefit of removing this on-site renewable energy target represents 1.5% of the total benefit from option 2.

Non monetised costs

70. Under the preferred option, the local authority role will be to direct where new housing development and associated renewable energy infrastructure should be – so that development can benefit from connections. It will not be the role of local authorities to specify how much energy should come from on-site renewable energy technology. These decisions should be for developers, working within local authority design policies, and complying with Building Regulations.

71. There may be limited environmental costs in the run up to 2016, as some developments may not include the amount of on-site renewable energy technology that was envisaged. Our assumption is that this will be a limited cost, for three reasons:

    - those authorities who have plans in place already will be able to maintain their policies until such time as a new plan is required to be put in place, or where planning appeals are lost
    - in many cases, requirements for on-site renewable energy technology are already negotiated down because the costs are not viable
    - homeowners and developers may install renewable energy technology independently, as a result of the consumer Green Deal scheme (consumers), or as an innovative sale feature (developers).

72. We have not quantified the potential impact at this stage. The initial focus for this particular analysis has been the impact on business. This policy emanated out of the red tape challenge exercise to reduce burdens on business. We intend to strengthen the evidence base, including on the extent to which on-site renewables are required, in time for the final impact assessment so that the impacts can be fully monetised.

Water

Benefits and Costs

Option 1 - Do Nothing

73. In the do nothing option water standards are mainly comprised of the mandatory water standard within the Code for Sustainable Homes, which accounts for around 20% of the overall Code cost. Local authorities have the power to impose local water standards which could be the same as the Code but data is not available for how many homes incorporate water standards. Water can be an extremely costly component of the Code for Sustainable Homes. To achieve Code level 5 or 6, for which rain water harvesting or grey water recycling is required, can cost more than £3,000 per dwelling. The extra over cost estimate produced by EC Harris for the Code for Sustainable Homes, is presented in table 12.

Table 12 - Extra over costs of water element of the Code for Sustainable Homes

Code Level	Flat	2B House	3B House	4B House
Code 1	£0	£0	£0	£0
Code 2	£0	£0	£0	£0
Code 3	£43	£68	£68	£68
Code 4	£43	£68	£68	£68
Code 5	£4,643	£3,368	£3,368	£3,368
Code 6	£4,643	£3,368	£3,368	£3,368

74. There is also a process cost associated with the do nothing for water. EC Harris made an estimate of this process cost for new homes built to code level 3 and above. Taking the midpoint of EC Harris' hourly wage of £75 and ASHE wage rate of £23.19 it is anticipated that a development of 50 properties would require 7.5 hours of process time to ensure compliance with water. This results in a total cost of £370 and a cost per dwelling of £7.40.

75. These costs are a guide of the current cost of achieving the water element of the Code. We have not quantified these costs under the Code section, to avoid double counting, so will be including the water element of the Code in this section. Based on the calculated number of homes being build to Code standards, the initial yearly cost is £5.3m.

Option 2 - rationalise the number of housing standards

76. The working group for the water theme generated a simple water standard which is similar to the level 3 standard for the Code for Sustainable Homes. House builders who were part of the water working group informed us that the proposed water standard should not be a substantial additional cost to house builders as it should be a matter of purchasing more water efficient products. EC Harris estimate the extra over cost of the proposed water standard being the same current cost of achieving the water category of the Code levels 3 and 4 for sustainable homes. This results in the extra over cost of the proposed water standard being £43 per flat and £68 per house.

77. EC Harris have also estimated a process cost of complying with the proposed water standard. EC Harris believes a medium sized development would require 4 hours of design work to ensure compliance with the proposed water standard. We will again be using a range for the hourly wage costs using EC Harris' hourly wage rate as the high rate and ASHE plus 30% as the low estimate. Table 13 presents the process cost when using the EC Harris wage rate and ASHE plus 30%.

Table 13 - Process cost of proposed water standard

Professional	Total hours	EC Harris wage - high	ASHE - low	High cost	Low cost	Midpoint
Mechanical & Electrical Engineer	4	£75	£26.80	£300	£107	£204
Total	**4**			**£300**	**£107**	**£204**
Cost per dwelling				*£6.00*	*£2.14*	*£4.07*

78. Comparing the proposed water process cost from table 13 with the process cost in the do nothing (£7.40) results in a process saving per dwelling of £3.33.

79. It is already an option for a local authority to require a water standard in planning and this is more likely to occur in water stressed areas. We have made an assumption that approximately 39% of new homes will incorporate the proposed standard, which is based on the number of homes which currently incorporate the Code for Sustainable Homes. This results in an initial year cost of £3.2m which is £2.1m less than under the Do Nothing. The total net Present Value cost saving, of the proposed water standard against the Do Nothing, over 10 years of policy and assuming a 3 year phase in at 25% per annum, is **£20.9m** over 10 years (range £18.9m - £23.2m). The central estimate results in an equivalent annual net cost saving to house builders of **£2.4m** (range £2.2m - £2.7m).

80. The process saving of the proposed water standard represents a total present value benefit over 10 years of £2.6m (equivalently annualised figure of £0.3m). The process benefit of the proposed water standard represents 12% of the total benefit from option 2.

Sensitivity Analysis

81. There is uncertainty around the take up of the new standard by local authorities and around the estimate of the Do Nothing take up, as these are essentially local decisions. So sensitivity analysis has been done assuming that the additional uptake for the new standard is 20% higher than in the main assumption (ie 46.8% instead of 39.0%). This gives a present value cost saving of £16.1m (equivalent annual cost saving of £1.9m).

Security

Benefits and Costs

Option 1 – Do Nothing

82. Secured by Design (SBD) for new homes' is split into two distinct sections, section 1 covers the spatial aspects of a scheme, including the design and layout of roads, footpaths, street lighting, communal open areas, dwelling boundaries and orientation etc. Section 2 covers physical security (target hardening) of dwellings and covers requirements relating to doors, windows, locks, door chains and limiters etc. In addition subsequent guidance is provided for communal areas within blocks of flats, both within 'SBD - new homes' and accompanying guidelines provided in 'SBD – multi-storey dwellings'. The latter also covers both target hardening and spatial design for blocks of flat, as well as specific recommendations to limit the number of dwellings off communal access staircases.

83. Historically the Homes and Communities Agency (HCA) required full SBD certification (sections 1 and 2) on public land through English Partnership legacy standards, but this no longer applies. For affordable housing (National Affordable Housing Programme/Affordable Housing Programme), achievement of the physical security elements (eg doors, windows, locks etc) 'section 2' of SBD certification is recommended under the Homes and Communities Agency's 2007 standards for affordable housing. This is generally measured through the Code for Sustainable Homes, so the HCA's standard is a recommendation that full points for security in the Code should be achieved. This is detailed in the HCA Design & Quality standards document. This standard applies to all homes funded through the AHP (so up to 2015), but the HCA continue to recognise the benefits of good security.

84. The most recent Code (2010) includes requirements for domestic security which is intended to promote the design of developments where people feel safe and secure and where crime and disorder, or the fear of crime, does not undermine quality of life or community cohesion. In order to satisfy this requirement section 2 of SBD (concerning door and window locks) needs to be complied with, but full certification is not required. Satisfying this requirement provides 2 credits in relation to the varying levels of Code homes.

85. The Department commissioned EC Harris to review the extra costs associated with incorporating SBD section 2 – new homes. EC Harris calculated the extra over cost of SBD section 2 by calculating the cost of complying with SBD section 2 above the cost of typical security measures house builders typically install in new homes. The components and the costs of industry practice are based on EC Harris' internal database of projects they have worked on. The costs associated with SBD above industry practice are provided in table 14.

Table 14 – security costs

	Industry practice	SBD compliant	Difference (cost to achieve SBD)
2B Apartment	£1,797	£2,470	£673
2B House	£2,717	£3,506	£789
3B House	£2,717	£3,506	£789
4B House	£3,393	£4,276	£883

Source: EC Harris.

86. EC Harris compared their SBD extra over costs against the most recent report in 2010 produced by Davis Langdon[12] for ACPO Cpi[13] which reported lower extra over costs of complying with SBD. EC Harris noted the following reasons for the lower Davis Langdon extra over costs of SBD:

- several items such as security to cycle storage and home office provision are excluded from the Davis Langdon report. These items are part of the standard when provided and, in EC Harris' experience, do feature in most developments and therefore should form part of the cost
- the Davis Langdon report assumes that rear PIR lighting (a light containing a passive infrared sensor (PIR sensor) that measures infrared light radiating from objects in its field of view), is provided in the "industry practice" base case to the front and rear of properties. This is not in line with EC Harris' experience which is that rear lighting would only be provided when required by SBD and hence represents an additional cost. A rear light is also not required under NHBC standards
- the Davis Langdon report assumes lower costs for laminated glazing and PAS23/24 door sets. These costs are not in line with EC Harris' experience as to what is achievable in the market.

87. A breakdown of the components and costs for each element of section 2 of SBD assumed by EC Harris are presented in EC Harris' report. EC Harris costs for each component are sourced from their internal benchmarking database which draws on costs from past and present projects.

88. EC Harris have also estimated the number of hours house builders need to invest to comply with SBD. EC Harris applied their own knowledge and industry experience of the number of hours required for house builders to comply with SBD. EC Harris identified the following issues faced by house builders when complying with SBD:

- sourcing appropriate components and managing certification / evidence of compliance
- an element of non-linear process due to some subjectivity in judging compliance (ie the design team would make a proposal, receive comment, make a revised proposal and possibly repeat these steps)
- some checks / calculations / measurements which would not be required within the normal design process
- typically several written / telephone exchanges plus one meeting.

89. These findings led EC Harris to estimate that a developer of a medium sized project (50 dwellings) would require 15 hours to ensure the site complied with the requirements of SBD. EC Harris estimated the time required would be split between a project manager (50%), a construction manager (20%), a buyer (20%) and a police officer (10%). The range of process costs to a medium sized development (50 dwellings) is presented in table 15, the table also presents the process cost on a per development basis.

Table 15 – Process costs of Secure by Design

Source	Hourly wage rate	Number of hours	Total cost	Cost per dwelling
EC Harris	£75.00	15	£1,125.00	£22.50
ASHE	£23.53	15	£353.00	£7.06
Midpoint	**£49.27**	**15**	**£739.00**	**£14.78**

[12] Capital Costs of Secured by Design Accreditation (2010). http://www.securedbydesign.com/professionals/pdfs/SBD-costs-2010-Davis-Langdon.pdf

[13] Association of Chief Police Officers Crime Prevention Initiatives Limited

90. To assess the total cost of complying with SBD over 10 years we have estimated the proportion of new homes built to SBD standards using data supplied by the ACPO. This has enabled us to estimate the number of developments built to SBD standards at 1553 over the period 2008-2012 from which we have assumed 311 developments per year. ACPO have also given some data on the average number of dwellings per development from which we estimate a range of 7-29 dwellings per development. This suggests that 1.8% - 7.6% of new homes in England are built to SBD standards each year. We have taken a mid range estimate of 4.7%.

91. There is considerable uncertainty attached to these assumptions and particularly a risk that they underestimate the proportion of homes build to the standard through homes not being certified. We have undertaken some sensitivity analysis below to reflect this uncertainty, will test these assumptions at consultation and will undertake further work to refine this estimate.

92. The initial yearly cost estimate of the Do Nothing is **£4.1m**.

Option 2 - rationalise the number of housing standards

93. The Department has proposed two security standards in the proposed option known as level 1 and level 2, a brief description of each options follows:

94. The **level 1 standard** is intended to reflect typical current practice in private sector home building and is based around the requirements relating to security for the NHBC warranty. It is intended to form a reasonable and appropriate minimum level of protection that could be applied to all properties across tenure. There are some additional requirements over and above NHBC warranty standards relating to the standards for windows. However, we believe this is representative of current industry practice and therefore not an additional cost.

95. The **Level 2 standard** provides a higher level of protection and is based around the levels of security required in SBD section 2 – new homes. It is intended to offer a higher level of protection that could be applied on a case by case basis by local authorities, subject to viability, where a compelling case exists for a higher level.

96. EC Harris have assessed the extra over costs of the level 2 option for standard above typical industry practice. Table 16 presents EC Harris' findings for the additional costs associated with the level 2 standards security standards and the saving of the proposed level 2 security standard when compared to the current SBD standard.

Table 16 – saving of proposed level 2 standard compared to SBD

	2B Apartment	2B House	3B House	4B House
SBD	£680.00	£789.00	£789.00	£883.00
Level 2	£540.00	£633.00	£633.00	£727.00
Saving	**£140.00**	**£156.00**	**£156.00**	**£156.00**

97. There will also be process costs associated with the new security standards. EC Harris have estimated that a medium sized development incorporating the level 2 security standard would require 7.5 hours of time to comply with the new standard. We will adopt the same methodology to calculate the process cost as with when we estimated the cost of complying with SBD. EC Harris estimates that the 7.5 hours of process time will be broken down between a Project Architect (60%), a buyer (20%) and a construction manager (20%). EC Harris used an hourly wage rate of £75 for the three professions which will be our high estimate. For the low estimate we have found the wage rates on ASHE for the

relevant professionals and applied the weights based on the time required to achieve an hourly wage rate of £23.61. Table 17 presents the total process cost of builders having to comply with the proposed security standard for a medium sized development and the cost per dwelling.

Table 17 – Process cost of complying with new security standard

Source	Hourly wage rate	Number of hours	Total cost	Cost per dwelling
EC Harris	£75.00	7.5	£563	£11.25
ASHE	£23.61	7.5	£177	£3.54
Midpoint	**£49.31**	**7.5**	**£370**	**£7.40**

98. There is a time saving when comparing the process time requirement of the proposed level 2 security standard and the current SBD security standard. Table 18 presents the process saving, note this saving presents the midpoint estimates for both standards.

Table 18 – process savings of level 2 security standard when compared to SBD

	Midpoint total cost	Cost per dwelling
SBD	£739.00	£14.78
Level 2	£369.80	£7.40
Saving	**£369.20**	**£7.38**

99. In order to scale up the impact in England as a whole, we have assumed that the proportion of homes incorporating the level 2 security standard will be the same as the proportion of the housing stock currently requiring SBD standards. Using ACPO data we estimate that the proportion of new homes built each year with SBD standards range from 1.8% to 7.6%, and this is the proportion of new homes we have assumed will incorporate the proposed new standards each year. Our central estimate is therefore the mid-point 4.7% to SBD standards for the Do Nothing and for Option 2. It is assumed that for Option 2, 80% will require level 2 standard and 20% level 1. This reflects the possibility that some local authorities seeking a backstop standard will choose SBD under the Do Nothing, but choose the less onerous level 1 under option 2.

100. Introducing the new level 1 and 2 for security in the national standard along the lines of the assumptions above result in an initial yearly cost of £2.6m. This gives an initial yearly saving over the £4.1m Do Nothing cost of £1.5m. We assume a phase in period for the new standards and a reduction in costs of building to standards of 1% per annum for both the Do Nothing and Option 2. The difference between the Do Nothing and Option 2 results in a present value saving over 10 years at a 3.5% discount rate of **£13.6m** (range £12.3m - £15.1m based on low and high estimates of housing growth from table 1) and an equivalent annual net benefit to business of **£1.6m** (range £1.4m - £1.8m based on low and high estimates of housing growth from table 1)

101. The total present value benefit over 10 years associated solely with process for security totals £0.4m (range £0.4m to £0.5m), which represents 3% of the saving associated for security (equivalent annual central estimate of £0.1m).

Security Sensitivity Tests

102. There is uncertainty about the proportion of homes currently built to SBD standards, and especially that the 4.7% assumption above could be too low because of homes being built to SBD standards for planning reasons but not certified upon completion. We have therefore undertaken sensitivity testing on the savings if double the proportion of homes are built to both the current SBD standards in the Do Nothing and to level 1 or 2 standards under Option 2. This increases the present value saving to **£27.2m** (range £24.5m - £30.1m based on low and high estimates of housing growth from table 1).

103. The above assumes that 4.7% of homes are currently built to SBD standards, that this proportion would continue under the Do Nothing and that under the new proposal the same proportion will be built to the proposed level 2. There is uncertainty attached to these assumptions, especially with regard to local decisions to introduce the new standard, so our sensitivity provides an upper and lower saving estimate. For an upper estimate we assume that 4.7% of homes are built to the SBD standards under the Do Nothing but only 1.8% are built to the new standard in option 2. This increases the cost saving from £13.6m to **£28.5m** (range £25.7m - £31.6m based on low and high estimates of housing growth from table 1)**.** For a lower estimate we assume that 4.7% of homes are built to the SBD standards under the Do Nothing but that 7.6% are built to the new standard in option 2. This changes the outcome from a present value cost saving of £12.8m to a present value **cost increase of £1.3m** (range £1.2m - £1.5m based on low and high estimates of housing growth from table 1). This sensitivity highlights that the central result is highly dependent on the underlying take up assumptions for the Do Nothing and the new proposed level 2 in option 2. We are therefore especially interested in information about potential take up and will do further work during the consultation to inform the final impact assessment.

Access

Benefits and Costs

Option 1 – Do Nothing

104. Accessibility standards are currently regulated for within Part M of the Building Regulations for all properties. There are however an increasingly wide range of additional standards and requirements being imposed by planning authorities in order to meet needs not currently covered by regulations.

105. Most commonly these requirements are based upon the Lifetime Home Standard or the Wheelchair Housing Design Guide. The exact requirements, application and interpretation of these standards vary significantly and this has been highlighted as adding unnecessary cost and complexity to new housing developments. Currently there are a wide range of accessibility standards available to local authorities to ask house builders to incorporate in their developments. This section will be structured by presenting each access standard individually and calculating the costs by standard.

Lifetime homes standard

106. The Lifetime Homes (LTH) standard is owned by Habinteg Housing Association and represents the next step up from Part M of the Building Regulations. The standard ‘seeks to enable ‘general needs’ housing to provide, either from the outset or through simple and cost-effective adaptation, design solutions that meet the existing and changing needs of diverse households’. LTH is widely applied by local authorities, particularly for affordable housing and London Plan policy requires that all new homes within the GLA must meet the

standard. Outside of London LTH is not a mandatory condition of funding. LTH is also included within Category 7 Health and Well-being, of the Code where it gains a maximum of 4 credits. Where Level 3 or above is required, LTH is often incorporated because of the relatively large number of available credits. Even when LTH has been used to achieve credits as part of the Code for Sustainable Homes we have assigned the costs to the Access section of this impact assessment.

107. EC Harris have conducted research estimating the extra over costs associated with complying with LTH. Table 19 presents EC Harris' estimates for the extra over costs of complying with LTH.

Table 19 – Extra over costs of complying with Lifetime Homes

	Lifetime Homes (works cost)
2B Apartment	£1,035
2B House	£1,044
3B House	£1,049
4B House	£1,051

Source: EC Harris 2013

108. Note that the above table excludes the costs of additional space required to achieve Lifetime Homes (ie making the dwelling larger). The additional space required to meet the Lifetime Homes standard can vary considerably. The EC Harris estimate for the additional cost of space when a home incorporates the LTH standard is £742 (2 Bedroom apartment), £1,403 (2 Bedroom house), £817 (3 bedroom house), and £756 (4 Bedroom house). This cost is not considered further in this section but is analysed in the Space section below so that its impact can be compared with the consultation consideration of a possible new space element to the Nationally Described Standard. The breakdown of the costs is provided in EC Harris' report.

109. A significant cost for house builders complying with LTH are process and administration costs surrounding the complexity of the design and delivery of LTH. EC Harris found the following issues when investigating the process cost of LTH:

- challenging to get a compliant design right first time, even for experienced architects within large practices. Often therefore a level of re-design required
- all aspects of the standard largely outside of usual industry practice, therefore all "extra over" time
- the same amount of time required for each house type (rather than scheme) which adds up to a significant cost where there are many house types
- requirement for careful management during the delivery phase ensuring attention paid to details which would not otherwise be material
- ranging local authority requirements for evidencing of compliance and differing views on what is compliant
- time consuming to deal with external elements, particularly for sloping sites (note – costs below assume relatively level site).

110. EC Harris estimated that for a medium sized development a total of 107 hours would be required to ensure compliance with the LTH standard. The Table below displays the professions and times required to comply with LTH along with the wage rates used by EC Harris (high estimate) and ASHE (low estimate).

111. The consultants at EC Harris quantified this process cost at £7,673 per development or £153 per dwelling. This will be our high estimate as EC Harris use a higher wage rate than would typically be used for government appraisal. For the low estimate we have found the relevant wage rates on ASHE for the architect, buyer and construction manager. The range of process costs are presented in the table below.

Table 20 – Process costs for LTH

Professional	Total hours	EC Harris wage - high	ASHE - low	High cost	Low cost	Midpoint
Architect	60	£75	£24.79	£4,500	£1,488	£2,994
Architect	15	£75	£24.79	£1,125	£372	£748
Buyer	16	£64	£19.88	£1,024	£318	£671
Construction Manager	16	£64	£23.80	£1,024	£381	£702
Total	**107**			**£7,673**	**£2,558**	**£5,116**
Cost per dwelling				*£153.46*	*£51.17*	*£102.31*

112. Based on discussions with local authorities and other partners, we have estimated that around 90% of new homes in London are built to the Lifetime Homes standard and 5% outside of London and have assumed that this proportion would continue to be built to these standards under the 10 years of the Do Nothing.

Wheelchair housing design guide

113. The Wheelchair Housing Design Guide (WHDG), also owned by Habinteg, is the most commonly applied standard for Wheelchair Housing. Most local authorities require a proportion of the affordable housing element to meet the WHDG but rarely require it for private housing. In London, however, 10% of all new homes must meet either the GLA version of the standard, or one of a number of local versions (such as the Greenwich Wheelchair Housing Design Guide) which is equivalent or higher.

114. EC Harris have estimated the extra over costs of a property incorporating WHDG. EC Harris found the following items which contribute to the extra over cost of complying with WHDG:

- adaptations to kitchens and bathrooms such as adjustable height worktops and accessible shower enclosures;
- increased requirements for circulation and activity in all habitable areas to meet a wheelchair users needs;
- aids to allow use of fittings such as remote winders for windows;
- a covered car parking space (e.g. a car port) to allow dry exit and transfer to the vehicle.

115. Table 21 presents EC Harris' estimate of the extra over costs of complying with WHDG above industry practice.

Table 21 – Extra over costs of Wheelchair Housing Design Guide

	WHDG (works)
2B Apartment	£13,314
2B House	£12,488
3B House	£13,031
4B House	£13,170

Source: EC Harris 2013

116. EC Harris have also estimated the additional cost of WHDG resulting from increasing the size of the property. These are presented in the table below. To compare these with the costs of the proposed Level 3 space standard these have been considered in the section on Space below.

Table 22 - Space costs of Wheelchair Housing Design Guide.

	Additional area	Additional cost
2B/4P Apartment	16 m2	£11,882
2B/4P House	16 m2	£14,185
3B/5P House	18.5 m2	£13,445
4B/7P House	25.5 m2	£18,889

Source: EC Harris 2013

117. We are aware that a number of local authorities apply what are sometimes considered to be more demanding standards for wheelchair housing. At this stage EC Harris have not reviewed works costs for each standard in detail but have received feedback on the difficulties caused by varying standards, these costs will be considered in the process costs associated with access standards.

118. The costs in table 21 include fully fitted out dwellings which are required under most planning consents. However, in certain cases an adaptable dwelling is accepted which, for example, reduces cost by not installing an accessible kitchen.

119. EC Harris have also estimated the process and administrative costs of complying with the WHDG. EC Harris believes the WHDG is to incur a high process cost, largely due to the complexity of the document. Key issues raised as causing the cost included:

- extensive time to navigate, review and interpret the document
- generally a bespoke review needed for each dwelling typology – little opportunity for learning / scale benefits
- often a negotiation / review process with external partners causing re-design as differing views incorporated.

120. EC Harris estimated it would take in the region of 67.5 hours to ensure the new property complies with the WHDG. Table 23 presents the breakdown of which professionals will be required and the amount of time they will need to input based on estimates from EC Harris.

Table 23 – Professionals and number of hours required to comply with WHDG

Professional	Function	Hours per dwelling	Number of dwellings	Total hours
Architect	Design work, review and specification (per typology)	15	3	45
Buyer	Design / delivery management during delivery phase (per typology)	2.5	3	7.5
Construction Manager	Design / delivery management during delivery phase (per typology)	5	3	15
Total				**67.5**

121. To calculate the process cost associated with the WHDG we will be using the EC Harris estimate of the process cost as the high estimate, and will use figures generated from using ASHE as the low estimate and will use an average of the two as a midpoint estimate. Table 24 displays the range of process costs associated with the WHDG.

Table 24 – Range of process costs associated with WHDG

Professional	Total hours	EC Harris wage - high	ASHE - low	High cost	Low cost	Midpoint
Architect	45	£75	£24.79	£3,375	£1,116	£2,245
Buyer	7.5	£64	£19.88	£480	£149	£315
Construction Manager	15	£64	£23.80	£960	£357	£658
Total	**67.5**			**£4,815**	**£1,622**	**£3,218**
Cost per dwelling (5 dwellings)				*£963.00*	*£324.37*	*£643.68*

122. Taken together the Wheelchair Housing Design Guide and Lifetime Homes result in a total year one cost for the Do Nothing of £71.3m.

Option 2 - Proposed Access standards

123. The proposed option for accessibility is for a three tier approach whereby local authorities can only select accessibility standards from the options proposed in the national standards. A three tier approach would reflect the existing structure, with a level 1 baseline similar to Approved Document M of the Building Regulations, a level 2 intermediate standard providing improved accessibility and adaptability, and a level 3 standard for wheelchair housing. Level 2 and 3 standards would be required as a proportion of overall development established either at a local level through planning policy, or as a fixed ratio through national regulation. The proposed three levels of this access standard set are directly related to the three levels of the space standards proposed for consultation by the working groups.

124. EC Harris have examined the proposed accessibility options and estimated the likely extra over costs of building to these standards when compared to current Building Regulations.

Due to the similarities between the proposed options and the current LTH and WHDG standards direct comparisons will be made between LTH and the proposed level 2 standard along with a comparison between the WHDG standard and the proposed level 3 standard. Table 25 below presents the current costs of the LTH and WHDG standards along with the proposed cost of level 2 and level 3 accessibility standards.

Table 25 – Estimated cost of proposed accessibility standards

	2B Apartment	2B House	3B House	4B House
Current Lifetime cost	£1,035	£1,044	£1,049	£1,051
Current WHDG cost	£13,314	£12,488	£13,031	£13,170
Proposed Level 2 cost	£980	£389	£449	£451
Proposed Level 3 cost	£12,584	£11,758	£13,939	£16,220
Difference Lifetime to level 2	-5%	-63%	-57%	-57%
Difference WHDG to level 3	-5%	-6%	7%	23%

Note: the proposed level 2 standard reduces the necessary width of staircases from 900mm to 860mm which reduces the additional area required to comply with the standard overall.

125. Table 25 shows a saving of the proposed level 2 accessibility standard when compared against the current LTH standard for all house typologies. The proposed cost of the level 3 access standard represents a saving for a 2 bedroom apartment and a 2 bedroom house when compared to the current WHDG standard. However, the proposed level 3 standard is estimated to result in higher build costs for 3 bedroom houses and 4 bedroom houses when compared to the current WHDG standard. The reason the proposed level 3 standard costs more than the current WHDG for the 3 bedroom house and the 4 bedroom house is because the accessibility working group attempted to synthesise the most effective components from the wide range of current wheelchair housing standards into the proposed level 3 standard. Under the terms of reference the working groups agreed not to remove or lower the standards necessary to meet wheel chair housing needs. We would seek views through this consultation as to whether respondents feel this is an accurate representation of the costs of the proposed level 3 standard.

126. The consultants at EC Harris also estimated the process costs associated with complying with the level 2 and 3 accessibility standard. EC Harris estimate that the process time and costs will be similar to existing standards, however it was considered that significant savings in process cost will occur due to:

- the link between accessibility and space standards
- the simplification of the standards and their presentation
- the removal of alternative standards (eg, the Wheelchair Housing Design Guide and South London guide)
- common interpretation, application and enforcement of the standards.

127. EC Harris have estimated that the process time to comply with the proposed level 2 access standard will be a total of 66 hours. The table below presents the total time and professionals needed for the process element of level 2.

128. To estimate the total process cost of the level 2 access standard we have again used EC Harris' hourly wage rate as our high estimate and taken the relevant hourly wage rates from ASHE to form our low estimate. Table 26 presents the number of hours of process costs associated with the proposed level 2 access standard.

Table 26 – total process costs of level 2 access standard

Professional	Function	Hours per dwelling	Number of dwellings	Total hours
Architect	Design work, review and specification (per typology)	4	8	32
Architect	External areas design work (per scheme)	10	1	10
Buyer	Design management during delivery phase (per typology)	1	8	8
Construction Manager	Design management during delivery phase (per typology)	2	8	16
Total				**66**

129. To estimate the total process cost of the level 2 access standard we have again used EC Harris' hourly wage rate as our high estimate and taken the relevant hourly wage rates from ASHE to form our low estimate. Table 27 presents the range of the total costs along with the range of costs per dwelling.

Table 27 – Process cost of level 2 access standard

Professional	Total hours	EC Harris wage - high	ASHE - low	High cost	Low cost	Midpoint
Architect	32	£75	£24.79	£2,400	£793	£1,597
Architect	10	£75	£24.79	£750	£248	£499
Buyer	8	£64	£19.88	£512	£159	£336
Construction Manager	16	£64	£23.80	£1,024	£381	£702
Total	**66**			**£4,686**	**£1,581**	**£3,134**
Cost per dwelling (50 dwellings)				*£93.72*	*£31.62*	*£62.67*

130. The process cost of the level 2 access standard represents a saving when compared to the process cost of complying with the LTH standard. We estimated the midpoint process cost of £102.31 per dwelling whereas the level 2 process cost will be £62.67 per dwelling, which represents a saving of £39.64 for each dwelling. Table 28 below presents the saving of the level 2 access standard compared to the LTH standard.

Table 28 – Access level 2 saving compared to the LTH standard

	Midpoint total cost	Cost per dwelling
LTH	£5,116	£102.31
Level 2	£3,134	£62.67
Saving	**£1,982**	**£39.64**

131. EC Harris have also estimated the process costs of the level 3 accessibility standard. This standard will be directly compared to the cost of the WHDG standard. EC Harris have estimated it will take a total of 34.5 hours to ensure compliance with the proposed level 3 standard. Table 29 below presents the professions, their functions and the number of hours EC Harris estimates they will spend to ensure compliance with the proposed level 3 standard.

Table 29 - Professionals required and the time required for level 3 access standard

Professional	Function	Hours per dwelling	Number of dwellings	Total hours
Architect	Design work, review and specification (per typology)	7.5	3	22.5
Buyer	Design / delivery management during delivery phase (per typology)	1.75	3	5.25
Construction Manager	Design / delivery management during delivery phase (per typology)	2.25	3	6.75
Total				**34.5**

132. Applying wage costs to the time required for each professional to ensure compliance with the level 3 standard generates a total process cost for the proposed level 3 accessibility standard. As before we will be using EC Harris' estimate as our high estimate and we will be using the ASHE wage rate as our low estimate. Table 30 presents the range of process costs based on EC Harris' hourly wage rate and the ASHE wage rate.

Table 30 - Process cost of level 3 accessibility standard

Professional	Total hours	EC Harris wage - high	ASHE - low	High cost	Low cost	Midpoint
Architect	22.5	£75	£24.79	£1,688	£558	£1,123
Buyer	5.25	£64	£19.88	£336	£104	£220
Construction Manager	6.75	£64	£23.80	£432	£161	£296
Total	**34.5**			**£2,456**	**£823**	**£1,639**
Cost per dwelling (5 dwellings)				*£491.10*	*£164.58*	*£327.84*

133. The process cost associated with level 3 represents a saving when compared to the WHDG. Table 31 presents the process saving between the WHDG and the proposed level 3 accessibility standard.

Table 31 – Process savings of level 3 accessibility standard compared to the WHDG

	Midpoint total cost	Cost per dwelling
WHDG	£3,218	£643.68
Level 3	£1,639	£327.84
Saving	**£1,579**	**£315.84**

134. To aggregate these savings over 10 years of policy it has been assumed that 10% of homes outside London (90% in London) are built to Lifetime Homes standards in the Do Nothing and to level 2 in Option 2, that 1% of homes are built to wheelchair housing design guide standards outside London (10% in London) and to Level 3 in Option 2 and these levels are constant over 10 years. Clearly this is a simplified assumption and is uncertain depending on the design of the final policy and the response to this of local authorities. We have therefore undertaken sensitivity analysis below. Further analysis will be undertaken for the final impact assessment.

135. The initial yearly cost of Option 2 for Access is £60.6m. This gives an initial yearly saving of £10.8m. Over 10 years, assuming there is a phase in of the new standard over 3 years at 25% each year and using a 3.5% discount rate the present value benefit of the new standard is **£105.0m** (range £94.7m - £116.5m), which equates to an equivalent annual net saving to business of **£12.2m** (range £11.0m - £13.5m).

136. The total process benefit of rationalising the access standards accounts for 19% of the overall saving. The total process present value benefit of rationalising the access standards totals £19.5m (range £17.6m - £21.7m), which equates to an equivalent annual net saving to business of £2.3m (range £2.0m - £2.5m).

Sensitivity Analysis

137. The central assumption, that take up of the new standards will be at the same level as under the Do Nothing, is subject to considerable uncertainty. So sensitivity analysis has been undertaken to test the impact if uptake is greater or less than the Do Nothing. If the take up outside London is 20% higher than the Do Nothing (ie from 10% to 12% for Lifetime Homes standards and from 1% to 1.2% for Wheelchair Housing Design Guide standard) the present value benefit falls from £105.0m to £66.9m (range £60.3m - £74.2m). If take up outside London is 20% lower than the Do Nothing (ie 8% for LTH and 0.8% for WHDG) then the present value benefit increases to £143.2m (range £129.0m - £158.9m).

General Process and administrative costs

Benefits and Costs

Option 1 – Do Nothing

138. EC Harris have estimated the cost house builders incur as a result of needing to employ staff to ensure new homes comply with the wide range of standards local authorities can require. These process costs are a separate element from the process costs which have been quantified for each individual standard previously. The costs were estimated based on extensive discussions between EC Harris and a steering group of partners representing a wide range of interests including the house builders, local authorities and owners of housing standards and a small consultation to understand the potential overhead process costs for a typical firm. The estimate below seeks to capture the process costs companies face where in-house experts or consultants are employed on a more general basis. An example is a developer employing a “compliance” expert with a remit to ensure each site team comply with the various Code for Sustainable Homes and renewables requirements to ensure there are no costly problems at completion.

139. EC Harris estimated the number of full time staff employed by companies at a range of sizes. The annual wage rate again uses the midpoint of EC Harris' hourly wage rate and the ASHE hourly wage rate which has been scaled up by 30% to account for overheads. The wage rates have been scaled up to annual wage rates by applying a 7.5 hour day and assuming a working year of 220 working days. The annual wage rate ranges from £40,910 based on an hourly wage rate of £19.07 for an architect retrieved from ASHE and £123,750 when using EC Harris' hourly wage rate of £75 for a design manager. Taking the midpoint of the two annual wage rates results in an annual wage rate of £82,330. The number of house builders is based on Office of National Statistics[14] and presents the number of house builders in England. EC Harris suggested that planning authorities are unlikely to apply housing standards to developments of small house builders so we have assumed for this impact assessment that firms with less than 4 employees will not need to employ staff to ensure compliance with housing standards. We will test this assumption during the consultation and consider further the impacts on small firms in future analysis. Table 32 below presents the annual process cost associated with the array of housing standards.

Table 32 – Annual process cost for house builders

		Current Position		
Size of firm (by number employed)	**Number of house builders in England**	**Number of compliance employees per firm (FTE)**	**Total number of compliance employees (FTE)**	**Cost of employing compliance staff**
1	10,301	0	0	-
2 to 3	6,456	0	0	-
4 to 7	2,988	0.05	149	£12,300,105
8 to 13	1,101	0.05	55	£4,532,268
14-24	607	0.15	91	£7,496,148
25-34	202	0.15	30	£2,494,600
35-59	238	0.15	36	£2,939,182
60-79	81	0.75	61	£5,001,549
80-114	76	0.75	57	£4,692,811
115-299	99	0.75	74	£6,113,004
300-599	29	0.75	22	£1,790,678
600-1,199	8	4.00	32	£2,634,561
1,200+	14	4.00	56	£4,610,481
All firms	**22,370**		**663**	**£54,605,386**

140. There is a further current process cost, typically to planning authorities, in receiving and reviewing evidence of compliance. EC Harris based their estimates on the number of hours required by recipient to verify the standard has been correctly complied with. For Secured by Design the Architectural Liaison Officer (ALO) who checks compliance is not a direct cost to developers. However this does represent a cost to police forces, albeit it is uncertain how much of the ALO's time overlaps with other work. EC Harris estimates that there are currently around 179 ALOs in England, most of which work for police forces. For the purposes of this IA we have assumed that one-third of this time will be freed to work on other or related areas.

141. The hourly wage rates will again be the midpoint of the EC Harris database and ASHE plus 30%. EC Harris have assigned an hourly wage rate to a planning officer inspecting work at £60 per hour which will be the high rate. We have found a low hourly wage rate by using a

[14] Construction Statistics - No. 13, 2012 Edition: http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-265604

rate for a town planning officer from ASHE at £22.51, giving a midpoint hourly wage rate of £41.26. Table 33 presents the unit cost of planning authorities inspecting work which complies with the standards required by local authorities.

142. When this is aggregated up to take account of the numbers of dwellings built to the different standards, this gives an initial yearly cost of £7.7m. Over 90% of this cost is for the administration and checking by ALOs for Secured by Design.

Table 33 – Unit cost of planning officers inspecting standards are achieved

	Number of hours	EC Harris wage rate - high	ASHE wage rate - low	Midpoint	Midpoint total cost	Cost per dwelling (50 unit site)	Notes
Secure by Design	6	£60.00	£22.51	£41.26	£248	£4.95	Assumes review of documents + 1 meeting
Lifetime Homes	7.5	£60.00	£22.51	£41.26	£309	£6.19	Review drawings + 1 meeting
HQI	0				£0	£0.00	Not generally assessed under the planning system. HCA review via automated system
LHDG / SPG	7.5	£60.00	£22.51	£41.26	£309	£6.19	Largely assessed as part of the general review of applications, time is extra over this process
Renewables target	6	£60.00	£22.51	£41.26	£248	£4.95	Often a more technical assessment - half day initial review + responding to queries
Wheelchair Housing Design Guide	4	£60.00	£22.51	£41.26	£165	£33.00	Often a more technical assessment (based on 5 dwellings)
Code for Sustainable homes	6	£60.00	£22.51	£41.26	£248	£4.95	Often a more technical assessment

Option 2 – Proposed standard Process and administrative costs

143. EC Harris have estimated the overhead costs in the proposed rationalised system. Table 34 presents EC Harris' estimate of the number of full time employees businesses will have to employ to ensure compliance and understanding of the new standards. As before it is assumed that firms with less than 4 employees will not employ in house experts because they are unlikely to build homes which incorporate housing standards.

Table 34 - Annual process cost for house builders in proposed system

Size of firm (by number employed)	Number of house builders in England	Number of compliance employees per firm (FTE)	Total number of compliance employees (FTE)	Cost of employing compliance staff	*Saving from current system (Compared to table 32)*
1	10,301	0.00	0	-	-
2 to 3	6,456	0.00	0	-	-
4 to 7	2,988	0.04	105	£8,610,074	-£3,690,032
8 to 13	1,101	0.04	39	£3,172,587	-£1,359,680
14-24	607	0.10	61	£4,997,432	-£2,498,716
25-34	202	0.10	20	£1,663,066	-£831,533
35-59	238	0.10	24	£1,959,454	-£979,727
60-79	81	0.40	32	£2,667,493	-£2,334,056
80-114	76	0.40	30	£2,502,833	-£2,189,979
115-299	99	0.40	40	£3,260,269	-£2,852,735
300-599	29	0.40	12	£955,028	-£835,650
600-1,199	8	2.00	16	£1,317,280	-£1,317,280
1,200+	14	2.00	28	£2,305,241	-£2,305,241
All firms	22,370		406	£33,410,757	-£21,194,629

144. Table 34 identifies an annual saving in the region of £21.2m from staff no longer needing to spend the same volume of time understanding and ensuring the firms complies with housing standards. We anticipate that these staff will be allocated productively to other areas of the business.

145. To calculate the total process benefit to house builders over 10 years we have estimated an annual percentage increase in the number of house builders who will gain from option 2. To account for the uncertainty of estimating the growth in the number of builders we have assumed a range in the annual growth of house builders of 0% to 1%, with a central estimate of 0.5% annual growth. The present value benefit from this saving, over ten years and taking into account a phasing in of the new standard over 4 years at 25% per year, has been estimated at £152.1m (range £151.4m - £152.9m) to give an equivalent annual net benefit of £17.7m (range £17.6m - £17.8m). This is assumed to be a benefit to business in this IA.

146. There will be an additional benefit to developers where the simplification and standardisation in build processes will result in efficiency savings in supply chains. Even a small improvement in supply chain processes could achieve a potentially substantial saving. If we assumed a potential 0.1% saving in supply chain costs this could result in an annual saving in the region of £16m[15] based on ONS data on the value of the housing

[15] Figure presented in 2013 prices

market[16]. However, we do not have sufficient evidence to use this number in our summary figures so we are therefore treating this as a non-monetised benefit and will be seeking further information on these benefits during the consultation.

147. For the administrative cost in the proposed system the responsibility of overseeing the implementation of any proposed standards will be building control officers. Building control officers currently inspect housing developments to ensure compliance with Building Regulations. This will mean that responsibility for compliance will move from planning officers to building control officers. This will result in an additional burden to house builders because building control recover any costs they incur for carrying out building control responsibilities. We will again use a range for the hourly wage based on EC Harris' hourly wage rate and ASHE plus 30%.

Table 35 – Range of building control costs in option 2

	Number of hours	EC Harris wage rate - high	ASHE wage rate - low	Midpoint	Midpoint total cost	Cost per dwelling (50 unit site)	Notes
Space	2	£60.00	£18.94	£39.47	£78.94	£1.58	Minimal time – simply an area check
Energy	0	£60.00	£18.94	£39.28	£0.00	£0.00	Existing / proposed Part L only
Water	3	£60.00	£18.94	£39.28	£117.83	£2.36	Only applies where tighter standard selected
Security	4	£60.00	£18.94	£39.28	£157.10	£3.14	Assumes reduced meeting time due to scale economy with wider BC role
Accessibility - Level 1	6	£60.00	£18.94	£39.28	£235.65	£4.71	Assumes small economy due to wider BC role
Accessibility - Level 2	3.5	£60.00	£18.94	£39.28	£137.46	£27.49	Assumes small economy due to wider BC role (based on 5 dwellings)

148. When this is aggregated up based on the number of dwellings built to the new standards this is estimated to give an initial yearly cost of **£5.1m** which is £2.6m less than the Do Nothing cost. The present value benefit over 10 years, assuming a 3 year phase in at 25% per year, at the assumed build rate is **£25.7m** (range £23.2m-£28.6m) and an equivalent annual net benefit of **£3.0m** (range £2.7m - £3.3m).

149. For the purposes of this IA this benefit has not been counted as a benefit to business because 90% of this saving is driven by the saving to the Architectural Liaison Officers

[16] Table 2: http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-283308

(ALO). The reason ALOs account for such a large saving in option 2 is because we have assumed that each ALO spends all of their time working exclusively for SBD in the Do Nothing, and all their time working exclusively on level 2 in option 2. Secondly, the high saving for ALOs could be a result of using an annual salary for the cost of each ALO in the Do Nothing and Option 2. In comparison, the other components of the savings on this section have been based on a cost per dwelling. Given we have used an annual salary and assumed all ALOs spend all of their time working on SBD and level 2 means we could be overestimating the value of time saved. To account for this uncertainty we have not assigned any of this benefit to business and we intend to develop our evidence base further during the consultation period.

Transition cost

150. The number and size breakdown of house builders in England, taken from table 33, plus an estimate for the number of building control offices have been used to estimate the transition cost for this policy. It is assumed that each member of staff who needs familiarisation with the policy will require 3 hours to do so plus an additional 8 hours training. For larger firms a smaller proportion will need to do this, but they will need time for internal training. An average wage rate of £44.40 (mid way between EC Harris estimate of £64.00 per hour and ASHE+ 30% rate of £24.79 for architects) is assumed. Table 36a presents the number of hours house builders will require to familiarise and have staff undergo training. Table 36b presents the cost of familiarisation and the cost of purchasing guidance documents at £44 per copy.

Table 36a – familiarisation and training cost for house builders

Size of firm (by number employed)	Number of house builders in England (estimate)	Average number of staff per firm	% of staff that need to know about change of standards	Number of staff who need to know about new standards	Number of hours to read and familiarise	Number of hours training	Number of hours spent on internal training	Total hours transition time
1	10,301	1.0	100%	1.0	3.0	8.0	0	11
2 to 3	6,456	1.5	100%	1.5	4.5	12.0	0	17
4 to 7	2,988	5.0	80%	4.0	12.0	32.0	0	44
8 to 13	1,101	10.0	50%	5.0	15.0	40.0	0	55
14-24	607	19.0	25%	4.8	14.3	38.0	38.0	90
25-34	202	29.5	15%	4.4	13.3	35.4	35.4	84
35-59	238	47.0	10%	4.7	14.1	37.6	37.6	89
60-79	81	69.5	7%	4.9	14.6	38.9	38.9	92
80-114	76	97.0	7%	6.8	20.4	54.3	54.3	129
115-299	99	172.0	4%	6.9	20.6	55.0	55.0	131
300-599	29	449.5	3%	13.5	40.5	107.9	107.9	256
600-1,199	8	899.5	2%	18.0	54.0	143.9	143.9	342
1,200+	14	1500.0	1%	15.0	45.0	120.0	120.0	285
Total	**22,200**							**1625**

Table 36b – cost of purchasing guidance and the total transition cost

Size of firm (by number employed)	Number of house builders in England (estimate)	Total hours transition time	Familiarisation and training cost (£millions)	Copies of guidance per firm	Cost for full pack of all guidance (£millions)	Total Cost (Guidance + familiarisation and training cost) (£millions)
1	10,301	11	£5.0	1	£0.46	£5.0
2 to 3	6,456	17	£4.7	1	£0.29	£4.7
4 to 7	2,988	44	£5.8	1	£0.13	£5.8
8 to 13	1,101	55	£2.7	1	£0.05	£2.7
14-24	607	90	£2.4	2	£0.05	£2.4
25-34	202	84	£0.8	2	£0.02	£0.8
35-59	238	89	£0.9	2	£0.02	£0.9
60-79	81	92	£0.3	3	£0.01	£0.3
80-114	76	129	£0.4	3	£0.01	£0.4
115-299	99	131	£0.6	4	£0.02	£0.6
300-599	29	256	£0.3	10	£0.01	£0.3
600-1,199	8	342	£0.1	30	£0.01	£0.1
1,200+	14	285	£0.2	30	£0.02	£0.2
Total	**22,200**	**1625**	**£24.4**		**£1.10**	**£24.4**

151. This results in an estimated transition cost to business of **£25.5m** (range £14.7m- £36.3m) and an equivalent annual net cost to business of **£3.0m** (range £1.7m - £4.2m). An estimated 4000 inspectors of regulations will require an estimated 19 hours (3 hours familiarisation, 8 hours training and 8 hours on internal training) of time at an estimated £39.47 per hour (EC Harris £60, ASHE+30% £18.94) plus one guide each, giving a total cost of transition of **£3.2m** (range £1.6m-£4.7m) and an equivalent annual net cost of **£0.4m** (range £0.2m - £0.6m).

152. The total estimated transition cost for businesses and inspectors of regulations is therefore **£28.7m** (range: £16.8m-£38.3m) and an equivalent annual net cost of **£3.3m** (range £2.0m - £4.5m). Given building control functions have the ability to recover their costs of providing a service, which includes transition costs such as training, we have assigned the transition costs initially incurred by building control officers will be passed on to house builders. This means that house builders will incur all of the £28.7m transition cost. A summary of the impacts of option 2 are presents at the end of this impact assessment.

Space

Benefits and Costs

153. As previously explained, the analysis of the impact for the model space standard has not been included in the summary and evidence base as part of Option 2. This is because the consultation has not set out a preferred option and is seeking to explore whether a national standard for space should be considered for inclusion in the Nationally Described Standard at this stage. The evidence base for space is at an earlier stage of development and as set out in the consultation government recognises that more work is needed before firm proposals can be set out. This impact assessment sets out the assumptions to date which we will seek to build on through the consultation process for option 1 (do nothing) and for option 2 (impact of adopting a single national standard). We intend to gather further evidence during the consultation process to enhance our understanding of the impact of a potential space standard.

154. This impact assessment also does not investigate possible space labelling as an option. The consultation document asks respondents for their views on a space labelling option and what this might look like. However, this impact assessment only investigates the impact of a model space standard but has not included the impact in the summary of option 2.

Do Nothing

155. This analysis for the Do Nothing is an initial exploratory cost estimate of the range of space standards currently in place because this evidence base is at an earlier stage of development. There is no single national space standard in use applicable across England and to private and affordable tenures. The current situation in relation to space is therefore a combination of a number of different standards:

- affordable housing – The Homes & Communities Agency's Housing Quality Indicators (HQI) system requires compliance with minimum space standards. Many Registered Providers also require minimum standards within their design brief, often set at a level slightly above the HQI minimum and termed "HQI mid band"
- housing within London – The Housing SPG states minimum space standards for dwellings of all tenures
- private housing outside London – House builders and developers set dwelling areas at a market level either nationally, regionally or scheme by scheme. The area varies by organisation and represents the perceived optimum balance between build cost, land take, achievable revenue and speed of sale
- accessible housing – Where compliance with Lifetime Homes, the Wheelchair Housing Design guide or other similar standards is required this often means that additional space is needed. This is typically set out as a functional requirement rather than a specific area, for example 750mm to one side of a bed. Spatial impacts of these existing standards are dealt with elsewhere within this report.

156. The "current" space standard is indicated in table 37 below. Minimum areas indicated for affordable housing and for private housing within London are based on the published HQI and Housing Supplementary Planning Guidance (SPG) respectively. Typical areas for private housing outside London are based on a survey of eleven schemes. The range of areas for private housing is based on feedback from house builders. Areas for accessible housing are based on EC Harris' experience and feedback from design teams as to the typical area required to accommodate the requirements of the standard.

Table 37 – Average size of property by location and relevant standard

	2B Apartment (2B/4P) m2	2B House (2B/4P) m2	3B House (3B/5P) m2	4B House (4B/6P) m2
Outside London				
Affordable, HQI min	67	67	82	95
Affordable, HQI mid	71	71	84	98
Private, typical	67	72	92	117
Private, range	51-79	55-79	70-121	93-158
London				
All tenures	70	83	96	107
Accessible				
Lifetime Homes	72	73	86.0	99.5
WHDG	87	87	102	119

Note: 2B/4P refers to a 2 bedroom 4 person property. A 4B/6P refers to a 4 bedroom 6 person property.
Note: Private housing outside of London is often focused on the number of bedrooms rather than bed spaces. The private area therefore represents the average of a range of differing bed space occupancies. This issue is dealt with under the proposed space standard section where other variants are tested (e.g. 2B/3P rather than 2B/4P).

London Housing SPG / London Housing Design Guide

157. The London Housing SPG replaced the draft interim London Housing Design Guide in November 2012. Compliance with the Housing SPG is required for dwellings of all tenures constructed within London. The standard is extensive and includes many areas of advice which relate to general good practice or compliance with other essential standards (e.g. advice on noise which is covered by Building Regulations). EC Harris' report concluded that the housing SPG may impose requirements in excess of what would otherwise be industry practice in the following areas:

- space – minimum dwelling areas are stated
- sustainability – compliance with Code for Sustainable Homes Level 4 is required
- floor to ceiling heights – a minimum height of 2.5m is required
- aspect – single aspect dwellings should be avoided, particularly when North facing
- outdoor space – minimum levels of private outdoor space (balconies or external areas) are specified
- circulation – guidance on the number of homes / people sharing an access core.

158. EC Harris suggest it is difficult estimating the cost of compliance for two reasons:

- an element of flexibility is often applied meaning that the precise level of compliance varies from scheme to scheme
- the timing of LHDG coincided with an ongoing change in the type of purchaser within the London market and their demands. In many cases this market change following the 2009 recession resulted in demands matching or part matching those imposed by LHDG, for example larger dwelling areas.

159. The Space section of this impact assessment deals with the space requirements of London SPG/LHDG and compares these to the new proposed standards. The Code for Sustainable Homes section indicates the current costs of compliance with various levels of Code for Sustainable Homes, including level 4 as required under LHDG. The remaining areas of impact vary greatly by scheme type and are best assessed via a case study approach. The most comprehensive review, published by the London Development Agency[17] (costs by Davis Langdon) adopted this approach and arrived at costs as indicated in table 38.

Table 38 – Impacts of London SPG

Item	Approximate cost impact per dwelling	Notes
Floor to ceiling heights	1% Increase	Standard of 2.5m is slightly in excess of developers' usual practice.
Aspect	No change	The majority of the case study schemes complied without cost impact (note - a proportion of single aspect dwellings, excl North facing, are permitted)
Outdoor space	1% Increase	Cost driven by increased balcony sizes for apartments
Circulation	No change	The requirements include an element of flexibility and the majority of the case study schemes complied or could do so at no cost.

160. EC Harris consulted a number of professionals and house builders regarding the impact of the London Housing SPG on schemes and received a wide range of responses. There was a mixture of different views. Key points raised include:

- general agreement that increased balcony sizes are occurring with a cost impact
- general agreement that increased floor to ceiling heights are causing a cost impact aside from within higher value areas
- limited impact for higher quality schemes with higher sales values which represent a reasonably large proportion of the new build market in London
- costs caused by increased floor to ceiling height, restrictions on aspect and limitation of number of dwellings per core, particularly for outer / regeneration areas which would not otherwise have supported all of these features
- a range of schemes across a range of locations, many with no / limited impact and some with impacts as above
- SPG requirements could prevent development of dwelling layouts optimised for the emerging large scale Private Rented Sector.

161. However, EC Harris did not receive evidence of costs and, given the mixed views above, EC Harris have attributed only the floor to ceiling height and outdoor space costs at present. It is currently anticipated that neither of these costs would be changed in any possible national space standard.

[17] Draft London Housing Design Guide: Cost and Delivery Impact Assessment. http://www.google.co.uk/url?sa=t&rct=j&q=London+Development+Agency+costs+by+Davis+Langdon&source=web&cd=1&cad=rja&ved=0CCwQFjAA&url=http%3A%2F%2Fwww.london.gov.uk%2Fsites%2Fdefault%2Ffiles%2FLondon%2520Housing%2520Design%2520Guide%2520Report%2520Pre%2520Publication%2520Draft%252029-3-10.pdf&ei=cKeQUaWbEYnJPLGCgZAF&usg=AFQjCNEXHPHdlYsoi8707oKVNpKA2p06Aw

162. There will be process and administrative burdens for complying with the London SPG. EC Harris concluded that although house builders find SPG an extensive document, there are significant overlaps with usual design practice and other regulations. The additional process cost associated with the document, whilst relatively significant, is therefore less than may be envisaged given its scale. The issues identified as contributing to the process cost included:

    - daylighting calculations which are needed per dwelling (rather than dwelling type) and are in excess of what would be undertaken for other purposes
    - An element of subjectivity, with feedback from partners on compliance often causing multiple design iterations.

163. EC Harris estimate that the London SPG requires 115 hours of process time to comply with the standard. For a 50 dwelling development it is assumed that there will be 100 hours of architect time at a midpoint wage of £49.79 per hour (High £75, Low £24.90) to result in a cost of £4,990; 7.5 hours of Surveyor time at a midpoint wage of £49.40 per hour (High: £75, Low: £23.80) to result in a cost of £370 and 7.5 hours of construction manager time at a midpoint wage of £49.34 per hour (High: £75, Low: £23.68) to result in a cost of £370. This gives a total cost of £5,730 (High: £8,625, Low: £2,835) or a 'per dwelling' cost (rounded) of **£114.60** (High: £172.50, Low: £56.71).

164. Only a portion of this cost, for the purposes of this IA we have estimated 14% or **£16 per dwelling**, will be relevant to the space element of the SPG and so comparable with the space process cost below.

Housing Quality Indicators

165. This is an initial exploratory estimate of costs for implementing Housing Quality Indicators (HQI). HQIs are broad ranging standards required for dwellings funded under the Homes & Communities Agency's Affordable Homes Programme. The programme requires a minimum score to be achieved under the headings of size, layout and services.

166. The HQI requirements under "services" are generally basic and in line with most Registered Providers' (RPs) normal practice. The requirements under "layout" again align to most RPs normal practice and are achievable within the space available provided the "size" criteria is complied with. The requirements under "size" are also generally met or exceeded by RP's standard design briefs.

167. Given the above it is not clear that the HQI standard is currently causing a works cost (ie enforcing a standard above what would otherwise be RPs' usual practice). Based on RPs' historic approach of targeting good quality provision for their customers it is felt that a material reduction in standards would not occur in the absence of the HQI standard. There are however two issues which may impact on this assumption:

    - changes to the ways in which affordable housing is funded
    - in the absence of a reference point RPs and local authorities may find it more difficult to negotiate the current standards for affordable housing delivered under Section 106 agreements.

168. The current assumption is that HQIs are not causing a works cost, therefore only the process cost described below is carried forward. Audit against the HQI standard was considered to be relatively time consuming for the design team and consultant / project manager. Key issues identified were:

    - completion of the form often requires time consuming calculations where a simpler method would otherwise be undertaken, for example
    - calculation of kitchen storage capacities is time consuming; instead a worktop length check would be undertaken

- preparation of furniture layouts is very time consuming; instead a room size / shape check would be adopted
- though only 3 sections of HQI have minimum required scores it is usually a requirement to complete all 10 sections which adds time.

169. The consultants at EC Harris estimate a total of 67.5 hours required to ensure compliance with HQIs. EC Harris estimate a total of 67.5 hours required to ensure compliance with HQIs. It is assumed that an architect will take 60 hours to undertake design work and review for 8 different typologies at a midpoint wage rate of £49.90 (High: £75, Low: £24.79) resulting in a cost of £2,994 and that an employer's agent/quantity surveyor will take 7.5 hours at a wage rate of £49.34 (High: £75, Low £23.68) resulting in a cost of £370, to give a total of £3,364. For a 50 dwelling development, this works out (rounded) at £67 (High: £101, Low: £33) per dwelling. It is estimated that 24% of this time will be spent on space standards amounting to a cost (rounded) of **£16 per dwelling**.

Wheelchair Housing Design Guide

170. The section on Access above presented the EC Harris estimate of the non-space related costs of the Wheelchair Housing Design Guide. This section presents the space aspects of this cost and compares these with the proposed Level 3 costs in the proposed Nationally Described Standard below.

Table 39 – Cost due to space requirement of the Wheelchair Housing Design Guide

	Additional area	Additional cost
2B/4P Apartment	16 m2	£11,882
2B/4P House	16 m2	£14,185
3B/5P House	18.5 m2	£13,445
4B/7P House	25.5 m2	£18,889

B refers to number of bedrooms and P refers to number of person bedspaces

171. The table above presents the EC Harris estimate for the space costs of Wheelchair HDG. These only estimate the build costs due to space and not the effects of density.

Lifetime Homes Space requirement

172. The section on Access above also presented the EC Harris estimate of non-space related costs of the Lifetime Homes standard. EC Harris also estimated the cost of the space requirements in Lifetime Homes. Some dwellings are already sufficiently large to accommodate many features without impact, but where homes are smaller the potential impact is greater. Typically compliance is easier to achieve in flats and larger (4 bed or more) homes, with the impact greatest in 2 and 3 bedroom houses. Based upon previous studies and broader industry experience EC Harris have estimated the area and cost impacts of space standards as indicated within table 40 below. The total cost impact is also presented in table 40, although in this section only the additional cost from space standards is monetised.

Table 40 – Total costs of incorporating Lifetime Homes, including space.

	Additional area	Additional cost	Total cost (works + space)
2B/4P Apartment	1 m2	£742	£1,777
2B/4P House	2 m2	£1,403	£2,447
3B/5P House	2.5 m2	£1,817	£2,866
4B/7P House	1.5 m2	£756	£1,807

Source: EC Harris 2013

173. The cost of building to the space standard over and against an estimated private market cost has then been calculated. For the main analysis an average private market cost has been estimated. For example the extra over cost for a 3 bedroom house beyond a market space cost is £2,907 for building to the London SPG and £7,268 for the Wheelchair Housing Design Guide. For social housing the cost over building to a HQI minimum standard has been estimated at £10,174 (London Housing Design Guide), £14,535 (Wheelchair HDG), £2,907 (Lifetime Homes standard) and £1,090 (HQI Mid band). These have been derived from the basecase column of the Space Standard Build Cost Matrix in the Appendix to the EC Harris report. Sensitivity analysis has been undertaken below to reflect the uncertainty of these exploratory cost estimates.

174. To estimate the total cost of space standards under the Do Nothing, it has been assumed based on estimates of current practice, that in London 90% of homes would be built to London SPG standards with the remaining 10% built to the Wheelchair Housing Design Guide for both private and local authority housing. For private housing outside London the following breakdown has been estimated for illustrative purposes. London SPG standard 5%, Wheelchair HDG standard 1%, Lifetime Homes 10%, HQI Minimum 2.5%, HQI Mid 2.5%, No standard 79%. For local authority/housing association homes it is expected that all homes will need to be built to one of these standards and the following breakdown has been assumed: London SPG 10%, Wheelchair HDG 3%, Lifetime Homes 10%, HQI mid 69% and the remainder HQI Min (8%). It should be noted that in practice there is a risk under the Do Nothing that over the 10 year appraisal period new local authorities will adopt a variety of different space standards which may add considerably to the overall burden and increase these estimates over time. Because of the uncertainty relating to this assumption we have undertaken analysis assuming that actual practice outside London over the period is 20% above these assumptions and 20% below these assumptions.

175. Discussions with industry have suggested that there would be a benefit to house builders from building homes to higher space standards, though this benefit would not cover the entire extra over cost compared with building an optimal market size. For this impact assessment it is assumed that for private housing 70% of the total extra cost would be recoverable by a higher market price, with local authority/housing association properties being valued at four-fifths of this or 56% of the total extra cost.

176. Based on these assumptions the total initial yearly cost of meeting these space standards is **£84.0m**. When the take up assumptions vary between 80% and 120% of this central estimate the range is **£77.8m - £89.8**.

Option of a single model space standard

177. The policy objective set out in this model space standard to consider whether there would be benefits in the introduction of a standardised approach to application of space standards through the development of a national space standard. To assess potential impact a notional methodology has been set out at consultation which looks to rationalise all of the current different space standards into a single approach. This methodology

proposes a model space standard for this consultation which is subject to further development following outputs of the consultation and which the impacts have not been included in the summary and analysis of option 2.

178. The model space standard is split into three levels (L1, L2 and L3) reflecting the three levels of the accessibility standard which are also proposed in this consultation. The proposed three levels of the access standard (see access section) are directly related to the three levels of the space standards proposed for consultation by the working groups. If the government decides to proceed with any of these space propositions, application of higher levels of space standards would be limited to particular circumstances, for instance where the need for higher accessibility standards could be robustly evidenced.. They would not be applicable independently.

179. The purpose of the space standard is to set out a minimum Gross Internal Area (GIA) which is capable of accommodating a standard range of activities, using a standard set of internal furniture and assuming a given number of people are living in that home. The type of home is expressed as a combination of bedrooms (1b = 1 bedroom) and the number of people that can be accommodated by the bed spaces in the dwelling (expressed as p=person bed spaces). A 2 bedroom home with a double and single bedroom would therefore be expressed as 2b3p (two bedrooms, 3 persons).

180. EC Harris have estimated the impacts of the model space standards on new homes. EC Harris produced a full cost model for each of the four dwelling typologies based on plans of actual buildings at or very close to the average area. The cost model was then amended to reflect the proposed standard and the difference recorded. This approach accurately reflects the cost impact which is in percentage terms less than the area change, this is due to the blend of fixed costs (for example kitchen, heating system) and variable costs (for example floor structure and external wall fabric). Further details of the costs arising from this exercise are presented in the Appendix A of EC Harris' report.

181. EC Harris have calculated the difference between the current and model proposed areas for affordable housing. As previously stated there is a variance in current practice between HQI minimum and mid band areas. The comparison for both approaches is therefore indicated.

Table 41 - Affordable housing space standards compared with the model Level 1 space standard

	Current		Proposed	Area change		Cost change	
	Area HQI Min	Area HQI Mid	Area	% change vs min	% change vs mid	% change vs min	% change vs mid
2B/3P Apartment	57	62	60	5%	-3%	3%	-2%
2B/4P Apartment	67	71	69	3%	-3%	2%	-2%
2B/3P House	57	62	68	19%	10%	12%	6%
2B/4P House	67	71	77	15%	8%	10%	6%
3B/4P House	67	71	81	21%	14%	14%	10%
3B/5P House	82	83.5	90	10%	8%	7%	6%
4B/5P House	82	83.5	94	15%	13%	10%	9%
4B/6P House	95	97.5	103	8%	6%	6%	4%
4B/7P House	108	111.5	112	4%	0%	3%	0%

182. The following points are noted in relation to the above table:

- broadly the proposed areas exceed the current HQI minimum area by a reasonably large amount, noting the HQI caveat below on actual build size of affordable housing compared to HQI's
- the proposed areas exceed the commonly adopted HQI mid band area by a much smaller amount and in some cases are slightly below this
- there is a significant difference in the proposed area for 2B/4P and 3B/4P houses due to an anomaly in the way in which these are treated under the current HQI standard (the HQI form allows the same size for all 4 person dwelling types regardless of whether these are 2 or 3 bedrooms or apartments or houses – there is no additional allowance for the staircase in houses). Further work could be undertaken to better establish current practice in response to this anomaly and therefore improve the accuracy of the impact.

183. Table 42 indicates the difference between areas typically required to achieve current accessibility standards and proposed standards for accessible housing. As for the previous table 41 a significant difference arises for the 3 bedroom / 4 persons house type due to the way in which this is treated under the current standards.

Table 42 – Accessible housing space standards compared with model level 2 and 3 standards

	Current		Proposed		Area change		Cost change	
	Lifetime area	WHDG area	Level 2	Level 3	Lifetime to Level 2	WHDG to Level 3	Lifetime to Level 2	WHDG to Level 3
2B/3P Apartment	63	76	61	73	-3%	-4%	-2%	-2%
2B/4P Apartment	72	87	70	87	-3%	0%	-2%	0%
2B/3P House	64	76	74	94	16%	24%	10%	16%
2B/4P House	73	87	83	104	14%	20%	9%	10%
3B/4P House	74	87	87	109	18%	25%	12%	18%
3B/5P House	86	102	96	120	12%	18%	8%	13%
4B/5P House	86	102	100	125	17%	23%	12%	17%
4B/6P House	99.5	119	109	135	10%	13%	7%	10%
4B/7P House	113	137	118	145	4%	6%	3%	5%

184. Table 43 indicates the difference between current and proposed level 1 standards for private housing. As earlier noted the position for London differs due to minimum standards set by the Housing SPG.

Table 43 – Private housing space standards compared with model level 1 space standards

	Current		Proposed	Area change		Cost change	
	England (typical)	London	Area	% change England	% change London	% change England	% change London
2B/3P Apartment	67	61	60	-10%	-2%	-6%	-1%
2B/4P Apartment	67	70	69	3%	-1%	2%	-1%
2B/3P House	72	-	68	-6%	-	-4%	-
2B/4P House	72	83	77	7%	-7%	5%	-5%
3B/4P House	92	87	81	-12%	-7%	-9%	-5%
3B/5P House	92	96	90	-2%	-6%	-2%	-5%
4B/5P House	117	100	94	-20%	-6%	-15%	-4%
4B/6P House	117	107	103	-12%	-4%	-9%	-3%
4B/7P House	117	-	112	-4%	-	-3%	-

185. It should be noted that outside of London private housing areas are generally related to bedrooms rather than bed spaces. The above table therefore compares average areas by number of bedrooms to both the smaller and larger bed space variant within the proposed standard (eg 2 bed compared to 2B/3P and 2B/4P).

186. This is a preliminary assessment of impact at a national level and does not reflect the impact on specific local housing markets where the additional cost of building to a given space standard could be higher or lower, depending on what size and type of property the private sector market would provide in the absence of a space standard. The consultation will seek more detailed evidence in order to establish likely overall impact, and to enable the development of a better method for assessing both overall impact at a national level and the impact on specific local markets for the purposes of viability.

187. EC Harris received feedback from house builders on the lower and higher end ranges for private housing delivered outside of London. These sizes respond to local market conditions and site specific factors. Table 44 below indicates these ranges compared to the proposed level 1 standard.

Table 44 – Private housing space ranges compared with Level 1 model space standard

	Current		Proposed	Area change	
	Lower range	Upper range	Area	% change vs lower	% change vs upper
2B/4P Apartment	51	79	69	35%	-13%
2B/4P House	55	79	77	40%	-3%
3B/5P House	70	121	90	29%	-26%
4B/6P House	93	158	103	11%	-35%

The following points are noted in relation to tables 43 and 44:

- the proposed standards are in some cases greater than current areas in England and in some cases smaller
- although negative figures are indicated it is unlikely that savings would be realised outside of London. Where house builders are currently adopting larger space due to market demand it is likely that they will continue to do so
- where positive figures are indicated above a real cost will occur as house builders would need to adopt the larger standard. In some cases a proportion of this cost is likely to be recoverable via increased sales revenue, however average values on a £/m2 basis are likely to be reduced which may impact negatively on viability. In this impact assessment we shall present a range of the recoverable additional cost assuming 70% of the increased cost is recovered via greater net revenues
- area changes in England are in many cases relatively modest compared to the typical areas arising from EC Harris' survey. However, the changes in comparison to the lower and upper range areas are much more significant indicating that viability impacts for certain schemes may be much greater. It is however assumed that relatively few schemes are built at the very top or bottom of the range. It is also assumed that a full assessment of viability will be undertaken at a local level prior to the introduction of space standards
- within London the proposed standards would represent a small reduction in comparison to the current situation. Some savings may occur, however as described earlier within this report there are differing views as to whether the current LHDG exceeds the optimum market driven area.

188. EC Harris have looked into the wider implications of the model space standard and have reviewed each point in table 45.

Table 45 – wider implications of the proposed space standards

Impact	Position
Sales value	Potential revenue impacts have not been reviewed in detail at this stage. It is likely that some additional cost arising from larger standards could be recovered, however this would be constrained by local markets and may not be proportional to the area (ie the average £/ft2 sales value would fall). Further review of this issue is ongoing for viability purposes separate to the Impact assessment. At present the impact model assumes a net 70% of the additional costs is recovered via sales values.
Density	In certain cases, for example a large site where dwelling numbers are constrained by local infrastructure capacity, it is likely that the relatively small area increases could be accommodated without loss of overall dwelling numbers. In other areas, for example a high density inner city site, even a small increase in dwelling area is likely to result in loss of dwelling numbers. Full review of this issue has not been undertaken however the likely extremes have been identified: • no density impact for unconstrained sites. a reduction in dwelling numbers of circa 1% for the more constrained sites with a typical mix of dwelling types.
Operational costs	Operational or long term ownership costs are also excluded from the "primary impact" model. It is likely that the increase in say maintenance costs associated with the relatively small area impacts under consideration would be limited.

189. The EC Harris costs in the Space Standards Build Cost Matrix (see Appendix of EC Harris report) have been used to estimate the extra over cost for private and affordable housing of Levels 1, 2 and 3. For example, for the private 3 bedroom house for Level 2, the average cost has been estimated as the mid point between the cost for a four person (87m2 at £87,896) and a five person (96m2 at £94,437) dwelling. This gives a mid point of £91,167. This is then compared with the baseline for private (£91,530) and affordable (HQI Min £84,263) housing to give an extra over cost, where the space standard is above the baseline. For the 3 bedroom house this gives an extra over cost for private housing of £16,352 for level 3, with level 2 and level 1 below the average cost of private housing. For the affordable 3 bedroom housing, the extra over cost beyond HQI Min is £2,544 for Level 1, £6,904 for Level 2 and £23,619 for Level 3.

190. As for the Do Nothing, it is assumed that 70% of the value of a house constructed to a higher space standard is recoverable through a higher market price. Based on estimates of take up of the new standards it is assumed that 90% of homes in London would be built to Level 2 and 10% to Level 3 for both affordable and private housing. For private homes outside London it is assumed that 5% would be built to Level 1, 5% to Level 2, and 1% to Level 3. For affordable homes the estimate is 80% to Level 1, 10% to Level 2 and 1% to Level 3. As for the Do Nothing, to reflect the uncertainty associated with this which would be dependent upon viability assessments and decisions by local authorities these have been varied, for homes outside London, in a range of 80%-120%/Maximum of the central take up. For example, the lower estimate for affordable homes assumed 64% Level 1, 8% Level 2, 0.8% Level take up. The upper estimate assumed maximum 120% take up with 86% at Level 1, 12% Level 2,1.2% Level 3. It should be noted however that the Option 2 proposal model would benefit from process and other savings from only one, better evidenced national space standard compared with the Do Nothing where there could be multiple different standards.

191. EC Harris have also estimated the process costs associated with the proposed model space standard. On the basis that a mechanism for type approval (either through planning authorities or building control bodies will be implemented), the process cost associated with the proposed space standards was considered to be very limited. In contrast to the current situation there would be one single standard for each of the three accessibility levels rather than the current variance by location / standard adopted. EC Harris estimate that any space standards would require 8 hours of a project architects time to ensure compliance. Again, we will be using EC Harris' hourly wage rates as the high estimate and the ASHE hourly wage rate as the low estimate.

192. A total of 8 hours of project architect time at £49.90 per hour (High: £75, Low: £24.79) results in a cost of £399 per development or £8 (rounded) per dwelling for the assumed 50 dwelling development.

193. There are no current national standards to compare this process cost against. However, we are able to compare this process cost against HQI and SPG. The proposed £8 process cost compares with £16 per dwelling for the space element of the current HQI standard or current London SPG standards which results in a saving of £8 per dwelling.

Total cost impact of introducing the new space standard option

194. The total extra cost for all house types, including process cost, has been estimated as for the Do Nothing option and gives an initial yearly estimate of **£93.3m**. This is £9.3m more than the Do Nothing. When the take up assumption is 80% -120% of the central estimate this gives an initial yearly estimate range of £83.6m-£98.5m.

195. The net present benefit from lower costs for this option over and against the Do Nothing has been estimated over 10 years, assuming a phase in of the new policy over 3 years at 25% per annum. This results in a net present value cost of **£94.5m** and an equivalent annual net cost of **£11.0m** for the change in space standards. The main driver of the net cost, given these assumptions is the cost of assuming that affordable 2 bedroom and 3 bedroom homes outside of London will be built to Level 1 in the new proposal compared with HQI Mid Band under Do Nothing. A reduction in the cost of Level 1 space requirements would therefore have a considerable impact on the policy impact. We have also not monetised savings likely to arise in 1 bedroom flats, or fully explored savings in the long term which could be realised from a rationalised approach compared with a do nothing scenario of continued proliferation of space standards, both of which need to be further explored but which could improve overall benefits of the policy option.

196. To reflect take up uncertainty, we have estimated an upper and lower range. The lower range assumes 120% of the central take up (outside London) under the Do Nothing and 80% of the central take up for the new model standard to give an equivalent annual net cost of **minus £6.7 million**. The upper cost estimate assumes 80% under the Do Nothing and 120%/Maximum under this option to give an equivalent annual net cost of **£24.0m**. This illustrates that the estimated impact varies considerably according to assumptions about take up.

197. Whilst we have adopted a range of £-6.7 to +£24.0m for the introduction of this model space standard it is clear that the actual impact can vary significantly depending on a range of factors including current industry practice and how the space standard is ultimately designed and implemented. As preliminary figures they suggest the potential for both cost increase and savings and the consultation will seek additional evidence to enable further development and analysis of a model space standard. Whilst government is currently consulting on the basis of no preferred approach, it should be noted that the eventual development of any standard, should future work propose its inclusion following the consultation, would be undertaken with a view to helping to reduce costs for affordable housing where space standards are currently applied

Sensitivity Tests

198. Assumptions about current affordable housing industry practice also need to be further evidenced. We have assumed that all affordable housing is built to the minimum HQI bands. Discussions with Industry suggest that much of current affordable housing is built at 10% above these minimum HQI bands in order to receive higher scores within the HQI assessment process. If we assumed that affordable housing is built to 10% above the minimum level, the initial yearly estimate, calculated as for the Do Nothing, would be £62.0m. This is £35.9m less than the Do Nothing. When the take up assumption is 80%-120% of the central estimate this gives an additional present value benefit of £203m. When the take up assumption is 120%-80% of the central estimate this gives an additional present value benefit of £321m. We will refine these figures using further evidence gathering from industry and at consultation but the initial analysis demonstrates further the range of uncertainty.

199. This estimate is subject to considerable uncertainty according to the assumptions above, especially assumptions around the assumption of the cost of building housing in the absence of a space standard in addition to the proportion of homes being built to different standards under both the Do Nothing and the new Option. It should be stressed that these numbers are exploratory at this stage and it is proposed to develop the evidence base further. Sensitivity testing has been undertaken to adjust the above assumptions.

200. The standards for private housing for both the Do Nothing and the new option above are costed against a baseline of the average private cost from the EC Harris Survey presented in their Space standards Build Cost Matrix. The affordable housing is costed against a baseline of the HQI Min price. A sensitivity was undertaken to assume a lower quartile private cost instead. The proxy for this is a price between the average from the EC Harris survey and the lower end of each size range. For instance, for a 3 bedroom 5 person semi detached house, the average price is £91,530 and the lower quartile estimate is £83,536. This was assumed both for the Do Nothing and for the option. The result was that the present value cost of the policy fell from £115m down to £20m. The second sensitivity was to alter the baseline assumption for affordable housing to the HQI Mid price. This resulted in the £115m present value cost changing to a present value benefit of £15m. These tests illustrate that modifying the assumption on baseline cost has a substantial impact on the outcome, which suggests that further analysis is needed around baseline cost assumptions in the next stage of analysis.

Risks and assumptions

201. The above analysis for consultation has been developed with a particular focus for this stage of analysis on the cost of existing standards and proposed new standards per dwelling. These estimates have been produced by consultants EC Harris and have involved wide ranging discussions with industry representatives. However, there remain uncertainties. For instance there are still a relatively small number of homes which have been built to Code for Sustainable Homes levels 5 and 6. So the cost estimate is less robust for these levels than for earlier levels of the Code. However, with the exception of the Space analysis, these estimates are at a stage where they can be presented as evidence to inform the consultation so that consultees have an opportunity to comment on them and offer alternative costings and evidence as appropriate.
202. The analysis for Space standard proposals is still at an earlier level of development as are the proposals themselves in the Consultation Document. Our intention is that the consultation acts as a call for evidence about the potential impact of space standards on build costs at the moment and about the potential cost implications of including space in a Nationally Described Standard. For this reason the Space impact analysis has not at this stage been included in the monetised Summary Sheet analysis. Exploratory initial analysis has been included, including indicative cost estimates to help inform consultation discussion and seek evidence.
203. The IA has also made a tentative initial attempt to aggregate up these cost estimates using assumptions relating to the number of homes built both a wide range of complex existing standards over the appraisal period and to the new proposed standards included in the Nationally Described Standard. This has involved some higher level assumptions and we are calling for evidence and views in the consultation to help inform the Final impact assessment especially with regard to likely future practice under the Do Nothing. The overall Summary Sheet numbers should therefore be treated with a degree of caution at this stage.

Direct Cost and Benefit to Business Calculations

204. This impact assessment has been deemed to be out of scope for One In Two Out purposes. This is because these standards are not national regulation but are dependent upon being enforced by local authorities.
205. However, the impact on business has been estimated below. The EANC to business is minus £64.0 million.

206. This assumes that the administration process savings are not passed on to business. It may be that some of these savings will be direct to business - we will undertake further work during the consultation.

Summary of Option 2 – business only impacts

	Benefits - Net Present Value (millions)	Equivalent Annual Net Cost (millions)	Process saving - Net Present Value (millions)
Energy - Code	£92.6	£10.8	£39.1
Energy - Renewables	£195.4	£22.7	£2.9
Water	£20.9	£2.4	£2.6
Access	£105.0	£12.2	£19.5
Security	£13.6	£1.6	£0.4
Process - business	£152.1	£17.7	£152.1
Process - administration			
Transition Cost	-£28.7	-£3.3	
Total	**£551.0**	**£64.0**	**£216.6**

207. Excluded from option 2 is the Space analysis which concludes that the equivalent annual net cost for Space Standards in the range of £-6.7m to +£24.0m.

Summary and preferred option with description of implementation plan

208. The proposed option 2 will result in significant process and other savings for business and society with an Equivalent Annual net cost of minus £67.0m as outlined above and in the summary sheet, and an Equivalent Annual net cost to business of minus £64.0m

Summary of Option 2

	Benefits - Net Present Value (millions)	Equivalent Annual Net Cost (millions)	Process saving - Net Present Value (millions)
Energy - Code	£92.6	£10.8	£39.1
Energy - Renewables	£195.4	£22.7	£2.9
Water	£20.9	£2.4	£2.6
Access	£105.0	£12.2	£19.5
Security	£13.6	£1.6	
Process - business	£152.1	£17.7	£152.1
Process - administration	£25.7	£3.0	£25.7
Transition Cost	-£28.7	-£3.3	
Total	**£576.8**	**£67.0**	**£242.4**

209. Further work is needed especially to understand the impact of a possible space element in the Nationally Described Standard. Excluded from option 2 is the Space analysis which concludes that the equivalent annual net cost for Space Standards in the range of £-6.7m to +£24.0m.

Wider Impacts

Small Firms Impact Test

210. The reduction in the number of and simplification of local standards are likely to have a disproportionately beneficial impact on smaller businesses who find it more disruptive to meet a range of complex process requirements than a larger business which can employ specialists to develop expertise to meet standards. It is likely to a higher proportion of overall staff time ensuring that standards are met and liaising with consultants in a small firm. However, we have been cautious in believing that firms with less than 4 employees is likely to build new homes and therefore benefit from the savings generated from the simplification. This initial view will be tested during the consultation and further work undertaken to consider the impact on small firms.

Competition

211. It is not considered that the proposed Nationally Described Standard would have a negative impact on competition. Indeed, a degree of standardisation may which may increase potential competition. The simplification may result in smaller and medium sized firms either entering the market and/or building more homes due to the simplification and rationalisation of housing standards. This is because local housing standards are complex, and often overlap or contradict each other, or contradict parts of the Building Regulations themselves which lead to uncertainty, delay and additional process and material costs for house builders. On top of this each local authority requires its own set of housing standards, in isolation from other authorities and national policy which means house builders have to tailor their housing designs to the requirements of each local authorities housing standards. However, this initial view will be tested and further work undertaken during the consultation.

Environmental

212. The consultation proposes that the Code for Sustainable Homes is wound down. Some homes currently covered in the Code will be absorbed into the Nationally Described Standards set. Other issues, which relate to wider environment in which the dwelling is constructed, may still be covered in planning policies, in line with the National Planning Policy Framework and new suite of planning guidance being prepared following the Planning Practice Guidance review.

213. The proposed policy will mean the Code for Sustainable Homes and on-site renewable targets will no longer be standards available to local authorities, this is because the Building Regulations (Part L: the conservation of fuel and power) will incrementally tighten the energy requirements in both 2013 and 2016. A regulation only approach to energy standards will result in house builders having greater certainty and understanding of the environmental criteria unlike in the current system where they could be required to have a high Code score and/or meet on-site energy requirements which could make some sites becoming economically unviable. The proposed system will still incentivise house builders to innovate and embrace new technologies as they know the environmental requirements of Part L will tighten, but they will have the certainty of knowing the environmental

regulations they will need to build new homes to. Again, this initial view will be tested and further work undertaken during the consultation.

Other Wider Impacts

214. Other wider impacts will be considered further during the consultation and incorporated into the final impact assessment.

DCLG

Housing Standards Review

Potential cost impacts – Summary

June 2013

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Contents

Appendices

1 Executive summary

EC Harris was asked to review the potential cost impact of movement from a number of existing standards to a rationalised set of standards under consideration as part of the Housing Standards Review. The areas under consideration cover the majority of standards regularly imposed on new homes in excess of Building Regulations.

A review of the potential difference in works cost between the existing and proposed standards was undertaken based on 4 typical dwelling typologies. This review was undertaken at a level of detail proportional to a consultation stage impact assessment; further detail may be added for a final impact assessment following consultation. The range of differences in works cost is summarised in table 1.

Table 1 – Current / proposed costs

	Current Standards		Proposed Standards	
	Standard	Range cost / dwelling	Standard	Range cost / dwelling
Accessibility	Lifetime homes	£1,035 to £1,051	Level 2 Access	£389 to £980
	Wheelchair Housing	£12,488 to £13,314	Level 3 Access	£11,758 to £16,220
Security	Secured by Design	£680 to £883	Level 1	£0
			Level 2	£540 to £727
Energy	Code for sustainable homes	£0 to £27,288	Building Regulations	£0
	Planning & energy act	£1,400 to £4,600		
Water	Code (water element)	£0 to £4,643	Base	£0
			Tighter	£43 to £68
General	Housing quality indicators	£0	None	
	London Housing SPG (excl Lifetime / SBD elements)	£750 to £1,800		

We have also undertaken work to assess the direct impact of space standards for dwellings of all tenures. Due to the range of existing standards, some of which are driven by market forces, the results of the space cost comparison are difficult to summarise and the consultation asks for further evidence to help substantiate the analysis to date. However the broad position is that:

- Affordable housing could incur a relatively small cost increase in comparison to existing minimum requirements, but impacts require further analysis against actual construction practice.
- Accessible housing may be impacted, particularly in comparison to existing approaches to compliance which can result in a dwelling area that does not accommodate full occupancy requirements.
- Private housing would incur a differing impact dependent on scheme and location ranging from no impact to a relatively large cost increase. It is assumed that viability testing at local level would influence adoption of the standard – again further analysis is required.

A key issue in addition to works costs arising from standards was the “process” cost associated with the standard. This cost arises from the design and management time spent dealing with each standard and also the added complexity of dealing with multiple, sometimes conflicting, standards. Table 2 summarises the process costs within the current and proposed standards for general needs housing. Specialist housing, for example for wheelchair users, generally incurs a greater process cost.

Table 2 – Current / proposed process costs per dwelling

	Current Standards	Proposed Standards
Costs to house builders	£23 to £838	£12 to £29
Costs to councils etc	£39	£18

Additional wider industry overhead type costs have also been separately identified.

2 Approach overview

EC Harris has been asked to support DCLG's consultation stage impact assessment by identifying:

- Current practice / costs in relation to certain areas of housing standards
- The potential cost impact of the revised standards under consideration

Given the complexity of the issue a level of detail proportional to a consultation stage impact assessment has been agreed. Key features of the agreed approach are indicated in table 3.

Table 3 - Approach

Issue	Approach
Dwelling typologies	Four typologies analysed (2 bed apartment, 2 bed terraced house, 3 bed semi-detached house, 4 bed detached house)
Scheme size	At this stage we have focused our work on estimating costs based on a medium sized development of 50 dwellings. Further work will look at estimating the costs for small, medium and large schemes comprising 5, 50 and 100 dwellings respectively.
Scheme type	Scheme type (urban, rural etc) largely excluded from review aside from consideration under density impacts

The general approach has been to prepare baseline cost models for each dwelling type reflecting current industry practice. A variant cost model has then been prepared reflecting the new standard under consideration. The sources of cost and current practice information are:

- EC Harris' internal cost database which reflects tendered prices across circa £750m of recent residential schemes of varying types, sizes and locations adjusted to UK mean levels.
- Informal consultation of specialist consultants with experience working for house builders.
- Informal consultation of house builders, sub-contractors and suppliers.

Process costs have, wherever possible, been included with the cost for each standard. The cost is based on an estimate of the additional time spent dealing with a standard in excess of the normal design process. This time will generally be incurred by a member of the design team or a developer's design manager / coordinator. Appropriate hourly rates have therefore been selected based on a blend of the rates for these team members. The total cost for a scheme has been divided by the number of dwellings within the scheme (e.g. 50 for the medium size scheme) to arrive at the cost per dwelling. Where specialist reports would be required (e.g. an ecology report), a separate cost has been identified.

It is noted that, due to relevant best practice, DCLG's Impact Assessment will incorporate a mid point between the above "market" approach to time costs and an alternative approach based on the Annual Survey of Hours and Earnings based on standard government methodology.

In addition to the process costs above, a wider consideration of organisational "overhead" type process costs has also been considered separately as explained within section 5 of this report.

Section 3 below summarises findings in relation to the current situation (i.e. the cost of standards currently being applied). Section 4 provides a brief narrative summary of findings under each proposed new standard. A financial summary is appended which is supported by further cost models.

A separate exercise has been undertaken in conjunction with DCLG's in-house economists considering the impacts of the cost changes when scaled up to industry level. This exercise (the consultation stage Impact Assessment) will be provided within a separate model. A final stage Impact Assessment (IA) will subsequently be produced where necessary.

This cost review has attempted to utilise the best available information and reflect common industry approach. The results are believed to be an accurate representation of potential costs to a proportional level of detail. However, we would note that this is a complex issue with wide ranging cost impacts. In particular we would highlight the following challenges:

- Many current standards are longstanding and affect a large proportion of all dwellings delivered. The standards also often amend or enhance an area of specification rather than add an entirely new requirement. Given these points it is difficult to identify the “industry approach” in the absence of the standard and therefore the cost impact should the standard be removed or amended.
- Process costs associated with the standards generally form part of a wider and related process, for example costs associated with Lifetime Homes will occur at various points within the wider design process. There is generally no separate identification of these costs within consultants’ appointment documents or fee schedules. Given these points attempts have been made to extract the proportion of time which is felt to be associated with the standard.
- The estimated extra over costs of the housing standards are based on their costs at 2013. This work cannot estimate the impact of future updates to existing housing standards, nor can this report estimate the impacts of any new standards which could be created in the future if there is a perceived deficiency in the regulations.

3 Current situation

The following headings provide costs in relation to compliance with the current standards as set out for consideration by DCLG:

- Secured by design – New Homes 2010 – Section 2: Physical Security
- Lifetime Homes
- Housing Quality Indicators
- London Housing Design Guide
- The Planning and Energy Act
- Wheelchair Housing Design Guide
- Code for Sustainable Homes

Where relevant cost data has been published by others a comment is included as to the comparison between this data and our current figures. To avoid excessively long tables the sections below provide data for the medium size scheme, appendices provide data for small and large scheme types.

3.1 Secured by Design

Works costs

Section 2 of the Secured by Design (SBD) standard relates to physical security. It can be required as a condition of planning consent or can be selected to achieve credits under Code for Sustainable Homes. Achievement of Secured by Design certification is also a factor taken into account for receiving support under the Affordable Homes programme run by the Homes and Communities Agency. Elements of the standard are also required under the London Housing Design Guide. Section 1 of the SBD standard relates to layout and design and has been confirmed as being outside the scope of this review.

Where SBD is not applied by the above routes it is typical that a differing specification will be adopted. Table 4 therefore indicates the cost of SBD as the difference between this “industry practice” standard and the SBD standard.

The costs have been calculated by review of a sample of projects to generate average rates for the relevant items. Costs indicated include both internal items such as front & rear doors and alarm provision and external items such as lighting. Certain items which are very commonly encountered, for example communal cycle storage security to apartments, have been included but may not feature in every scheme. A full breakdown of the calculation is included at appendix D.

It is noted that certain costs forming part of the SBD cost can be considered as arising from other requirements, for example security to the home office is driven by the home office requirement within Code for Sustainable Homes. For the purposes of this exercise, and to avoid double counting, costs such as this have been retained within the SBD costs rather than other areas. However, we recognise that SBD propose to review these requirements in future updates of their standard.

Table 4 – Secured by design

	Industry practice	SBD compliant	Difference (cost to achieve SBD)
2B Apartment	£1,797	£2,470	£673
2B House	£2,717	£3,506	£789
3B House	£2,717	£3,506	£789
4B House	£3,393	£4,276	£883

Process costs

SBD Section 2 was generally agreed to be one of the more straightforward standards. Common issues contributing to process costs were identified as:

- Sourcing appropriate components and managing certification / evidence of compliance.
- An element of non-linear process due to some subjectivity in judging compliance (i.e. the design team would make a proposal, receive comment, make a revised proposal and possibly repeat these steps).
- Some checks / calculations / measurements which would not be required within the normal design process.
- Typically several written / telephone exchanges plus one meeting.

The typical process cost associated with a medium sized scheme is indicated in table 5.

Table 5 – SBD Process

Activity	Time (hrs)	£/hr	Total
Design / specification work, correspondence, meeting	15	£75	£1,125
Total			**£1,125**
	Medium scheme nr dwellings		50
		£/dwelling	£23

Other reports

The works costs have been compared to the 2010 report “Capital Costs of Secured by Design Accreditation” prepared by Davis Langdon (DL). The DL report indicates lower costs to achieve SBD, primarily due to the following:

- Several items such as security to cycle storage and home office provision are excluded from the DL report. These items are part of the standard when provided and, in our experience, do feature in most developments and therefore should form part of the cost. We do however also understand from SBD that these have been adopted as a result of Code requirements, and may not be retained within future revisions of SBD.
- The DL report assumes that rear PIR or photo cell lighting is provided in the “industry practice” base case. This is not in line with our experience which is that rear lighting would only be provided when required by SBD and hence represents an additional cost. A rear light is not required under NHBC standards.
- The DL report assumes lower costs for laminated glazing and PAS23/24. These costs are not in line with our experience as to what is achievable in the market.

3.2 Lifetime Homes

Lifetime Homes is a standard relating to adaptability of homes for users’ changing needs. The standard can be required as a condition of planning consent or can be selected to achieve credits under the Code for Sustainable Homes. Compliance is required for all dwellings as part of the London Housing Design Guide and is encouraged for dwellings funded under the Homes & Communities Agency’s Affordable Homes Programme.

Table 6 indicates the costs of complying with the Lifetime Homes standard in excess of usual industry practice. The costs have been calculated based on our experience across a number of schemes.

Table 6 – Lifetime Homes

	Lifetime Homes (works cost)
2B Apartment	£1,035
2B House	£1,044
3B House	£1,049
4B House	£1,051

Note that the above table excludes the costs of additional space required to achieve Lifetime Homes (i.e. making the dwelling larger). The additional space required space required to meet the Lifetime Homs standard can vary considerably. Some dwellings are already sufficiently large to accommodate many features without impact, but where homes are smaller the potential impact is greater. Typically compliance is easier to achieve in flats and larger (4 bed or more) homes, with the impact greatest in 2 and 3 bedroom houses.

Based upon previous studies and broader industry experience we have estimated the area and cost impacts of space standards as indicated within table 6a. The total cost impact is therefore the addition of the figures from table 6 and 6a. Later sections of this report highlight the way in which house builders can recover a proportion of the costs of building larger properties via greater sales prices. It is likely that, in certain cases, some of the costs associated with building larger homes suitable for Lifetime Homes standards can be recovered in this way. This report does not attempt to quantify this cost recovery. Further work may be undertaken on this point following the results of consultation.

Table 6a – Lifetime Homes area additions, costs and total costs including works and area costs

	Additional area	Additional cost	Total cost (works + space)
2B/4P Apartment	1 m2	£742	£1,777
2B/4P House	2 m2	£1,403	£2,447
3B/5P House	2.5 m2	£1,817	£2,866
4B/7P House	1.5 m2	£756	£1,807

Lifetime Homes standards have also been used as an important consideration in developing existing space standards, this is reviewed under section 3.8 and 4.1 of this report.

Process costs

Lifetime Homes was considered to be a complex issue with process costs throughout the design and delivery phases. Issues forming part of the process cost included:

- Challenging to get a compliant design right first time, even for experienced architects within large practices. Often therefore a level of re-design required.
- All aspects of the standard largely outside of usual industry practice, therefore all “extra over” time.
- The same amount of time required for each house type (rather than scheme) which adds up to a significant cost where there are many house types.
- Requirement for careful management during the delivery phase ensuring attention paid to details which would not otherwise be material.
- Differing local authority requirements for evidencing of compliance and differing views on what is compliant.

- Time consuming to deal with external elements, particularly for sloping sites (note – costs below assume relatively level site).

The typical process cost associated with a medium sized scheme is indicated in table 7.

Table 7 – Lifetime Homes process

Activity	Time (hrs)	£/hr	Dwelling types (nr)	Total
Design work, review and specification (per typology)	7.5	£75	8	£4,500
External areas design work (per scheme)	15	£75		£1,125
Design management during delivery phase (per typology)	4	£64	8	£2,048
Total				**£7,673**
			Medium scheme nr dwellings	50
			£/dwelling	£153

Other reports

The most relevant published cost data is the 2012 Building Cost Information Service (BCIS) report Assessing the Cost of Lifetime Homes Standards. This report includes the cost of additional space based on 2008 standards rather than the later 2010 update including additional requirements for circulation which need to be updated to allow a like for like comparison with the EC Harris costs. Once this is done the BCIS costs are similar aside from the following relatively minor differences:

- We have assumed that central parking courts for apartments will need additional accessible parking space rather than future provision for this. In our experience this is the most common approach (for houses we have allowed for future provision).
- Our costs for strengthening to W/C and bathroom walls are slightly greater.
- We have allowed for ceiling strengthening for a single track hoist route which is excluded from the BCIS cost.
- BCIS costs include for the through the floor lift aperture.

3.3 Housing Quality Indicators

Housing Quality Indicators (HQI) is a broad ranging standard required for dwellings funded under the Homes & Communities Agency's Affordable Homes Programme. The programme requires a minimum score to be achieved under the headings of size, layout and services.

The HQI requirements under "services" are generally basic and in line with most Registered Providers' (RPs) normal practice. The requirements under "layout" again align to most RPs normal practice and are achievable within the space available provided the "size" criteria is complied with. The requirements under "size" are also generally met or exceeded by RP's standard design briefs.

Given the above it is not clear that the HQI standard is currently causing a works cost (i.e. enforcing a standard above what would otherwise be RPs' usual practice). Based on RPs' historic approach of targeting good quality provision for their customers it is felt that a material reduction in standards would not occur in the absence of the HQI standard. There are however two issues which may impact on this assumption:

- Should the grant funding environment continue to tighten RPs may find the need to make further savings
- In the absence of a reference point RPs and Local Authorities may find it more difficult to negotiate the current standards for affordable housing delivered under Section 106 agreements.

The current assumption is that HQIs are not causing a works cost, therefore only the process cost described below is carried forward.

Process costs

Audit against the HQI standard was considered to be relatively time consuming for the design team and consultant / project manager. Key issues identified were:

- Completion of the form often requires time consuming calculations where a simpler method would instead otherwise be undertaken, for example:
    - Calculation of kitchen storage capacities is time consuming; instead a worktop length check would be undertaken.
    - Preparation of furniture layouts is very time consuming; instead a room size / shape check would be adopted.
- Though only 3 sections of HQI have minimum required scores it is usually a requirement to complete all 10 sections which adds time.

The typical process cost associated with a medium sized scheme is indicated in table 8.

Table 8 – HQI process

Activity	Time (hrs)	£/hr	Dwelling types (nr)	Total
Design work and review (per typology)	7.5	£75	8	£4,500
Consultant formal HQI audit (per scheme)	7.5	£75		£563
Total				**£5,063**
		Medium scheme nr dwellings		50
		£/dwelling		£101

Other reports

We have not located any recent reports highlighting a cost impact of HQIs.

3.4 Housing SPG / London Housing Design Guide

The London Housing SPG replaced the draft interim London Housing Design Guide in November 2012. Compliance with the Housing SPG is required for dwellings of all tenures constructed within London. The standard is extensive and includes many areas of advice which relate to general good practice or compliance with other essential standards (e.g. advice on noise which is covered by Building Regulations).

Based on our experience to date of working with LHDG the key areas in which it may impose a requirement in excess of what would otherwise be industry practice are:

- Space – minimum dwelling areas are stated
- Sustainability – compliance with Code for Sustainable Homes Level 4 is required
- Floor to ceiling heights – a minimum height of 2.5m is required
- Aspect – single aspect dwellings should be avoided, particularly when North facing
- Outdoor space – minimum levels of private outdoor space (balconies or external areas) are specified
- Circulation – guidance on the number of homes / people sharing an access core

Assessment of the cost of compliance with the above requirements is difficult for two reasons:

- An element of flexibility is often applied meaning that the precise level of compliance varies from scheme to scheme.
- The timing of LHDG coincided with an ongoing change in the type of purchaser within the London market and their demands. In many cases this market change following the 2009 recession resulted in demands matching or part matching those imposed by LHDG, for example larger dwelling areas.

The Space section of this report deals with the space requirements of LHDG and compares these to the new proposed standards. The Code for Sustainable Homes section indicates the current costs of compliance with various levels of Code for Sustainable Homes, including level 4 as required under LHDG. The remaining areas of impact vary greatly by scheme type and are best assessed via a case study approach. The most

comprehensive review, published by the London Development Agency (costs by Davis Langdon) adopted this approach and arrived at costs as indicated in table 9.

Table 9 – Housing SPG

Item	Approximate cost impact per dwelling	Notes
Floor to ceiling heights	1% Increase	Standard of 2.5m is slightly in excess of developers' usual practice.
Aspect	No change	The majority of the case study schemes complied without cost impact (note - a proportion of single aspect dwellings, excl North facing, are permitted)
Outdoor space	1% Increase	Cost driven by increased balcony sizes for apartments
Circulation	No change	The requirements include an element of flexibility and the majority of the case study schemes complied or could do so at no cost.

We have consulted a number of professionals and housebuilders regarding the impact of the Housing SPG on schemes and received a wide range of responses. Key points raised include:

- General agreement that increased balcony sizes are occurring with a cost impact.
- General agreement that increased floor to ceiling heights are causing a cost impact aside from within higher value areas.
- Limited impact for higher quality schemes with higher sales values which represent a reasonably large proportion of the newbuild market in London.
- Costs caused by increased floor to ceiling height, restrictions on aspect and limitation of number of dwellings per core, particularly for outer / regeneration areas which would not otherwise have supported all of these features.
- A range of schemes across a range of locations, many with no / limited impact and some with impacts as above.
- Concern raised that the SPG requirements are preventing development of dwelling layouts optimised for the emerging large scale Private Rented Sector.

We have not yet received evidence of costs and, given the mixed views above, have attributed only the floor to ceiling height and outdoor space costs at present. The results of this exercise are indicated within table 10. The impact assessment model also assumes that a proportion of the additional costs could be recovered via increased sales values.

Table 10 – Housing SPG costs

	Floor to ceiling heights	Outdoor space	Total housing SPG (works)
2B Apartment	£900	£900	£1,800
2B House	£750	-	£750
3B House	£920	-	£920
4B House	£1,160	-	£1,160

Note - To avoid double counting only the costs not included elsewhere within this report are included above. It is however noted that the SPG includes space standards and requirements corresponding to Secured by Design, Lifetime Homes and Wheelchair Housing all of which are dealt with elsewhere within this report.

Process costs

The Housing SPG is an extensive document but does include overlap with usual design practice and other regulations. The additional process cost associated with the document, whilst relatively significant, is therefore less than may be envisaged given its scale. The issues identified as contributing to the process cost included:

- Daylighting calculations which are needed per dwelling (rather than dwelling type) and are in excess of what would be undertaken for other purposes
- An element of subjectivity, with feedback from stakeholders on compliance often causing multiple design iterations

The typical process cost associated with a medium sized scheme is indicated in table 11.

Table 11 – Housing SPG process

Activity	Time (hrs)	£/hr	Dwellings	Total
Dwelling specific work / calculations (e.g. daylight)	2	£75	50	£7,500
General design review / work	15	£75		£1,125
Total				**£8,625**
			Medium scheme nr dwellings	50
			£/dwelling	£173

Note – Lifetime Homes and Wheelchair Housing Design Guide elements included with the Housing SPG are excluded above to avoid double counting with separate sections elsewhere.

3.5 The Planning and Energy Act

The Planning and Energy Act (2008) enables local authorities to set policies asking for a proportion of energy used in developments in their area to be from renewable or low carbon energy sources. Requirements vary from area to area and not all Councils have a requirement. However the most common requirements in our experience are either 10 or 20% renewable energy, typically alongside a separate requirement to meet Code for Sustainable Homes level 3 or above. The technology to achieve this requirement varies dependent on site specific factors and could include for example photovoltaic (PV) panels, ground source heat pumps or wind turbines with PV panels being the most common approach. The costs of compliance based on a selection of recent projects are indicated in table 12 (all costs in addition to 2010 Part L).

Table 12 – The Planning and Energy Act

	Energy (works) 10%	Energy (works) 20%
2B Apartment	£1,560	£3,120
2B House	£1,400	£2,800
3B House	£1,850	£3,608
4B House	£2,400	£4,600

Process costs

Renewable energy obligations were generally considered to represent a relatively limited process cost. The key issues to be dealt with included:

- Additional design time to develop proposals.

- Dealing with potential conflict with other related regulation (e.g. Building Regulations Part L or Code for Sustainable Homes).

The typical process cost associated with a medium sized scheme are indicated in table 13.

Table 13 – The planning and energy act, process costs

Activity	Time (hrs)	£/hr	Total
Design / specification work	15	£75	£1,125
Total			**£1,125**
		Medium scheme nr dwellings	50
		£/dwelling	£23

3.6 Wheelchair Housing Design Guide

The Wheelchair Housing Design Guide (WHDG) is a standard to allow full accessibility and use by wheelchair users. It is commonly referred to within Councils' planning policy, requiring a proportion of dwellings to comply (most commonly 10%). Examples of items contributing to the cost of WHDG compliance include:

- Adaptions to kitchens and bathrooms such as adjustable height worktops and accessible shower enclosures.
- Increased requirements for circulation and activity in all habitable areas to meet wheelchair users' needs.
- Aids to allow use of fittings such as remote winders for windows.
- A covered car parking space (e.g. a car port) to allow dry exit and transfer to the vehicle.

The works costs of compliance with the WHDG (excluding space impacts) in excess of a standard dwelling have been calculated as indicated in table 14 based on our experience of this standard across a number of schemes.

Table 14 – WHDG works cost

	WHDG (works)
2B Apartment	£13,314
2B House	£12,488
3B House	£13,031
4B House	£13,170

The following points are noted:

- The above cost excludes the cost of additional space required to achieve WHDG compliance. Typically it is estimated that compliance increases the area of a dwelling by between 20-25%.
- We are aware that a number of local authorities apply what are sometimes considered to be more costly standards for wheelchair housing. At present we have not reviewed works costs for each standard in detail but have received feedback on the difficulties caused by varying standards in terms of process costs below.
- The above costs include fully fitted out dwellings which are required under most planning consents. However, in certain cases an adaptable dwelling is accepted which, for example, reduces cost by not installing an accessible kitchen.

Table 14a indicates the typical additional area associated with compliance with the WHDG in excess of general needs housing. The total cost impact is therefore the addition of the figures from table 14 and 14a. It is noted that, in instances where the dwelling is for private sale, an element of this additional cost may be recoverable via increased sales revenue though this is not accounted for in the figures at this stage.

Table 14a – WHDG additional space costs

	Additional area	Additional cost
2B/4P Apartment	16 m2	£11,882
2B/4P House	16 m2	£14,185
3B/5P House	18.5 m2	£13,445
4B/7P House	25.5 m2	£18,889

Process costs

The WHDG was considered to incur a high process cost, largely due to the complexity of the document. Key issues raised as causing the cost included:

- Extensive time to navigate, review and interpret the document.
- Generally a bespoke review needed for each dwelling typology – little opportunity for learning / scale benefits.
- Often a negotiation / review process with external stakeholders causing re-design as differing views incorporated.

The typical process cost associated with a medium sized scheme is indicated in table 15.

Table 15 – WHDG process

Activity	Time (hrs)	£/hr	Dwelling types (nr)	Total
Design work, review and specification (per typology)	15	£75	3	£3,375
Design / delivery management during delivery phase (per typology)	7.5	£64	3	£1,440
Total				**£4,815**
		Medium scheme nr wheelchair dwellings		5
		£/dwelling		£963

Note – A medium sized scheme of 50 dwellings in an area with an accessibility planning condition would usually include 5 wheelchair dwellings, within which there may be between 1 and 5 differing typologies. We have selected 3 dwelling types as a typical figure.

We also received feedback that other alternative and less common wheelchair housing standards would incur a process cost perhaps 25% greater than the above due to additional unfamiliarity with the standard.

3.7 Code for Sustainable Homes

The Code for Sustainable Homes (CfSH) is commonly required under planning consents at levels 3 or 4. Compliance with level 3 is required for dwellings funded under the Homes & Communities Agency's Affordable Homes Programme. Level 4 must be achieved for schemes within London under the London Housing Design Guide.

Table 16 indicates the cost of compliance with CfSH levels 1-6 in excess of Building Regulations (2010 Part L). Levels 1 and 2 are not considered to be in excess of Building Regulations / normal practice, the cost is therefore only a process one. Code levels 5 and 6 are relatively uncommon and costs vary widely by scheme, the averages below should therefore be treated with caution.

Table 16 – Code for sustainable homes

	2B Apartment	2B House	3B House	4B House
Level 1	£75	£0	£0	£0
Level 2	£75	£75	£75	£75
Level 3	£118	£143	£143	£143
Level 4	£1,437	£1,712	£2,147	£2,432
Level 5	£16,288	£18,432	£18,867	£19,246
Level 6	£20,223	£29,122	£29,992	£30,656

Note – the costs in the table above include the costs of Secure by Design and Lifetime Homes at levels 5 and 6 as these are generally cost effective methods of achieving credits. The consultation impact assessment includes these costs separately and therefore removes them from the Code costs to avoid double counting.

Process costs

Process associated with CfSH can be extensive and can include:

- Undertaking technical calculations, for example related to energy or water use
- Collating and reviewing compliance evidence, for example light fitting specifications, materials traceability
- Specialist consultant reports, for example relating to daylighting and ecology

These process costs are fully itemised in Appendix B and summarised in table 17. The final row relates to the cost to achieve certification for each dwelling and is charged by the Building Research Establishment.

Table 17 – Code for sustainable homes process

	2B Apartment	2B House	3B House	4B House
Level 1	£139	£139	£139	£139
Level 2	£139	£139	£139	£139
Level 3	£150	£150	£150	£150
Level 4	£163	£163	£163	£163
Level 5	£328	£328	£328	£328
Level 6	£328	£328	£328	£328
BRE fee	£37	£37	£37	£37

Other reports

The most relevant published data in relation to CfSH costs is the 2011 DCLG / Davis Langdon report Cost of Building to the Code for Sustainable Homes: Updated Cost Review. This report indicates slightly higher costs than the above table for Code levels 1-4, this is in line with what would be expected given further technological development / industry familiarisation between 2011 and 2013. The costs for levels 5-6 are broadly similar to the above reflecting what remains an unusual standard to achieve.

3.8 Current space

There is no single national space standard in use applicable across England and to private and affordable tenures. The current situation in relation to space is therefore a combination of a number of different standards:

- Affordable housing – The Homes & Communities Agency's Housing Quality Indicators (HQI) system requires compliance with minimum space standards. Many Registered Providers also require minimum standards within their design brief, often set at a level slightly above the HQI minimum and termed "HQI mid band". For the purposes of the impact assessment model it has been assumed that a proportion of developments (for example those delivered under S106 agreements) adopt HQI minimum areas with the remainder adopting HQI mid band.
- Housing within London – The Housing SPG states minimum space standards for dwellings of all tenures.
- Private housing outside London – Housebuilders and developers set dwelling areas at a market level either nationally, regionally or scheme by scheme. The area varies by organisation and represents the perceived optimum balance between build cost, land take, achievable revenue and speed of sale.
- Accessible housing – Where compliance with Lifetime Homes, the Wheelchair Housing Design guide or other similar standards is required this often means that additional space is needed. This is typically set out as a functional requirement rather than a specific area, for example 750mm to one side of a bed. Spatial impacts of these existing standards are dealt with elsewhere within this report.

The "current" space standard is indicated in table 18. Areas indicated for affordable housing and for private housing within London are based on the published HQI and Housing SPG respectively. Typical areas for private housing outside London are based on a survey of eleven schemes. The range of areas for private housing is based on feedback from home builders. Areas for accessible housing are based on our experience and feedback from design teams as to the typical area required to accommodate the requirements of the standard.

Table 18 – Space standards

	2B Apartment (2B/4P) m2	2B House (2B/4P) m2	3B House (3B/5P) m2	4B House (4B/6P) m2
Outside London				
Affordable, HQI min	67	67	82	95
Affordable, HQI mid	71	71	84	98
Private, typical	67	72	92	117
Private, range	51-79	55-79	70-121	93-158
London				
All tenures	70	83	96	107
Accessible				
Lifetime Homes	72	73	86.0	99.5
WHDG	87	87	102	119

Note:

- Private housing outside of London is often focused on the number of bedrooms rather than bedspaces. The private area therefore represents the average of a range of differing bedspace occupancies. This issue is dealt with under the proposed space standard section where other variants are tested (e.g. 2B/3P rather than 2B/4P).
- It is generally agreed that there is an anomaly in the current HQI areas for 4 person (the HQI form allows the same size for all 4 person dwelling types regardless of whether these are 2 or 3 bedrooms or apartments or houses).

Process costs

Process costs for current space standards are included within the regulation causing the space standard to be adopted, for example HQI or Lifetime Homes.

4 Proposed standards

The following sections indicate the likely costs of compliance with the proposed new standards. It should be noted that DCLG's consultation impact assessment does not monetise the impacts of space in the proposed option. This is because the consultation impact assessment is not making a firm proposal for a specific space standard but is putting forward a possible model space standard for consideration at the consultation stage.

Where proposed new standards relate directly to an existing standard (e.g. current Lifetime Homes vs proposed new Access Level 2) a direct comparison of costs has been made.

4.1 Space

4.1.1 Review process and results

A review was undertaken to identify the difference between current dwelling sizes and proposed space standards. The approach to defining "current" space standards is explained under section 3.8 of this report.

The consultation includes proposals for a model space standard, and a detailed description of the way in which the minimum areas for different dwelling types have been calculated is set out within the separate standards document. Typically the resultant space requirement combines a full set of standard furniture, assumes that properties are fully occupied (every bed space is occupied), assumes requirements for space need per occupant to undertake day to day activities (such as dining or socialising) and adds further space required to meet the relevant access standards.

It is a combination of the above requirements which drives the minimum areas set out in the three levels of the proposed space standard – it is often possible to meet the functional requirements of the proposed access standards independently of a space standard and in smaller areas than indicated. Once furniture and occupancy are added, the overall impact is larger than the requirements of the access standard alone.

Assessing the likely cost impact of a space standard is dependent on the existing standard led by market forces or regulation as described under section 3.8 of this report. Due to large variations we have tested the impact compared to both a typical dwelling area and a range of lower and higher sizes.

Cost calculation

A full cost model was prepared for each of the four dwelling typologies based on plans of actual buildings at or very close to the average area. The cost model was then amended to reflect the proposed standard and the difference recorded. This approach accurately reflects the cost impact which is in percentage terms less than the area change, this is due to the blend of fixed costs (for example kitchen, heating system) and variable costs (for example floor structure and external wall fabric). Further details of the costs arising from this exercise are included at appendix A.

Table 19 indicates the difference between current and proposed areas for affordable housing. As stated within the earlier section of this report there is variance in current practice between HQI minimum and mid band areas. The comparison for both approaches is therefore indicated.

Table 19 – Affordable space standards compared with proposed Level 1 standard

	Current		Proposed	Area change		Cost change	
	Area HQI Min	Area HQI Mid	Area	% change vs min	% change vs mid	% change vs min	% change vs mid
2B/3P Apartment	57	62	60	5%	-3%	3%	-2%
2B/4P Apartment	67	71	69	3%	-3%	2%	-2%
2B/3P House	57	62	68	19%	10%	12%	6%
2B/4P House	67	71	77	15%	8%	10%	6%
3B/4P House	67	71	81	21%	14%	14%	10%
3B/5P House	82	83.5	90	10%	8%	7%	6%
4B/5P House	82	83.5	94	15%	13%	10%	9%
4B/6P House	95	97.5	103	8%	6%	6%	4%
4B/7P House	108	111.5	112	4%	0%	3%	0%

The following points are noted in relation to the above table:

- Broadly the proposed areas exceed the current HQI minimum area by a reasonably large amount, noting the HQI caveat below. However, it is also noted that current sizes constructed by the registered provider industry also exceed the HQI minimum, the consultation will call for further evidence on this point.
- The proposed areas exceed the commonly adopted HQI mid band area by a much smaller amount and in some cases are slightly below this.
- There is a significant difference in the proposed area for 2B/4P and 3B/4P houses due to an anomaly in the way in which these are treated under the current HQI standard (the HQI form allows the same size for all 4 person dwelling types regardless of whether these are 2 or 3 bedrooms or apartments or houses – there is no additional allowance for the staircase in houses). Further work could be undertaken to better establish current practice in response to this anomaly and therefore improve the accuracy of the impact.

Table 20 indicates the difference between areas typically required to achieve current accessibility standards and proposed standards for accessible housing. It is noted that a proportion of the cost arising from any additional area is likely to be able to be recovered from increased revenue. Though this issue has not been explored at this stage, many of the points from the text on page 21 in relation to cost recovery for general space standards will be applicable. As for table 19 a significant difference arises for the 3B/4P house type due to the way in which this is treated under the current standards.

Table 20 – Accessible housing space standards compared with proposed level 2 and 3 standards

	Current		Proposed		Area change		Cost change	
	Lifetime area	WHDG area	Level 2	Level 3	Lifetime to Level 2	WHDG to Level 3	Lifetime to Level 2	WHDG to Level 3
2B/3P Apartment	63	76	61	73	-3%	-4%	-2%	-2%
2B/4P Apartment	72	87	70	87	-3%	0%	-2%	0%
2B/3P House	64	76	74	94	16%	24%	10%	16%
2B/4P House	73	87	83	104	14%	20%	9%	10%
3B/4P House	74	87	87	109	18%	25%	12%	18%
3B/5P House	86	102	96	120	12%	18%	8%	13%
4B/5P House	86	102	100	125	17%	23%	12%	17%
4B/6P House	99.5	119	109	135	10%	13%	7%	10%
4B/7P House	113	137	118	145	4%	6%	3%	5%

Table 21 indicates the difference between current and proposed level 1 standards for private housing. As earlier noted the position for London differs due to minimum standards set by the Housing SPG.

Table 21 – Private housing space standards compared with proposed level 1 space standards

	Current		Proposed	Area change		Cost change	
	England (typical)	London	Area	% change England	% change London	% change England	% change London
2B/3P Apartment	67	61	60	-10%	-2%	-6%	-1%
2B/4P Apartment	67	70	69	3%	-1%	2%	-1%
2B/3P House	72	-	68	-6%	-	-4%	-
2B/4P House	72	83	77	7%	-7%	5%	-5%
3B/4P House	92	87	81	-12%	-7%	-9%	-5%
3B/5P House	92	96	90	-2%	-6%	-2%	-5%
4B/5P House	117	100	94	-20%	-6%	-15%	-4%
4B/6P House	117	107	103	-12%	-4%	-9%	-3%
4B/7P House	117	-	112	-4%	-	-3%	-

Note – Outside of London private housing areas are generally related to bedrooms rather than bedspaces. The above table therefore compares average areas by number of bedrooms to both the smaller and large bedspace variant within the proposed standard (e.g. 2 bed compared to 2B/3P and 2B/4P).

As described earlier we have also received feedback from house builders on the lower and higher end ranges for private housing delivered outside of London. These sizes respond to local market conditions and site specific factors. Table 21a below indicates these ranges compared to the proposed level 1 standard.

Table 21a – Private housing space ranges compared with Level 1 space standard

	Current		Proposed	Area change	
	Lower range	Upper range	Area	% change vs lower	% change vs upper
2B/4P Apartment	51	79	69	35%	-13%
2B/4P House	55	79	77	40%	-3%
3B/5P House	70	121	90	29%	-26%
4B/6P House	93	158	103	11%	-35%

The following points are noted in relation to tables 21 and 21a:

- The proposed standards are in some cases greater than current areas in England and in some cases smaller.
- Although negative figures are indicated it is unlikely that savings would be realised outside of London. Where house builders are currently adopting larger space due to market demand it is likely that they will continue to do so.
- Where positive figures are indicated above a real cost will occur as house builders would need to adopt the larger standard. In some cases a proportion of this cost is likely to be recoverable via increased sales revenue, however average values on a £/m2 basis are likely to be reduced which may impact negatively on viability. The impact assessment model assumes 70% of the increased cost is recovered via greater net revenues.
- Area changes in England are in many cases relatively modest compared to the typical areas arising from the survey. However, the changes in comparison to the lower and upper range areas are much more significant indicating that viability impacts for certain schemes may be much greater. It is however assumed that relatively few schemes are built at the very top or bottom of the range. It is also assumed that a full assessment of viability will be undertaken at a local level prior to the introduction of space standards.

- Within London the proposed standards would represent a small reduction in comparison to the current situation. Some savings may occur, however as described earlier within this report there are differing views as to whether the current LHDG exceeds the optimum market driven area.

Table 21b below indicates the potential cost impact where 70% of any additional build cost is recovered via greater net revenues.

Table 21b – Net cost additions, England based on typical existing private dwelling areas for Level 1 space standard

	Current	Proposed	Addition	After 70% recovered
	Build cost	Build cost		
2B/4P Apartment	£90,363	£91,848	£1,485	£446
2B/4P House	£74,611	£78,118	£3,507	£1,052
3B/5P House	£91,530	£90,077	-	-
4B/6P House	£115,722	£105,145	-	-

Wider impacts

Aside from capital costs other wider impacts were considered as indicated in table 22.

Table 22 – Wider space impacts

Impact	Position
Sales value	Potential revenue impacts have not been reviewed in detail at this stage. It is likely that some additional cost arising from larger standards could be recovered, however this would be constrained by local markets and may not be proportional to the area (i.e. the average £/ft2 sales value would fall). Further review of this issue is ongoing for viability purposes separate to the Impact Assessment. At present the Impact Model assumes 70% of the additional costs is recovered via sales values.
Density	In certain cases, for example a large site where dwelling numbers are constrained by local infrastructure capacity, it is likely that the relatively small area increases could be accommodated without loss of overall dwelling numbers. In other areas, for example a high density inner city site, even a small increase in dwelling area is likely to result in loss of dwelling numbers. Full review of this issue has not been undertaken however the likely extremes have been identified: ■ No density impact for unconstrained sites ■ A reduction in dwelling numbers of circa 1% for the more constrained sites with a typical mix of dwelling types
Operational costs	Operational or long term ownership costs are also excluded from the “primary impact” model. It is likely that the increase in say maintenance costs associated with the relatively small area impacts under consideration would be limited.

Process costs

On the basis that a mechanism for type approval (either through planning authorities or building control bodies will be implemented), the process cost associated with the proposed space standards was considered to be very limited. In contrast to the current situation there would be one single standard for each of the three accessibility levels rather than the current variance by location / standard adopted. The typical process cost associated with a medium sized scheme has been calculated as indicated in table 23.

Table 23 – Space process costs

Activity	Time (hrs)	£/hr	Dwelling types (nr)	Total
Review standard, check compliance	1	£75	8	£600
Total				**£600**
		Medium scheme nr dwellings		50
		£/dwelling		£12

4.1.2 Key areas for further investigation

Key issues which will require further review or a request for evidence from consultees are:

- The current extent of delivery of Lifetime Homes and Wheelchair housing compliant space standards.
- The cost impacts for a wider selection of dwelling typologies.
- The proportion of schemes currently adopting HQI minimum rather than mid band areas
- Costs of compliance with LHDG in the baseline where current work (the London Development Agency report) indicates no cost for the dual aspect and circulation requirements but anecdotal views indicate a potential cost.
- Distributional analysis of the impact of space standards across a range of house sizes for each typology.

4.2 Water

4.2.1 Review process and results

The baseline position for water is generally driven by the costs of achieving various Code for Sustainable Homes levels in excess of Building Regulations compliance. Table 24 compares the cost of compliance with Code for Sustainable Homes levels and the proposed new standards for a medium sized scheme each indicated as an extra over Building Regulations compliance.

Table 24 – Current water standard compared with proposed standards

	2B Apartment	2B House	3B House	4B House
Current code level 1	£0	£0	£0	£0
Current code level 2	£0	£0	£0	£0
Current code level 3	£43	£68	£68	£68
Current code level 4	£43	£68	£68	£68
Current code level 5	£4,643	£3,368	£3,368	£3,368
Current code level 6	£4,643	£3,368	£3,368	£3,368
Proposed base	£0	£0	£0	£0
Proposed tighter	£43	£68	£68	£68

Process costs

The proposed basic standard is in line with Building Regulations and as such does not raise an additional process cost. The cost associated with the tighter standard was considered to be in line with that for the current Code for Sustainable Homes level 3/4 calculated as indicated in table 25.

Table 25 – Water process costs

Activity	Time (hrs)	£/hr	Total
Design / specification work	4	£75	£300
Total			**£300**
	Medium scheme nr dwellings		50
		£/dwelling	£6

Note – the above process cost would only occur for areas in which the tighter standard was adopted. It is possible that some further reduction in process cost could occur from increasing standardisation due to only two standards existing.

4.2.2 Key areas for further investigation

- Greywater recycling which is adopted for CfSH levels 5 and 6 is relatively uncommon. Costs vary widely by scheme and may therefore differ from the above average.

4.3 Energy

4.3.1 Review process and results

The baseline position for energy was considered to be the current costs of achieving the Code for Sustainable Homes levels 1 to 6 or renewables obligations in excess of Building Regulations compliance. The proposed standard is compliance with Building Regulations. Table 26 indicates the cost of compliance with current standards in excess of Building Regulations for a medium sized scheme. Note that the water element of code for sustainable homes is included in the separate section and therefore excluded below.

Table 26 – Current energy / sustainability costs compared with proposed postion

	2B Apartment	2B House	3B House	4B House
Current Code Level 1	£75	£0	£0	£0
Current Code Level 2	£75	£75	£75	£75
Current Code Level 3	£75	£75	£75	£75
Current Code Level 4	£1,394	£1,644	£2,079	£2,364
Current Code Level 5	£11,645	£15,064	£15,499	£15,878
Current Code Level 6	£15,580	£25,754	£26,624	£27,288
Planning & Energy Act	£1,560	£1,400	£1,850	£2,400
Planning & Energy Act	£3,120	£2,800	£3,608	£4,600
Proposed Building Regs	£0	£0	£0	£0

It is noted that there is no proposed standard for energy aside from compliance with Building Regulations. DCLG's Part L consultation indicated a range of cost of £800-2,900 to comply with the 2013 Part L. This cost is dealt with within the Part L impact assessment.

Process costs

The proposed standard of Building Regulations compliance does not incur an additional process cost.

4.3.2 Key areas for further investigation

- Extent of application / level of current standards applied under the Planning and Energy Act (DCLG work from 2011 indicates that over 70% of authorities had or were developing a renewables policy).

4.4 Security

4.4.1 Review process and results

A review of typical home specification with regard to security has been undertaken to form the baseline in the absence of area specific requirements (e.g. secure by design enforced by planning conditions). The relevant proposed level 1 and 2 standards have then been identified and cost database costs applied to both baseline and proposed.

The proposed level 1 represents minimal difference to current industry practice. Level 2 represents a more material increase and is more in line with Section 2 of the current SBD. Table 27 indicates the extra over normal industry practice costs for medium sized schemes.

Table 27 – Current security costs compared with proposed

	2B Apartment	2B House	3B House	4B House
Current SBD cost	£680	£789	£789	£883
Proposed Level 1 standard	£0	£0	£0	£0
Proposed Level 2 standard	£540	£633	£633	£727

Process costs

The proposed level 1 represents minimal difference to current industry practice and was not considered to incur a material process cost. The proposed level 2 standard is in line with current secured by design but considered to potentially incur a differing process cost due to the proposed method of enforcement. This is due to the reduction in differing interpretation / enforcement in the current situation. The process cost is calculated as indicate in table 28.

Table 28 – Security process costs (level 2)

Activity	Time (hrs)	£/hr	Total
Design / specification work	7.5	£75	£563
Total			**£563**
		Medium scheme nr dwellings	50
		£/dwelling	£11

Note – areas adopting the level 1.5 standard would not incur the above cost.

4.4.2 Key areas for further investigation

- Extent of application of current standards and variation by region (note – this may increase process costs in the “current practice” situation)

4.5 Accessibility

4.5.1 Review process and results

An analysis of costs to achieve Lifetime Homes and Wheelchair Housing Design Guide compliance in excess of Building Regulations was undertaken. A revision to this exercise was then undertaken incorporating the omissions, relaxations and tightening of criteria suggested by the working group. The results of the exercise are as indicated in table 29 for the medium size scheme type (all excluding space impacts as earlier note):

Table 29 – Access costs

	2B Apartment	2B House	3B House	4B House
Current Lifetime cost	£1,035	£1,044	£1,049	£1,051
Current WHDG cost	£13,314	£12,488	£13,031	£13,170
Proposed Level 2 cost	£980	£389	£449	£451
Proposed Level 3 cost	£12,584	£11,758	£13,939	£16,220
Difference Lifetime to level 2	-5%	-63%	-57%	-57%
Difference WHDG to level 3	-5%	-6%	7%	23%

It is noted that the proposed level 2 standard reduces the necessary width of staircases from 900mm to 860mm which reduces the additional area required to comply with the standard overall. It is therefore possible that, in instances where the level 2 accessibility standard is adopted but the level 2 space standard is not adopted, a further saving in build costs could occur. This saving would be in the region of £200 for houses (it is not applicable to single level apartments).

Process costs

The proposed standards are relatively similar to the existing in works costs, however it was considered that significant savings in process cost will occur due to:

- The link between accessibility and space standards
- The simplification of the standards and their presentation
- The removal of alternative standards (e.g. the Wheelchair Housing Design Guide and South London guide)
- Common interpretation, application and enforcement of the standards

The process cost in the proposed situation for Level 2 has been calculated as indicated in table 30.

Table 30 – Access level 2 process costs

Activity	Time (hrs)	£/hr	Dwelling types (nr)	Total
Design work, review and specification (per typology)	4	£75	8	£2,400
External areas design work (per scheme)	10	£75		£750
Design management during delivery phase (per typology)	3	£64	8	£1,536
Total				**£4,686**
		Medium scheme nr dwellings		50
		£/dwelling		£94

The process cost in the proposed situation for Level 3 has been calculated as indicated in table 31.

Table 31 – Access level 3 process costs

Activity	Time (hrs)	£/hr	Dwelling types (nr)	Total
Design work, review and specification (per typology)	7.5	£75	3	£1,688
Design / delivery management during delivery phase (per typology)	4	£64	3	£768
Total				**£2,456**
			Medium scheme nr wheelchair dwellings	5
			£/dwelling	£491

4.5.2 Key areas for further investigation

- The extent of current application of the wheelchair housing design guide and other standards, for example the South East London / Greenwich wheelchair homes design guide.

5 Process

5.1.1 Current situation

The earlier sections of this report include relevant direct process costs, for example code for sustainable homes assessors or the cost of collating certification and evidence of secured by design compliance. Table 32 summarises these costs.

Table 32 – Summary current process costs

Standard	Process cost
Secured by Design	£23
Lifetime Homes	£153
Housing Quality Indicators	£101
Housing SPG	£173
The Planning and Energy Act	£23
Wheelchair Housing Design Guide	£963
Code for Sustainable Homes	£176 to £365
Potential total (general needs, private)	**£23 to £737**
Potential total (general needs, affordable)	**£23 to £838**
Potential total (wheelchair homes)	**£963 to £1,648**

Following consultation it has been identified that, for many firms, there is a further process cost where in-house experts or consultants are retained on a more general basis. An example is a developer employing a "compliance" expert with a remit to ensure each site team comply with the various code for sustainable homes and renewables obligations to ensure there are no costly problems at completion. This issue has not been investigated in detail but, based on small scale consultation it would appear there is a potential cost per firm as indicated in table 33.

Table 33 – Overhead costs

Firm size	Resource dedicated	Cost per year per firm
Small (e.g. local home builder)	0.15 Full time equivalent design manager	£18,563 (0.15 x £75/hr x 7.5hr day x 220)
Medium (e.g. regional home builder)	0.75 Full time equivalent design manager	£92,813 (0.75 x £75/hr x 7.5hr day x 220)
Large (e.g. national home builder with multiple regions)	4 Full time equivalent design managers	£495,000 (4 x £75/hr x 7.5hr day x 220)

In addition to the above there is a further current process cost, typically to planning authorities, in receiving and reviewing evidence of compliance. Based on experience dealing with other similar areas (e.g. Parts P or C of the Building Regulations or Access Statements within the planning system) this cost is estimated as indicated in table 34.

Table 34 – Recipient process costs

Standard	Calculation	Cost / dwelling (50 unit scheme)	Notes
Secured by Design	6hrs x £60/hr = £360	£7	Assumes review of documents + 1 meeting
Lifetime Homes	7.5hrs x £60/hr = £450	£9	Review drawings + 1 meeting
Housing Quality Indicators	£ -	£ -	Not generally assessed under the planning system. HCA review via automated system
London Housing Design Guide	7.5hrs x £60/hr = £450	£9	Largely assessed as part of the general review of applications, time is extra over this process
The Planning and Energy Act	6hrs x £60/hr = £360	£7	Often a more technical assessment – half day initial review + responding to queries
Wheelchair Housing Design Guide	4hrs x £60/hr = £240	£48	Often a more technical assessment (based on 5 dwellings)
Code for Sustainable Homes	6hrs x £60/hr = £360	£7	Often a more technical assessment
Potential total (general needs, private)		**£39**	
Potential total (general needs, affordable)		**£39**	
Potential total (wheelchair homes)		**£78**	

For Secured by Design the Architectural Liaison Officer (ALO) who checks compliance is not a direct cost to developers. However this does represent a cost to police forces, albeit it is uncertain how much of the ALO's time overlaps with other work. We understand that there are currently around 179 ALOs in England, most of which work for police forces. We have not yet quantified the ALO time specifically arising from SBD or how this may vary in the proposed situation.

5.1.2 Proposed standards

The earlier sections of this report indicate direct process costs for each of the proposed standards. These are summarised in table 35.

Table 35 – Proposed process costs

Standard	Process cost	
Space	£12	
Water	£0 to £6	
Energy	£ -	
Security	£0 to £11	
Accessibility:		
- Level 1	£ -	
- Level 2	£ 94	
- Level 3	£ 491	Comparable current figures:
Potential total (general needs, private)	**£12 to £29**	£23 to £737
Potential total (general needs, affordable)	**£12 to £29**	£23 to £838
Potential total (wheelchair homes)	**£503 to £520**	£963 to £1,648

Again following small scale consultation it is anticipated that, due to the significant reduction in number and page length of standards, the "overhead" type cost to house builders described under 4.1.1 will reduce. The calculation for this reduced cost is as indicated in table 36.

Table 36 – Proposed overhead costs

Firm size	Resource dedicated	Cost per year per firm	Current comparable figures
Small (e.g. local housebuilder)	0.10 Full time equivalent design manager	£12,375 (0.10 x £75/hr x 7.5hr day x 220)	£18,563
Medium (e.g. regional housebuilder)	0.40 Full time equivalent design manager	£49,500 (0.40 x £75/hr x 7.5hr day x 220)	£92,813
Large (e.g. national housebuilder with multiple regions)	2 Full time equivalent design managers	£247,500 (2 x £75/hr x 7.5hr day x 220)	£495,000

The assumed scenario for the purposes of this assessment is that local authorities will select the applicable level of standard for their area (for example the base or tighter level of water use) and that compliance will be monitored via the building control system. Given this point a new cost burden will occur for building control officers as indicated in table 37.

Table 37 – Proposed recipient costs

Standard	Calculation	Cost / dwelling (50 unit scheme)	Notes
Space	2hrs x £60/hr = £120	£2	Minimal time – simply an area check
Energy	£-	£-	Existing / proposed Part L only
Water	3hrs x £60/hr = £180	£4	Only applies where tighter standard selected
Security	4hrs x £60/hr = £240	£5	Assumes reduced meeting time due to scale economy with wider BC role
Accessibility			
- **Level 1**	£-	£-	Part M only
- **Level 2**	6hrs x £60/hr = £360	£7	Assumes small economy due to wider BC role
- **Level 3**	3.5hrs x £60/hr = £210	£42	Assumes small economy due to wider BC role (based on 5 dwellings)
Potential total (general needs, private)		**£18**	(Current £39)
Potential total (general needs, affordable)		**£18**	(Current £39)
Potential total (wheelchair homes)		**£53**	(Current £78)

The above sections are felt to capture the majority of the process costs associated with the current and proposed approaches. Consultation has however indicated a number of further potential savings associated with the proposed system:

- Ease of access to the standards at a single source.
- A single point of contact for compliance / assessment.
- Related to the above the ability for compliance to be dealt with “in the round” avoiding conflicting requirements from differing sources.
- Coordinated updating of the standards.
- Avoidance of other uncommon standards (e.g. an access standard used by a very small number of local authorities).

The potential impact of the above points has not yet been quantified. It is also noted that we have assumed that regional variance in the level of standards will remain (i.e. Local Authority A could select security level 1 whilst Local Authority B could select level 2). In the event that a single level of compliance was selected nationally further process savings would be likely.

5.1.3 Transition

It is noted that, should the proposed standards be introduced, there will be a transition cost to industry and building control in becoming familiar with the new approach. This type of cost has been researched in relation to various other major changes to say the Building Regulations and will be included within the Impact Assessment.

Appendices

Appendix A - Space

Table of average current dwelling sizes

Matrix of summary build cost impacts

Housing Standards Review

Space standards Build Cost Matrix

11-Jun-13

EC HARRIS BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

	Basecase		Space Standards											
			Level 1				Level 2				Level 3			
	GIA	Build Cost	GIA	Variance m²	Build Cost Variance	%	GIA	Variance m²	Build Cost Variance	%	GIA	Variance m²	Build Cost Variance	%
2 bed flat														
Space standard (2b3p)			60 m²		£85,165		61 m²		£ 85,907		73 m²		£ 94,819	
Private (average from survey)	67.0 m²	£ 90,363		-7.0 m²	-£5,198	-6%		-6 m²	-£ 4,456	-5%				
Affordable (HQI min)	57.0 m²	£ 82,937		3.0 m²	£2,228	3%		4 m²	£ 2,971	4%				
Affordable (HQI mid band)	62.0 m²	£ 86,650		-2.0 m²	-£1,485	-2%		-1 m²	-£ 743	-1%				
Lifetime Homes	63.0 m²	£ 87,393						-2 m²	-£ 1,486	-2%				
WHDG	76.0 m²	£ 97,047										-3 m²	-£ 2,228	-2%
LHDG	61.0 m²	£ 85,907						0 m²	£ -	0%				
Space standard (2b4p)			69 m²		£91,848		70 m²		£ 92,591		87 m²		£ 105,216	
Private (lower end of size range)	51.0 m²	£ 78,481		18.0 m²	£13,367	17%		19 m²	£ 14,110	18%				
Private (average from survey)	67.0 m²	£ 90,363		2.0 m²	£1,485	2%		3 m²	£ 2,228	2%				
Private (upper end of size range)	79.0 m²	£ 99,275		-10.0 m²	-£7,427	-7%		-9 m²	-£ 6,684	-7%				
Affordable (HQI min)	67.0 m²	£ 90,363		2.0 m²	£1,485	2%		3 m²	£ 2,228	2%				
Affordable (HQI mid band)	71.0 m²	£ 93,334		-2.0 m²	-£1,485	-2%		-1 m²	-£ 743	-1%				
Lifetime Homes	72.0 m²	£ 94,076						-2 m²	-£ 1,485	-2%				
WHDG	87.0 m²	£ 105,216										0 m²	£ -	0%
LHDG	70.0 m²	£ 92,591						0 m²	£ -	0%				
2 bed terraced house														
Space standard (2b/3p)			68 m²		£71,806		74 m²		£ 76,014		94 m²		£ 90,041	
Private (average from survey)	72.0 m²	£ 74,611		-4.0 m²	-£2,805	-4%		2 m²	£ 1,403	2%				
Affordable (HQI min)	57.0 m²	£ 64,091		11.0 m²	£7,715	12%		17 m²	£ 11,923	19%				
Affordable (HQI mid band)	62.0 m²	£ 67,598		6.0 m²	£4,208	6%		12 m²	£ 8,416	12%				
Lifetime Homes	64.0 m²	£ 69,001						10 m²	£ 7,013	10%				
WHDG	76.0 m²	£ 77,417										18 m²	£ 12,624	16%
LHDG	-													
Space standard (2b4p)			77 m²		£78,118		83 m²		£ 82,326		104 m²		£ 97,054	
Private (lower end of size range)	55.0 m²	£ 62,689		22.0 m²	£15,429	25%		28 m²	£ 19,637	31%				
Private (average from survey)	72.0 m²	£ 74,611		5.0 m²	£3,507	5%		11 m²	£ 7,715	10%				
Private (upper end of size range)	79.0 m²	£ 79,521		-2.0 m²	-£1,403	-2%		4 m²	£ 2,805	4%				
Affordable (HQI min)	67.0 m²	£ 71,105		10.0 m²	£7,013	10%		16 m²	£ 11,221	16%				
Affordable (HQI mid band)	71.0 m²	£ 73,910		6.0 m²	£4,208	6%		12 m²	£ 8,416	11%				
Lifetime Homes	73.0 m²	£ 75,313						10 m²	£ 7,013	9%				
WHDG	87.0 m²	£ 88,095										17 m²	£ 8,959	10%
LHDG	83.0 m²	£82,326						0 m²	£ -	0%				
3 bed semi detached house														
Space standard (3b4p)			81 m²		£83,536		87 m²		£ 87,896		109 m²		£ 103,885	
Private (average from survey)	92.0 m²	£ 91,530		-11.0 m²	-£7,994	-9%		-5 m²	-£ 3,634	-4%				
Affordable (HQI min)	67.0 m²	£ 73,361		14.0 m²	£10,175	14%		20 m²	£ 14,535	20%				
Affordable (HQI mid band)	71.0 m²	£ 76,268		10.0 m²	£7,268	10%		16 m²	£ 11,628	15%				
Lifetime Homes	74.0 m²	£ 78,449						13 m²	£ 9,447	12%				
WHDG	87.0 m²	£ 87,896										22 m²	£ 15,989	18%
LHDG	87.0 m²	£ 87,896						0 m²	£ -	0%				
Space standard (3b5p)			90 m²		£90,077		96 m²		£ 94,437		120 m²		£ 111,879	
Private (lower end of size range)	70.0 m²	£ 75,542		20.0 m²	£14,535	19%		26 m²	£ 18,895	25%				
Private (average from survey)	92.0 m²	£ 91,530		-2.0 m²	-£1,454	-2%		4 m²	£ 2,907	3%				
Private (upper end of size range)	121.0 m²	£ 112,606		-31.0 m²	-£22,529	-20%		-25 m²	-£ 18,169	-16%				
Affordable (HQI min)	82.0 m²	£ 84,263		8.0 m²	£5,814	7%		14 m²	£ 10,175	12%				
Affordable (HQI mid band)	83.5 m²	£ 85,353		6.5 m²	£4,724	6%		12.5 m²	£ 9,084	11%				
Lifetime Homes	86.0 m²	£ 87,170						10 m²	£ 7,267	8%				
WHDG	102.0 m²	£ 98,798										18 m²	£ 13,081	13%
LHDG	96.0 m²	£94,437						0 m²	£ -	0%				
4 bed detached house														
Space standard (4b5p)			94 m²		£98,345		100 m²		£ 102,878		125 m²		£ 121,766	
Private (average from survey)	117.0 m²	£ 115,722		-23.0 m²	-£17,377	-15%		-17 m²	-£ 12,844	-11%				
Affordable (HQI min)	82.0 m²	£ 89,278		12.0 m²	£9,067	10%		18 m²	£ 13,600	15%				
Affordable (HQI mid band)	83.5 m²	£ 90,412		10.5 m²	£7,933	9%		16.5 m²	£ 12,466	14%				
Lifetime Homes	85.5 m²	£ 91,923						14.5 m²	£ 10,955	12%				
WHDG	102.0 m²	£ 104,389										23 m²	£ 17,377	17%
LHDG	100.0 m²	£ 102,878						0 m²	£ -	0%				
Space standard (4b6p)			103 m²		£105,145		109 m²		£ 109,678		135 m²		£ 129,322	
Private (lower end of size range)	93.0 m²	£ 97,589		10.0 m²	£7,556	8%		16 m²	£ 12,089	12%				
Private (average from survey)	117.0 m²	£ 115,722		-14.0 m²	-£10,578	-9%		-8 m²	-£ 6,044	-5%				
Private (upper end of size range)	158.0 m²	£ 146,699		-55.0 m²	-£41,554	-28%		-49 m²	-£ 37,021	-25%				
Affordable (HQI min)	95.0 m²	£ 99,100		8.0 m²	£6,044	6%		14 m²	£ 10,578	11%				
Affordable (HQI mid band)	97.5 m²	£ 100,989		5.5 m²	£4,155	4%		11.5 m²	£ 8,689	9%				
Lifetime Homes	99.5 m²	£ 102,878						9.5 m²	£ 6,800	7%				
WHDG	119.0 m²	£ 117,233										16 m²	£ 12,089	10%
LHDG	107.0 m²	£ 108,167						2 m²	£ 1,511	1%				
Space standard (4b7p)			112 m²		£111,944		118 m²		£ 116,478		145 m²		£ 136,877	
Private	117.0 m²	£ 115,722		-5.0 m²	-£3,778	-3%		1 m²	£ 756	1%				
Affordable (HQI min)	108.0 m²	£ 108,922		4.0 m²	£3,022	3%		10 m²	£ 7,555	7%				
Affordable (HQI mid band)	111.5 m²	£ 111,944						6.5 m²	£ 4,533	4%				
Lifetime Homes	113.0 m²	£ 112,700						5 m²	£ 3,778	3%				
WHDG	137.0 m²	£ 130,833										8 m²	£ 6,044	5%
LHDG	NA	Not Applicable												

Notes:
- Where proposed standards are less than existing a negative cost is included, this would not however be relevant to the impact assessment for private sale dwellings

Study of Average Dwelling Sizes

EC HARRIS
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		Flats - size m²		Houses - size m²		
Scheme	Scheme Location	1 bed	2 bed	2 bed	3 bed	4 bed
Scheme A	Hampshire	50	70	71	89	114
Scheme B	Surrey	43	57	66	98	114
Scheme C	Crawley	48	71	65	87	111
Scheme D	Crawley	48	70	75	85	114
Scheme E	Not site specific	49	63	75	90	125
Scheme F	Cheshire	-	-	65	89	113
Scheme G	East Sussex	50	71	-	-	-
Scheme H	Leicestershire	46	57	67	94	123
Scheme J	Essex	46	67	-	86	-
Scheme K	Hertfordshire	54	71	78	100	123
Scheme L	Oxfordshire	56	69	84	97	117
Average		49	67	72	92	117
Median		49	70	71	90	114
		2 person	4 person	4 person	5 person	6 person
HQI mid band		47.5	71	71	83.5	97.5
LHDG		50	70	83	96	107

Appendix B – Energy

Code for sustainable homes cost summary

Housing Standards Review

Code for Sustainable Homes - Cost Summary (Medium)

9th May 2013

EC HARRIS BUILT ASSET CONSULTANCY AN ARCADIS COMPANY

TWO BED FLAT (12 FLATS PER BLOCK, 4 FLATS PER FLOOR)				Code 1 (Points 36)			Code 2 (48 Points)			Code 3 (57 Points)			Code 4 (68 Points)			Code 5 (84 Points)			Code 6 (90 Points)		
	Availaible Credits	Mandatory Elements	Approx weighted value of each credit	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Extra Over Cost (labour and material cost)	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over
Energy	31	Y	1.17	£ 34	£0	**£34**	£ 34	£0	**£34**	£ 34	£0	**£34**	£44	£954	**£998**	£157	£7,704	£7,861	£157	**£11,639**	£11,796
Water	6	Y	1.5	£ -	£0	**£0**	£ -	£0	**£0**	£ 11	£43	**£54**	£11	£43	**£54**	£11	£4,643	£4,654	£11	£4,643	£4,654
Materials	24	Y	0.3	£ 23	£0	**£23**	£ 23	£0	**£23**	£ 23	£0	**£23**	£23	£0	**£23**	£53	£0	£53	£53	£0	£53
Surface	4	Y	0.55	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Waste	8	Y	0.8	£ -	£75	**£75**	£ -	£75	**£75**	£ -	£75	**£75**	£3	£90	**£93**	£3	£90	£93	£3	£90	£93
Pollution	4	Y	0.7	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Health	12	N	1.17	£ 15	£0	**£15**	£ 15	£0	**£15**	£ 15	£0	**£15**	£15	£250	**£265**	£23	£2,781	£2,804	£23	£2,781	£2,804
Management	9	N	1.11	£ 14	£0	**£14**	£ 14	£0	**£14**	£ 14	£0	**£14**	£14	£0	**£14**	£22	£670	£692	£22	£670	£692
Ecology	9	N	1.33	£ 11	£0	**£11**	£ 11	£0	**£11**	£ 11	£0	**£11**	£11	£100	**£111**	£19	£400	£419	£19	£400	£419
TOTAL	**107**			£ 139	£75	**£214**	£ 139	£75	**£214**	£ 150	£118	**£268**	£163	£1,437	**£1,600**	**£328**	£16,288	**£ 16,616**	**£328**	£20,223	**£20,551**

TWO BED TERRACED HOUSE				Code 1 (Points 36)			Code 2 (48 Points)			Code 3 (57 Points)			Code 4 (68 Points)			Code 5 (84 Points)			Code 6 (90 Points)		
	Availaible Credits	Mandatory Elements	Approx weighted value of each credit	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over
Energy	31	Y	1.17	£ 34	£0	**£34**	£ 34	£0	**£34**	£ 34	£0	**£34**	£44	£1,204	**£1,248**	£157	£10,954	£11,111	£157	**£21,644**	£21,801
Water	6	Y	1.5	£ -	£0	**£0**	£ -	£0	**£0**	£ 11	£68	**£79**	£11	£68	**£79**	£11	£3,368	£3,379	£11	£3,368	£3,379
Materials	24	Y	0.3	£ 23	£0	**£23**	£ 23	£0	**£23**	£ 23	£0	**£23**	£23	£0	**£23**	£53	£0	£53	£53	£0	£53
Surface	4	Y	0.55	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Waste	8	Y	0.8	£ -	£0	**£0**	£ -	£75	**£75**	£ -	£75	**£75**	£3	£90	**£93**	£3	£90	£93	£3	£90	£93
Pollution	4	Y	0.7	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Health	12	N	1.17	£ 15	£0	**£15**	£ 15	£0	**£15**	£ 15	£0	**£15**	£15	£250	**£265**	£23	£2,781	£2,804	£23	£2,781	£2,804
Management	9	N	1.11	£ 14	£0	**£14**	£ 14	£0	**£14**	£ 14	£0	**£14**	£14	£0	**£14**	£22	£839	£861	£22	£839	£861
Ecology	9	N	1.33	£ 11	£0	**£11**	£ 11	£0	**£11**	£ 11	£0	**£11**	£11	£100	**£111**	£19	£400	£419	£19	£400	£419
TOTAL	**107**			£ 139	£0	**£139**	£ 139	£75	**£214**	£ 150	£143	**£293**	£ 163	£1,712	**£1,875**	**£328**	£ 18,432	**£ 18,760**	**£328**	£ 29,122	**£ 29,450**

THREE BED SEMI DETACHED HOUSE				Code 1 (Points 36)			Code 2 (48 Points)			Code 3 (57 Points)			Code 4 (68 Points)			Code 5 (84 Points)			Code 6 (90 Points)		
	Availaible Credits	Mandatory Elements	Approx weighted value of each credit	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over
Energy	31	Y	1.17	£ 34	£0	**£34**	£ 34	£0	**£34**	£ 34	£0	**£34**	£44	£1,639	**£1,683**	£157	£11,389	£11,546	£157	**£22,514**	£22,671
Water	6	Y	1.5	£ -	£0	**£0**	£ -	£0	**£0**	£ 11	£68	**£79**	£11	£68	**£79**	£11	£3,368	£3,379	£11	£3,368	£3,379
Materials	24	Y	0.3	£ 23	£0	**£23**	£ 23	£0	**£23**	£ 23	£0	**£23**	£23	£0	**£23**	£53	£0	£53	£53	£0	£53
Surface	4	Y	0.55	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Waste	8	Y	0.8	£ -	£0	**£0**	£ -	£75	**£75**	£ -	£75	**£75**	£3	£90	**£93**	£3	£90	£93	£3	£90	£93
Pollution	4	Y	0.7	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Health	12	N	1.17	£ 15	£0	**£15**	£ 15	£0	**£15**	£ 15	£0	**£15**	£15	£250	**£265**	£23	£2,781	£2,804	£23	£2,781	£2,804
Management	9	N	1.11	£ 14	£0	**£14**	£ 14	£0	**£14**	£ 14	£0	**£14**	£14	£0	**£14**	£22	£839	£861	£22	£839	£861
Ecology	9	N	1.33	£ 11	£0	**£11**	£ 11	£0	**£11**	£ 11	£0	**£11**	£11	£100	**£111**	£19	£400	£419	£19	£400	£419
TOTAL	**107**			£ 139	£0	**£139**	£ 139	£75	**£214**	£ 150	£143	**£293**	£ 163	£2,147	**£2,310**	**£328**	£ 18,867	**£ 19,195**	**£328**	£ 29,992	**£ 30,320**

4 BED DETACHED HOUSE				Code 1 (Points 36)			Code 2 (48 Points)			Code 3 (57 Points)			Code 4 (68 Points)			Code 5 (84 Points)			Code 6 (90 Points)		
	Availaible Credits	Mandatory Elements	Approx weighted value of each credit	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over	Process Cost	Extra Over Cost (labour and material cost)	Total Extra Over
Energy	31	Y	1.17	£ 34	£0	**£34**	£ 34	£0	**£34**	£ 34	£0	**£34**	£44	£1,924	**£1,968**	£157	£11,674	£11,831	£157	**£23,084**	£23,241
Water	6	Y	1.5	£ -	£0	**£0**	£ -	£0	**£0**	£ 11	£68	**£79**	£11	£68	**£79**	£11	£3,368	£3,379	£11	£3,368	£3,379
Materials	24	Y	0.3	£ 23	£0	**£23**	£ 23	£0	**£23**	£ 23	£0	**£23**	£23	£0	**£23**	£53	£0	£53	£53	£0	£53
Surface	4	Y	0.55	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Waste	8	Y	0.8	£ -	£0	**£0**	£ -	£75	**£75**	£ -	£75	**£75**	£3	£90	**£93**	£3	£90	£93	£3	£90	£93
Pollution	4	Y	0.7	£ 21	£0	**£21**	£ 21	£0	**£21**	£ 21	£0	**£21**	£21	£0	**£21**	£21	£0	£21	£21	£0	£21
Health	12	N	1.17	£ 15	£0	**£15**	£ 15	£0	**£15**	£ 15	£0	**£15**	£15	£250	**£265**	£23	£2,781	£2,804	£23	£2,781	£2,804
Management	9	N	1.11	£ 14	£0	**£14**	£ 14	£0	**£14**	£ 14	£0	**£14**	£14	£0	**£14**	£22	£933	£955	£22	£933	£955
Ecology	9	N	1.33	£ 11	£0	**£11**	£ 11	£0	**£11**	£ 11	£0	**£11**	£11	£100	**£111**	£19	£400	£419	£19	£400	£419
TOTAL	**107**			£ 139	£0	**£139**	£ 139	£75	**£214**	£ 150	£143	**£293**	£163	£2,432	**£2,595**	**£328**	£19,246	**£19,574**	**£328**	£ 30,656	**£30,984**

Notes

For each Code for Sustainable Homes Level (Levels 1 to 6) the costs have been calculated and apportioned based on a 50 unit (medium) scheme for each dwelling typology.
Costs have been split between Material and Process Costs. Process costs incorporate CfSH fee however do not allow the BRE fees of £37/dwelling for the certification to be issued.
Costs have been based on EC Harris benchmark data together with quotation received from suppliers and discussions with CfSH assesors

Where certain costs overlap ENE 1 (Dwelling Emissions Rate) and ENE 2 (Dwelling Fabric) costs have been allocated to ENE 1
No process cost has been allowed for completing SAP assesments used under ENE 1 and 2 as this documentation is required as standard
Where points are not required under all criteria (i.e Non-mandatory credits) the costs are based on the most economical method of achieving the points required to meet the necessary Code level (i.e 36 points for Code 1)

Assumptions
In order to achieve the required kWh/m2/yr under Ene 2 a 'fabric first' approach has been adopted
Cost to achieve CfSH Level 5 is based on using PV panels together with CfSH and Ground Source Heat Pumps
Cost to achieve CfSH Level 6 is based on a biomass boiler together with enhanced windows and dwelling fabric in order to achieve the 'Zero Carbon' criteria. Cost include for equipment but not additional plant buildings / storage areas required for this equipment.
Water costs at level 5 and 6 allow for grey water recycling. No allowance is made for Grey Water recycling at levels 1 to 4
No cost has been allowed for any material cost related to Surface Water run off as this credit is likely only to be achieved where the site specifics accommodate this being achieved. Process cost has been allowed where this credit is to be achieved.
No cost has been allowed Construction Site Waste Management. Costs are assumed included as standard
Information required to comply Environmental Impact of Material is now readily availiable therefore no additional costs have been allowed
Process cost have been allowed for an enhanced Ecological Survey to comply with the specific CfSH criteria
For comparison purposes Lifetime Homes and Secured by Design credits and therefore costs have only been allowed for at CfSH 5 and CfSH 6 however this may be required through planning requirement therefore may be achieved at lower levels.
An allowance of £300 has been made for enhanced planting however this is a site specific requirement
A' rated boilers have been assumed to be 'industry standard' therefore no additional cost has bee allowed for these
The additional specification to achieve the DER:TER and kw/m2/yr costs of achieveing ENE1 and ENE 2 has been cross checked against the Energy Credits Calculator
No costs have been allowed for 'Outside Space' under HEA 3 as this will relate to the overall design of the scheme. It is noted that this is required under the LHDG as well as being a sales driver
Costs have been assumed to flats to achieve WAS1 at code level 1 to 6 to meet the additional demands to achieve these points to flats. No cost have been assumed at level 1 to Houses as points do not need to be achieved under this category at Level 1. Cost are therefore only allowed from Level 2 to Level 6 for WAS 1.

Large schemes have been assumed to have 10Nr unit types. Small and medium schemes (referenced in the table below) assume 5Nr unit types for medium schemes and 2Nr for small schemes
For comparison purposes 'small' schemes are assumed to be 5Nr dwellings; 'Medium' schemes to be 50Nr dwellings and 'Large' schemes to be 100Nr dwellings
Technical Support - Consultants hourly rate is assumed as £75/hr. Process costs incorporate CfSH assesors fees.

Review of CfSH Standards - process cost breakdown version

Assumes a 100 unit scheme with 10 standard house types

EC HARRIS BUILT ASSET CONSULTANCY AN ARCADIS COMPANY

ENERGY								PROCESS COST	NOTES
Requirement		**Available Credits**			**Small 5 Units**	**Medium 50 Units**	**Large 100 Units**		
Ene 1	Dwelling Emission Rate	10	MANDATORY	Code Fee	£ 135	£ 34	£ 34	Assume 4.5 hour per house type for CfSH 10 house types in Large; 5 House Types in Medium; 2 House types in Small	- Code Energy Calculator Tool (bassed on SAP)
Ene 2	Dwelling Fabric	9	MANDATORY	Code Fee	£ - £ 450	£ - £ 113	£ - £ 113	Assumes cost dealt with under ENE 1 at Level 1 to 4; Additional 2 hours at CfSH 5/6 Additional 15 hours at CfSH per house type at CfSH 5 and 6	- Code Energy Calculator Tool (based on SAP)
Ene 3	Energy Display Devices	2	NOT MANDATORY	Code Fee	£ 15	£ 3	£ 2	Small - 1 hour to compile information Medium - 2 hours to compile information Large - Assume 3 hours to compile information No	- Documentary Evidence of light fitting - ASSUME 1hour of assesors time to collate information, divided by number of units - Documentary evidence of location - included within above costs
Ene 4	Drying Space	1	NOT MANDATORY		£ -	£ -	£ -	No	- Detailed on construction drawings - Drawings issued under ENE2 therefore no process cost
Ene 5	Energy Labelled White Good	2	NOT MANDATORY		£ -	£ -	£ -	No	- Copy of information provided under EU Labelling Scheme as standard
Ene 6	External Lights	2	NOT MANDATORY		£ -	£ -	£ -	No	- Detailed on construction drawings - Drawings issued under ENE2 therefore no process cost
Ene 7	Low & Zero carbon technologies	2	NOT MANDATORY		£ -	£ -	£ -	No	- Not typically required for CfSH 3/4 - SAP used as evidence therefore no additional process cost
Ene 8	Cycle Storage	2	NOT MANDATORY	Code Fee	£ 30	£ 8	£ 8	Assume 1 hour per house type for CfSH	- Documentary Evidence and specification to meet location and criteria
Ene 9	Home Office	1	NOT MANDATORY		£ -	£ -	£ -	No	- Information detailed on drawings provided under ENE3, and daylighting criteria
TOTAL					**£ 630**	**£ 157**	**£ 156**		
WATER									
Requirement		**Available Credits**							
Wat 1	Internal Water Use	5	MANDATORY	Surveyor	£ 113 £ -	£ 11 £ -	£ 8 £ -	Assume 7.5 hours technical support at Code Level 3 & above for small and medium scheme; assume 10 hours for large schemes CfSH 1 and 2 - no cost; water calculator completed as standard	- Water Calculator to be completed. Duplicate across scheme where the same sanitaryware etc used.
Wat 2	External Water Use	1	NOT MANDATORY		£ -	£ -	£ -	No	- Water calculator dealt with under WAT1
TOTAL					**£ 113**	**£ 11**	**£ 8**		
MATERIALS									
Requirement		**Available Credits**							

Mat 1	Environmental Impact of Materials	15	MANDATORY	Code Fee	£ 90	£ 23	£ 23	Assume 3 hour per house type	- Information readily availiable as the industry has reacted to requirement for tracability of materials - Some process cost to collate the information.
Mat 2	Responsible Sourcing of Materials	6	NOT MANDATORY		£ - £ 60	£ - £ 15	£ - £ 15	CfSH 5 &6 - 2 per house type	- Ditto Mat 1; Information collated as part of MAT 1 therefore no additional info - Additional cost included at cFsh 5 and 6 to allow for more time required to source products information
Mat 3	*Responsible Sourcing of Materials - Finishing Elements*	3	NOT MANDATORY		£ - £ 60	£ - £ 15	£ - £ 15	CfSH 5 &6 - 2 per house type	- Ditto Mat 1; Information collated as part of MAT 1 therefore no additional info - Ditto Mat 2
TOTAL					**£ 210**	**£ 53**	**£ 53**		
SURFACE									
Requirement		**Available Credits**							
Sur 1	Management of SW Run-off for developments	2	MANDATORY	Surveyor	£ 158	£ 16	£ 8	10.5 hours of time to complete the survey for the whole development. (4 hours to compile data and 6.5 hours to produce report in correct CfSH format). £75/hour	- Not typically dealt with under a 'typical' assesment criteria therefore process cost; Peak rate management and volume of run off - SUD's element - 1 in 100 year storm assume 5 hours
Sur 2	Flood Risk	2	NOT MANDATORY		£ 53	£ 5	£ 3	Assumed additional 3.5hours to produce the additional information required	- Additional info required over and above the 'standard' flood risk asssesment typically required.
TOTAL					**£ 210**	**£ 21**	**£ 11**		
WASTE									
Requirement		**Available Credits**							
Was 1	Storage of Non-recyclable Waste and Recyclable Household Waste	4	MANDATORY		£ -	£ -	£ -	No	- No process cost - industry standard. Information readily availiable
Was 2	Construction Site Waste Management	3	NOT MANDATORY		£ -	£ -	£ -	No	- Required as standard therefore no additional cost
Was 3	Composting	1	NOT MANDATORY	Code Assesor	£ 15	£ 3	£ 2	1 hour for small scheme and 2 hours for medium and large scheme assumed to provide information and liason with architect to ensure complies with criteria	- Documentary evidence to be collated therefore negligable process cost
TOTAL					**£ 15**	**£ 3**	**£ 2**		
POLLUTION									
Requirement		**Available Credits**							
Pol 1	Global Warming Potential of Insulants	1	MANDATORY	Code Assesor + external	£ 60	£ 6	£ 3	Assume 4 hours to source and collate information; Assume information is repeated across house types	- Challenging credit to achieve because the information is not readily availiable
Pol 2	Nox Emissions	3	NOT MANDATORY	Code Assessor	£ 60	£ 15	£ 15	Assume 2 hour per house type	- Information collation; Information detailed on SAP assesment
TOTAL					**£ 120**	**£ 21**	**£ 18**		
HEALTH									
Requirement		**Available Credits**							
Hea 1	Daylighting	3	NOT MANDATORY	Architect	£ 30	£ 8	£ 8	Assumed 1 hour per unit type to complete assesment in CfSH standard format	- External assesor (typically architect) Daylighting Calculation required (1hr per unit)
Hea 2	Sound Insulation	4	NOT MANDATORY	External Assesor	£ 30	£ 8	£ 4	Assumed 1 hour per house type for medium and large schemes; Assume 2 hours for small schemes	- Nature of buildings may provide as standard however additional acoustic test or Robust details provided - Similar to Building Regs
Hea 3	Private Space	1	NOT MANDATORY		£ -	£ -	£ -	No	- Detailed on the drawings and via site inspection
Hea 4	Lifetime Homes	4	NOT MANDATORY (Accept L6)	Architect	£ 30	£ 8	£ 8	Say 1 per house type to allow for design etc.	- Process cost to complete survey
TOTAL					**£ 90**	**£ 23**	**£ 19**		
MANAGEMENT									

Requirement		Available Credits							
Man 1	Home User Guide	3	NOT MANDATORY	Contractor	£ 30	£ 11	£ 6	Say 2 hours for small and 7.5 hours for medium and larger scheme	- Very bespoke for code therefore some process costs
Man 2	Considerate Constructors Scheme	2	NOT MANDATORY		£ -	£ -	£ -		- Achieved as standards
Man 3	Construction Site Impacts	2	NOT MANDATORY	Contractor	£ 30	£ 3	£ 2	Nominal process cost assumed to collate the information; Assume 2 hours regardless of scheme type	- Additional info above Build Regs standard however achieved by internal procedures that are likely to be inplace ie . ISO;
Man 4	Security	2	NOT MANDATORY	Code and SbD	£ 75	£ 8	£ 4	Assume 5hours to complete - process the same regardless of scheme size	- Evidence onerous to achieve the standard; additional documentary evidence over and above the 'norm' ; - Requires Secured by Design to be completed.
TOTAL					**£ 135**	**£ 22**	**£ 11**		
ECOLOGY									
Requirement		**Available Credits**							
Eco 1	Ecological Value of Site	1	NOT MANDATORY	Ecologist report	£ 60	£ 11	£ 6	- Additional 7.5 hours survey and report time assumed to be CfSH compliant for medium and large; 4 hours with small	- Enhanced survey required to achieve the standard and suitably qualified ecologist
Eco 2	Ecological Enhancement	1	NOT MANDATORY		£ -	£ -	£ -	No	- Achieved under ECO1
Eco 3	Protection of Ecological Features	1	NOT MANDATORY		£ -	£ -	£ -	No	- Achieved under ECO1
Eco 4	Change in Ecological Value of the Site	1	NOT MANDATORY	Ecologist report	£ 30	£ 8	£ 4	- Assumed 2 hours to complete site visit for small; 5 hours for medium and large	- Additional site visit required to sign off items have been installed correctly
Eco 5	Building Footprint	2	NOT MANDATORY		£ -	£ -	£ -	No	- Achieved under ECO1
TOTAL					**£ 90**	**£ 19**	**£ 9**		
					£ 1,043	£ 186	£ 143		
OVERALL PROCESS COST					**£ 1,613**	**£ 328**	**£ 285**	**PER DWELLING ASSUMING ALL CODE CREDITS ACIEVED**	

Merton Rule

On site Renewables Cost (to achieve 10% of energy use)		
Scheme	Cost of renewables	Cost / Unit
Scheme A	£ 495,000	2,368
Scheme B	£ 195,750	1,350
Scheme C	£ 183,200	1,832
Average 10% Renewables		1,850
20% Renewables		3,608

- Cost based on recently tendered schemes of a medium to large size
- Cost based on PV panels being provided to achieve the 10% reduction
- Cost per unit is and average based on the total cost.

Appendix C –Water

Water cost summary

Housing Standards Review

Water Standards - 2 bed terraced house

Scheme size: Medium - 50 units

11th April 2013

EC HARRIS BUILT ASSET CONSULTANCY AN ARCADIS COMPANY

AECB / EST Proposal	Base Level	Tighter Level						
				Rainwater 60%		Greywater 40%		
CfSH		Code Level 3 / 4		Code Level 5 /6		Code Level 5 /6		Comments
Water saving feature	Specification	Specification	E/O cost	Specification	E/O cost	Specification	E/O cost	
CfSH water consumption (l/p/d)	120	105		80		80		
Building Regs 2010 - Reg 36 (l/p/d)	125	110		85		85		
Physical costs								
Low flush WCs (2nr)	6/4 l dual or 4.5 l single	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	
Low flow wash basin taps (2 nr)	6/min	5 l/min	£ -	5 l/min	£ -	5 l/min	£ -	Low flow taps used to achieve reduced flow rate
Low flow shower	10 l/min	8 l/min	£ 9	8 l/min	£ 9	8 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Bath capacity	185 l	170 l	£ -	170 l	£ -	170 l	£ -	
Kitchen tap flow rate	8 l/min	6 l/min	£ 9	6 l/min	£ 9	6 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Water efficient washing machine	No	No	£ -	Yes	£ -	Yes	£ -	
Water efficient dishwasher	Yes	Yes	£ -	Yes	£ -	Yes	£ -	
Greywater reuse	No	No	£ -	No	£ -	Yes	£ 3,750	Including above / below ground storage tanks
Rainwater harvesting	No	No	£ -	Yes	£ 3,000	No	£ -	
Sub total			£ 68		£ 3,068		£ 3,818	
Total			**£ 68**		**£ 3,068**		**£ 3,818**	
				£3,368				Blended cost for rainwater / greywater

For each Code level, the Water Calculator was used to determine an approximate specification of water saving features to deliver the respective water consumption levels given in the CfSH technical guide.

Costs are based on:
EC Harris' internal benchmarking database which draws on costs data from past and present CfSH projects
Enquiries made with suppliers
Discussions with a leading M&E consultancy specialising in sustainability

Extra over costs have been applied where the cost of the water saving feature is greater than what would typically be supplied if the CfSH standard was not applied. Where costs are given as zero – this reflects our findings that those particular items are no more expensive to procure and install than standard features/fittings.

Flow restrictors contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure. They are typically fitted within the console of the tap or shower heads. In the case of the shower and kitchen tap it has been found that flow restrictors would be easier to procure and less expensive than more water efficient fittings.

Base Level sanitaryware is assumed to be basic spec in which case there is a cost premium for water efficient fittings. Note, for instances where higher spec sanitaryware would be the norm, extra over costs for sanitaryware could be zero.

The technical specifications provided in the table above have been cross referenced against the water label efficiency product database (http://www.water-efficiencylabel.org.uk/) – all are achievable and examples of these can be found by visiting the website.

Two options have been costed for achieving Code Level 5/6, rainwater harvesting and greywater. Rainwater harvesting systems require sufficient annual rainfall levels to be viable whereas greywater reuse systems are viable despite annual rainfall levels.

It has been assumed that approximately 60% of Code Level 5/6 houses adopt a rainwater harvesting solution in areas where rainfall is more prevalent. Similarly is has been assumed that approximately 40% of Code Level 5/6 houses adopt a greywater reuse solution in the areas of lower rainfall such as the South Eastern areas or where rainwater harvesting is not feasible for other reasons.

An alternative to the significant cost and complexity of greywater reuse/rainwater harvesting could be a 6 litres/minute shower (typical for an electric shower) and no bath. Although this would save on the cost of installing a bath and reduce the bathroom space this would not be a direct comparison with the other specifications and has been excluded due to wider impact such as dwellings not being accepted by residents for not having a bath.

Water calculator

Washing machine - litres/kg dry load:
Baseline - 8.17
Code Level 3 / 4 - 6.67
Code Level 5 / 6 - 6.67

Dishwasher - all levels 1.25 lites/place setting:
Water consumption = 15 litres
Number of place settings = 12 place setting

Housing Standards Review

Water Standards - 2 bed flat

Scheme size: Medium - 50 units

11th April 2013

EC HARRIS BUILT ASSET CONSULTANCY AN ARCADIS COMPANY

AECB / EST Proposal	Base Level	Tighter Level

CfSH		Code Level 3 / 4		Code Level 5 /6		Comments
Water saving feature	Specification	Specification	E/O cost	Specification	E/O cost	
CfSH water consumption (l/p/d)	120	105		80		
Building Regs 2010 - Reg 36 (l/p/d)	125	110		85		
Physical costs						
Low flush WC	6/4 l dual or 4.5 l single	4/2.6 l dual	£ 25	4/2.6 l dual	£ 25	
Low flow wash basin taps	6/min	5 l/min	£ -	5 l/min	£ -	Flow restictor used to achieve reduced flow rates
Low flow shower	10 l/min	8 l/min	£ 9	8 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Bath capacity	185 l	170 l	£ -	170 l	£ -	
Kitchen tap flow rate	8 l/min	6 l/min	£ 9	6 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Water efficient washing machine	No	No	£ -	Yes	£ -	
Water efficient dishwasher	Yes	Yes	£ -	Yes	£ -	
Greywater reuse	No	No	£ -	Yes	£ 4,600	Including above / below ground storage tanks
Rainwater harvesting	No	No	£ -	No	£ -	
Sub total			£ 43		£ 4,643	

For each Code level, the Water Calculator was used to determine an approximate specification of water saving features to deliver the respective water consumption levels given in the CfSH technical guide.

Costs are based on:
EC Harris' internal benchmarking database which draws on costs data from past and present CfSH projects
Enquiries made with suppliers
Discussions with a leading M&E consultancy specialising in sustainability

Extra over costs have been applied where the cost of the water saving feature is greater than what would typically be supplied if the CfSH standard was not applied. Where costs are given as zero – this reflects our findings that those particular items are no more expensive to procure and install than standard features/fittings.

Flow restrictors contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure. They are typically fitted within the console of the tap or shower heads. In the case of the shower and kitchen tap it has been found that flow restrictors would be easier to procure and less expensive than more water efficient fittings.

Base Level sanitaryware is assumed to be basic spec in which case there is a cost premium for water efficient fittings. Note, for instances where higher spec sanitaryware would be the norm, extra over costs for sanitaryware could be zero.

The technical specifications provided in the table above have been cross referenced against the water label efficiency product database (http://www.water-efficiencylabel.org.uk/) – all are achievable and examples of these can be found by visiting the website.

To achieve Code Level 5/6 greywater reuse was chosen as rainwater harvesting would not be viable in most instances given the limited roof space per unit.
An alternative to the significant cost and complexity of greywater reuse/rainwater harvesting could be a 6 litres/minute shower (typical for an electric shower) and no bath. Although this would save on the cost of installing a bath and reduce the bathroom space this would not be a direct comparison with the other specifications and has been excluded due to wider impact such as dwellings not being accepted by residents for not having a bath.

Water calculator

Washing machine - litres/kg dry load:
Baseline - 8.17
Code Level 3 / 4 - 6.67
Code Level 5 / 6 - 6.67

Dishwasher - all levels 1.25 lites/place setting:
Water consumption = 15 litres
Number of place settings = 12 place setting

Housing Standards Review

Water Standards - 3 bed semi detached house

Scheme size: Medium - 50 units

11th April 2013

EC HARRIS BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

AECB / EST Proposal	Base Level	Tighter Level						
				Rainwater 60%		Greywater 40%		
CfSH		Code Level 3 / 4		Code Level 5 /6		Code Level 5 /6		Comments
Water saving feature	Specification	Specification	E/O cost	Specification	E/O cost	Specification	E/O cost	
CfSH water consumption (l/p/d)	120	105		80		80		
Building Regs 2010 - Reg 36 (l/p/d)	125	110		85		85		
Physical costs								
Low flush WCs (2nr)	6/4 l dual or 4.5 l single	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	
Low flow wash basin taps (2 nr)	6/min	5 l/min	£ -	5 l/min	£ -	5 l/min	£ -	Low flow taps used to achieve reduced flow rate
Low flow shower	10 l/min	8 l/min	£ 9	8 l/min	£ 9	8 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Bath capacity	185 l	170 l	£ -	170 l	£ -	170 l	£ -	
Kitchen tap flow rate	8 l/min	6 l/min	£ 9	6 l/min	£ 9	6 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Water efficient washing machine	No	No	£ -	Yes	£ -	Yes	£ -	
Water efficient dishwasher	Yes	Yes	£ -	Yes	£ -	Yes	£ -	
Greywater reuse	No	No	£ -	No	£ -	Yes	£ 3,750	Including above / below ground storage tanks
Rainwater harvesting	No	No	£ -	Yes	£ 3,000	No	£ -	
Sub total			£ 68		£ 3,068		£ 3,818	
Total			**£ 68**		**£ 3,068**		**£ 3,818**	
				£3,368				Blended cost for rainwater / greywater

For each Code level, the Water Calculator was used to determine an approximate specification of water saving features to deliver the respective water consumption levels given in the CfSH technical guide.

Costs are based on:
EC Harris' internal benchmarking database which draws on costs data from past and present CfSH projects
Enquiries made with suppliers
Discussions with a leading M&E consultancy specialising in sustainability

Extra over costs have been applied where the cost of the water saving feature is greater than what would typically be supplied if the CfSH standard was not applied. Where costs are given as zero – this reflects our findings that those particular items are no more expensive to procure and install than standard features/fittings.

Flow restrictors contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure. They are typically fitted within the console of the tap or shower heads. In the case of the shower and kitchen tap it has been found that flow restrictors would be easier to procure and less expensive than more water efficient fittings.

Base Level sanitaryware is assumed to be basic spec in which case there is a cost premium for water efficient fittings. Note, for instances where higher spec sanitaryware would be the norm, extra over costs for sanitaryware could be zero.

The technical specifications provided in the table above have been cross referenced against the water label efficiency product database (http://www.water-efficiencylabel.org.uk/) – all are achievable and examples of these can be found by visiting the website.

Two options have been costed for achieving Code Level 5/6, rainwater harvesting and greywater. Rainwater harvesting systems require sufficient annual rainfall levels to be viable whereas greywater reuse systems are viable despite annual rainfall levels.

It has been assumed that approximately 60% of Code Level 5/6 houses adopt a rainwater harvesting solution in areas where rainfall is more prevalent. Similarly is has been assumed that approximately 40% of Code Level 5/6 houses adopt a greywater reuse solution in the areas of lower rainfall such as the South Eastern areas or where rainwater harvesting is not feasible for other reasons.

An alternative to the significant cost and complexity of greywater reuse/rainwater harvesting could be a 6 litres/minute shower (typical for an electric shower) and no bath. Although this would save on the cost of installing a bath and reduce the bathroom space this would not be a direct comparison with the other specifications and has been excluded due to wider impact such as dwellings not being accepted by residents for not having a bath.

Water calculator

Washing machine - litres/kg dry load:
Baseline - 8.17
Code Level 3 / 4 - 6.67
Code Level 5 / 6 - 6.67

Dishwasher - all levels 1.25 lites/place setting:
Water consumption = 15 litres
Number of place settings = 12 place setting

Housing Standards Review

Water Standards - 4 bed detached house

Scheme size: Small - 5 units

11th April 2013

EC HARRIS BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

AECB / EST Proposal	Base Level	Tighter Level						
				Rainwater 60%		Greywater 40%		
CfSH		Code Level 3 / 4		Code Level 5 /6		Code Level 5 /6		Comments
Water saving feature	Specification	Specification	E/O cost	Specification	E/O cost	Specification	E/O cost	
CfSH water consumption (l/p/d)	120	105		80		80		
Building Regs 2010 - Reg 36 (l/p/d)	125	110		85		85		
Physical costs								
Low flush WCs (2nr)	6/4 l dual or 4.5 l single	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	
Low flow wash basin taps (2 nr)	6/min	5 l/min	£ -	5 l/min	£ -	5 l/min	£ -	Low flow taps used to achieve reduced flow rate
Low flow shower	10 l/min	8 l/min	£ 9	8 l/min	£ 9	8 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Bath capacity	185 l	170 l	£ -	170 l	£ -	170 l	£ -	
Kitchen tap flow rate	8 l/min	6 l/min	£ 9	6 l/min	£ 9	6 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Water efficient washing machine	No	No	£ -	Yes	£ -	Yes	£ -	
Water efficient dishwasher	Yes	Yes	£ -	Yes	£ -	Yes	£ -	
Greywater reuse	No	No	£ -	No	£ -	Yes	£ 3,750	Including above / below ground storage tanks
Rainwater harvesting	No	No	£ -	Yes	£ 3,000	No	£ -	
Sub total			£ 68		£ 3,068		£ 3,818	
Total			**£ 68**		**£ 3,068**		**£ 3,818**	
				£3,368				Blended cost for rainwater / greywater

For each Code level, the Water Calculator was used to determine an approximate specification of water saving features to deliver the respective water consumption levels given in the CfSH technical guide.

Costs are based on:
EC Harris' internal benchmarking database which draws on costs data from past and present CfSH projects
Enquiries made with suppliers
Discussions with a leading M&E consultancy specialising in sustainability

Extra over costs have been applied where the cost of the water saving feature is greater than what would typically be supplied if the CfSH standard was not applied. Where costs are given as zero – this reflects our findings that those particular items are no more expensive to procure and install than standard features/fittings.

Flow restrictors contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure. They are typically fitted within the console of the tap or shower heads. In the case of the shower and kitchen tap it has been found that flow restrictors would be easier to procure and less expensive than more water efficient fittings.

Base Level sanitaryware is assumed to be basic spec in which case there is a cost premium for water efficient fittings. Note, for instances where higher spec sanitaryware would be the norm, extra over costs for sanitaryware could be zero.

The technical specifications provided in the table above have been cross referenced against the water label efficiency product database (http://www.water-efficiencylabel.org.uk/) – all are achievable and examples of these can be found by visiting the website.

Two options have been costed for achieving Code Level 5/6, rainwater harvesting and greywater. Rainwater harvesting systems require sufficient annual rainfall levels to be viable whereas greywater reuse systems are viable despite annual rainfall levels.

It has been assumed that approximately 60% of Code Level 5/6 houses adopt a rainwater harvesting solution in areas where rainfall is more prevalent. Similarly is has been assumed that approximately 40% of Code Level 5/6 houses adopt a greywater reuse solution in the areas of lower rainfall such as the South Eastern areas or where rainwater harvesting is not feasible for other reasons.

An alternative to the significant cost and complexity of greywater reuse/rainwater harvesting could be a 6 litres/minute shower (typical for an electric shower) and no bath. Although this would save on the cost of installing a bath and reduce the bathroom space this would not be a direct comparison with the other specifications and has been excluded due to wider impact such as dwellings not being accepted by residents for not having a bath.

Water calculator

Washing machine - litres/kg dry load:
Baseline - 8.17
Code Level 3 / 4 - 6.67
Code Level 5 / 6 - 6.67

Dishwasher - all levels 1.25 lites/place setting:
Water consumption = 15 litres
Number of place settings = 12 place setting

Housing Standards Review

Water Standards - 4 bed detached house

Scheme size: Medium - 50 units

11th April 2013

EC HARRIS
BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

AECB / EST Proposal	**Base Level**	**Tighter Level**						
				Rainwater 60%		**Greywater 40%**		
CfSH		**Code Level 3 / 4**		**Code Level 5 /6**		**Code Level 5 /6**		**Comments**
Water saving feature	Specification	Specification	**E/O cost**	Specification	**E/O cost**	Specification	**E/O cost**	
CfSH water consumption (l/p/d)	120	105		80		80		
Building Regs 2010 - Reg 36 (l/p/d)	125	110		85		85		
Physical costs								
Low flush WCs (2nr)	6/4 l dual or 4.5 l single	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	
Low flow wash basin taps (2 nr)	6/min	5 l/min	£ -	5 l/min	£ -	5 l/min	£ -	Low flow taps used to achieve reduced flow rate
Low flow shower	10 l/min	8 l/min	£ 9	8 l/min	£ 9	8 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Bath capacity	185 l	170 l	£ -	170 l	£ -	170 l	£ -	
Kitchen tap flow rate	8 l/min	6 l/min	£ 9	6 l/min	£ 9	6 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Water efficient washing machine	No	No	£ -	Yes	£ -	Yes	£ -	
Water efficient dishwasher	Yes	Yes	£ -	Yes	£ -	Yes	£ -	
Greywater reuse	No	No	£ -	No	£ -	Yes	£ 3,750	Including above / below ground storage tanks
Rainwater harvesting	No	No	£ -	Yes	£ 3,000	No	£ -	
Sub total			£ 68		£ 3,068		£ 3,818	
Total			**£ 68**		**£ 3,068**		**£ 3,818**	
					£3,368			Blended cost for rainwater / greywater

For each Code level, the Water Calculator was used to determine an approximate specification of water saving features to deliver the respective water consumption levels given in the CfSH technical guide.

Costs are based on:
EC Harris' internal benchmarking database which draws on costs data from past and present CfSH projects
Enquiries made with suppliers
Discussions with a leading M&E consultancy specialising in sustainability

Extra over costs have been applied where the cost of the water saving feature is greater than what would typically be supplied if the CfSH standard was not applied. Where costs are given as zero – this reflects our findings that those particular items are no more expensive to procure and install than standard features/fittings.

Flow restrictors contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure. They are typically fitted within the console of the tap or shower heads. In the case of the shower and kitchen tap it has been found that flow restrictors would be easier to procure and less expensive than more water efficient fittings.

Base Level sanitaryware is assumed to be basic spec in which case there is a cost premium for water efficient fittings. Note, for instances where higher spec sanitaryware would be the norm, extra over costs for sanitaryware could be zero.

The technical specifications provided in the table above have been cross referenced against the water label efficiency product database (http://www.water-efficiencylabel.org.uk/) – all are achievable and examples of these can be found by visiting the website.

Two options have been costed for achieving Code Level 5/6, rainwater harvesting and greywater. Rainwater harvesting systems require sufficient annual rainfall levels to be viable whereas greywater reuse systems are viable despite annual rainfall levels.

It has been assumed that approximately 60% of Code Level 5/6 houses adopt a rainwater harvesting solution in areas where rainfall is more prevalent. Similarly is has been assumed that approximately 40% of Code Level 5/6 houses adopt a greywater reuse solution in the areas of lower rainfall such as the South Eastern areas or where rainwater harvesting is not feasible for other reasons.

An alternative to the significant cost and complexity of greywater reuse/rainwater harvesting could be a 6 litres/minute shower (typical for an electric shower) and no bath. Although this would save on the cost of installing a bath and reduce the bathroom space this would not be a direct comparison with the other specifications and has been excluded due to wider impact such as dwellings not being accepted by residents for not having a bath.

Water calculator

Washing machine - litres/kg dry load:
Baseline - 8.17
Code Level 3 / 4 - 6.67
Code Level 5 / 6 - 6.67

Dishwasher - all levels 1.25 lites/place setting:
Water consumption = 15 litres
Number of place settings = 12 place setting

Housing Standards Review

Water Standards - 4 bed detached house

Scheme size: Large - 100 units

11th April 2013

EC HARRIS BUILT ASSET CONSULTANCY AN ARCADIS COMPANY

AECB / EST Proposal	Base Level	Tighter Level						
				Rainwater 60%		Greywater 40%		
CfSH		Code Level 3 / 4		Code Level 5 /6		Code Level 5 /6		Comments
Water saving feature	Specification	Specification	E/O cost	Specification	E/O cost	Specification	E/O cost	
CfSH water consumption (l/p/d)	120	105		80		80		
Building Regs 2010 - Reg 36 (l/p/d)	125	110		85		85		
Physical costs								
Low flush WCs (2nr)	6/4 l dual or 4.5 l single	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	4/2.6 l dual	£ 50	
Low flow wash basin taps (2 nr)	6/min	5 l/min	£ -	5 l/min	£ -	5 l/min	£ -	Low flow taps used to achieve reduced flow rate
Low flow shower	10 l/min	8 l/min	£ 9	8 l/min	£ 9	8 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Bath capacity	185 l	170 l	£ -	170 l	£ -	170 l	£ -	
Kitchen tap flow rate	8 l/min	6 l/min	£ 9	6 l/min	£ 9	6 l/min	£ 9	Flow restictor used to achieve reduced flow rates
Water efficient washing machine	No	No	£ -	Yes	£ -	Yes	£ -	
Water efficient dishwasher	Yes	Yes	£ -	Yes	£ -	Yes	£ -	
Greywater reuse	No	No	£ -	No	£ -	Yes	£ 3,750	Including above / below ground storage tanks
Rainwater harvesting	No	No	£ -	Yes	£ 3,000	No	£ -	
Sub total			£ 68		£ 3,068		£ 3,818	
Total			**£ 68**		**£ 3,068**		**£ 3,818**	
					£3,368			Blended cost for rainwater / greywater

For each Code level, the Water Calculator was used to determine an approximate specification of water saving features to deliver the respective water consumption levels given in the CfSH technical guide.

Costs are based on:
EC Harris' internal benchmarking database which draws on costs data from past and present CfSH projects
Enquiries made with suppliers
Discussions with a leading M&E consultancy specialising in sustainability

Extra over costs have been applied where the cost of the water saving feature is greater than what would typically be supplied if the CfSH standard was not applied. Where costs are given as zero – this reflects our findings that those particular items are no more expensive to procure and install than standard features/fittings.

Flow restrictors contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure. They are typically fitted within the console of the tap or shower heads. In the case of the shower and kitchen tap it has been found that flow restrictors would be easier to procure and less expensive than more water efficient fittings.

Base Level sanitaryware is assumed to be basic spec in which case there is a cost premium for water efficient fittings. Note, for instances where higher spec sanitaryware would be the norm, extra over costs for sanitaryware could be zero.

The technical specifications provided in the table above have been cross referenced against the water label efficiency product database (http://www.water-efficiencylabel.org.uk/) – all are achievable and examples of these can be found by visiting the website.

Two options have been costed for achieving Code Level 5/6, rainwater harvesting and greywater. Rainwater harvesting systems require sufficient annual rainfall levels to be viable whereas greywater reuse systems are viable despite annual rainfall levels.

It has been assumed that approximately 60% of Code Level 5/6 houses adopt a rainwater harvesting solution in areas where rainfall is more prevalent. Similarly is has been assumed that approximately 40% of Code Level 5/6 houses adopt a greywater reuse solution in the areas of lower rainfall such as the South Eastern areas or where rainwater harvesting is not feasible for other reasons.

An alternative to the significant cost and complexity of greywater reuse/rainwater harvesting could be a 6 litres/minute shower (typical for an electric shower) and no bath. Although this would save on the cost of installing a bath and reduce the bathroom space this would not be a direct comparison with the other specifications and has been excluded due to wider impact such as dwellings not being accepted by residents for not having a bath.

Water calculator

Washing machine - litres/kg dry load:
Baseline - 8.17
Code Level 3 / 4 - 6.67
Code Level 5 / 6 - 6.67

Dishwasher - all levels 1.25 lites/place setting:
Water consumption = 15 litres
Number of place settings = 12 place setting

Appendix D – Security

Security costs summary by dwelling typology

Housing Standards Review

Domestic Security Standards - 2 Bed Flat (12 flats in block, 4 flats per floor)

14-May-13

EC HARRIS
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AN ARCADIS COMPANY

	Current Industry Practice					Secured by Design (Section 2)					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors											
Communal entrance door	Hardwood door and frame to communal door, automatic lock	1	Item	£940.00	£940.00	PAS 24 or LPS1175 and PAS 23, with electronic release linked to access control	1	Item	£1,200.00	£1,200.00	£260.00
Glass panel / side panel to communal entrance door	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Front entrace door	Hardwood door and frame, front entrance door	12	Item	£590.00	£7,080.00	PAS 23/24 Door Set Front	12	Item	£790.00	£9,480.00	£2,400.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00
Access Control / Mail Delivery											
Letter box bank	Standard letter box bank	12	Nr	£35.00	£420.00	Security letter box bank with fire retardation and anti-fishing attributes	12	Nr	£70.00	£840.00	£420.00
Audio visual access control system (Flats)	Audio door entry system	1	Item	£4,000.00	£4,000.00	Video door entry system	1	Item	£6,000.00	£6,000.00	£2,000.00
Windows											
External windows	Ground floor apartments 4nr: 5nr PVCU windows per apartment	1	Item	£7,580.00	£7,580.00	Ground floor apartments 4nr: 5nr PVCU windows per apartment to BS 7950	1	Item	£8,308.00	£8,308.00	£728.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00
Lighting											
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Item	£85.00	£85.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms											
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	13 amp non switched fused spur to take intruder alarm	12	Nr	£80.00	£960.00	£960.00
Bicycle Parking Internal											
Secure doorset	Hardwood door and frame	1	Nr	£425.00	£425.00	Secure doorset PAS 23/24	1	Nr	£650.00	£650.00	£225.00
Ground Anchor	None				£0.00	Ground Anchor - 'Sold Secure' Silver Standard	16	Nr	£20.00	£320.00	£320.00
Home Office											
Internal entrance door of robust construction	Hollow core flush door	12	Nr	£78.00	£936.00	Fire resistant robust door FD30	12	Nr	£109.00	£1,308.00	£372.00
BS 3621 lock	Latch only (incl)					BS Mortice Deadlock	12	Nr	£25.00	£300.00	£300.00
Party Wall, Sound Insulation and Communal Lofts											
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	Sold Secure Lock to communal lofts	1	nr	£30.00	£30.00	£30.00
				Total	**£21,561.00**				**Total**	**£29,661.00**	**£8,100.00**
				Total / flat	**£1,797.00**				**Total / flat**	**£2,470.00**	**£680.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

Costs have been sourced from EC Harris' internal benchmarking database which draws costs from past and present projects.

Assumptions

A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

Exclusions

Underground car parking for blocks of flats - we are aware there is a cost for this which will be quantified seperately for the proportion of blocks affected.

Housing Standards Review

Domestic Security Standards - 2 Bed Terrraced House

14-May-13

EC HARRIS
BUILT ASSET
CONSULTANCY
AN ARCADIS COMPANY

	Current Industry Practice					Secured by Design (Section 2)					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors											
Front and rear entrace door	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	PAS 23/24 Door Set Front and Rear (2 nr total)	1	Item	£1,350.00	£1,350.00	£270.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00
Glass panel / side panel	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Mail Delivery											
Internal letter plate deflector	None	0	Nr	£0.00	£0.00	Internal letter plate deflector	1	Nr	£18.00	£18.00	£18.00
Windows											
External windows	3nr PVCU windows (circa 1200x630, 1200x1200-2nr) - GF ONLY	1	Item	£1,089.00	£1,089.00	3nr PVCU windows (circa 1200x630, 1200x1200-2nr), laminated glass & BS 7950 - GF ONLY	1	Item	£1,289.00	£1,289.00	£200.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00
Lighting											
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Item	£85.00	£85.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms											
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	13 amp non switched fused spur to take intruder alarm	1	Nr	£80.00	£80.00	£80.00
Bicycle Parking External											
Timber shed and concrete base	Timber shed on concrete base	1	Item	£290.00	£290.00	Timber shed secured to concrete base	1	Nr	£310.00	£310.00	£20.00
Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	None				£0.00	Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	1	Nr	£40.00	£40.00	£40.00
Ground Anchor	None				£0.00	Ground Anchor - 'Sold Secure' Silver Standard	1	Nr	£20.00	£20.00	£20.00
Home Office											
Door	Hollow core flush door	1	Nr	£78.00	£78.00	Fire resistant robust door FD30	1	Nr	£109.00	£109.00	£31.00
BS 3621 lock	Latch only (incl)					BS Mortice Deadlock	1	Nr	£25.00	£25.00	£25.00
Party Wall, Sound Insulation and Communal Lofts											
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	Sold Secure Lock	0	nr	£30.00	£0.00	£0.00
				Total	**£2,717.00**				**Total**	**£3,506.00**	**£789.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

Costs have been sourced from EC Harris' internal benchmarking database which draws costs from past and present projects.

Assumptions

A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

Exclusions

Link door between garage and house at Level 1.5 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Vehicular garage entrance door and link door between garage and house at Level 3 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Housing Standards Review

Domestic Security Standards - 3 Bed Semi Detached House

14-May-13

EC HARRIS BUILT ASSET CONSULTANCY AN ARCADIS COMPANY

	Current Industry Practice					Secured by Design (Section 2)					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors											
Front and rear entrace door	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	PAS 23/24 Door Set Front and Rear (2 nr total)	1	Item	£1,350.00	£1,350.00	£270.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00
Glass panel / side panel	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Mail Delivery											
Internal letter plate deflector	None	0	Nr	£0.00	£0.00	Internal letter plate deflector	1	Nr	£18.00	£18.00	£18.00
Windows											
External windows	3nr PVCU windows (circa 1200x630, 1200x1200-2nr) - GF ONLY	1	Item	£1,089.00	£1,089.00	8nr PVCU windows (circa 1200x630, 1200x1200-7nr), laminated glass & BS 7950 to 3nr	1	Item	£1,289.00	£1,289.00	£200.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00
Lighting											
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Item	£85.00	£85.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms											
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	13 amp non switched fused spur to take intruder alarm	1	Nr	£80.00	£80.00	£80.00
Bicycle Parking External											
Timber shed and concrete base	Timber shed on concrete base	1	Item	£290.00	£290.00	Timber shed secured to concrete base	1	Nr	£310.00	£310.00	£20.00
Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	None				£0.00	Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	1	Nr	£40.00	£40.00	£40.00
Ground Anchor	None				£0.00	Ground Anchor - 'Sold Secure' Silver Standard	1	Nr	£20.00	£20.00	£20.00
Home Office											
Door	Hollow core flush door	1	Nr	£78.00	£78.00	Fire resistant robust door FD30	1	Nr	£109.00	£109.00	£31.00
BS 3621 lock	Latch only (incl)					BS Mortice Deadlock	1	Nr	£25.00	£25.00	£25.00
Party Wall, Sound Insulation and Communal Lofts											
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	Sold Secure Lock	0	nr	£30.00	£0.00	£0.00
				Total	**£2,717.00**				**Total**	**£3,506.00**	**£789.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

Costs have been sourced from EC Harris' internal benchmarking database which draws costs from past and present projects.

Assumptions

A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

Exclusions

Link door between garage and house at Level 1.5 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Vehicular garage entrance door and link door between garage and house at Level 3 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Housing Standards Review

Domestic Security Standards - 4 Bed Detached House

14-May-13

EC HARRIS BUILT ASSET CONSULTANCY AN ARCADIS COMPANY

	Current Industry Practice					Secured by Design (Section 2)					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors											
Front and rear entrace door	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	PAS 23/24 Door Set Front and Rear (2 nr total)	1	Item	£1,350.00	£1,350.00	£270.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00
Glass panel / side panel	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Mail Delivery											
Internal letter plate deflector	None	0	Nr	£0.00	£0.00	Internal letter plate deflector	1	Nr	£18.00	£18.00	£18.00
Windows											
External windows	4nr PVCU windows (circa 1200x630, 1770x1200, 1200x1200-2nr) - GF ONLY	1	Item	£1,765.00	£1,765.00	4nr PVCU windows (circa 1200x630, 1770x1200, 1200x1200-2nr), laminated glass & BS 7950 - GF ONLY	1	Item	£2,059.00	£2,059.00	£294.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00
Lighting											
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Item	£85.00	£85.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms											
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	13 amp non switched fused spur to take intruder alarm	1	Nr	£80.00	£80.00	£80.00
Bicycle Parking External											
Timber shed and concrete base	Timber shed on concrete base	1	Item	£290.00	£290.00	Timber shed secured to concrete base	1	Nr	£310.00	£310.00	£20.00
Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	None				£0.00	Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	1	Nr	£40.00	£40.00	£40.00
Ground Anchor	None				£0.00	Ground Anchor - 'Sold Secure' Silver Standard	1	Nr	£20.00	£20.00	£20.00
Home Office											
Door	Hollow core flush door	1	Nr	£78.00	£78.00	Fire resistant robust door FD30	1	Nr	£109.00	£109.00	£31.00
BS 3621 lock	Latch only (incl)					BS Mortice Deadlock	1	Nr	£25.00	£25.00	£25.00
Party Wall, Sound Insulation and Communal Lofts											
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	Sold Secure Lock	0	nr	£30.00	£0.00	£0.00
				Total	**£3,393.00**				**Total**	**£4,276.00**	**£883.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

Costs have been sourced from EC Harris' internal benchmarking database which draws costs from past and present projects.

Assumptions

A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

Exclusions

Link door between garage and house at Level 1.5 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Vehicular garage entrance door and link door between garage and house at Level 3 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Housing Standards Review

Domestic Security Standards - 2 Bed Flat (12 flats in block, 4 flats per floor)

31-May-13

EC HARRIS
BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

	Current Industry Practice					Level 1						Level 2					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors																	
Communal entrance door	Hardwood door and frame to communal door, automatic lock	1	Item	£940.00	£940.00	Hardwood door and frame to communal door, automatic lock	1	Item	£940.00	£940.00	£0.00	PAS 24 or LPS1175 and PAS 23, with electronic release linked to access control	1	Item	£1,200.00	£1,200.00	£260.00
Glass panel / side panel to communal entrance door	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Front entrace door	Hardwood door and frame, front entrance door	12	Item	£590.00	£7,080.00	Hardwood door and frame, front entrance door	12	Item	£590.00	£7,080.00	£0.00	PAS 23/24 Door Set Front	12	Item	£790.00	£9,480.00	£2,400.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Access Control / Mail Delivery																	
Letter box bank	Standard letter box bank	12	Nr	£35.00	£420.00	Standard letter box bank	12	Nr	£35.00	£420.00	£0.00	Security letter box bank with reasonable resistance to forced entry and unauthorised removal of contents	12	Nr	£70.00	£840.00	£420.00
Audio visual access control system (Flats)	Audio door entry system	1	Item	£4,000.00	£4,000.00	Audio door entry system	1	Item	£4,000.00	£4,000.00	£0.00	Video door entry system	1	Item	£6,000.00	£6,000.00	£2,000.00
Windows																	
External windows	Ground floor apartments 4nr: 5nr PVCU windows per apartment	1	Item	£7,580.00	£7,580.00	Ground floor apartments 4nr: 5nr PVCU windows per apartment	1	Item	£7,580.00	£7,580.00	£0.00	Ground floor apartments 4nr: 5nr PVCU windows per apartment to BS 7950	1	Item	£8,308.00	£8,308.00	£728.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Lighting																	
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£85.00	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£85.00	£0.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms																	
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	None	0	Nr	£80.00	£0.00	£0.00
Bicycle Parking Internal																	
Secure doorset	Hardwood door and frame	1	Nr	£425.00	£425.00	Hardwood door and frame	1	Nr	£425.00	£425.00	£0.00	Secure doorset PAS 23/24	1	Nr	£650.00	£650.00	£225.00
Ground Anchor	None				£0.00	None				£0.00	£0.00	Ground Anchor - 'Sold Secure' Silver Standard	16	Nr	£20.00	£320.00	£320.00
Home Office																	
Internal entrance door of robust construction	Hollow core flush door	12	Nr	£78.00	£936.00	Hollow core flush door	12	Nr	£78.00	£936.00	£0.00	Hollow core flush door	12	Nr	£78.00	£936.00	£0.00
BS 3621 lock	Latch only (incl)					Latch only (incl)					£0.00	Latch only (incl)	12	Nr	£0.00	£0.00	£0.00
Party Wall, Sound Insulation and Communal Lofts																	
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	Sold Secure Lock to communal lofts	1	nr	£30.00	£30.00	£30.00
				Total	**£21,561.00**				**Total**	**£21,561.00**	**£0.00**				**Total**	**£28,029.00**	**£6,468.00**
				Total / flat	**£1,797.00**				**Total / flat**	**£1,797.00**	**£0.00**				**Total / flat**	**£2,340.00**	**£540.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

The level 1 specification has been informed by the Domestic Security working group. This level is slightly higher than NHBC standards for security.

The level 2 specification has been informed by the Domestic Security working group and is equivalent to Secured by Design Section 2.

Costs have been sourced from EC Harris' internal benchmarking database which draws costs from past and present projects.

Assumptions

A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

Exclusions

Underground car parking for blocks of flats - we are aware there is a cost for this which will be quantified seperately for the proportion of blocks affected.

Housing Standards Review

Domestic Security Standards - 2 Bed Terrraced House

31-May-13

EC HARRIS
BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

	Current Industry Practice					Level 1						Level 2					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors																	
Front and rear entrace door	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	£0.00	PAS 23/24 Door Set Front and Rear (2 nr total)	1	Item	£1,350.00	£1,350.00	£270.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Glass panel / side panel	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Mail Delivery																	
Internal letter plate deflector	None	0	Nr	£0.00	£0.00	Letter plate size and location to avoid possibility of release of locking device	1	Nr	£0.00	£0.00	£0.00	Letter plate size and location to avoid possibility of release of locking device. Letter plate to resist unauthorised removal of items within 1000mm of the door.	1	Nr	£18.00	£18.00	£18.00
Windows																	
External windows	3nr PVCU windows (circa 1200x630, 1200x1200-2nr) - GF ONLY	1	Item	£1,089.00	£1,089.00	3nr PVCU windows (circa 1200x630, 1200x1200-2nr) - GF ONLY	1	Item	£1,089.00	£1,089.00	£0.00	3nr PVCU windows (circa 1200x630, 1200x1200-2nr), laminated glass & BS 7950 - GF ONLY	1	Item	£1,289.00	£1,289.00	£200.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Lighting																	
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£85.00	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£0.00	£0.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms																	
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	None	0	Nr	£80.00	£0.00	£0.00
Bicycle Parking External																	
Timber shed and concrete base	Timber shed on concrete base	1	Item	£290.00	£290.00	Timber shed on concrete base	1	Item	£290.00	£290.00	£0.00	Timber shed on concrete base	1	Item	£290.00	£290.00	£0.00
Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	None				£0.00	None				£0.00	£0.00	Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	1	Nr	£40.00	£40.00	£40.00
Ground Anchor	None				£0.00	None				£0.00	£0.00	Ground Anchor - 'Sold Secure' Silver Standard	1	Nr	£20.00	£20.00	£20.00
Home Office																	
Door	Hollow core flush door	1	Nr	£78.00	£78.00	Hollow core flush door	1	Nr	£78.00	£78.00	£0.00	Hollow core flush door	1	Nr	£78.00	£78.00	£0.00
BS 3621 lock	Latch only (incl)					Latch only (incl)					£0.00	Latch only (incl)				£0.00	£0.00
Party Wall, Sound Insulation and Communal Lofts																	
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	Sold Secure Lock	0	nr	£30.00	£0.00	£0.00
				Total	**£2,717.00**				**Total**	**£2,632.00**	**£0.00**				**Total**	**£3,350.00**	**£633.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

The level 1 specification has been informed by the Domestic Security working group. This level is slightly higher than NHBC standards for security.

The level 2 specification has been informed by the Domestic Security working group and is equivalent to Secured by Design Section 2.

Costs have been sourced from EC Harris' internal benchmarking database which draws costs from past and present projects.

Assumptions

A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

The further enhancement to Level 2 letter plate costs in areas of arson risk is relatively infrequently required and therefore not costed above

Exclusions

Link door between garage and house at Level 1 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Vehicular garage entrance door and link door between garage and house at Level 2 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Housing Standards Review

Domestic Security Standards - 3 Bed Semi Detached House

31-May-13

EC HARRIS
BUILT ASSET
CONSULTANCY
AN ARCADIS COMPANY

	Current Industry Practice					Level 1						Level 2					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors																	
Front and rear entrace door	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	£0.00	PAS 23/24 Door Set Front and Rear (2 nr total)	1	Item	£1,350.00	£1,350.00	£270.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Glass panel / side panel	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Mail Delivery																	
Internal letter plate deflector	None	0	Nr	£0.00	£0.00	Letter plate size and location to avoid possibility of release of locking device	1	Nr	£0.00	£0.00	£0.00	Letter plate size and location to avoid possibility of release of locking device. Letter plate to resist unauthorised removal of items within 1000mm of the door.	1	Nr	£18.00	£18.00	£18.00
Windows																	
External windows	3nr PVCU windows (circa 1200x630, 1200x1200-2nr) - GF ONLY	1	Item	£1,089.00	£1,089.00	3nr PVCU windows (circa 1200x630, 1200x1200-2nr) - GF ONLY	1	Item	£1,089.00	£1,089.00	£0.00	3nr PVCU windows (circa 1200x630, 1200x1200-2nr), laminated glass & BS 7950 - GF ONLY	1	Item	£1,289.00	£1,289.00	£200.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Lighting																	
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£85.00	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£0.00	£0.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms																	
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	None	0	Nr	£80.00	£0.00	£0.00
Bicycle Parking External																	
Timber shed and concrete base	Timber shed on concrete base	1	Item	£290.00	£290.00	Timber shed on concrete base	1	Item	£290.00	£290.00	£0.00	Timber shed on concrete base	1	Item	£290.00	£290.00	£0.00
Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	None				£0.00	None				£0.00	£0.00	Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	1	Nr	£40.00	£40.00	£40.00
Ground Anchor	None				£0.00	None				£0.00	£0.00	Ground Anchor - 'Sold Secure' Silver Standard	1	Nr	£20.00	£20.00	£20.00
Home Office																	
Door	Hollow core flush door	1	Nr	£78.00	£78.00	Hollow core flush door	1	Nr	£78.00	£78.00	£0.00	Hollow core flush door	1	Nr	£78.00	£78.00	£0.00
BS 3621 lock	Latch only (incl)					Latch only (incl)					£0.00	Latch only (incl)				£0.00	£0.00
Party Wall, Sound Insulation and Communal Lofts																	
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	Sold Secure Lock	0	nr	£30.00	£0.00	£0.00
				Total	**£2,717.00**				**Total**	**£2,632.00**	**£0.00**				**Total**	**£3,350.00**	**£633.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

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Assumptions

A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

The further enhancement to Level 2 letter plate costs in areas of arson risk is relatively infrequently required and therefore not costed above

Exclusions

Link door between garage and house at Level 1 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Vehicular garage entrance door and link door between garage and house at Level 2 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Housing Standards Review

Domestic Security Standards - 4 Bed Detached House

31-May-13

EC HARRIS
BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

	Current Industry Practice					Level 1						Level 2					
Element	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**	**Item Description**	**Quant**	**Unit**	**Rate**	**Total**	**Extra Over Baseline**
Doors																	
Front and rear entrace door	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	Hardwood door and frame, front entrance door and rear entrance door (2 nr total)	1	Item	£1,080.00	£1,080.00	£0.00	PAS 23/24 Door Set Front and Rear (2 nr total)	1	Item	£1,350.00	£1,350.00	£270.00
Door restrictor to front entrance door	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Glass panel / side panel	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00	Single glazed, laminated glass panel / side panel	1	Nr	£95.00	£95.00	£0.00
Mail Delivery																	
Internal letter plate deflector	None	0	Nr	£0.00	£0.00	Letter plate size and location to avoid possibility of release of locking device	1	Nr	£0.00	£0.00	£0.00	Letter plate size and location to avoid possibility of release of locking device. Letter plate to resist unauthorised removal of items within 1000mm of the door.	1	Nr	£18.00	£18.00	£18.00
Windows																	
External windows	4nr PVCU windows (circa 1200x630, 1770x1200, 1200x1200-2nr) - GF ONLY	1	Item	£1,765.00	£1,765.00	4nr PVCU windows (circa 1200x630, 1770x1200, 1200x1200-2nr) - GF ONLY	1	Item	£1,765.00	£1,765.00	£0.00	4nr PVCU windows (circa 1200x630, 1770x1200, 1200x1200-2nr), laminated glass & BS 7950 - GF ONLY	1	Item	£2,059.00	£2,059.00	£294.00
PVCU: BS 7412:2007	Included				£0.00	Included				£0.00	£0.00	Included				£0.00	£0.00
Lighting																	
PIR or Photo electric cell switched lighting	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£85.00	PIR or photo electric cell lighting provided to front entrance	1	Nr	£85.00	£0.00	£0.00	PIR or Photo electric switched lighting to front entrance and rear entrance	2	Nr	£85.00	£170.00	£85.00
Alarms																	
13 amp non switched fused spur to take intruder alarm	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	None	0	Nr	£80.00	£0.00	£0.00
Bicycle Parking External																	
Timber shed and concrete base	Timber shed on concrete base	1	Item	£290.00	£290.00	Timber shed on concrete base	1	Item	£290.00	£290.00	£0.00	Timber shed on concrete base	1	Item	£290.00	£290.00	£0.00
Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	None				£0.00	None				£0.00	£0.00	Shed door - 'Sold Secure' Silver Standard Padlock, Hasp and Staple	1	Nr	£40.00	£40.00	£40.00
Ground Anchor	None				£0.00	None				£0.00	£0.00	Ground Anchor - 'Sold Secure' Silver Standard	1	Nr	£20.00	£20.00	£20.00
Home Office																	
Door	Hollow core flush door	1	Nr	£78.00	£78.00	Hollow core flush door	1	Nr	£78.00	£78.00	£0.00	Hollow core flush door	1	Nr	£78.00	£78.00	£0.00
BS 3621 lock	Latch only (incl)					Latch only (incl)					£0.00	Latch only (incl)				£0.00	£0.00
Party Wall, Sound Insulation and Communal Lofts																	
Party walls of robust construction	Included	0	Item	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00	Included	0	Item	£0.00	£0.00	£0.00
Hatch locks	None	0	Nr	£0.00	£0.00	None	0	Nr	£0.00	£0.00	£0.00	Sold Secure Lock	0	nr	£30.00	£0.00	£0.00
				Total	**£3,393.00**				**Total**	**£3,308.00**	**£0.00**				**Total**	**£4,120.00**	**£727.00**

Notes

The current industry practice represents the security features that are typically installed for new dwellings this view is based on EC Harris's considerable experience in working on residential projects. This includes basic home office provision (latch to bedroom door) and timber shed for bicycle storage (houses). Although not NHBC standards these items are commonly installed by developers and house builders.

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A glazed door or a door with side panel is assumed in all cases to allow natural light - the cost allows for either.

The further enhancement to Level 2 letter plate costs in areas of arson risk is relatively infrequently required and therefore not costed above

Exclusions

Link door between garage and house at Level 1 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Vehicular garage entrance door and link door between garage and house at Level 2 - we are aware there is a cost for this which needs to be quantified seperately for the proportion of houses with garages

Appendix E – Accessibility

Summary accessibility costs by dwelling typology

Housing Standards Review

Access Cost Matrix

8th April 2013

EC HARRIS BUILT ASSET CONSULTANCY
AN ARCADIS COMPANY

	Access Standard								
TWO BED FLAT	Level 1			Level 2			Level 3		
	Omit	Add	Cost Varience	Omit	Add	Cost Varience	Omit	Add	Cost Varience
Baseline	Part M		£0	Lifetime Homes		£1,035	WHDG		£13,314
Criteria A (Omissions)	£0	£0	£0	-£55	£0	-£55	-£1,892	£0	-£1,892
Criteria B (Areas Relaxed)	£0	£0	£0	£0	£0	£0	-£1,588	£0	-£1,588
Criteria C (Areas Tightened)	N/A	N/A	N/A	N/A	N/A	N/A	£0	£2,750	£2,750
TOTAL CHANGE	£		-	-£		55	-£		730
Adjusted Cost	£		-	£		980	£		12,584

TWO BED TERRACED HOUSE	Level 1			Level 2			Level 3		
	Omit	Add	Cost Varience	Omit	Add	Cost Varience	Omit	Add	Cost Varience
Baseline	Part M		£0	Lifetime Homes		£1,044	WHDG		£12,488
Criteria A (Omissions)	£0	£0	£0	-£305	£0	-£305	-£1,892	£0	-£1,892
Criteria B (Areas Relaxed)	£0	£0	£0	-£350	£0	-£350	-£1,588	£0	-£1,588
Criteria C (Areas Tightened)	N/A	N/A	N/A	N/A	N/A	N/A	£0	£2,750	£2,750
TOTAL CHANGE	£		-	-£		655	-£		730
Adjusted Cost	£		-	£		388	£		11,758

THREE BED SEMI DETACHED HOUSE	Level 1			Level 2			Level 3		
	Omit	Add	Cost Varience	Omit	Add	Cost Varience	Omit	Add	Cost Varience
Baseline	Part M		£0	Lifetime Homes		£1,049	WHDG		£13,031
Criteria A (Omissions)	£0	£0	£0	-£250	£0	-£250	-£1,992	£0	-£1,992
Criteria B (Areas Relaxed)	£0	£0	£0	-£350	£0	-£350	£0	£0	£0
Criteria C (Areas Tightened)	N/A	N/A	N/A	N/A	N/A	N/A	£0	£2,900	£2,900
TOTAL CHANGE	£		-	-£		600	£		908
Adjusted Cost	£		-	£		449	£		13,939

FOUR BEDROOM DETACHED HOUSE	Level 1			Level 2			Level 3		
	Omit	Add	Cost Varience	Omit	Add	Cost Varience	Omit	Add	Cost Varience
Baseline	Part M		£0	Lifetime Homes		£1,051	WHDG		£13,170
Criteria A (Omissions)	£0	£0	£0	-£250	£0	-£250	£0	£0	£0
Criteria B (Areas Relaxed)	£0	£0	£0	-£350	£0	-£350	£0	£3,050	£3,050
Criteria C (Areas Tightened)	N/A	N/A	N/A	N/A	N/A	N/A	£0	£0	£0
TOTAL CHANGE	£		-	-£		600	£		3,050
Adjusted Cost	£		-	£		451	£		16,220

Notes/Assumptions:

- No cost are included for the additional build cost associated with larger area dwellings (see space standard review)
- All lift cost based on a 30Nr units over 3 floors (i.e 10Nr Units per floors) to demonstrate the saving
- Item 3b 'Lift Shaft only required in Wheelchair Adaptable' excluded as all other items related to full wheelchair standard, not Wheelchair accessible
- Cost of garages excluded from Wheelchair Unit cost as this is not 'standard' practice
- Lift costs have only been allowed within Flats
- Extra over carpark costs have been based on providing additional hard landscaping and deducting soft landscaping costs.
- Communal car parking costs have been divided by 5Nr units as this is only required 'per core or per lift'
- No cost relating to additional space have been incorporated within the comparison.
- To achieve 'windows - operating at reduced height' required under the WCHDG an additional 5% of window area has been included inorder to keep the uniformity of the design
- Costs have been sourced from EC Harris' internal benchmarking database which draws costs from past and present projects.
- The criteria for the 3Nr standard and the items to be eithier omitted, added or relaxed is based on 'Technical Review Minutes dated 11th March 2013'

Accessibility Standard

		2 Bed Flat		2 Bed Terr		3 Bed Semi		4 Bed Det		
		Omit Cost	**Add Cost**	**Omit Cost**	**Add Cost**	**Omit Cost**	**Add Cost**	**Omit Cost**	**Add Cost**	
	Level 1									
1a	None	£0	0	£0	0	£0	0	£0	0	
1b	Stair Width 860mm	£0	£0	£0	£0	£0	£0	£0	£0	- Cost neutral
	Level 2	**Cost**		**Cost**		**Cost**		**Cost**		
2a	Communal parking	-£55	£0	-£55	£0	£0	£0	£0	£0	- 'Standard' Car Park (2.4x4.8) = 11.52m2 - LTH (3.3x6) = 19.8m2 - Additional area = 8.28m2 - Not 'provided therefor third of cost
	Omit 900mm clear opening option	£0	£0	£0	£0	£0	£0	£0	£0	- Unusual occurance, right angles to corridor
	Wheelchair turning circles	£0	£0	£0	£0	£0	£0	£0	£0	- Criteria does not require 'additional space over and above what is currently provided. *('Living rooms/areas and dining rooms/areas should be capable of having either a clear turning circle of 1500mm diameter, or a turning ellipse of 1700mm x 1400mm. Where dwelling layout plans include furniture layouts, occasional items of furniture (typically coffee tables & side tables) can be within or overlap these turning zones.')*
	Temporary Bed Space	£0	£0	£0	£0	£0	£0	£0	£0	Additional Space dealt with under Space standard
	Through floor lifts	£0	£0	-£250	£0	-£250	£0	-£250	£0	Through floor lift. Typically provided in houses - additional joists/design and space (just joist not lift fitting costs)
	Strengthened ceiling	£0	£0	£0	£0	£0	£0	£0	£0	Strengthed ceiling for hoist
2b	Reduced stair width to 860mm from 900mm	£0	£0	£0	£0	£0	£0	£0	£0	
	Remove shower requirement from smaller w/c	£0	£0	-£350	£0	-£350	£0	-£350	£0	Drainage provided; capping off; forming area
	Relax height of some services	£0	£0	£0	£0	£0	£0	£0	£0	
	Allow window handles up to 1500mm	£0	£0	£0	£0	£0	£0	£0	£0	
	Level 3 - Proposed changes to WHDG and GLA BPG									
	Omissions									
3a	Gardens	£0	0	£0	0	£0	0	£0	0	Requirements concerned with layout and usability. No specific cost saving
	Garages	£0		£0		£0		£0		5.4 X 4.2 Provided (optional) assume 5k standard garage (13m2)=£385m2 SAY 8732
			0		0		0		0	
	Canopy Height	£0	0	£0	0	£0	0	£0	0	Maximum height removed - cost neutral
	Letter boxes	-£30	0	-£30	0	-£30	0	-£30	0	Cost assumes letter cage requirement removed
	Future Provision for Entrance Phone	£0	0	£0	0	-£100	0	-£100	0	Only larger houses impacted. Dependant on route from kitchen to front entrance (length of cabling required)
	Turning through 180degrees in hall	£0	0	£0	0	£0	0	£0	0	Larger hall required - additional cost for larger unit dealt with under space
	400mm between doors at angles	£0		£0		£0		£0		Design standard. Additional costs associated with a larger area dealt with under space standard
			0		0		0		0	
	Sliding doors	-£600		-£600		-£600		-£600		Assume £300 extra over cost for door; £250 for concealed tracks and £50 fitting
			0		0		0		0	
	Storage to be shallow	£0	0	£0	0	£0	0	£0	0	Additional space standard
	Windows opeing to to paths	£0	0	£0	0	£0	0	£0	0	Design item
	Full plate or large rocker switches	-£12	0	-£12	0	-£12	0	-£12	0	Assume 6Nr switches @ extra over £2)
	Winding gear to window	-£1,250	0	-£1,250	0	-£1,250	0	-£1,250	0	Assume manual not electronic (£250/window; assume 5 windows)
		-£1,892		**-£1,892**		**-£1,992**		**-£1,992**		
3b	**Relaxed**									
	Requires 2 lift only where over 30 dwellings	-£1,588		£0		£0		£0		Assume 10Nr units per floor therefore over 4 floors would require additional lift; Lift cost = £47.666 divide by 30Nr dwellings (i.e 3 floors of 10Nr)
	Lift Shaft only required for Wheelchair adaptable									*Assumed 3 storeys; cost of £22,833 divided by 30 Units ((10Nr per floor)= £1589; Shaft Only =£795*
	Sockets 300mm from internal corner	£0	£0	£0	£0	£0	£0	£0	£0	
	Direct connection from bed to bath	£0	£0	£0	£0	£0	£0	£0	£0	Dwelling Layout costs
	Radiator relaxed to normal height	£0	£0	£0	£0	£0	£0	£0	£0	Cost Neutral
3c	Areas tightened									
	Storage/Transfer space required in circulation close to entrance	£0	£0	£0	£0	£0	£0	£0	£0	Additional Hallway area potentially required
	2m additional lowered worktop (sink + w'top + hob)	£0	£150	£0	£150	£0	£150	£0	£150	Full wheelchair only (assume just worktop and not hob/cooker/sink)
	Shower area required while bath retained	£0	£1,700	£0	£1,700	£0	£1,700	£0	£1,700	Additional Drainage, water pipes, pipework, floor adjustment for accessible shower, shower unit and rail/curtain
	Provide accessible W/C at Entrance Level	£0	£0	£0	£0	£0	£0	£0	£0	Building Regs requirement under Doc M
	Low surface Temperature radiators throughout	£0	£900	£0	£900	£0	£1,050	£0	£1,200	Additional £150 per radiator. Assume 6Nr radiators

Lifetime Homes Design Criteria Cost

		2 Bed Flat	2 Bed Terr	3 Bed Semi House	4 Bed Detached	
	Standard	**Costs**	**Costs**	**Costs**	**Costs**	**Comments**
1	Parking Adaptation - potential to increase parking space (3.3 x 4.8) required	£141	£0	£0	£0	- 'Standard' Car Park (2.4x4.8) = 11.52m2 - LTH (3.3x6) = 19.8m2 - Additional area = 8.28m2 - Say hard = £85/m2 = £703 Say only provided to every 5th unit (provided near each entrance or lift core) Terraces assumes on-street parking where the standard can be accomodated at no additional cost
2	Approach to dwelling	£0	£0	£0	£0	Addressed under Part M
3	Approach to all entrances	£0	£0	£0	£0	Addressed under Part M
4	Entrance	**£83**	**£133**	**£133**	**£133**	- To be illuminated - Level Access over threshold - addressed under Part M - Entrance Porch NB: Flat costs divided between 40Nr flats
5	Communal Stairs &Lifts	**£0**	**£0**	**£0**	**£0**	
6	Hallway Width and Doors	£0	£25	£25	£25	Extra over cost of £62 to allow for 1050mm door. 2 doors allowed, total in 20% of dwellings
7	Circulation	£0	£0	£0	£0	
8	Entrance Level Living	£0	£0	£0	£0	
9	Potential for entrance bed space	£0	£0	£0	£0	
10	Entrance Level WC and Shower Drainage	£275	£275	£275	£275	Additional drainage point including falls to screed and filled in. Additional labour etc included. Same to all units
11	WC and Bathroom Walls	£384	£384	£384	£384	8m x 2.4m = 19.2m2 ; Lining board £20 supply and fit
12	Stairs and Through floor Lift space	£0	£0	£0	£0	Space Only. No allowance made for concrete floors No allowance made in flats as assumed single storey
13	Potential for fitting hoist	£18	£91	£91	£91	Requirement is design related and 'requires capabe of adaptation to support' Cost in flats is an allowance based on additional support in some top floor flats (however subject to structural design and would not necessarily be required in concrete frame building). Flat allowance therefore based on 11m2 (bedroom size) x £10/m2. Cost divided by 12 plots per block, multiplied by 4 top floor flats. Total cost divided by 50% (assuming 50% units concrete not timber) Cost allowed for double joist/strengthening. Bedroom length assumed 3.5m; double joist allowed therefore 7m @ £13/m
14	Bathroom	£116	£116	£116	£116	Additional space required to comply therefore additional flooring, drainage point costed withing item 9. Additional tiling and flooring. Cost Breakdown provided below
15	Glazing and window heights	£14	£16	£18	£20	Nominal cost included as requirement means a top hung window, therefore limited supply chain
16	Service Controls	£5	£5	£8	£9	Radiator controls require between 450 and 1200mm. Additional pipework required accommodate.
	Total	**£1,035**	**£1,044**	**£1,049**	**£1,051**	

Bathroom costing break down:- Standard Bathroom

	Wall Width		*Wall Length*	
Standard	*1.7*	*m*	*1.8*	*m*
LTH	*2.1*	*m*	*2.1*	*m*
Difference 'Norm'/LTH	***0.4***	***m***	***0.3***	***m***
Floor to Ceiling	*2.4*	*m*	*2.4*	*m*
Additional Wall area	***0.96***	***m2***	***0.72***	***m2***
Wall				
Plasterboard incl. sundries (@ £18.50/m2)	17.76	£/m2	13.32	£/m2
Extra Over Tiling (@£50/m2 Supply and Fit)	**48.00**		**36.00**	
GIFA	*3.06*	*m2*	*4.41*	*m2*
Flooring (@£50/m2)	153	£/m2	220.5	£/m2
Extra over cost	**67.5**	**£/m2**		
TOTAL	**115.50**	**£/m2**		

Entrance

	House		*Flat Block*		**Assume 40Nr Flats*
Canopy	*500*	*£/Nr*	*950*	*£/Nr*	
Light	*50*	*£/Nr*	*50*	*£/Nr*	
	550	*£/Nr*	*1000*	*£/Nr*	
			83.33	***£/Nr***	
Adjusted					
Canopy	125	£/Nr			*** 75% already have canopy**
Light	7.5	£/Nr			*** 85% already have ext light**
	132.5	£/Nr			

~~Lift Cost~~

~~Opening Dimension~~ ~~1000 x 1500mm~~
~~Joist~~ ~~5~~ ~~m~~ ~~13~~
~~65~~ ~~£/Nr~~

Radiator Pipes

			Flat	2bed	3 Bed	4Bed
Per Radiator (flow and return)	700 mm	Nr Radiators	6	6	10	11
			4200	4200	7000	7700
			4.2	4.2	7	7.7
	0					
Pipe £28 for 25m	1.12					
			4.704	**4.704**	**7.84**	**8.624**

Wheelchair Housing Design Guide

Standard		REQUIREMENTS	Flat £	Terraced £	Semi £	Det £	Comments
External Environment and entrances							
Moving Around Outside							
	1.2.1	1200mm path	£150	£188	£375	£375	Path - Standard 900mm, say 5m per dwelling @ £75/m
	1.2.2	Protective kerb edging	£125	£125	£250	£250	5m @£25/m
	1.2.3	Gradient	£0	£0	£0	£0	Building Reg
	1.2.4	Cross falls	£0	£0	£0	£0	
	1.2.5	Crossings	£0	£0	£0	£0	
Using outdoor spaces							
	2.2.1	Gardens - 850mm gate opening	£0	£50	£50	£50	Extra over for wider gate and additional ironmongery
	2.2.2		£0	£0	£0	£0	Design Item
	2.2.3	Accessible Paving	£0	£375	£375	£375	Additional 4m2
	2.2.4	Refuse	£0	£0	£0	£0	Design related
Aproaching the home							
	3.2.1	Covered Car parking (5.4 x 3.6 x 2.2)	£3,000	£3,000	£3,000	£3,000	Car port
	3.2.2	Min height covered area	£0	£0	£0	£0	Addressed under 3.2.1
	3.2.3	Dwelling with communal external entrance	£0	£0	£0	£0	
	3.2.4	*Garages*	*£0*	*£0*	*£0*	*£0*	*Not ideal therefore costs not included*
	3.2.5	Route to entrance - smooth slip resistant	£0	£0	£0	£0	Design and material specification issue - no required cost
	3.2.6	Entrance Landing - 1500 x 1500mm	£225	£225	£225	£225	
	3.2.7	1200mm canopy	£950	£950	£950	£950	
	3.2.8	Lighting of transfer area	£0	£0	£0	£0	Provided as standard
	3.2.9	Additional Lift	£1,589	£0	£0	£0	Assume 10Nr units per floor therefore over 4 floors would require additional lift; Lift cost = £47,666 divide by 30Nr dwellings (i.e 3 floors of 10Nr)
Negotiating Entrance Doors							
	4.2.1	Door - 800mm	£125	£125	£125	£125	To accommodate larger door/frame etc
	4.2.2	Approaching space	£0	£0	£0	£0	Space/ Design
	4.2.3	Threshold	£0	£0	£0	£0	
	4.2.4	Lock - 800 -900mm high	£0	£0	£0	£0	Height
	4.2.5	Remote controlled door opener	£800	£800	£800	£800	£550 nett cost, electrical installation etc. Front door only
	4.2.7	Lever, Pull Handles	£0	£0	£0	£0	Specification
	4.2.8	Entry Phone	£0	£0	£0	£0	Height of install - no additional cost
	4.2.9	Bell	£0	£0	£0	£0	Height of install - no additional cost
	4.2.10	External Light	£0	£0	£0	£0	Supplied generally 'as standard'
	4.2.12	Pull - pull bar	£200	£300	£350	£400	Say, 5Nr doors. £50 supply and fit per door
Entering and Leaving							
	5.2.1	Transfer - 1100 x 1700 required	£0	£0	£0	£0	Space
	5.2.2	Turning Space - 1500 x 1800mm clear turning	£0	£0	£0	£0	Space
	5.2.3	Post - Fitting to collect post	£0	£30	£30	£30	Flat assumed to have post boxes 'as standard'
	5.2.4	Entry Phone - future provision					
	5.2.5	Lobby - Requirement for space if additional lobby	£0	£0	£0	£0	Additional Space therefore not extra cost

Standard		REQUIREMENTS	£	£	£	£	Comments
Negotiating secondary door							
	6.2.1	Landing 1500 x 1500mm landing	£0	£0	£0	£0	Space
	6.2.2	Door - clear width of 800mm	£100	£150	£175	£200	£25/door
	6.2.3	Approach - Space to approach, manouvere and pass through door	£0	£0	£0	£0	Space
	6.2.4	Threshold - weathertight	£0	£0	£0	£0	
Internal Environment							
Moving around inside - storing things							
	7.2.1	Straight passages	£0	£0	£0	£0	900mm min width - space
	7.2.2	Head on approach to doors in passage	£0	£0	£0	£0	Space/Design
	7.2.3	Turning 90 degrees	£0	£0	£0	£0	
	7.2.3	Turning 180 degrees	£0	£0	£0	£0	Space/Design
	7.2.5	Right angles	£0	£0	£0	£0	Design detail / space
	7.2.6	Effective clear width for doors	£0	£0	£0	£0	
	7.2.7	Space to approach doors	£0	£0	£0	£0	
	7.2.8	Doors at angles	£0	£0	£0	£0	Design detail / space
	7.2.9	Sliding doors	£0	£0	£0	£0	Not required/provided as standard therefore nil cost allowed
	7.2.10	Storage - depth and width	£0	£0	£0	£0	
Moving between levels within the dwelling							
	8.2.1	Lift	£0	£0	£0	£0	Provided 'as standard' in most flatted blocks ?
	8.2.2	Installation	£0	£0	£0	£0	Safety and security features provided as standard
	8.2.3	Circulation	£0	£0	£0	£0	Design / space
Using living spaces							
	9.2.1	Room Layout	£0	£0	£0	£0	Space
	9.2.2	Radiators - does not inhibit reasonable layout	£0	£0	£0	£0	Layout - not additional cost
	9.2.3	Sockets - not sited within 750mm of internal angle	£0	£0	£0	£0	Layout - not additional cost
Usinng the kitchen							
	10.2.1	Layout - windows positioned for ease of control and cleaning	£0	£0	£0	£0	Layout and space
	10.2.2	Worktops - 600mm deep worktop	£150	£150	£150	£150	
	10.2.3	Sink - adjustable	£500	£500	£500	£500	Cost of sink (E/O) - plumbing as standard
	10.2.4	Storage	£250	£250	£250	£250	Additional base units inlieu of wall
	10.2.5	Controls and Lighting	£0	£0	£0	£0	Height of lights
	10.2.6	Appliances - install hob and built in oven	£900	£900	£900	£900	Supply and fit
	10.2.7	Refuse	£0	£0	£0	£0	
Using the bathroom							
	11.2.1	Bathroom - fully accessible toilet, shower etc	£2,470	£2,470	£2,470	£2,470	£800 shower; £750 toilet, £500 sink, £150 grab rails; Additional Tiling £270
	11.2.2	Direct Access from bed to bath	£0	£0	£0	£0	Design/Layout
	11.2.3	Additional W/C in dwelling of 4 or more	£0	£0	£0	£0	Not 'standard' requirement
	11.2.4	Layout - independent transfer	£0	£0	£0	£0	Space standard
	11.2.5	W/C - position for range of diff transfer positions	£0	£0	£0	£0	Space standard
	11.2.6	Shower - drained floor	£0	£0	£0	£0	Dealt with under 11.2.1
	11.2.7	Bath - allow range of transfer	£0	£0	£0	£0	
Standard		**REQUIREMENTS**	**£**	**£**	**£**	**£**	**Comments**
	11.2.8	Basin - clearance under bowl	£0	£0	£0	£0	Dealt with under 11.2.1
	11.2.9	Finishes	£0	£0	£0	£0	Dealt with under 11.2.1
	11.2.10	Support - wall	£22	£22	£22	£22	8m x 2.7m = 2.2m2 ; Lining board £10 supply and fit
Using the bedrooms							
	12.2.1	Layout	£0	£0	£0	£0	Design/space
	12.2.2	Controls	£0	£0	£0	£0	Location rather then additional
	12.2.3	Door - knock out panel	£300	£300	£300	£300	Additional time/work
	12.2.4	Hoist - strengthening ceiling, provide conduit wiring in roof	£650	£650	£650	£650	£50 for wiring; £600 for stengthening
Components and details							
Operating internal doors							
	13.2.1	Construction - door allows future grab handles	£0	£0	£0	£0	Solid door - generally required for fire under building regs

	13.2.2	Handle heights	£0	£0	£0	£0	
	13.2.3	Locking - indicators openable in emergency	£0	£0	£0	£0	
	13.2.4	Emergency opening - inward opening door open outwards in an emegency	£0	£0	£0	£0	
Operating windows							
	14.2.1	Approach	£0	£0	£0	£0	
	14.2.2	Lower height	£105	£225	£375	£435	Generally requires a larger window; 5% larger - allowance of additional £100 per window and say 4 Nr (exclude kitchen and bath - winders costed under 14.2.3)
	14.2.3	Window gear	£500	£500	£500	£500	Assume £250 per winder, assume only required on Kitchen & Bathroom
	14.2.4	Safety - not over paths	£0	£0	£0	£0	Design
	14.2.5	Glazing	£0	£0	£0	£0	Dealt with under 14.2.1
	14.2.6	Transom	£0	£0	£0	£0	Design
Controlling services							
	15.2.1	Mains services - location	£0	£0	£0	£0	Design
	15.2.2	Plumbing	£0	£0	£0	£0	
	15.2.3	Flexible Plumbing	£0	£0	£0	£0	
	15.2.4	Switches	£28	£28	£34	£38	Assume 6Nr switches @ extra over £2)
	15.2.5	Socket outlets - general	£0	£0	£0	£0	Height
	15.2.6	Socket outlets - appliance	£0	£0	£0	£0	Height
	15.2.7	Telephone	£75	£75	£75	£75	Additional 5Nr BT socket @£15
	15.2.8	Future Control	£100	£100	£100	£100	2Nr additional
Total			**£13,314**	**£12,488**	**£13,031**	**£13,170**