



Code for Sustainable Homes

**Summary of Changes to the Technical Guidance**

**May 2009**

**Version 2**





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# Introduction

This document is a list of the changes in the May 2009 version of the Code Technical Guidance and the previous version (October 2008). In addition to this document, all the changes within the Technical Guide have been back highlighted in grey within the text.

Code for Sustainable Homes May 2009 Update Summary of Changes		
Issue ID	Location	Detail
<b>Preface</b>	Pg 2, changes to the technical guidance	<p><b>Deleted:</b> 'A list of changes between this version (October 2008) and the previous version (April 2008) of the Code for Sustainable Homes Technical Guidance is published as a separate document. In addition to this, where the assessment criteria have changed or special cases amended, these have been back highlighted in grey within the text of this document.'</p> <p><b>Inserted:</b> 'A list of changes between this version (May 2009) and the previous version (October 2008) of the Code for Sustainable Homes Technical Guidance is published as a separate document. All changes have been back highlighted in grey within the text of this document.'</p>
<b>Preface</b>	Pg 18, 1.4 total percentage points score and resulting Code level	<b>Sentence formatted in bold:</b> 'The total percentage point score must be rounded down to the nearest whole number.'
<b>Ene 1</b>	Pg 41, post construction stage evidence requirements	<p><b>Inserted: 'OR'</b></p> <p><b>After:</b> ' • A letter of conformity to specification'</p>
<b>Ene 1</b>	Pg 41, design stage evidence requirements	<p><b>Deleted:</b> 'Design Stage – SAP 2005 Worksheet*'</p> <p><b>Inserted:</b> 'For Code Levels 1–5: Design Stage – SAP 2005 DER Worksheet*'</p>
<b>Ene 1</b>	Pg 41, design stage evidence requirements	<p><b>Inserted:</b> 'For Code Level 6: Design Stage – SAP 2005 Worksheet* for each <i>Energy Type</i> and accompanying list of specifications from an <i>accredited energy assessor</i>'</p> <p><b>Before:</b> '*Full worksheet, dated with energy assessor name, registration number and address of development, prepared at plans approval stage'</p>
<b>Ene 1</b>	Pg 41, post construction stage evidence requirements	<p><b>Deleted:</b> 'As Built Stage – SAP 2005 Worksheet*'</p> <p><b>Inserted:</b> 'For Code Levels 1–5: As Built Stage – SAP 2005 DER Worksheet*'</p>

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Issue ID	Location	Detail
Ene 1	Pg 41, post construction stage evidence requirements	<b>Inserted:</b> 'For Code Level 6: As Built Stage – SAP 2005 Worksheet* for each <i>Energy Type</i> and accompanying list of specifications from an <i>accredited energy assessor</i> ' <b>Before:</b> '*Full worksheet, dated with energy assessor name, registration number and address of development, prepared at construction completion stage, if different from Design Stage'
Ene 1	Pg 43, definitions – As Built SAP 2005 Worksheet	<b>Deleted: Entire definition.</b>
Ene 1	Pg 43, definitions – Design Stage SAP 2005 Worksheet*	<b>Deleted: Entire definition.</b>
Ene 1	Pg 45, private wire definition, 2nd paragraph, last sentence	<b>Deleted:</b> 'dwelling' <b>Inserted:</b> 'development'
Ene 1	Pg 45, definitions	<b>New Definition Inserted:</b> <b>SAP 2005 DER Worksheet (Design &amp; As-Built Stage):</b> An output of SAP 2005 software summarising all relevant Design Stage construction data and the emissions calculated by SAP 2005 for the dwelling, including the assumptions included in AD L1A for calculation of the DER.
Ene 1	Pg 45, definitions	<b>New Definition Inserted:</b> <b>SAP 2005 Worksheet (Design &amp; As-Built Stage):</b> An output of SAP 2005 software summarising all relevant Design Stage construction data and the emissions calculated by SAP 2005 for the dwelling as designed.
Ene 1	Pg 45, definitions – SAP definition	<b>Inserted:</b> 'The limitation on SAP usage for Part L compliance for dwellings with a total floor area of 450m <sup>2</sup> or more, has been removed.' <b>After: The second paragraph (new paragraph).</b>

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Issue ID	Location	Detail
Ene 1	Pg 47, calculation procedures	<p><b>Deleted:</b> 'All of the SAP line number referenced in the following calculation procedures refer to the actual SAP line numbers detailed in the Government's Standard Assessment Procedure for the energy rating of dwellings. The SAP 2005 document can be found at <a href="http://projects.bre.co.uk/sap2005/">http://projects.bre.co.uk/sap2005/</a>'</p> <p><b>Inserted:</b> 'The SAP box reference numbers included in the following calculation procedure are taken from the Government's Standard Assessment Procedure (SAP) for the energy rating of dwellings, 2005 edition, revision 2, June 2008. The SAP 2005 document can be found at: <a href="http://projects.bre.co.uk/sap2005/">http://projects.bre.co.uk/sap2005/</a>. It is the responsibility of the assessor to ensure that the box numbers indicated on any outputs from third party SAP software, correlate with the SAP 2005 specification document.'</p>
Ene 1	Pg 49 – 50, table cat 1.2 and notes	<p><b>Deleted: Assessment criteria table and notes.</b></p> <p><b>Inserted: Revised assessment criteria table</b> (see Appendix A)</p>
Ene 2	Pg 55, As Built SAP 2005 Worksheet definition	<b>Entire definition deleted.</b>
Ene 2	Pg 55, Design Stage SAP 2005 Worksheet definition	<b>Entire definition deleted.</b>
Ene 2	Pg 55, definitions	<p><b>New Definition Inserted:</b></p> <p><b>SAP 2005 Worksheet (Design &amp; As-Built Stage):</b></p> <p>Refer to Ene 1</p>
Ene 3	Pg 58, design stage evidence requirements	<p><b>Inserted:</b></p> <p><b>'AND</b></p> <p>Confirmation of the types of light fittings and efficacy, in lumens per circuit watt, for all lamps.'</p> <p><b>After:</b> 'Calculation of the percentage of dedicated energy efficient light fittings in all rooms'</p>
Ene 3	Pg 58, post construction stage evidence requirements	<p><b>Deleted:</b> 'Note: for CFL and TFL fittings confirmation of efficacy is not required.'</p>

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Issue ID	Location	Detail
<b>Ene 5</b>	Pg 66, assessment criteria table	<b>Inserted:</b> 'In order to award credits, any white goods provided must be compliant with the above criteria (even if all white goods listed are not provided.' <b>After:</b> ' <b>If no (or not all) white goods are provided</b> but information on the EU Energy Efficiency Labelling Scheme is provided to each dwelling where this is the case'
<b>Ene 5</b>	Pg 68, Special Cases	<b>Deleted:</b> 'None' <b>Inserted:</b> 'In circumstances where appliances required to achieve credits under this issue are not covered by the EU Energy labelling scheme (e.g. gas powered tumble dryers), recognition under the Energy Saving Trust's <i>Energy Saving Recommended</i> scheme ( <a href="http://www.energysavingtrust.org.uk/esr">www.energysavingtrust.org.uk/esr</a> ) is deemed to demonstrate compliance. Evidence confirming that the make and model of the appliance meets the requirements of the scheme and is permitted to display the Energy Saving Recommended logo should be provided. The evidence must be dated to show that the endorsement is current.'
<b>Ene 6</b>	Pg 71, design stage evidence requirements	<b>Inserted:</b> <b>'AND</b> Confirmation of the types of light fittings and efficacy, in lumens per circuit watt, for all lamps.' <b>After:</b> 'Relevant drawings clearly showing location of all external light fittings'
<b>Ene 7</b>	Pg 76, design stage evidence requirements	<b>Deleted:</b> 'Design Stage – SAP 2005 Worksheet*' <b>Inserted:</b> 'Design Stage – SAP 2005 DER Worksheet*'
<b>Ene 7</b>	Pg 76, post construction stage evidence requirements	<b>Both instances of:</b> 'SAP 2005 Worksheets' <b>Replaced with:</b> 'SAP 2005 DER Worksheets'
<b>Ene 7</b>	Pg 78, Design Stage SAP 2005 Worksheet definition	<b>Entire definition deleted.</b>

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<b>Issue ID</b>	<b>Location</b>	<b>Detail</b>
<b>Ene 7</b>	Pg 78, As Built SAP 2005 Worksheet definition	<b>Entire definition deleted.</b>
<b>Ene 7</b>	Pg 78, definitions	<b>New Definition Inserted: SAP 2005 DER Worksheet (Design &amp; As Built Stage):</b> Refer to Ene1
<b>Ene 7</b>	Pg 80, low and zero carbon technologies definition	<b>Inserted:</b> 'Note; CHP systems with an output greater than 45kW heat and/or 50kW electricity are not recognised by the BERR LCBP. However, they are eligible to contribute to performance under this issue.' <b>After:</b> 'sewerage gas and other biogases'
<b>Ene 7</b>	Pg 82, standard case sap worksheet definition	<b>Deleted:</b> 'The standard case's emissions (i.e. the DER) shall equal the Target Emissions Rate (TER) for the actual dwelling.'
<b>Ene 7</b>	Pg 83, calculation procedures	<b>Deleted:</b> 'Figures used for the calculations of the percentage of energy provided by LZC technologies are based on the output from SAP 2005 worksheets.' <b>Inserted:</b> 'The SAP box reference numbers included in the following calculation procedure are taken from the Government's Standard Assessment Procedure (SAP) for the energy rating of dwellings, 2005 edition, revision 2, June 2008. The SAP 2005 document can be found at: <a href="http://projects.bre.co.uk/sap2005/">http://projects.bre.co.uk/sap2005/</a> . It is the responsibility of the assessor to ensure that the box numbers indicated on any outputs from third party SAP software, correlate with the SAP 2005 document.'
<b>Ene 7</b>	Pg 84, table Cat 1.4	<b>Deleted: Table Cat 1.4.</b> <b>Inserted: Revised Table Cat 1.4</b> (see Appendix B)

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Issue ID	Location	Detail
<b>Ene 7</b>	Pg 86, notes to Table Cat 1.4	<p><b>Deleted: Notes [6] and [7].</b></p> <p><b>Inserted:</b></p> <p>[6] SAP 2005 considers the input from additional allowable electricity and the emissions offset from biomass fuelled combined heat and power (CHP) systems, to enable net CO2 emissions to be calculated. This input can be used to offset the dwelling's CO2 emissions, at all Code levels. For further details of acceptable technologies and configurations see SAP Appendix M and SAP section 14.</p> <p>[7] Where energy and LZC technologies service other users (e.g. mixed use developments), the output should be allocated between all users in relation to their proportional net floor area.</p> <p>[8] As determined in a separate feasibility study. The common LZC technologies not yet considered in SAP 2005 include:</p> <ul style="list-style-type: none"> <li>Wind Turbines over 50kW</li> <li>Large Scale Hydro</li> <li>Fuel Cells using hydrogen generated from a renewable source</li> </ul>
<b>Ene 7</b>	Pg 87, background	<b>Deleted: Entire third paragraph.</b>
<b>Ene 8</b>	Pg 88, assessment criteria table	<p><b>Deleted:</b> 'Where individual or communal cycle storage is provided that is adequate, safe, secure, convenient and weather-proof (as defined in <i>Relevant Definitions</i> below) for the following number of cycles:</p> <p><b>Inserted:</b> 'Where individual or communal cycle storage is provided that is adequate, secure, convenient and weather-proof (as defined in <i>Relevant Definitions</i> below) for the following number of cycles:'</p>
<b>Ene 9</b>	Pg 94, design stage evidence requirements	<p><b>Deleted:</b> ' – Confirmation of cable connection or that broadband is available at each address'</p> <p><b>Inserted:</b> 'Confirmation of a cable connection or that broadband is available at the site level (not for individual dwellings) i.e. a letter from the developer confirming that they have checked that broadband is available through one or other medium on the site'</p>

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<b>Wat 1</b>	Pg 97, assessment criteria	<p><b>Deleted:</b> All text before criteria table</p> <p><b>Inserted:</b> 'Up to 5 credits are available for performance which reduces the amount of potable water used in the dwelling. There are minimum mandatory performance requirements for achieving all levels of the Code. The minimum mandatory requirements begin at level 1 increasing at level 3 and again at level 5. Credits are available for all the indoor potable water performance levels required in the Code.</p> <p>Credits are awarded based on a whole house assessment of the efficiency of internal water fittings against a benchmark figure. The assessment is measured in litres per person per day using the Water Efficiency Calculator for New Dwellings. The table below gives details of the required performance levels:'</p>
<b>Wat 1</b>	Pg 99, Information Required to Demonstrate Compliance	<p><b>Deleted:</b> 'Completed Code Water Calculator Tool* from assessor showing internal potable water use for each dwelling which has a different specification'</p> <p><b>Inserted:</b> 'Completed Water Efficiency Calculator for New Dwellings* from assessor showing internal potable water use for each dwelling which has a different specification</p>
<b>Wat 1</b>	Pg 99, definitions	<p><b>Deleted:</b> "Code Water Efficiency Calculator"</p> <p><b>Inserted:</b> "The Water Calculator for New Dwellings"</p>

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Issue ID	Location	Detail
<b>Wat 1</b>	Pg 99, definitions	<p>Deleted: "A software tool which calculates average water consumption in litres per person per day from average use factors based on WRc (Water Research Centre) report CP187, P6832, March 2005. This enables a comparison to be made between a range of different water fittings and appliances.</p> <p><b>Inserted:</b> "The Water Efficiency Calculator for New Dwellings is the Government's National calculation method for the assessment of water efficiency in new dwellings in support of Building Regulations Part G 2009 and the Code for Sustainable Homes May 2009 and subsequent versions. The calculator assesses the contribution that each internal water fitting (micro component) has on whole house water consumption, measured in litres per person per day based on research into typical water use. Due to the impacts of user behaviour it will not relate directly to the actual water use in the home but will provide a benchmark assessment of the typical consumption of a specification of fittings and their impact on water efficiency. It is not a tool for the design of water demand and drainage systems.</p>
<b>Wat 1</b>	Pg 99–100, definitions	<p><b>Deleted:</b> "Water Reduction Equipment", "Low Flush WCs", "Flow Restrictors", "Delay Inlet Valves" and "Ion Exchange Water Softener".</p>
<b>Wat 1</b>	Pg 100, design stage assessment methodology	<p><b>Entire methodology deleted.</b></p> <p><b>Inserted: 'Design Stage'</b></p> <p>The following list covers the main steps a Code assessor needs to address when assessing internal water use.</p> <p>Calculate the water consumption for each dwelling using the calculation methodology set out in the Water Efficiency Calculator for New Dwellings or the Excel based version of the calculator (available from the Code Service Provider).</p> <ul style="list-style-type: none"> <li>• In all cases, a risk assessment of microbial contamination (i.e. Legionella) must be carried out on the hot and cold water system. Action must be taken to avoid any risks of</li> </ul>

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		<p>contamination (e.g. through location and labelling of pipes). This is particularly important where rainwater and greywater are to be used. The risk assessment and action taken should be in accordance with guidance from HSE ACoP and/or CIBSE TM13. While these guidance documents refer to non-domestic situations, similar principles apply to domestic use.</p> <ul style="list-style-type: none"> <li>• If water is extracted locally from a borehole, it should be treated as potable water from the mains supply because using water from a borehole well will not reduce the burden on drainage and treatment systems.</li> <li>• Swimming pools or other large water consuming features (where the water is replaced over a greater time interval), whether internal or external are assessed in the following issue, Wat2. An internal hot-tub should be assessed as a bath.</li> <li>• Where an instantaneous water heater is specified/intended, problems may occur when low flow rate taps are fitted as such systems vary in their trigger flow rates. In such cases, confirmation should be sought that the specified fittings are compatible.</li> </ul>
<b>Wat 1</b>	Pg 104 – 108, calculation procedures	<p><b>All calculation procedures deleted.</b>  <b>Inserted:</b> 'The calculation procedures must be carried out in line with the Water Efficiency Calculator for New Dwellings which can be found on <a href="http://www.planningportal.gov.uk">http://www.planningportal.gov.uk</a>'</p>
<b>Wat 1</b>	Pg 109, checklists and tables	<p><b>All checklists and tables deleted.</b>  <b>Inserted:</b> 'None'</p>
<b>Wat 1</b>	Pg 110, special cases	<p><b>Deleted:</b> 'Where an instantaneous water heater is specified / intended, problems may occur when low flow rate taps are fitted as such systems vary in their trigger flow rates. In such cases, confirmation should be sought that the specified fittings are compatible.'  <b>Inserted:</b> 'None'</p>

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Issue ID	Location	Detail
<b>Wat 1</b>	Pg 110, Background	<p>Deleted: 'Climate change may result in increased variability in weather patterns increasing both the risk of flooding and extended dry spells. Water consumption is likely to become an increasing national problem. Water is becoming more scarce at the same time as population and demand for water is increasing. The development of practical ways to reduce water demand is very important.</p> <p>In the South East of England, water demand exceeds the volume licensed for abstraction, with the shortfall being met from ground water. 20 per cent of the UK's water is used domestically with over 50 per cent of this used for flushing WC's and washing (source: Environment Agency). Most of which comes from drinking quality standard or potable water.</p> <p>The amount of potable water used within the dwelling can be reduced by using fixed fittings which reduce water use in WC's, taps and showers. Further reductions could be achieved by installing greywater or rainwater collection and treatment systems.</p> <p>Government has announced its intention to regulate on water efficiency in homes following a similar calculation methodology to that in the Code. Further details can be found on <a href="http://www.communities.gov.uk/publications/planningandbuilding/mandatingwaterefficiency">http://www.communities.gov.uk/publications/planningandbuilding/mandatingwaterefficiency</a>.</p> <p><b>Inserted:</b> 'Climate change may result in increased variability in weather patterns increasing both the risk of flooding and extended dry spells. Water consumption is likely to become an increasing national problem. Water is becoming more scarce at the same time as population and demand for water is increasing., the development of practical ways to reduce water demand is very important.</p> <p>In the South East of England, water demand exceeds the volume licensed for abstraction, with the shortfall being met from ground water. 20 per cent of the UK's water is used domestically with over 50 per cent of this used for flushing WC's and washing (source: Environment Agency). Most of which comes from drinking quality standard or potable water.</p>

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		<p>The amount of potable water used within the dwelling can be reduced by using fixed fittings which reduce water use in WC's, taps and showers. Further reductions could be achieved by installing greywater or rainwater collection and treatment systems.</p> <p>The Government's strategy for Water in the UK, set out in Defra's 'Future Water' publication sets out the Governments aim to reduce water consumption to 130 litres per person per day by 2030 and possibly to 120 litres per person per day depending upon new technological development and innovation. To support this, the Government has announced its intention to regulate on water efficiency in homes following the same calculation methodology to that in the Code and this method has been set out in the Water Efficiency Calculator for New Dwellings. This will be incorporated into Building Regulations Part G which is due to become regulation in October 2009. Further details can be found on <a href="http://www.communities.gov.uk/publications/planningandbuilding/mandatingwaterefficiency">http://www.communities.gov.uk/publications/planningandbuilding/mandatingwaterefficiency</a>.</p>
<b>Wat 2</b>	Pg 114, Definitions, Sufficient size	<p><b>Deleted:</b></p> <ul style="list-style-type: none"> <li>The Code Water Calculation Tool indicates that the demands of those internal fittings specified to be supplied with rainwater are being met and where an excess volume of water is being collected to meet external water use of 9 litres per person per day* (based on Environment Agency data on average UK water consumption).'</li> </ul> <p><b>Inserted:</b></p> <ul style="list-style-type: none"> <li>The Water Efficiency Calculator for New Dwellings indicates that the demand of internal fittings to be supplied with rainwater has been met and where an excess volume of water is being collected to meet external water use of 5 litres per person per day* (in line with the external water consumption assigned in the Water Efficiency Calculator for New Dwellings for compliance with Building Regulations Part G).</li> </ul>

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Issue ID	Location	Detail
<b>Wat 2</b>	Page 115, Calculation Procedures,	<p><b>Deleted:</b> “Where rainwater is collected for internal use and external use, the Code Water Calculator or calculation procedures of Wat 1 must be used to determine whether there is sufficient volume collected for external use. Sufficient volume to meet the requirements of this issue can be demonstrated where the demand of internal fittings which are to be using rainwater are met and where the excess water collected for external use of sufficient volume as defined in the definition of sufficient size.”</p> <p><b>Inserted:</b> “Where rainwater is collected for internal use and external use, the Water Efficiency Calculator for New Dwellings must be used to determine whether there is sufficient volume collected for external use. Sufficient volume to meet the requirements of this issue can be demonstrated where the demand of internal fittings, which are to be using rainwater, are met and where the excess water collected for external use of sufficient volume as defined in the definition of sufficient size.”</p>
<b>Mat 1</b>	Pg 118, design stage evidence requirements	<p><b>Inserted:</b> ‘Where Design and Build contracts or similar contractual arrangements mean that detailed drawings or specification are not available at this stage the completed CSH Mat 1 Calculator Tool can be allowed as evidence of intent.’</p> <p><b>After:</b> ‘Completed Code Mat 1 Calculator Tool, showing building elements at the design stage’</p>
<b>Mat 2</b>	Pg 124, design stage evidence requirements	<p><b>Inserted:</b> ‘Where Design and Build contracts or similar contractual arrangements mean that detailed drawings or specification are not available at this stage the completed CSH Mat 2 Calculator Tool can be allowed as evidence of intent.’</p> <p><b>After:</b> ‘Completed Code Mat 2 Calculator Tool or relevant calculations showing elements at the design stage’</p>
<b>Mat 2</b>	Pg 124 – 126, evidence requirements	<p><b>Evidence requirements table deleted.</b></p> <p><b>Inserted: Revised evidence requirements table</b> (see appendix H)</p>

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Issue ID	Location	Detail
Mat 2	Pg 127, definitions	<p><b>New definition inserted:</b>  <b>BES 6001:</b> BRE Environmental and Sustainability Standard (BES) 6001 provides a framework for the assessment and certification of responsible sourcing of construction products. It is aimed primarily at products that are not wholly covered under current recognised standards and codes.</p> <p>The standard has been structured so that compliance can be demonstrated through a combination of meeting the requirements of other recognised certification schemes, establishing written policies, setting objectives and targets as well as engagement with relevant stakeholders. It is anticipated and encouraged that the industry sectors will prepare specific requirements addressing the framework principles defined in the Standard.</p> <p>This scheme is reviewed by the BRE Sustainability Board which is a stakeholder technical board operated by BRE Global.</p>
Mat 2	Pg 128, definitions	<p><b>New definition inserted: 'Green Dragon Environmental Standard ® (Safon Amgylcheddol Y Ddraig Werdd ®)</b>  A stepped standard used to accredit compliance with the Green Dragon Environmental Management Scheme. Dependant on the content of the EMS being assessed, a Level of 1,2,3,4 or 5 may be achieved. At level 4 and above, the Green Dragon Environmental Standard ® can be used as evidence of a compliant EMS for small companies being considered under the Mat 2 and Mat 3 Issues.'</p> <p><b>After:</b> 'FSC Forest Stewardship Council'</p>
Mat 2	Pg 133, table cat 3.2	<p><b>Deleted:</b> ' • Glass fibre production (or other principle matrix material if used)'  <b>Inserted:</b> 'Glass fibre production (or other principle reinforcement material if used)'</p>
Mat 2	Pg 133, table cat 3.2	<p><b>Deleted:</b> ' • Polymer production (or other principle reinforcement material if used)'  <b>Inserted:</b> ' • Polymer production (or other principle matrix material if used)'</p>
Mat 2	Pg 133, table cat 3.1	<p>Table Cat 3.1 deleted.  Inserted: Revised Table Cat 3.1 (see appendix C)</p>

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<b>Issue ID</b>	<b>Location</b>	<b>Detail</b>
<b>Mat 3</b>	Pg 138 – 140, evidence requirements	<b>Evidence requirements table deleted.</b> <b>Inserted: Revised evidence requirements table</b> (see appendix H)
<b>Mat 3</b>	Pg 141, assessment methodology, 1st bullet point	<b>Deleted:</b> 'Code Mat 2 Calculator Tool' <b>Inserted:</b> 'Code Mat 3 Calculator Tool'
<b>Sur 1</b>	Pg 145, assessment criteria table	<b>Deleted: Assessment criteria table.</b> <b>Inserted: Revised assessment criteria table</b> (see Appendix D)
<b>Sur 1</b>	Pg 148, flood risk definition	<b>Deleted:</b> 'For developments of less than 1ha (10 000m <sup>2</sup> ) the level of detail required in an acceptable FRA (for Sur 1) will depend on the size and density of build. This will range from a brief report for small, low density developments, to a more detailed assessment for a high density development 2000 – 10 000m <sup>2</sup> in size. For example: For very small developments (2000m <sup>2</sup> and less), an acceptable FRA could be a brief report done by the contractor's engineer, including information obtained from; the environment agency, water company/sewerage undertaker, other relevant statutory authorities, site investigation and local knowledge.'
<b>Sur 1</b>	Pg 148, flood risk assessment definition	<b>Inserted:</b> 'A flood risk assessment should be prepared according to good practice guidance as outlined in Development and Flood Risk: A practice guide companion to PPS 25. Available from <a href="http://www.communities.gov.uk">www.communities.gov.uk</a> . 'For developments of less than 1ha (10 000m <sup>2</sup> ) the level of detail required in an acceptable FRA (for Sur 1) will depend on the size and density of build. This will range from a brief report for small, low density developments, to a more detailed assessment for a high density development 2000 – 10 000m <sup>2</sup> in size. For example: For very small developments (2000m <sup>2</sup> and less), an acceptable FRA could be a brief report done by the contractor's engineer, including information obtained from; the environment agency, water company/sewerage undertaker, other relevant statutory authorities, site investigation and local knowledge.' <b>After: The existing first sentence.</b>

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Issue ID	Location	Detail
Sur 1	Pg 151, SUDS devices definition, 6th bullet point	<b>Deleted:</b> '(see additional guidance on water butts below).'
Sur 2	Pg 158, flood risk assessment definition	<b>Deleted: All definition text.</b> <b>Inserted:</b> 'Refer to Sur 1.'
Sur 2	Pg 160, Special Cases	<p><b>Deleted:</b> 'The flood risk for a site may be downgraded to a lower flood risk category as a result of existing flood defence installations. In such circumstances, a credit can be awarded where the following conditions are met:</p> <p>[1]. Where new flood defences have to be, or have been constructed to minimise the risk of flooding to the site and its locality.</p> <p>[2]. The development is located on a site benefiting from existing maintained flood defences.</p> <p>[3]. The Environment Agency confirms that, as a result of such defences, the risk of a flood event occurring is reduced to low or medium risk (as appropriate to the credit levels set in the Code). If firm confirmation is not provided then the credit cannot be awarded.'</p> <p><b>Insert:</b> 'The flood risk for a site may be downgraded to a lower flood risk category as a result of flood defence installations. This may occur in the following circumstances:</p> <p>[1] Where permanent new flood defences are planned* to minimise the risk of flooding to the site and it's locality.</p> <p>*mentioned in formal planning documents with budgets allocated</p> <p><b>OR</b></p> <p>[2] The development is located on a site benefiting from existing maintained flood defences.</p> <p>Where these circumstances arise and flood risk is downgraded from medium to low flood risk, as defined in PPS25, two credits can be awarded. The following evidence will be needed to demonstrate compliance;</p>

Code for Sustainable Homes May 2009 Update Summary of Changes		
Issue ID	Location	Detail
		<p>a. Confirmation from the flood defence agency (e.g. Environment Agency) that the flood risk level for the site will be reduced to less than 0.1% probability of flooding in any one year.</p> <p><b>AND</b></p> <p>b. Confirmation from the flood defence agency that there are plans to maintain the defences for the lifetime of the development. (In the case of private flood defences, evidence must be provided that there is a contractual agreement to cover the maintenance of the defences for the lifetime of the development.)</p> <p><b>AND</b></p> <p>c. The Flood Risk Assessment clearly demonstrates that the residual risks have been identified and will be managed appropriately.</p> <p>Where sites are downgraded from high to medium flood risk as a result of flood defences, they can only achieve a maximum of one credit. To award that credit, the criteria must be met as specified in the criteria table.'</p>
<b>Was 1</b>	Pg 163, assessment criteria table	<p><b>Both instances of:</b> ' • all bins should be located within 30m<sup>2</sup> of an external door'</p> <p><b>Replaced with:</b> ' • all bins should be located within 30m* of an external door'</p>
<b>Was 1</b>	Pg 164, design stage evidence requirements	<b>Deleted:</b> ' • access arrangements conforming to H6 in AD H'
<b>Was 3</b>	Pg 182, Communal / Community Composting definition	<b>Deleted:</b> 'The composting scheme must be registered with the Environment Agency, in England in Wales, to either have a waste management licence, an environmental permit or an exemption from them. Planning permission may also be required.'
<b>Was 3</b>	Pg 182, Facilities definition	<p><b>Inserted:</b> 'In all cases the composting solution/scheme must achieve full compliance with the Animal by-products Regulations (2005). If applicable, the composting solution/scheme must be registered with the Environment Agency, in England and Wales, to either have a waste management licence, an environmental permit or an exemption from them.</p> <p><b>After:</b> The final bullet point.</p>

Code for Sustainable Homes May 2009 Update Summary of Changes		
Issue ID	Location	Detail
Pol 2	Pg 196, conversion factors, point 3	<p><b>Deleted:</b> 'Figures in mg/MJ should be divided by 3.6 in order to show emissions in mg/kWh (1kWh = 3.6MJ).'</p> <p><b>Inserted:</b> 'Figures in mg/MJ should be multiplied by 3.6 in order to show emissions in mg/kWh (1 kWh = 3.6MJ).'</p>
Pol 2	Pg 196, conversion factors	<p><b>Deleted:</b> 'Where this is not possible the assessor may use the following conversion factors to convert figures in mg/m<sup>3</sup>, ppm or wet NO<sub>x</sub>.'</p> <p><b>Inserted:</b> 'Where this is not possible the assessor may use the following conversion factors to convert figures in mg/m<sup>3</sup>, ppm or wet NO<sub>x</sub> (derived using data from BS EN 297:1994).'</p>
Pol 2	Pg 199, special cases, 3rd paragraph	<p><b>Deleted:</b> 'In the case of heat pump based heating systems, then the electricity used by the pumps and fans specifically for such systems must be included when calculating the average NO<sub>x</sub> emissions for the dwelling. The electricity required for such pumps and fans should be added to the total heating and hot water demand in kWh. If grid electricity is the source, then please use the figure of 1200 mg/kWh, otherwise evidence of the LZC electricity source and relevant NO<sub>x</sub> figure (if any) is required.'</p> <p><b>Inserted:</b> 'Where heating and/or hot water demand is met by heat pump based systems utilising grid electricity, the figure of 1200 mg/kWh should be used when estimating average NO<sub>x</sub>. Otherwise, evidence of the NO<sub>x</sub> emissions (if any) and output (kWh) from the LZC electricity source is required.'</p>
Pol 2	Pg 198, calculation procedures	<p><b>Inserted:</b> 'The SAP box reference numbers included in the following calculation procedure are taken from the Government's Standard Assessment Procedure (SAP) for the energy rating of dwellings, 2005 edition, revision 2, June 2008. The SAP 2005 document can be found at: <a href="http://projects.bre.co.uk/sap2005/">http://projects.bre.co.uk/sap2005/</a>. It is the responsibility of the assessor to ensure that the box numbers indicated on any outputs from third party SAP software, correlate with the SAP 2005 document.'</p> <p><b>After:</b> The final paragraph.</p>

<b>Code for Sustainable Homes May 2009 Update Summary of Changes</b>		
<b>Issue ID</b>	<b>Location</b>	<b>Detail</b>
<b>Hea 2</b>	Pg 208, assessment criteria table	<b>Deleted: Assessment criteria table.</b> <b>Inserted: Revised assessment criteria table</b> (see Appendix F)
<b>Pol 2</b>	Pg 198, table cat 6.3	<b>Deleted: Calculation table.</b> <b>Inserted: Revised calculation table</b> (see Appendix E)
<b>Hea 2</b>	Pg 208, assessment criteria table	<b>New footnote inserted:</b> 'Note; these criteria only apply to walls that perform a dwelling to dwelling separating function. Internal partitions are beyond the scope of this issue.'
<b>Man 1</b>	Pg 230, checklist Man 1, bullet point 2	<b>Inserted:</b> 'Information should also be provided explaining lamp efficacy and the benefits of purchasing high efficacy lamps.' <b>After:</b> The current text included under bullet point 2.
<b>Man 2</b>	Pg 234–237	<b>All instances of 'Checklist Man 2'</b> <b>Replaced with:</b> 'Checklist Man 2 (May 09)'
<b>Man 3</b>	Pg 244, Tables Cat 8.1 – 8.4	<b>Deleted: Tables Cat 8.1 – 8.4</b> <b>Inserted: Revised Tables Cat 8.1 – 8.6</b> (see appendix G)
<b>Eco 3</b>	Pg 262, assessment criteria table	<b>Deleted:</b> 'Eco 1 – Ecological Value of the Site' <b>Inserted:</b> 'section 1 of Checklist Eco 1, Ecological features of the site.'
<b>Eco 3</b>	Pg 264, design stage assessment methodology	<b>Deleted:</b> ' <i>Eco 1 – Ecological Value of the Site</i> has also been awarded.' <b>Inserted:</b> 'the requirements of section 1 of Checklist Eco 1, Ecological features of the site, have been met.'
<b>Refs.</b>	Pg 285, Sur 1 references	<b>Deleted:</b> 'BS EN 752-4 – Drain and sewer systems outside buildings – Hydraulic design and environmental considerations (1998)' <b>Inserted:</b> 'BS EN 752:2008 – Drain and sewer systems outside buildings'
<b>Refs.</b>	Pg 286, Sur 2 references	<b>Deleted:</b> 'BS EN 752-4: 1998, "Drain and sewer systems outside buildings – Part 4: Hydraulic design and environmental considerations", British Standard Institute (1998)' <b>Inserted:</b> 'BS EN 752:2008 – Drain and sewer systems outside buildings'

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Issue ID	Location	Detail
Refs.	Pg 295, Sur 1 references	<b>Deleted:</b> 'BS EN 752-4 – Drain and sewer systems outside buildings – Hydraulic design and environmental considerations (1998)' <b>Inserted:</b> 'BS EN 752:2008 – Drain and sewer systems outside buildings'
Refs.	Pg 287–288, Was 3 references	<b>Inserted:</b> 'The Animal By Products Regulations 2005, Regulation (EC) No 1774/2002' <b>In alphabetical order.</b>
Refs.	Pg 287–288, Was 3 references	<b>Inserted:</b> 'DEFRA Composting website <a href="http://www.defra.gov.uk/animalh/by-prods/wastefood/compost-qanda.htm#10">http://www.defra.gov.uk/animalh/by-prods/wastefood/compost-qanda.htm#10</a> ' <b>In alphabetical order.</b>
Refs.	Pg 287–288, Was 3 references	<b>Inserted:</b> 'Defra, "Guidance on the treatment in approved composting or biogas plants of Animal by-Products and catering waste.", Version 8: September 2008, <a href="http://www.defra.gov.uk/animalh/by-prods/pdf/compost_guidance.pdf">http://www.defra.gov.uk/animalh/by-prods/pdf/compost_guidance.pdf</a> ' <b>In alphabetical order.</b>
Refs.	Pg 294, Mat 2 references	<b>Inserted:</b> 'Arena Network & Groundwork Wales, 2006, Green Dragon Environmental Standard® 2006 Requirements <a href="http://www.greendragonems.com/">http://www.greendragonems.com/</a>

<b>Table Cat 1.2: Total Energy Type CO<sub>2</sub> Emissions for Code Levels 1 – 5</b>				
<i>All values to be taken from the box numbers described within the worksheets set out in the Government's Standard Assessment Procedure for the Energy Rating of Dwellings, 2005 edition, revision 2, June 2008.</i>		kWh/year	Carbon emissions factor (from SAP 2005)	Emissions Kg/CO <sub>2</sub> /m <sup>2</sup> /yr (from SAP 2005) OR;
		(A)	(B)	(C) = (A) × (B)
1	DER from SAP 2005 DER Worksheet [SAP box 113 for systems assessed under section 12a] [SAP box 120* for systems assessed under section 12b] <b>OR</b> DER from Building Regulations Compliance Checklist See note [1]			
2	CO <sub>2</sub> emissions from mechanical cooling See notes [3] and [4]		× 0.422	
3	Sub Total CO <sub>2</sub> emissions (1 + 2) = (3)			
4	CO <sub>2</sub> reduction from additional allowable electricity generation considered in section 14 of SAP 2005 (-1) × [SAP box ZC7] See notes [5], [6] and [7]			
5	CO <sub>2</sub> emissions offset from DHW-only* community biomass CHP systems Where specified <b>AND</b> where [SAP box 107] is set to '0' (-1) × ([SAP box 108*] / [SAP box 5]) See notes [5] and [6]			
6	CO <sub>2</sub> emissions offset from community biomass CHP systems Where specified <b>AND</b> where [SAP box 115*] is set to '0' (-1) × ([SAP box 108* + 110* + 111* + 112* + 113* + 114*] / [SAP box 5]) See notes [5] and [6]			
7	Total CO <sub>2</sub> reduction from LZC technologies (4 + 5 + 6) = (7)			
8	Total predicted CO <sub>2</sub> emissions (3) – (7) = (8)			

\* Please see section C4 of The Government's Standard Assessment Procedure for Energy Rating of Dwellings (Revision 2, June 2008) for more details of DHW-only community schemes.

<b>Table Cat 1.3: Total Energy Type CO<sub>2</sub> Emissions for Code Levels 6</b>				
<i>All values to be taken from the box numbers described within the worksheets set out in the Government's Standard Assessment Procedure for the Energy Rating of Dwellings, 2005 edition, revision 2, June 2008.</i>		kWh/year	Carbon emissions factor (from SAP 2005)	Emissions Kg/CO <sub>2</sub> /m <sup>2</sup> /yr (from SAP 2005) OR; (C) = (A) × (B)
		(A)	(B)	(C) = (A) × (B)
1	Follow the procedure set out in SAP Section 14 to obtain the Net CO <sub>2</sub> emissions for the energy type. [SAP box ZC8] See Note [2]			
2	CO <sub>2</sub> emissions from mechanical cooling See notes [3] and [4]		× 0.422	
3	Total predicted CO <sub>2</sub> emissions (1 + 2) = (3)			

## Notes to Tables Cat 1.2 and 1.3

- [1] For Code levels 1 – 5 (Table Cat 1.2); The DER (as defined in AD L1A) is used as the basis for estimating total dwelling emissions. The DER is the combined emissions from heating, hot-water, lighting, pumps and fans (kg CO<sub>2</sub>/m<sup>2</sup>/year) and can be found on any SAP output that includes the assumptions made in AD L1A **OR** on the Regulations Compliance Checklist.
- [2] For Code level 6 (Table Cat 1.3); Follow the procedure set out in SAP section 14 to obtain the Net CO<sub>2</sub> emissions for the Energy Type. A spreadsheet tool to assist in this calculation can be found at:  
<http://projects.bre.co.uk/sap2005/stamp-duty-land-tax.html>  
The calculation of additional emissions, kg/CO<sub>2</sub>/m<sup>2</sup>/year, arising from appliances and cooking for zero carbon homes is as follows:  
$$99.9 \times (\text{TFA} \times \text{N})^{0.4714} - (3.267 \times \text{TFA}) + (32.23 \times \text{N}) + 72.6$$
Where TFA = Total Floor Area and N = Number of Occupants  
For TFA < 43m<sup>2</sup>; N = 1.46  
For TFA > 43m<sup>2</sup>; N = 2.844 × (1 – exp (–0.000391 × TFA<sup>2</sup>))
- [3] Mechanical cooling is not currently dealt with in SAP 2005. If mechanical cooling is specified, the emissions arising from its use will need to be estimated separately. Contact your Code Service Provider for further guidance.
- [4] Carbon emissions factor from SAP 2005 to be used. The most common are listed below. Please see SAP 2005 table 1.2 for further details.  
Grid electricity = 0.422 Kg CO<sub>2</sub>/kWh

Electricity displaced = 0.568 Kg CO<sub>2</sub>/kWh

Gas = 0.194 Kg CO<sub>2</sub>/kWh

Heating oil = 0.265 Kg CO<sub>2</sub>/kWh

- [5] SAP 2005 considers the input from additional allowable electricity and the emissions offset from biomass fuelled combined heat and power (CHP) systems, to enable net CO<sub>2</sub> emissions to be calculated. This input can be used to offset the dwelling's CO<sub>2</sub> emissions, at all Code levels. For further details of acceptable technologies and configurations see SAP Appendix M and SAP section 14.
- [6] Where energy and LZC technologies service other users (e.g. mixed use developments), the output should be allocated between all users in relation to their proportional net floor area.
- [7] As determined in a separate feasibility study. The common LZC technologies not yet considered in SAP 2005 include:

Wind Turbines over 50kW

Large Scale Hydro

Fuel Cells using hydrogen generated from a renewable source

<b>Table Cat 1.4: LZC Contribution and CO<sub>2</sub> Savings</b>				
<i>All values to be taken from the box numbers described within the worksheets set out in the Government's Standard Assessment Procedure for the Energy Rating of Dwellings, 2005 edition, revision 2, June 2008.</i>		<b>KWh/year supplied</b>	<b>Carbon emissions factor (from SAP 2005)</b>	<b>Emissions Kg/CO<sub>2</sub>/yr</b>
		<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) × (B)</b>
<b>Emissions from STANDARD system specification</b>				
1	CO <sub>2</sub> emissions from space & water heating from Standard case SAP 2005 DER worksheet [SAP box 107] See note [1]			
2	CO <sub>2</sub> emissions from pumps and fans from Standard case SAP 2005 DER worksheet [SAP box 108] See note [1]			
3	CO <sub>2</sub> emissions from lighting from Standard case SAP 2005 DER worksheet [SAP box 109] See note [1]			
4	CO <sub>2</sub> emissions from mechanical cooling See note [2]		× 0.422	
5	CO <sub>2</sub> emissions from appliances and cooking See note [3]			
6	Total CO <sub>2</sub> emissions from Standard case system specification (1 + 2 + 3 + 4 + 5)			
<b>Systems assessed with Section 12a of SAP</b> – Individual Heating Systems – Community Heating without CHP		<b>Systems assessed with Section 12b of SAP</b> – Community Heating Systems with CHP – Heat Recovered from Power Stations		
		<b>kWh/year supplied</b>	<b>Carbon emissions factor (from SAP 2005)</b>	<b>Emissions Kg/CO<sub>2</sub>/yr</b>
		<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) × (B)</b>
<b>Emissions from ACTUAL system specification</b>				
7	CO <sub>2</sub> emissions from space & water heating from SAP 2005 DER worksheet [SAP box 107] Where SAP box 107 is set to '0', enter 0.	CO <sub>2</sub> emissions from space & water heating from SAP 2005 DER worksheet [SAP box 115* – 114*] Where SAP box 115* is set to '0', enter 0.		
8	CO <sub>2</sub> reduction from space & water heating from LZC technologies considered in SAP 2005. (1 – 7)			

<b>Table Cat 1.4: LZC Contribution and CO<sub>2</sub> Savings</b>						
<b>Systems assessed with Section 12a of SAP</b> – Individual Heating Systems – Community Heating without CHP		<b>Systems assessed with Section 12b of SAP</b> – Community Heating Systems with CHP – Heat Recovered from Power Stations		<b>kWh/year supplied</b>	<b>Carbon emissions factor (from SAP 2005)</b>	<b>Emissions Kg/CO<sub>2</sub>/yr</b>
				<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) × (B)</b>
<b>Emissions from ACTUAL system specification</b>						
9	CO <sub>2</sub> emissions from pumps and fans from SAP 2005 DER worksheet [SAP box 108] See note [1]	CO <sub>2</sub> emissions from pumps and fans from SAP 2005 DER worksheet [SAP box 114*] See note [1]				
10	Reduction in CO <sub>2</sub> emissions from pumps and fans in actual dwelling specification (2 – 9) See note [4]					
11	CO <sub>2</sub> reduction from electricity generated by LZC technologies considered in SAP 2005 from DER worksheet [SAP box 110 – 111] See notes [5] and [7]	CO <sub>2</sub> reduction from electricity generated by LZC technologies considered in SAP 2005 from DER worksheet [SAP box 117* – 118*] See notes [5] and [7]				
12	CO <sub>2</sub> reduction from additional allowable electricity generation considered in section 14 of SAP 2005 (–1) × [SAP box ZC7 × SAP box 5] See notes [6] and [8]					
13	CO <sub>2</sub> emissions offset for DHW-only* community biomass CHP systems from SAP 2005 DER worksheet Where specified <b>AND</b> where [SAP box 107] is set to '0' (–1) × [SAP box 108*] See note [6]	CO <sub>2</sub> emissions offset for community biomass CHP systems from SAP 2005 DER worksheet Where specified <b>AND</b> where [SAP box 115*] is set to '0' (–1) × [SAP box 108* + 110* + 111* + 112* + 113*] See note [6]				
14	CO <sub>2</sub> reduction from LZC electricity generation (11 + 12)					
15	CO <sub>2</sub> reduction from LZC thermal generation (8 + 13)					
16	Total CO <sub>2</sub> reduction from specified LZC technologies (10 + 14 + 15)					

**Table Cat 1.4: LZC Contribution and CO<sub>2</sub> Savings**

<b>Table Cat 1.4: LZC Contribution and CO<sub>2</sub> Savings</b>				
<b>Systems assessed with Section 12a of SAP</b>	<b>Systems assessed with Section 12b of SAP</b>	<b>kWh/year supplied</b>	<b>Carbon emissions factor (from SAP 2005)</b>	<b>Emissions Kg/CO<sub>2</sub>/yr</b>
<ul style="list-style-type: none"> <li>– Individual Heating Systems</li> <li>– Community Heating without CHP</li> </ul>	<ul style="list-style-type: none"> <li>– Community Heating Systems with CHP</li> <li>– Heat Recovered from Power Stations</li> </ul>	<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) × (B)</b>
<b>Calculation of percentage CO<sub>2</sub> saving as a result of specifying LZC technologies</b>				
17	CO <sub>2</sub> saving as a percentage of standard case CO <sub>2</sub> emissions  [(16 / 6) × 100%]	% Reduction in CO <sub>2</sub> Emissions		

\* Please see section C4 of The Government's Standard Assessment Procedure for Energy Rating of Dwellings (Revision 2, June 2008) for more details of DHW-only community schemes.

**Table: Cat 3.1 Tier Levels**

<b>Tier Level</b>	<b>Issue Assessed</b>	<b>Points Available per Element</b>	<b>Evidence / Measure Assessed</b>	<b>Examples of Compliant Schemes</b>
1	Legality & Responsible Sourcing	3	Certification Scheme	FSC, CSA, SFI with CoC, PEFC, Re-used Materials, Schemes independently certified against BES 6001:2008 (or similar) Excellent and Very Good Performance Ratings.
2	Legality & Responsible Sourcing	2	Certification Scheme	Schemes independently certified against BES 6001:2008 (or similar) Good and Pass Performance Ratings.
3	Legality & Responsible Sourcing	1.5	Certification Scheme / EMS	Timber: MTCC, Verified, SGS, TFT
				Other Materials: Certified EMS for the <i>Key Process</i> and <i>Supply Chain</i>
				Recycled Materials with certified EMS for the <i>Key Process</i>
4	Legality & Responsible Sourcing	1	Certification Scheme / EMS	Certified EMS for the <i>Key Processes</i>
<b>Note:</b> Performance ratings for schemes compliant with BES6001:2008 (or similar) can only be used to demonstrate compliance with the requirements of this issue where certification covers the key process and supply chain processes for the material being assessed (see table Cat 3.2).				

Criteria		
	Credits	Mandatory Elements
<p><b>1) Peak Rate of Runoff</b></p> <p>Ensure that the peak rate of runoff into watercourses (see definition) is no greater for the developed site than it was for the pre-development site. This should comply with the Interim Code of Practice for Sustainable Drainage systems (SUDS) (CIRIA, 2004) or for at least the 1 year and 100 year return period events.</p> <p>Calculation Criteria:</p> <ul style="list-style-type: none"> <li>For sites of <b>less than 200ha</b>, the calculation of Greenfield runoff rates should be in accordance with Flood estimation for small catchments (Marshall and Bayliss, 1994) and any subsequent updates.</li> <li>For sites of <b>200ha and more</b>, the calculation of Greenfield runoff rates should be in accordance with the Flood Estimation Handbook (Centre for ecology and hydrology, 1999) and any subsequent updates.</li> <li>An <b>allowance for climate change</b> should be made in accordance with current best practice (PPS25, 2006).</li> </ul> <p><b>2) Volume of Runoff</b></p> <p>Ensure that the <b>additional</b> predicted volume of rainwater discharge caused by the new development, for a 1 in 100 year event of 6 hour duration including an allowance for climate change (PPS25, 2006), is entirely reduced using:</p> <ul style="list-style-type: none"> <li>infiltration</li> </ul> <p>AND / OR</p> <ul style="list-style-type: none"> <li>is made available for use in the dwelling as a replacement for potable water use in non-potable applications such as WC flushing or washing machine operation.</li> </ul> <p>Any residual additional rainwater volume that cannot be prevented from being discharged (reasons must be provided with supporting evidence), for all events up to the 100-year return period, the peak discharge rate from the site should be reduced to (in order of priority):</p> <p><b>A:</b> the pre-development site's estimated mean annual flood flow rate (Qbar); or</p> <p><b>B:</b> 2l/s/ha; or</p> <p><b>C:</b> a minimum flow rate (litres per second), based on good practice guidelines to prevent easy blockage, by ensuring the outlet throttle is not too small; unless rainwater is being discharged to a public sewer or adopted surface water sewer, and there is a specific minimum requirement defined by the Sewerage Undertaker.</p> <p>Note; reasons for discounting any of the options above must be provided with supporting evidence.</p>	None	All Levels
<p>2 credits are available for using SUDS to improve water quality of the rainwater discharged or for protecting the quality of the receiving waters by:</p> <ol style="list-style-type: none"> <li>Ensuring no discharge to the watercourse for rainfall depths up to 5mm. Follow guidance in the Interim Code of Practice for Sustainable Drainage systems (SUDS), (CIRIA, 2004).</li> </ol> <p><b>OR</b></p> <ol style="list-style-type: none"> <li>Establish agreements for the ownership, long term operation and maintenance of all sustainable drainage elements used</li> </ol>	2	
<p><b>Default Cases:</b></p> <p>Credits can be awarded by default if the site discharges rainwater directly to a tidal estuary or the sea, because compliance with discharge flow rate requirements will not be required.</p>		

**Table Cat 6.3 Calculation of average NOx emissions for a dwelling**

All values to be taken from the box numbers described within the worksheets set out in the Government's Standard Assessment Procedure for the Energy Rating of Dwellings, 2005 edition, revision 2, June 2008.		kWh/year supplied	NOx emission rate for the system	Emissions mg/kWh/yr	
Systems assessed with Section 9a of SAP – Individual Heating Systems including micro CHP		Systems assessed with Section 9b of SAP – Community Heating Schemes	(A)	(B)	(A) × (B) = (C)
1	Space heating fuel (main) requirement [SAP box 85]	Space heating from CHP or recovered/geothermal heat [SAP box 86*]			
2	Space heating fuel (secondary) [SAP box 85a]	Space heating from boilers or heat pump [SAP box 87*]			
3	Energy required for water heating [SAP box 86a]	Water heated by CHP or recovered/geothermal heat [SAP box 87a*]			
4	Water heated by systems assessed under section 9b of SAP (where applicable) [SAP box 87a* <b>OR</b> 87b*]	Water heated by boilers or heat pump (where applicable) [SAP box 87b*]			
5	Solar DHW input (if not specified leave 0) [SAP box 50]				
<b>Totals</b>					
6	Total Annual NOx Emissions for Dwelling <b>(1C+2C+3C+4C) = (6)</b>			(mg)	
7	Total Annual Energy Demand <b>(1A+2A+3A+4A+5A) = (7)</b>			(kWh)	
8	Average NOx Emissions for Dwelling <b>(6) ÷ (7) = (8)</b>			(mg/kWh)	
<b>Note:</b> If the value displayed in any of the required SAP boxes is negative, consider it positive when entering in to Table Cat 6.3 e.g. if –250 is displayed, enter 250 into table Cat 6.3.					

Criteria	
	Credits
<p>Where :</p> <ul style="list-style-type: none"> <li>• airborne sound insulation values are at least 3dB higher</li> <li>• impact sound insulation values are at least 3dB lower</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• airborne sound insulation values are at least 5dB higher</li> <li>• impact sound insulation values are at least 5dB lower</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• airborne sound insulation values are at least 8dB higher</li> <li>• impact sound insulation values are at least 8dB lower</li> </ul> <p>Than the performance standards set out in the Building regulations approved for England and Wales, Approved Document E (2003 Edition, with amendments 2004).</p> <p>This can be demonstrated through EITHER</p> <p>A programme of pre-completion testing based on the <i>Normal programme of testing</i> described in Approved Document E, for every group or sub-group of houses or flats, demonstrating that the above standard or standards are achieved.</p> <p><b>OR</b></p> <p>Use of constructions for all relevant building elements that have been assessed and approved by Robust Details Limited (RDL), and found to achieve the performance standards stated above and all relevant dwellings are registered with RDL.</p>	<p>1</p> <p>3</p> <p>4</p>
<p><b>Default Cases</b></p> <p>Detached dwellings</p> <p>Attached dwellings where separating walls or floors only occur between non habitable rooms.</p>	<p>4</p> <p>3</p>

**Table : Cat 8.1 : Standard road transport fuel conversion factors**

Fuel used	Total units used	Units	X	kg CO <sub>2</sub> per unit	Total kg CO <sub>2</sub>
Petrol		Litres	x	2.315	
Diesel		Litres	x	2.630	
Compressed Natural Gas (CNG)		Kg	x	2.728	
Liquid Petroleum Gas (LPG)		Litres	x	1.495	

Source: UK Greenhouse Gas Inventory for 2006 (produced for Defra by AEA Energy & Environment), Digest of UK Energy Statistics (DTI) and Carbon factors for fuels (UKPIA, 2004)

**Table : Cat 8.2 : Standard road transport fuel conversion factors**

Size of car	Total units travelled	Units	X	kg CO <sub>2</sub> per unit	Total kg CO <sub>2</sub>
Small petrol car, up to 1.4 litre		Miles	x	0.291	
		Km	x	0.181	
Medium petrol car, from 1.4 – 2.0		Miles	x	0.344	
		Km	x	0.214	
Large petrol car above 2.1 litres		Miles	x	0.476	
		Km	x	0.296	
Average petrol car		Miles	x	0.333	
		Km	x	0.207	

Source: Revised factors developed by AEA Energy & Environment and agreed with Department for Transport (2008)

**Table : Cat 8.3 : Standard Road Transport Fuel Conversion Factors**

Size of car	Total units travelled	Units	X	kg CO <sub>2</sub> per unit	Total kg CO <sub>2</sub>
Small diesel car, up to 1.7 litre or		Miles	x	0.244	
		Km	x	0.151	
Medium diesel car, from 1.7 to 2.0		Miles	x	0.303	
		Km	x	0.188	
Large diesel car, over 2.0 litre		Miles	x	0.415	
		Km	x	0.258	
Average diesel car		Miles	x	0.319	
		Km	x	0.198	

Source: Revised factors developed by AEA Energy & Environment and agreed with Department for Transport (2008)

**Table : Cat 8.4: Van/Light Commercial Vehicle Road Freight Mileage Conversion Factors**

Type of van	Gross Vehicle Weight (tonnes)	Units	Total units travelled	X	kg CO <sub>2</sub> per unit	Total kg CO <sub>2</sub>
Petrol	up to 1.25t	Miles		x	0.360	
		Km		x	0.224	
Diesel	up to 3.5t	Miles		x	0.438	
		Km		x	0.272	
LPG or CNG	up to 3.5t	Miles		x	0.438	
		Km		x	0.272	

Source: Factors developed by AEA Energy & Environment and agreed with Department for Transport (2008)

**Table : Cat 8.5: Diesel HGV Road Freight Mileage Conversion Factors (based on UK average load)**

Type of Lorry	Gross Vehicle Weight (tonnes)	Units	Total units travelled	X	kg CO <sub>2</sub> per unit	Total kg CO <sub>2</sub>
Rigid	>3.5–7.5t	Miles		x	0.906	
		Km		x	0.563	
Rigid	>7.5–17t	Miles		x	1.202	
		Km		x	0.747	
Rigid	>17t	Miles		x	1.559	
		Km		x	0.969	
Articulated	>3.5–33t	Miles		x	1.315	
		Km		x	0.817	
Articulated	>33t	Miles		x	1.495	
		Km		x	0.929	

Source: Revised factors developed by AEA Energy & Environment and agreed with Department for Transport (2008)

## Schedule of Evidence Required

To be read in conjunction with the *Definitions* and *Calculations* sections.

Design Stage	Post Construction Stage
<p>Drawings or specification text* detailing:</p> <ul style="list-style-type: none"> <li>• The location of elements and materials specified</li> <li>• Details of the materials specified</li> </ul> <p>* or a letter of instruction to a contractor / supplier or a formal letter from the developer to the Code assessor giving the specific undertaking</p>	<p><b>EITHER</b></p> <p>Letter from the developer confirming that the dwellings have been constructed in accordance with the design stage drawings and specifications provided</p> <p><b>OR</b></p> <p>As Built drawings and specifications and evidence* confirming:</p> <ul style="list-style-type: none"> <li>• The area and location of elements</li> <li>• The location of product / materials used</li> <li>• such as purchase orders or similar or an assessor site inspection report</li> </ul> <p><b>AND</b></p> <p>Copies of purchase orders or receipts or certificates / letters of conformity for all applicable materials, including those recycled or re-used</p>
<p>Completed Code Mat Calculator tool or relevant calculations showing elements at the design stage</p> <p>Where Design and Build contracts or similar contractual arrangements mean that detailed drawings or specification are not available at this stage the completed CSH Mat Calculator Tool can be allowed as evidence of intent.</p>	<p>Completed Code Mat Calculator tool or relevant calculations, if different from the design stage</p>
<p>For re-used materials:</p> <p>Documentation stating which particular materials will be re-used</p> <p>Trade information or a letter from the developer is acceptable</p>	<p>For re-used materials:</p> <p>Documentation demonstrating which particular materials have been re-used from other sources</p> <p>A receipt or letter from the supplier, including material quantities is acceptable</p>

<p>For recycled materials:</p> <p>Documentation stating which particular materials will be recycled</p> <p>A letter of intent to use suppliers who can provide an EMS certificate (or equivalent) for the recycling process</p>	<p>For recycled materials:</p> <p>Documentation stating which particular materials used in the development were recycled</p> <p>For materials certified through the EMS route, key process stage evidence must also be provided</p>
<p>For certified materials:</p> <p>A letter of intent from the design team confirming:</p> <ul style="list-style-type: none"> <li>• The product shall be sourced from suppliers capable of providing certification to the level required for the particular tier claimed.</li> </ul> <p><b>OR</b></p> <p>If the material has been ordered, supplied or the supplier is known:</p> <ul style="list-style-type: none"> <li>• The product shall be sourced from suppliers capable of providing certification to the level required for the particular tier claimed.</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• A copy of the CoC and/or BES6001 and/or EMS certificate.</li> </ul>	<p>A copy of the CoC and/or BES6001 and/or EMS (EMAS/ISO14001) certificate.</p> <p><b>OR</b></p> <p>For Small companies, (see Relevant Definitions) confirmation that the company EMS is structured in compliance with BS8555 2003 (or equivalent) and the EMS has completed phase audits one to four as outlined in BS8555. This evidence can be found from company documentation demonstrating the process and typical outputs from phase four audits such as an EMS manual/paperwork and guidance to staff. Where independent certification exists to demonstrate these phases, it can be used as evidence.</p> <p><b>OR</b></p> <p>Green Dragon Environmental Standard ® 2006 (Safon Amgylcheddol Y Ddraig Werdd ®) completed up to and including Level 4. Confirmation is taken from a Green Dragon Standard certificate stating the company's achievement of Level 4. As company's achieving Level 4 will normally be required to undertake annual audits, this certification should be dated within 1 year at the point of the last purchase made from the company. For smaller companies with low environmental impacts, a renewal date of within 2 years is acceptable.</p> <p>For clarification on whether a company is certified against the Green Dragon Environmental Standard please see the Register of companies available at the Green Dragon website.</p>

	<p>Where any non-certified timber is used, written confirmation from the supplier(s) confirming that:</p> <ul style="list-style-type: none"> <li>• All timber comes from a legal source.</li> <li>• All timber species and sources used in the development are not listed on any of the CITES appendices for endangered or threatened species (Appendix I, II, or III*).</li> <li>• Or in the case of Appendix III of the CITES list, it has not been sourced from the country seeking to protect this species as listed in Appendix III.</li> </ul> <p>One of the following statements (or similar) must be provided, signed by the timber supplier(s) and included in the assessment report:</p> <p>'I confirm that none of the timber species used within this development are identified on the CITES list (appendices I, II and III)'</p> <p><b>OR</b></p> <p>'I confirm that none of the timber species used within this development are identified on the CITES list (appendices I and II) and where a timber species used in the development is listed in appendix III of the CITES list, I confirm that it has not been sourced from the country seeking to protect this species as listed in appendix III'</p>
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