

CCEA GCE Environmental Technology

Unit A2 2: Internal Assessment
Assessing Environmental Building
Performance and Measurement

environmental
technology

- **Title**

This could start along these lines.

“ The purpose of this report is to carry out an investigation into a chosen building using the Code for Sustainable Homes (CSH).”

- **INTRODUCTION**

The introduction to the report should provide a comprehensive and thorough overview of CSH. The report should set the scene as to the need for, and the types of, sustainability measurement systems for buildings particularly in the area of policy content and Zero Carbon Homes. The report should demonstrate an overview of CSH within the wider context of sustainability and understanding of CSH measurement criteria. Brief details of the building being assessed should be provided.

- **TECHNICAL REPORT**

Following on from the introduction, the technical report should identify the processes necessary to assess the CSH categories, in particular the Surface Water Run Off and Waste categories of CSH.

The requirements of the CSH can be found in the Code for Sustainable Homes Technical Guide November 2010 available at www.gov.uk/government/publications/code-for-sustainable-homes-technical-guidance. This guide sets out the process by which a Code assessment is reached and for each category and sub category, the technical guide sets out the information required to demonstrate compliance. In this case for the Surface Water Run Off and Waste categories of CSH.

There should be emphasis on the physical measurements or facts which must be investigated (an example of a possible activity for Was 1 within the Waste category is given below).

Typical activity. For example if the building being assessed by the candidate was a three bedroom detached house. Data collection and analysis for Category 5: Waste: Was 1, could take the following form.

Issue ID	Description	No. of Credits Available	Mandatory Elements
Was 1	Storage of Non-recyclable Waste and recyclable Household Waste	4	Yes

A schedule of evidence required to demonstrate compliance with Was 1 could be in the form of a short Site Inspection Report confirming compliance. This report could include photographs and/or site plans to confirm compliance. For example, an inspection of the site would reveal that the mandatory elements are met.

Criteria	Credits	Mandatory Elements
<p>Storage of Household waste</p> <p>An adequate external space should be allocated for waste storage and sized to accommodate containers according to the largest of the following two volumes:</p> <ul style="list-style-type: none"> • The minimum volume recommended by British Standard 5906 (British Standards Institution, 2005) based on a maximum collection frequency of once per week. This volume is 100 litres for a single bedroom dwelling, with a further 70 litres for each additional bedroom. • The total volume of the external waste containers provided by the local Authority. <p>Storage space must be provided inclusive access and usability (Checklist IDP). Containers must not be stacked.</p>	None	All Levels 

The number of credits achieved could again be included in the inspection report as follows:
 For example if the building was a three bedroom detached house with a Local Authority collection scheme, from the table below the criteria assessed and achieved have been highlighted. This should show that the maximum of 4 credits can be awarded for Was 1 within the Waste category. Candidates would continue to assess their chosen building for Was 2 and 3 to complete the assessment for Waste.

Was 1: **Assessment Criteria Table**

Criteria	Credits	Mandatory Elements
<p>Storage of recyclable household waste</p> <p>A combination of internal storage capacity provided in an adequate internal space, with either:</p> <ul style="list-style-type: none"> • a Local Authority collection scheme, or • no Local Authority collection scheme but adequate external storage capacity. <p>Local Authority collection scheme</p> <p>In addition to a Local Authority collection scheme (with a collection frequency of at least fortnightly), at least one of the following requirements must be met:</p> <ul style="list-style-type: none"> • Recyclable household waste is sorted after collection and a single bin of at least 30 litres is provided in an adequate internal space. • Materials are sorted before collection and at least three separate bins are provided with a total capacity of 30 litres. Each bin must have a capacity of at least 7 litres and be located in an adequate internal space. • An automated waste collection system which collects at least three different types of recyclable waste. <p>No Local Authority collection scheme but adequate external storage capacity</p> <p>For houses and flats there must be at least three identifiably different internal storage bins for recyclable waste located in an adequate internal space:</p> <ul style="list-style-type: none"> • with a minimum total capacity of 30 litres • with a minimum individual capacity of at least 7 litres. <p>AND</p> <p>For houses, an adequate external space must be provided for storing at least three external bins for recyclable waste:</p> <ul style="list-style-type: none"> • with a minimum total capacity of 180 litres • with a minimum individual capacity of 40 litres. <p>For flats, a private recycling scheme operator must be appointed to maintain bins and collect recyclable waste regularly. Recycling containers must:</p> <ul style="list-style-type: none"> • be located in an adequate external space • be sized according to the frequency of collection, based on guidance from the recycling scheme operator • store at least three types of recyclable waste in identifiably different bins. 	4	

In scenarios where CSH criteria require information from specialist software e.g. SAP's or SUDS, data if available from the building owner should be used. However if the values needed are not available, they can be obtained from research of similar buildings using published material and data.

The report should make detailed reference to relevant Health and Safety issues associated with the investigations necessary to achieve the results for the two categories being investigated.

In addition a range of data from a variety of published sources should be presented which addresses all the other seven categories of CSH e.g. www.gov.uk/government/collections/code-for-sustainable-homes-case-studies.

The building case studies where the results for the 7 other categories are obtained should be from a similar construction and size as to that of the assessed building. For example if the candidate is assessing a three bedroom dwelling then case studies for similar types of building should be used to obtain results for the non-assessed seven categories.

For example if the building being assessed by the candidate was a three bedroom detached house. The candidate could provide evidence of category scores achieved by similar building types published in case studies.

For example below the scores for Category 3: Material were obtained from the published data within the case studies as shown in the table below.

Building Details	Category	Total Credits	Credits Available
Development: Tattersalls, Oxford (Case study 15)	Materials	16	24
Roman Barn, Worth Matravers, Dorset (Case study 14)	Materials	19	24

Ref: Code for Sustainable Homes Case Studies: Volume 4 Published by The Department for Communities and Local Government 2013

This method could be completed for the remaining categories.

- **CSH Performance**

Candidates work independently to make and record a complete set of accurate physical measurements without errors and using high level technical skills. Data should be recorded in a range of formats that fully illustrate and enhance the technical report. All tables, charts, and graphs should be accurately labelled.

CSH Performance: Results Table for the Assessed Building

Category	Credits Available	Credits Scored
Category 4 <u>Surface Water Run-Off</u> SUR 1 Management of Surface Water Run-off from Developments SUR 2 Flood Risk		
Category 4 Total		
Category 5 <u>Waste</u> WAS 1 Storage of Non-recyclable Waste and Recyclable Household Waste WAS 2 Construction Site Waste Management WAS 3 Composting		
Category 5 Total		

Table of Results for all 9 CSH Categories

9no. CSH Categories	Credits Available	Credits Scored	Weighting Factor*	Points Scored*
Category 1 Energy and CO2 Emissions				
Category 2 Water				
Category 3 Materials				
Category 4 Surface Water Run-off				
Category 5 Waste				
Category 6 Pollution				
Category 7 Health and Well-being				
Category 8 Management				
Category 9 Ecology				
Total				

* See Code for Sustainable Homes Technical Guide November 2010 Pages 12 -17

The accumulation of credits that were worked out in Technical Report can now be brought together to find the level that the building has achieved under the CSH. Explanation of how this has been achieved should be given along with an overall commentary on the performance of the building under investigation.

A table similar to the table below can be used to link the total number of points achieved from the investigations with the CSH level gained.

Table showing Total percentage points scored by the assessed building

Total percentage points score (equal to or greater than)	Code Levels
36 Points	Level 1 (*)
48 Points	Level 2 (**)
57 Points	Level 3 (***)
68 Points	Level 4 (****)
84 Points	Level 5 (*****)
90 Points	Level 6 (*****)
__ Points achieved by the assessed building	Level __ achieved by the assessed building

• Discussion & Evaluation

With the emphasis placed on the two categories which have been investigated the discussion should include an evaluation of the measurement processes involved in applying the CSH criteria. In order to improve the buildings overall rating investigate links across the CSH categories for the chosen building and suggest ideas and recommendations regarding further development and building enhancement. Note that any recommendations made by the candidate should have a strong rationale

detailing how they are expected to improve the overall score or the buildings score within a particular category.

Finally provide a detailed and thorough evaluation of the sustainability measurement processes used throughout the task.

In order to achieve the maximum marks for this section, candidates should use excellent written communication and specialist vocabulary that is highly competent.

This final section should not exceed 2000 words and may include diagrams, images and tables of numerical information.

- **References**

All referencing should be clear and linked to the specific part of the report. This should identify all sources of secondary data. This can be by a numbered reference and an end of section number/ reference link or by giving the reference at that point in the report.

Word limit

The report should be a maximum of **4000** words.

In A2 2 Environmental Building Performance and Measurement:

- The scene setting should not exceed **500** words
- The primary investigations should not exceed **1500** words
- The recommendations, including the commentary on the sustainability measurement processes used throughout the task, and the evaluation should be a maximum of **2000** words.

Collaboration

The work of individual candidates may be informed by working with others, but each candidate must provide an individual response.



COUNCIL FOR THE CURRICULUM EXAMINATIONS AND ASSESSMENT

29 Clarendon Road, Clarendon Dock, Belfast BT1 3BG

© +44 (0)28 9026 1200

☎ +44 (0)28 9026 1234

☎ +44 (0)28 9024 2063

✉ info@ccea.org.uk

🌐 www.ccea.org.uk

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