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| **Module and title:** | Building design and building science | **Module leader:** | Dr Alberto Urrutia-Moldes |
| **Assignment No. and type:** | Case study report, 3000 words | **Assessment weighting:** | 100% |
| **Submission time and date:** | **Monday 3rd October 2022 before 1:00 pm** | **Target feedback time and date:** | 3 weeks from the date of final submission |

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| **Assignment task** |
| You are required to select a case study, consisting of an existing low-rise housing building, and discuss various aspects regarding the construction system, structural characteristics, relevant materials, signs of degradation of materials and existing pathologies |

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| **This assignment has been designed to provide you with an opportunity to demonstrate your achievement of the following module learning outcomes:** | |
| LO 1 | Identify and explain key terminology for materials science and building design and recognise the use of materials in construction |
| LO 2 | Understanding of the various design technologies and systems employed in the construction of low-rise buildings. |
| LO 3 | Highlight the use of materials in construction, including their manufacture, the properties of materials linked to their use and the degradation of materials. Understanding of the scientific principles of construction materials through simple calculations |
| LO 4 | Understand the scientific principles of construction materials through practical application |

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| **Assignment task(s) requirements:** |

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| You are required to select a case study, consisting of an old existing low-rise housing building, with a date of construction before 1992 (30 years old), and discuss various aspects regarding the construction system, structural characteristics, relevant materials, signs of degradation of materials, existing building defects, and building performance failures. |
| Possible buildings include detached or semi-detached houses or flat buildings up to five (5) stories and built before 1992.  You have to bear in mind that the selection of any medium-rise building or taller will not be accepted. Similarly, any non-housing building will not be accepted for this assignment.  The report will be submitted in a written format of approximately 3,000 words (**excluding references and the appendix**), and it must include at least the following descriptive information:   * Address of the selected building * Location map * Postcode of selected building * Photography of the main Façade (front of the building) * Date of building   During the preparation of your report, you will need to pay particular attention to providing:   * A clear structure (using headings and subheadings) and links throughout the report * A clear, concise, and simple language * Your Report should contain an introduction and a concluding paragraph.   **Tips on preparing your report**   * Base your research on academic sources, e.g., journal articles, books, and chapters in books. * Make sure to reference these appropriately using **Harvard-style referencing**. * The majority of your sources should be peer-reviewed journal articles. However, you may refer to other sources, such as internet sites, magazines, or newspapers, as long as you include a minimum of 3 peer-reviewed academic resources * Communication skills are important, so proofread your work carefully before you submit it. The standard of your writing will affect your mark. |

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| **How your work will be assessed** |
| Your work will be assessed on the extent to which it demonstrates your achievement of the stated learning outcomes for this assignment (see above) and against other key criteria, as defined in the University’s institutional grading descriptors.  You are required to discuss various aspects of a selected low-rise housing building, identify the main structural characteristics, technologies used in its construction, structural systems, and structural materials, and identify signs of degradation of materials or existing building defects, or building performance failures (such as dampness, mould, corrosion, etc).  During your on-site inspection and using relevant literature you should address the following areas:   1. Investigate The construction systems 2. Identify and explain the Structural and non-structural elements 3. Identify the Technologies utilised in the building construction. 4. Identify and describe the main structural materials used in the building including photographs 5. Identification of signs of ageing and degradation of materials (including photographs) or any possible pathologies affecting structural or non-structural elements |

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| **Submission date and time** |
| This assignment should be submitted to Moodle **before 23:59 hrs on Monday 3rd October 2022.**    You should submit all work for summative assessments by the above deadline. Work submitted up to three working days after the deadline will be accepted and marked, but the mark will be capped at the pass mark (40%) unless there is a valid reason for the late submission (i.e., having been granted an extension to the deadline or a deferral under the terms of the Extenuating Circumstances Policy).    Work submitted more than three working days after the deadline without a valid reason will not be accepted and will be recorded as 0% RN (refer, no work submitted).    For more information, please refer to: <https://www.bathspa.ac.uk/about-us/governance/policies/mitigating-circumstances/>  Feedback and marks for this assignment will be available three weeks from the deadline. |

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| **Submission details** |
| This assignment should be submitted electronically via Moodle (module tutors will discuss this process with you during class time).   * Please ensure that your work has been saved in an appropriate file format (Microsoft Word, Excel or PowerPoint, or PDF are the most widely used; Google Docs is also accepted). Your file must also contain at least 20 words of text, consist of fewer than 400 pages and be less than 40MB in size * You can submit your work as many times as you like before the submission date. If you do submit your work more than once, your earlier submission will be replaced by the most recent version. * Once you have submitted your work, you will receive a digital receipt as proof of submission, which will be sent to your forwarded e-mail address (provided you have set this up). Please keep this receipt for future reference, along with the original electronic copy of your assignment. * You are reminded of the University’s regulations on academic misconduct, which can be viewed on the University website: https://www.uos.ac.uk/sites/default/files/Academic-Misconduct-Policy.pdf. In submitting your assignment, you are acknowledging that you have read and understood these regulations |

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| **Reading materials** |
| **Core Texts**:  Chudley, R. and Greeno, R. (2020) Building Construction Handbook. 12th Ed. Abingdon: Routledge.  Ching, F.D., 2020. *Building construction illustrated*. John Wiley & Sons.  Emmitt, S. (2019) Barry′s Introduction to Construction of Buildings. 4th Ed. Chichester: John Wiley & Sons  Further Reading:  Calkins, M. (2018) Materials for Sustainable Sites: A Complete Guide to the Evaluation, Selection, and Use of Sustainable Construction Materials. New Jersey: John Wiley & Sons  Ching, F. D. K. (2020) Building Construction Illustrated. 6th Ed. New Jersey: John Wiley & Sons  Chudley, R. and Greeno, R., 2005. *Construction technology*. Pearson Education.  Emmitt, S., 2018. *Barry's introduction to construction of buildings*. John Wiley & Sons.  Emmitt, S. (2019) Barry′s Advanced Construction of Buildings. 4th Ed. Chichester: John Wiley & Sons  White, M.A., 2018. *Physical properties of materials*. CRC press.  **Recommended Journals:**  International Journal of Construction Management |

**Please see the marking criteria below**

**Assignment Brief Academic Year 2022/2023**

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| **Criteria** | **Scales**  **1st: 70%-100%** | **2:1 60%-69%** | **2:2 50%-59%** | **3rd: 40%-49%** | **35%-39%** | **20%-34%** | **>20%** |
| **Criteria 1 (20%)**  Identification of the selected building. | The student has selected an appropriate housing building. The building is identifiable through the inclusion of a location map, a façade photograph, and an address.  The student utilises a wide range of technical language and has an excellent understanding of how to identify the building in terms of purpose, design, building methods, and structural materials | The student has selected an appropriate housing building. The building is identifiable through the inclusion of a location map, a façade photograph, and an address.  The student utilises a sufficient range of technical language and has a good understanding of how to identify the building in terms of purpose, design, building methods, and structural materials | The student has selected an appropriate housing building. The building is identifiable through at least two of the following: a location map, a façade photograph, and an address.  The student utilises a small range of technical language and has a sufficient understanding of how to identify the building in terms of purpose, design, building methods, and structural materials | The student has selected an appropriate housing building. The building is identifiable through at least two of the following: a location map, a façade photograph, and an address.  The student utilises no technical language and has a basic understanding of how to identify the building in terms of purpose, design, building methods, and structural materials | The student has selected an appropriate housing building. The building is identifiable through at least one of the following: a location map, a façade photograph, and an address.  The student utilises no technical language and has a vague understanding of how to identify the building in terms of purpose, design, building methods, and structural materials | The student fails to present one of the following:  The selection of an inappropriate building.  OR  The building is not identifiable by any of the following: a location map, a façade photograph, and an address.  OR  The student do not describes the building in terms of purpose, design, building methods, and structural materials | The student fails to present two of the following:  The selection of an inappropriate building.  OR  The building is not identifiable by any of the following: a location map, a façade photograph, and an address.  OR  The student do not describes the building in terms of purpose, design, building methods, and structural materials |
| **Criteria 2 (20%)**  Identification and analysis of Structural elements. | The student has an excellent understanding of and utilises appropriate technical language to describe the structural elements of the building. | The student has a good understanding of and utilises appropriate technical language to describe the structural elements of the building. | The student shows some understanding of and utilises some technical language to describe the structural elements of the building. | The student has a basic understanding of and utilises a limited range of technical language to describe the structural elements of the building. | The student has a poor understanding of and utilises little technical language to describe the structural elements of the building. | The student has a very poor understanding of and utilises insufficient or no technical language to describe the structural elements of the building. | The student does not discuss the structural elements of the building. |
| **Criteria 3 (20%)**  Identification and analysis of non-structural elements. | The student has an excellent understanding of and utilises appropriate technical language to address the identification and analysis of non-structural elements | The student has a good understanding of and utilises appropriate technical language to address the identification and analysis of non-structural elements | The student shows some understanding of and utilises some technical language to address the identification and analysis of non-structural elements | The student has a basic understanding of and utilises a limited range of technical language to address the identification and analysis of non-structural elements | The student has a poor understanding of and utilises little technical language to address the identification and analysis of non-structural elements | The student has a very poor understanding of and utilises insufficient or no technical language to address the identification and analysis of non-structural elements | The student does not address the identification and analysis of non-structural elements |
| **Criteria 4 (20%)**  Identification and analysis of the behaviour of materials | The student has an excellent understanding of and utilises appropriate technical language to identify and analyse the behaviour of materials | The student has a good understanding of and utilises appropriate technical language to identify and analyse the behaviour of materials | The student shows some understanding of and utilises some technical language to identify and analyse the behaviour of materials | The student has a basic understanding of and utilises a limited range of technical language to identify and analyse the behaviour of materials | The student has a poor understanding of and utilises little technical language to identify and analyse the behaviour of materials | The student has a very poor understanding of and utilises insufficient or no technical language to identify and analyse the behaviour of materials | The student does not identify or analyse the behaviour of the materials |
| **Criteria 5 (10%)**  Reading and referencing  Illustrate a wide range of sources which are formatted according to Harvard referencing style. | Insightful and effective use of a carefully selected range of relevant reading. Consistently accurate application of referencing. | Consistent engagement with a wide range of relevant reading. Consistently accurate application of referencing. | Engagement with an appropriate range of reading beyond essential texts. Referencing my show minor inaccuracies or inconsistencies. | Evidence of reading is largely confined to essential texts, but mainly reliant on taught elements. Referencing may show inaccuracies and/or inconsistencies. | Poor engagement with essential texts and no evidence of wider reading. Heavily reliant on taught elements. Inconsistent and weak use of referencing. | Limited evidence of reading and/or reliance on inappropriate sources. Limited engagement with taught elements. Very poor use of referencing. | No evidence of reading or engagement with taught elements.  Absent or incoherent referencing. |
| **Criteria 6 (10%)**  The presentation of the report is well structured, formatted and designed. | Exemplary presentation of work that is fluent and flawless throughout. | Well-formed presentation of work that is coherently structured and clearly expressed throughout | Work is structured in a largely coherent manner and is for the most part clearly expressed. | Ordered presentation in which relevant ideas/ concepts are reasonably expressed. | Work is loosely and at times incoherently structured. Information and ideas are poorly expressed. | Work is poorly presented in a disjointed manner. Information and ideas are poorly expressed, with weak English and/or inappropriate style. | Work is extremely disorganised, with much of the content confusingly expressed. Very poor English and/or very inappropriate style. |