Sample Pearson BTEC Set Assignment Brief

Single Part Assessment

Unit 3 – Construction Science

For use with:

Pearson BTEC International Level 3 qualifications in Building Services Engineering, Civil Engineering, Construction and the Built Environment

Certificate / Subsidiary Diploma / Foundation Diploma / Diploma / Extended Diploma

Supervised hours	2 hours for each activity; 4 hours total.

For completion by the centre

Qualification (select as appropriate)	Certificate / Subsidiary Diploma / Foundation Diploma / Diploma / Extended Diploma
Assessment date	

Instructions to Teachers/Tutors and/or Invigilators

The Pearson Set Assignment will be assessed internally by the centre using the unit Assessment Criteria detailed in the qualification specification. The assignment will be sampled by the Standards Verifier as part of the standards verification annual centre visit.

Conditions of supervision

The Pearson Set Assignment should be carried out under supervised conditions. We advise that the Set Assignment be taken in more than one supervised session.

The Set Assignment should not be shared with learners before the supervised session arranged by the centre. Teachers/tutors and invigilators should note that they are responsible for maintaining security and for reporting issues to Pearson.

Outcomes for Submission

Learners may submit handwritten or word-processed evidence. Learners can also complete this set assignment on a computer using CAD. Learners must save their work regularly and ensure that all materials can be identified as their work.

Learners must submit their own, independent work as detailed in the set assignment. Each learner must complete an authentication sheet.

Instructions to Learners

Read the Set Assignment Information carefully.

You will be asked to carry out specific written activities, under supervised conditions, using the information provided.

At all times you must work independently and must not share your work with other learners. You must complete an authentication sheet and submit this along with your work.

Set Assignment

You must complete ALL activities.

ACTIVITY 1

Materials used for construction

The image shows a house that is part way through being built.

The house is being constructed from a reinforced concrete frame with brick and block masonry infill walls. The house has strip foundations. The upper floor is constructed using reinforced concrete slabs. The roof is pitched and tiled and will include solar panels for both hot water and electricity.

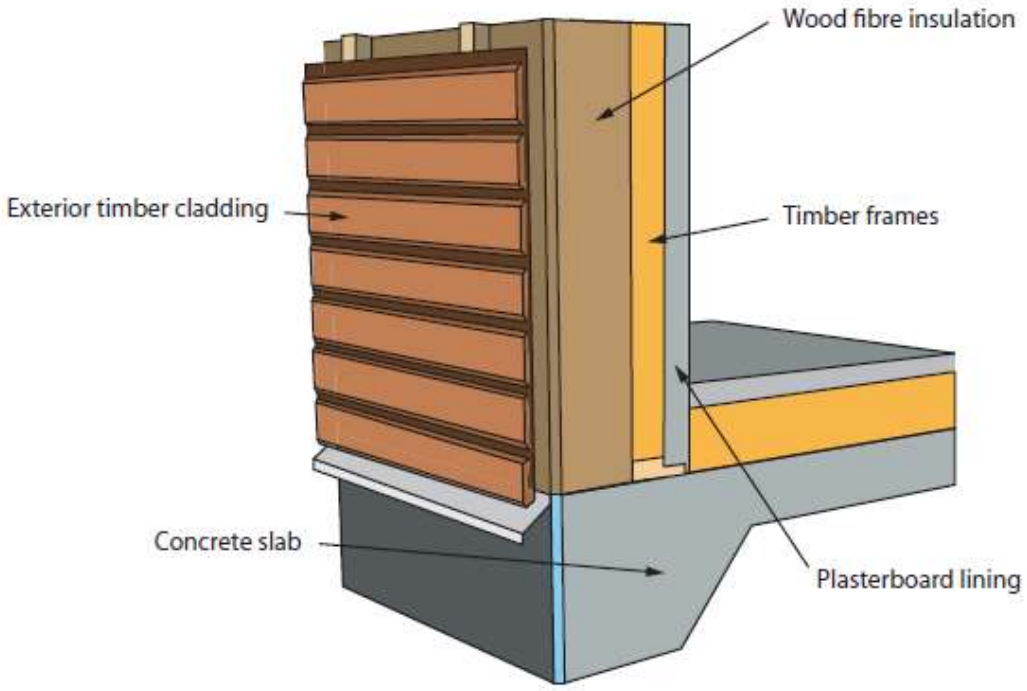
The house is designed to have a life span of 70 years, and is located in an area that has normal temperature range of -5ºC to 32ºC.

Analyse the information you have been given, then write a report that includes evaluates the suitability of the materials for use in the house. Your evaluation should include information about: • the properties of the materials used to construct the house • why these properties make the materials suitable for use in this location • ways in which the materials used for the house could fail during the lifespan of the house, and the impacts these could have on the house • how the various materials act under loadings, and the different types of loading they will be exposed to as part of the house • approaches that can be taken to reduce the effects of exposure and loading on the materials used for the house. You should use sketches and diagrams to support your written work.
This activity covers learning aims A and B. A.P1, B.P2, B.P3, A.M1, B.M2, AB.D1
The construction method and details of the climate may be adapted to suit local needs and it is recommended that different learners in a group are given slightly different information to analyse and evaluate.

ACTIVITY 2

Human Comfort

A new low-rise house is being constructed. A diagram showing the construction of the external walls is shown below:



The house will have a concrete slab raft foundation, and a pitched roof. The house will have a ground floor and an upper floor where the bedrooms will be situated. Windows will be located on all sides of the house, with skylights on the south-facing side of the roof.

The location of the house is shown on the plan below (marked with X)

You have been asked to produce a report that looks at the design of the new house.

You need to evaluate the various factors that will effect human comfort in the new house. Your evaluation will need to consider the following:

- thermal comfort, including heat losses, condensation and how thermal comfort is affected
- acoustic comfort, including personal factors, noise and ways to control noise levels
- lighting, including natural and artificial light, and how light impacts on human comfort.

For each, your evaluation should be specific to the new house in its given location.

You should use sketches and diagrams to support your written work.

This activity covers learning aims C and D.

C.P4, C.P5, C.M3, D.P6, D.P7, D.M4, CD.D2

Details of the construction of the house can be amended to suit local needs, as can the location map.