



General Certificate of Secondary Education

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## **Construction and the Built Environment**

### **Controlled Assessment Task**

Unit 4: Computer Aided Design in  
Construction

**[GCN41]**

**VALID FROM SEPTEMBER 2017**

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#### **INSTRUCTIONS FOR THE CONTROLLED ASSESSMENT TASK**

You must produce:

- A portfolio of work under controlled conditions which includes a set of plans for a domestic building and one detail drawing.

You must use dimensions in the attached technical drawings/house plans as a basis for this unit.

You should use a maximum of **10 A3** pages for the portfolio.

#### **INFORMATION FOR CANDIDATES**

This unit carries a weighting of **25%**.  
The total mark for this unit is **100**.  
You have a total of **20 hours** to complete.

**Candidate's work to be submitted May 2019/20**

Controlled Assessment Tasks must comply with the Regulations as detailed in the Subject Specification.

NB: Some instructions for Controlled Assessment Tasks may constitute more than 1 page.  
Please check that you have all the information you need to complete the task if printing from a computer.

## GCSE Construction and the Built Environment

### Unit 4: Computer Aided Design in Construction

#### Time Controlled Assessment

##### Scenario

A client has purchased a brown field site on a coastal location overlooking the stunning coast line to the left side of the site. The site is in an area of modern architectural detached dwellings. The client has appointed an architect to design a detached two storey house. The local planning authorities have indicated the proposals must complement the surrounding area with a maximum ridge height of 7.5m adhered to, to match existing adjacent properties. The site has an elevated platform which is man-made. On investigation the platform has been made up of the spoil from a previous demolition. The spoil consists of topsoil, builder's rubble and excavated subsoil to a maximum depth of three metres. Soil of a firm bearing capacity was found below this depth.

Working as part of the design team you will produce drawings showing an architectural detail, floor layouts and elevational details. The drawings produced will be sufficient to satisfy the requirements of the local planning and building control authorities. You will make changes to the external elevation, where appropriate, including window design, door design and external finish.

The client would like an additional design option with an attached two storey sunroom/viewing gallery for the house type.

##### Specification notes for construction:

- **Walls:** Cavity wall construction comprising; 100mm outer clay facing brickwork skin, 150mm cavity with pumped insulation beads, 100mm inner concrete blockwork skin with plastered finish.
- **Roof:** 35 degree pitched trussed roof comprising; 200mm x 38mm trusses spaced at 400mm centres, 200mm x 38mm ceiling joists spaced at 400mm centres supported on 100mm x 50mm timber wall plate. Tegral Thrutone slates.
- **Floor Construction:** Solid concrete floor comprising; 100mm concrete slab, 125mm Kingspan floor insulation, 25mm to perimeter of slab, 1200 gauge damp proof membrane, 100mm subfloor concrete on 20mm blinding with 150mm crusher run hardcore below.
- **First floor Construction:** 75mm concrete screed on concrete homespan units.
- **Renewables:** Solar panels on the front south facing elevation providing hot water for the heating system.
- **Level threshold external doors:** Ground level to be graded at 1:20 to all external door exits.
- **Windows and doors:** Triple glazed engineered timber.

##### The learner will:

- (a) Draw floor plans and a front elevation of the detached house provided by CCEA in the time controlled assessment task.  
  
Candidates should be using components that have already been drawn and additional components from an appropriate drawing symbol library provided by your teacher.
- (b) Complete a foundation/floor sectional detail for the detached house provided by CCEA to comply with current Building Regulations N.I 2012. Consideration should be given to the ground conditions as stated in the scenario.
- (c) To satisfy the requirements of the client's brief you must design an attached two storey sunroom/viewing gallery for the house type. This must complement the internal spatial layout and aesthetically pleasing elevation already completed. The internal layout of the house may have to be modified to accommodate this change. The client has stated they require a plan and side elevational drawing of the sunroom/viewing gallery.

Final submissions must include the following list of drawings printed in hard copy on A3 sheets to a commercially recognised scale.

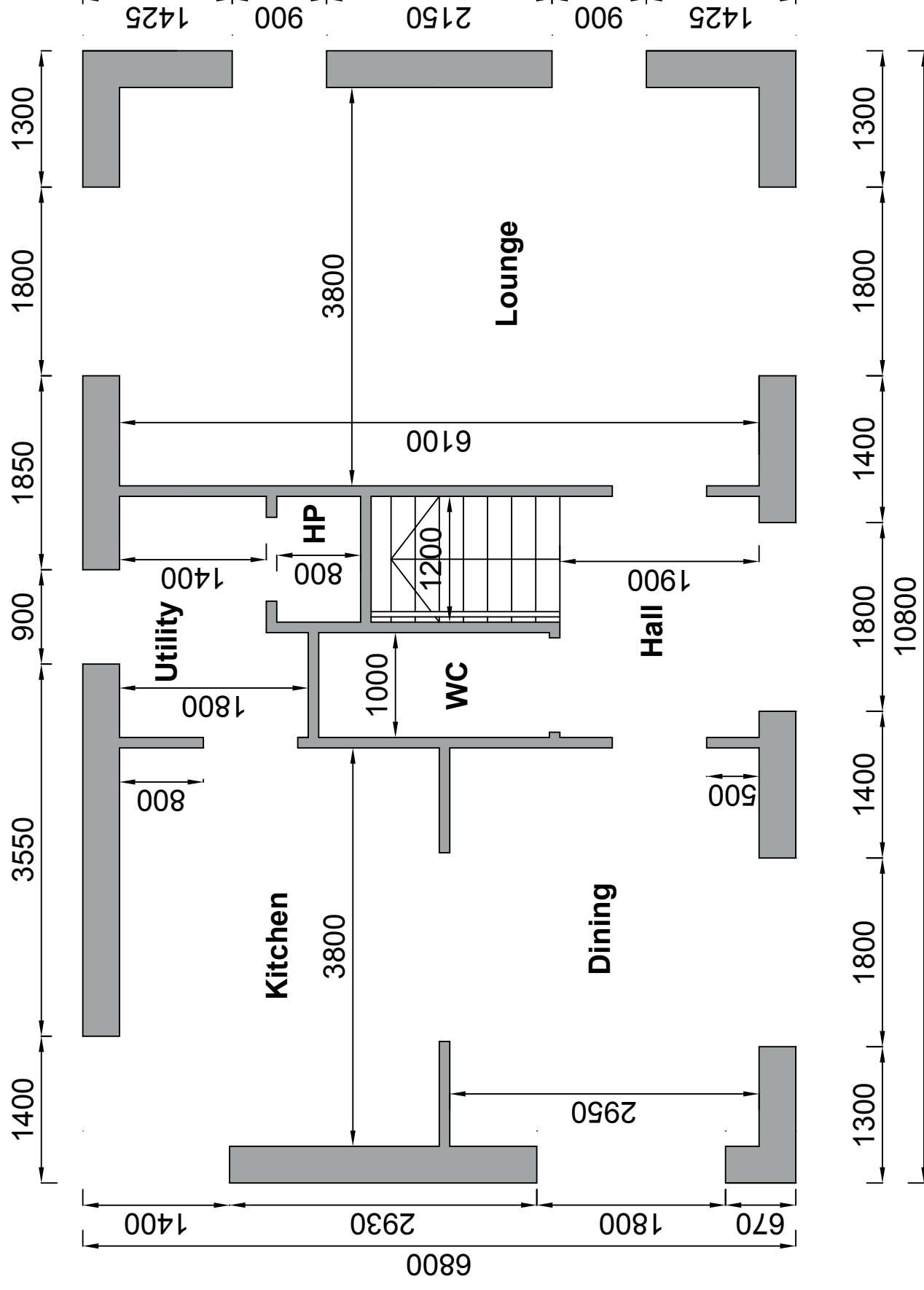
1. Completely annotated **and** sectioned foundation/floor detail (1:5 scale).
2. Four building components, i.e. three window types and a front door for use in your working drawing (1:20 scale).
3. Completed ground floor or first floor plan showing accurate openings for the insertion of components (1:50 scale) (**CCEA Drawing 1 or 2**).
4. Completed ground floor plan showing all components inserted correctly. (1:50 scale) (**CCEA Drawing 3**).
5. Completed first floor plan showing all components inserted correctly. (1:50 scale) (**CCEA Drawing 4**).
6. Completed front elevation of the specified building that includes your design for roof and brickwork hatching, windows and door, created with a high degree of accuracy (1:50 scale) (**CCEA Drawing 5**).
7. Completed working drawing including all windows and doors. Dimensions should be shown. This drawing should show the ground floor, first floor and front elevation without client's amendments, created with a high degree of accuracy (1:100 scale) (**CCEA Drawing 6**).
8. Completed side elevation that includes client's amendments created with a high degree of accuracy (1:50 scale).
9. Completed ground floor plan that includes client's amendments created with a high degree of accuracy (1:50 scale).
10. A completed working drawing that shows how the candidate has analysed the client's brief and taken into account the client's amendments as requested in part (c) (1:100 scale).

**The number of drawings submitted should not exceed 10 A3 drawings.**

**All work must be presented in this order.**

**The front cover sheet must include the Candidate Number and Centre Number.**

**Total time allowed 20 hours.**



# Ground Floor Plan

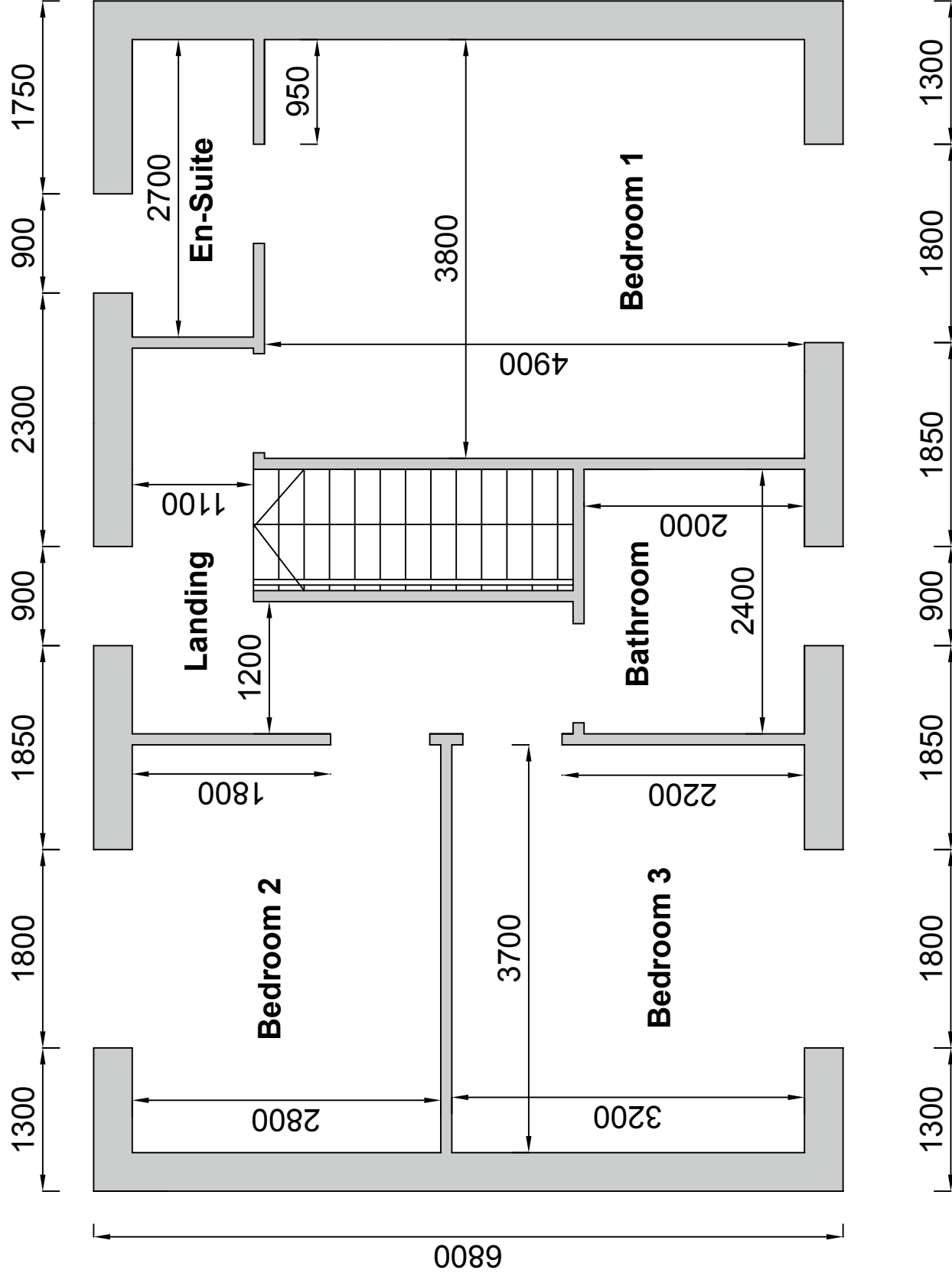
**GCSE Construction  
&  
The Built Environment**

**PERSONAL DETAILS:**

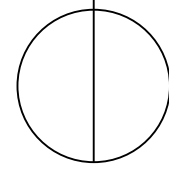
Name: Unit 4 - CAD  
Class: 2017 - 2020

**DRAWING DETAILS:**

Drwg Nr: 01  
Title: Ground Floor  
Scale: Not to Scale  
Date: Sept. 2017 - May 2020



# First Floor Plan



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The Built Environment**

**PERSONAL DETAILS:**

Name: Unit 4 - CAD

Class: 2017 - 2020

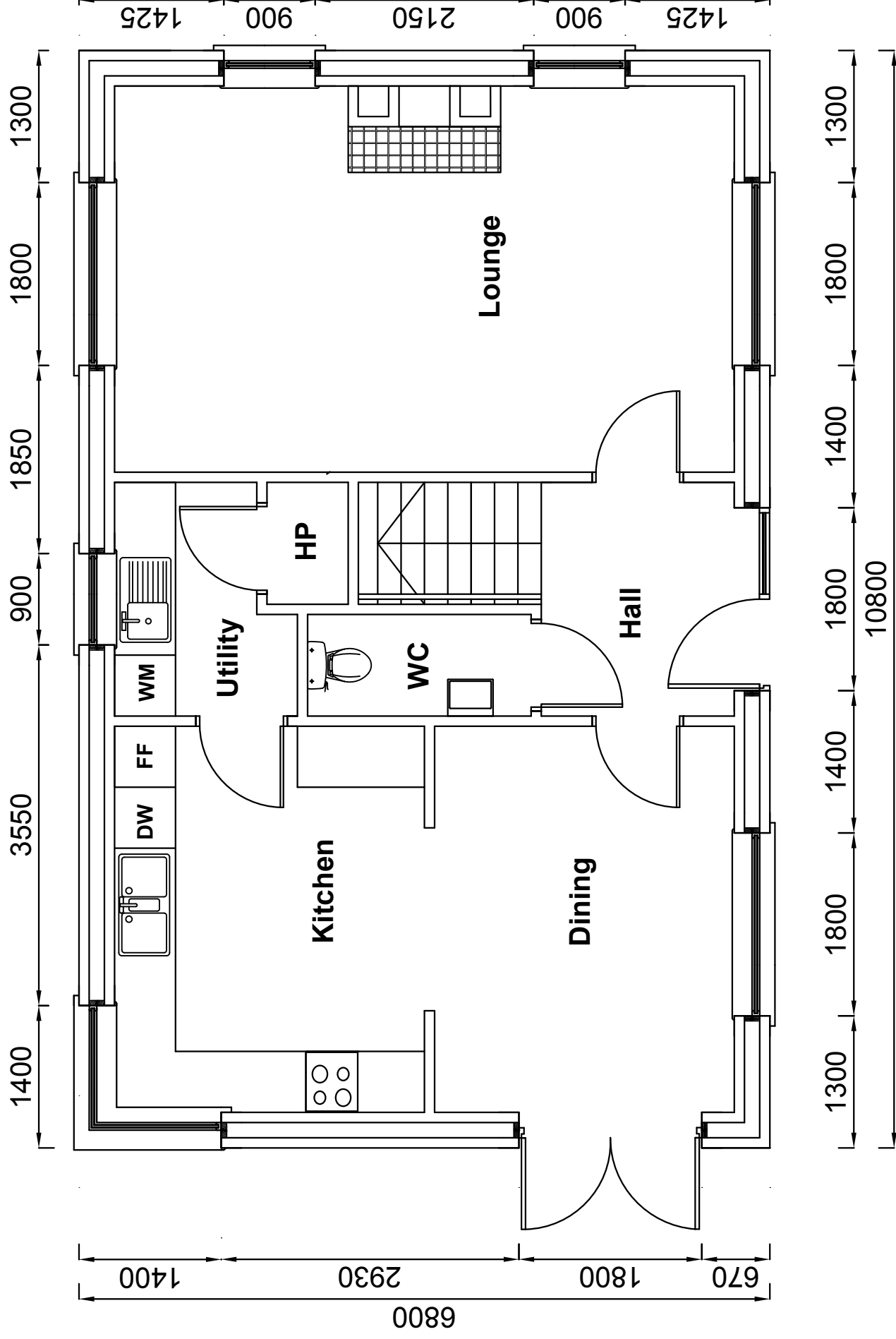
**DRAWING DETAILS:**

Drwg Nr: 02

Title: First Floor

Scale: Not to Scale

Date: Sept. 2017 - May 2020



## Ground Floor Plan

**GCSE Construction**

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The Built Environment**

**PERSONAL DETAILS:**

Name: Unit 4 - CAD

Class: 2017 - 2020

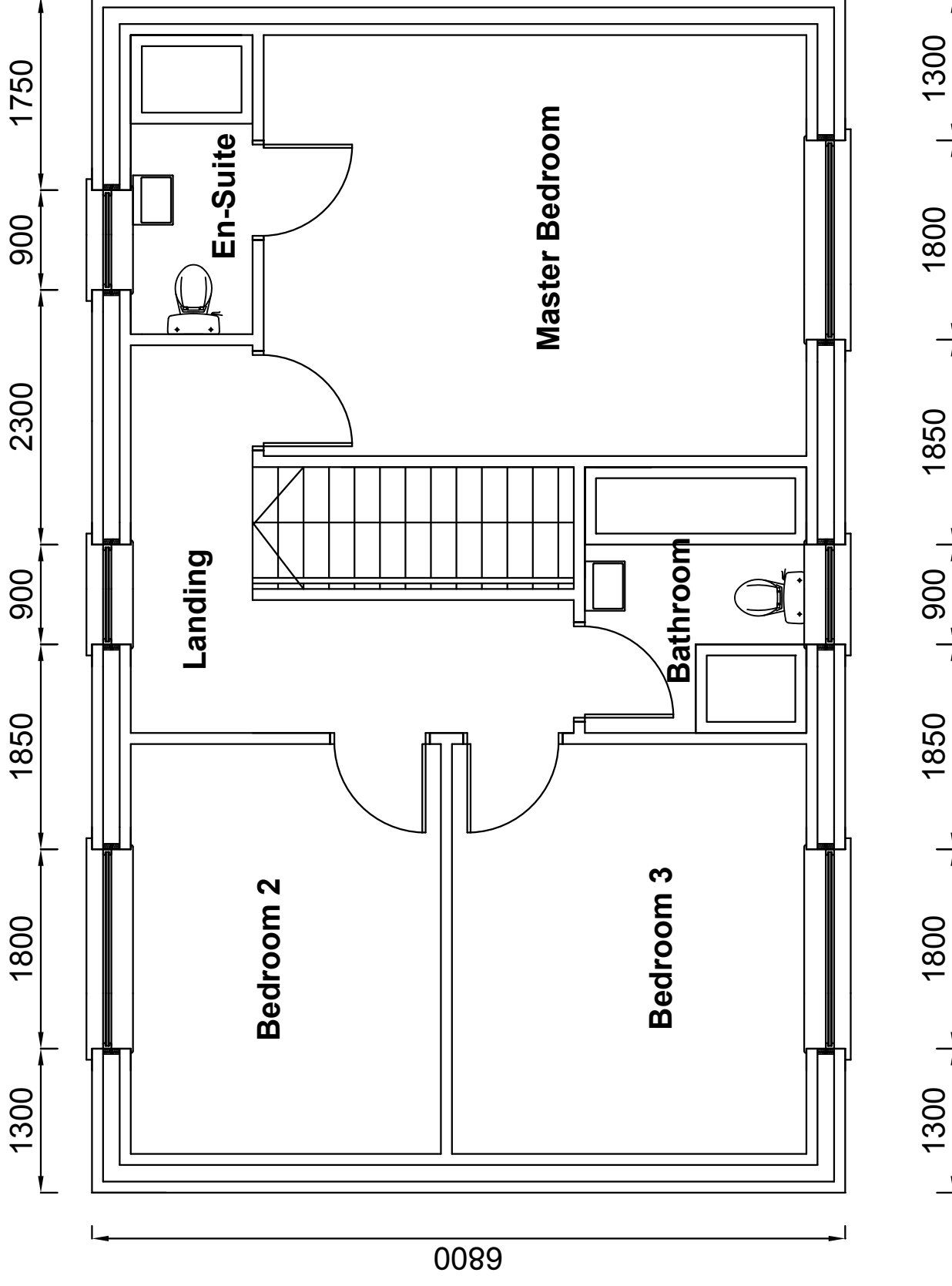
**DRAWING DETAILS:**

Drwg Nr: 03

Title: Ground Floor

Scale: Not to Scale

Date: Sept. 2017 - May 2020



# First Floor Plan

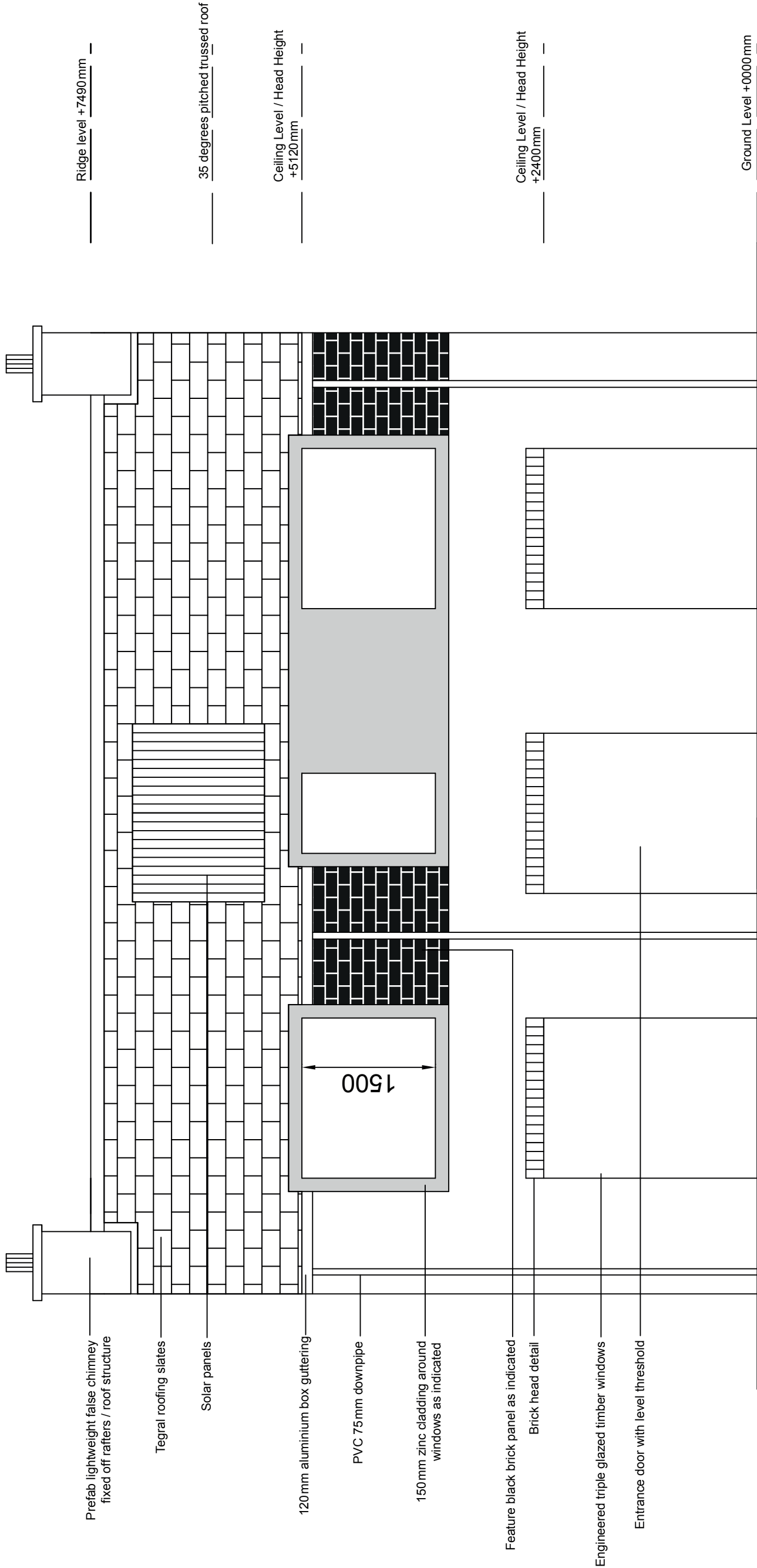
**GCSE Construction  
&  
The Built Environment**

**PERSONAL DETAILS:**

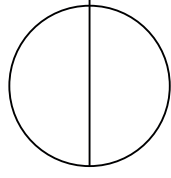
Name: Unit 4 - CAD  
Class: 2017 - 2020

**DRAWING DETAILS:**

Drwg Nr: 04  
Title: First Floor  
Scale: Not to Scale  
Date: Sept. 2017 - May 2020



# Front Elevation



## PERSONAL DETAILS:

Name: Unit 4 - CAD

Class: 2017 - 2020

## DRAWING DETAILS:

Drwg Nr: 05

Title: Front Elevation

Scale: 1:50

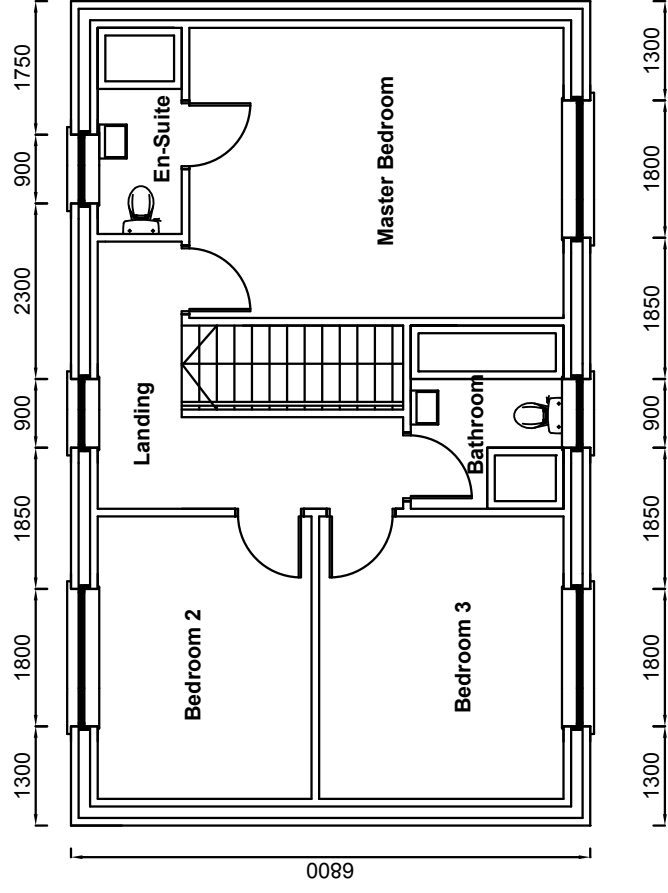
Date: Sept. 2017 - May 2020

# GCSE Construction

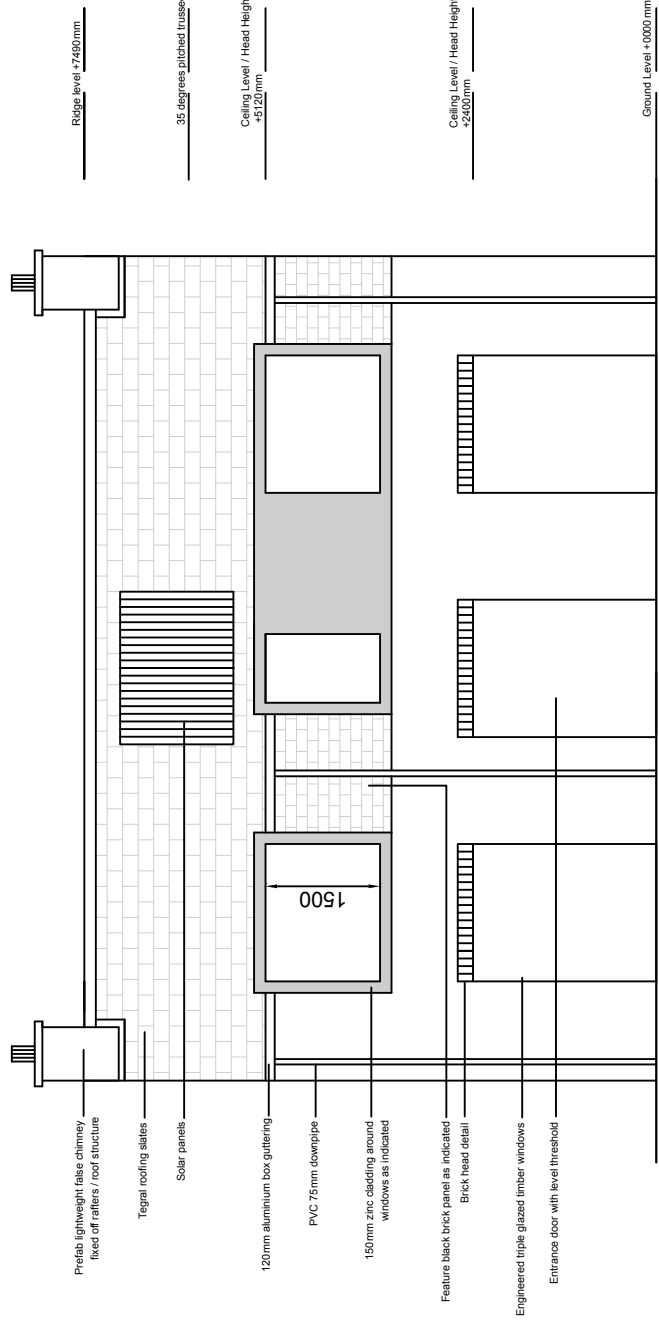
# &

# The Built Environment

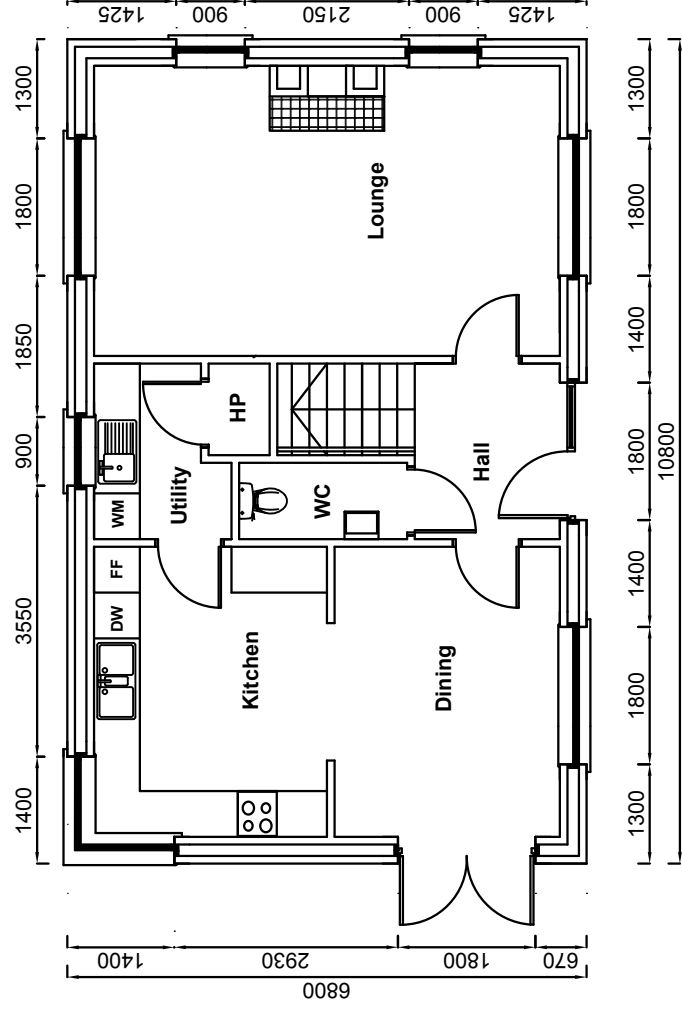




**First Floor Plan**



**Front Elevation**



**Ground Floor Plan**

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## PERSONAL DETAILS:

Name: Unit 4 - CAD  
 Class: 2017 - 2020

## DRAWING DETAILS:

Drwg Nr: 06  
 Title: Working Drawing  
 Scale: 1:100  
 Date: Sept. 2017 - May 2020