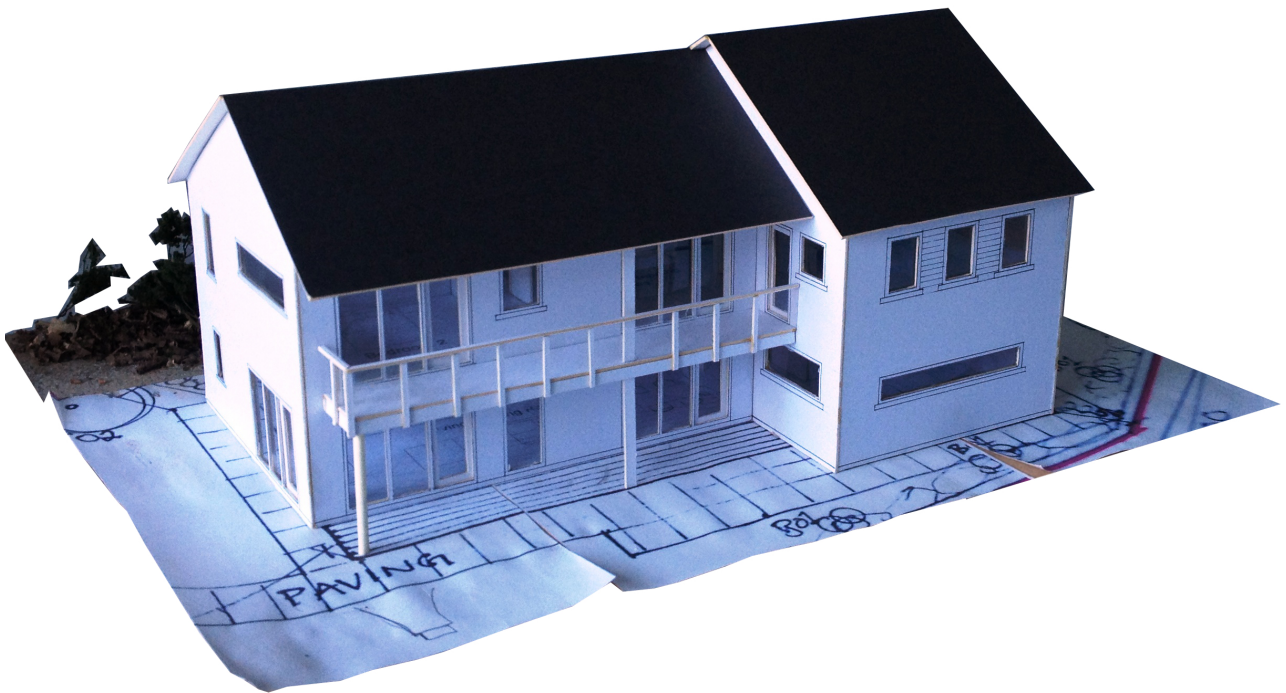


# Construction Studies 2014

## Project Report Guidelines



Study Model by Keith Cunningham

SEC Official Marking Scheme:

<i>Marking Scheme</i>		Maximum Marks	Marks Awarded
<b>A</b>	<b>Planning of Project</b> <ul style="list-style-type: none"> <li>• Ability to design an appropriate plan of procedure</li> <li>• Evidence of research</li> <li>• Preparation of working drawings/use of models as graphic aids</li> </ul>		
		<b>Subtotal</b>	<b>30</b>
<b>B</b>	<b>Report Writing</b> <ul style="list-style-type: none"> <li>• Design folio detailing planning, execution and evaluation of project</li> <li>• Critical appraisal of project for quality, function and finish</li> <li>• Conclusions from practical experience of project work</li> </ul>		
		<b>Subtotal</b>	<b>30</b>
<b>C</b>	<b>Manipulative Skills</b> <ul style="list-style-type: none"> <li>• Skills in preparation and finishing of materials</li> <li>• Safe use of tools and machines - Hand /Power/CNC</li> <li>• Skills in assembly of materials</li> </ul>		
		<b>Subtotal</b>	<b>30</b>
<b>D</b>	<b>Presentation of Project</b> <ul style="list-style-type: none"> <li>• Task completed to acceptable standard</li> <li>• Appropriate use of materials</li> <li>• Satisfactory knowledge of construction technology</li> </ul>		
		<b>Subtotal</b>	<b>30</b>
<b>E</b>	<b>Experiments</b> <ul style="list-style-type: none"> <li>• Evidence of ability to plan and carry out <b>three</b> experiments <i>Experiments should be related to the project work or selected from the suggested experiments outlined in the syllabus for Construction Studies.</i></li> </ul>	Experiment 1	
		Experiment 2	
		Experiment 3	
		<b>Subtotal</b>	<b>30</b>
<b>TOTAL:</b>		<b>150</b>	

Pleanáil an Tionscadail <i>Planning of Project</i>	Tuairisc a Scriobh <i>Report Writing</i>	Scileanna Láimhsithe <i>Manipulative Skills</i>	Cur i Láthair an Tionscadail <i>Presentation of Project</i>	Turgnaimh <i>Experiments</i>
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30 marks

30 marks

30 marks

30 marks

30 marks

### **Layout:**

Your report should be structured as follows:

- front cover (see-through plastic with cover page underneath),
  - the front cover should have these details:
    - the title of the project (house name),
    - a picture or sketch or photo,
    - your name,
    - your exam number.
- acknowledgement - thank your parents & teacher for putting up with you,
- table of contents,
- chapter one,
- chapter two... and so on to chapter eight,
- back cover (card).

### **Note:**

Remember, the model is there to support the research you have completed. Therefore, your overall project should, through the portfolio and the model, provide the reader with a very clear picture of how the would be constructed. This is explained using:

- written notes,
- architectural drawings,
- sketches,
- photographs,
- a model.

The reader should get a very clear sense of what you have learned about designing sustainable homes by exploring it in detail and presenting your findings in the portfolio and model.

## Chapter One

### Introduction

#### A brief introduction to the house you have designed....

1. Outline who the house is for
2. Where the site is and why you chose it
3. What influenced your design (e.g. an existing house)

*Don't go into the structural details (e.g. walls, roof, etc.) - that comes later.*

## Chapter Two

### Planning

This chapter is about how you planned your project. Remember this chapter is worth **20%** of the marks!

This means how you planned to use your time on each stage of the project... we call this the 'plan of procedure'. It includes;

1. A list of each stage (see the poster in the practical classroom),
  - i) research
  - ii) drawing plans
  - iii) marking out
  - iv) making parts
  - v) assembly
2. A Gantt chart (planner)
  - i) the time goes across the top of the spread sheet - each week should have three boxes - each box represents one hour of work,
  - ii) the above list of stages should be broken down into smaller steps - these go along the left side of the spreadsheet,
  - i) show clearly how many hours are to be spent on each stage.

## Chapter Three

### Research, investigation & design

1. Choosing a site and writing the brief:
  - i) map showing location of site (use google maps)
  - ii) details of family that the house is designed for
  - iii) the design brief should include:
    - size (e.g. area in m<sup>2</sup>, number of floors)
    - style (e.g. traditional, contemporary)
    - spaces/ rooms needed (e.g. bedrooms, living room, kitchen etc.)
    - energy performance (e.g. Passive House or BER: A1, A2 etc.)
    - construction method (e.g. masonry, timber frame etc.)
    - special requirements (e.g. elderly/ disabled occupant)

- materials (e.g. timber windows, plain render)
  - landscaping (e.g. outdoor spaces, planting)
  - budget (i.e. money available to complete the project)
  - time frame (i.e. completion date)
2. Explain how you came up with the design. This is a really, really important part of the write up. You have to explain the thinking behind your design.
  3. Explain the floor plans:
    - why are the spaces (i.e. rooms) laid out as they are?
    - include sketches of the floor plans showing the sunpath
    - what did you take into consideration when positioning each space?
    - what relationships are there between the spaces?
    - discuss how the spaces would work together in real life
    - what alternatives did you consider before you settled on this design?
    - include all of the sketches you did in class when you were designing the house
    - what did you think about when deciding where to put the utility room/ services?
  4. Explain the elevations:
    - what did you take into account when deciding where the windows were to be positioned?
    - how did you decide on the size of the windows?
    - how did you decide where to put the main entrance door?
  5. Explain how the house could be adapted in the future to accommodate the family's needs.
  6. Preparation of working drawings - you must prepare your own drawings (these are similar to drawing the house onto the card, only these drawings include the details that you left out on the card (i.e. so essentially you are redrawing the original architect's drawings). Draw them to a suitable scale (e.g. 1:100 / 1:50) like your model.
    - i) Front elevation,
    - ii) Rear elevation,
    - iii) End elevations,
    - iv) Floor plans (view from above)
    - v) Section drawings (from foundation to roof)
  7. Use of models/practice pieces - in this section you describe any practice pieces that you made to help you make the model
    - i) Include photos/sketches of any practice work as part of your research
    - i) Did you practice a wall finish, for example?
    - ii) Did you make a practice model of the windows of your model?
    - ii) Include photos/sketches of any experimental work as part of your research
    - iii) Explain what you gained by making these practice elements

## Chapter Four

This chapter is about how the house would be built in the real world. This section should include a detailed explanation of the construction techniques used. This should include written explanations and sketches of each key element of the building structure.

This chapter has seven sections, including:

- i) Foundations – sketch and explain why this type of foundation used (describe the type of soil in the area),
- ii) External walls – sketch and describe the type of wall and amount of insulation used,
- iii) Roof - sketch and describe the structure type and materials used (incl. fascia/soffits),
- iv) Floors - sketch and describe the type and materials used,
- v) Windows – sketch and describe the type and materials used and any changes made over the years (and why),
- vi) Doors - sketch and describe the type and materials used and any changes made over the years (and why),
- vii) Any other element you think is interesting (e.g sunspaces/ porches).

In summary, this section should include:

- **short written paragraphs**,
- **lots of sketches** and,
- **good quality photos** - there should be photos of existing passive houses (or ordinary houses) that have similar features to yours (e.g. brise soleil).

## Chapter Five

This chapter is about how the model was made. Describe in detail how each of the major components of your project was made, including;

1. the structure of your model – how the size was worked out, how the walls were cut out (what tools were used),
2. the windows and doors,
3. how the project was put together (adhesives used – why they were used),
4. safety precautions taken when working with tools, glue, etc..

The execution of the project should be explained mainly **through the use of neat colourful freehand sketches** accompanied by the minimum of writing.

(NO EXAMINER WANTS TO READ THROUGH PAGES OF WAFFLE ON HOW TO MAKE SOMETHING HE/SHE ALREADY KNOWS WELL HOW TO MAKE – DEMONSTRATE YOUR KNOWLEDGE GRAPHICALLY – I.E. WITH SKETCHES!) Go into detail on the interesting and challenging parts of your model.

## Chapter Six

This chapter is about how you think the project worked out. In other words, this chapter is where you evaluate your own work. This is the most important chapter.

*It is important that you try to judge your performance on this project fairly – don't be too hard on yourself and don't be afraid to accentuate the positive – remember, however, that no project is perfect – select a few specific areas where you could have done better and explain how, and what you'd do differently next time round.*

This chapter has three sections, including:

1. Evaluate your planning and use of time
  - i) Was the plan you made realistic?
  - ii) What took longer than anticipated?
  - iii) Why? – don't blame it all on your teacher!
2. Evaluate how well your project works (function)
  - i) Ask yourself, is it a realistic and useful representation of the building?
  - ii) Would it be useful from a design point of view?
  - iii) What could be better? How could you have made it so?
3. Evaluate your project's appearance
  - i) Is the scale good? Not too big/small? Does the size of the model provide enough detail?
  - ii) Is the proportion true? Did you put a toy car on the driveway that's way out of scale?
  - iii) Does the model reflect the buildings feel? Would it give a client a good sense of what the built structure would be like?
  - iv) How well built is it? Are the edges cut cleanly? Is there adhesive visible?
  - v) Is the model solid and sturdy? Will it fall apart if the examiner picks it up?

## Chapter Seven

This chapter is about what you learned from doing the project.

There are five sections, as follows:

1. Skills:
  - i) What new skills did you learn during the course of the project? Machinery, tools, equipment, safety precautions.
  - ii) What can you do now that you couldn't do before?
  - iii) What have you learned about 'project management'? (time management, negotiating for the use of equipment, getting help when you need it, having the materials to hand when they are needed, staying productive during class, motivating yourself to keep working).

2. Knowledge:
  - i) What new knowledge did you acquire? Probably more than you realise – think about it.
  - ii) What do you know now that you didn't know before?
3. Yourself:
  - i) What have you learned about yourself?
  - ii) Do you work well independently or are you better when someone is pushing you?
  - iii) Do you enjoy work on your own or are you better as part of a team?
  - iv) Are you an organised person?
  - v) When a block of granite is dropped in your path do you see it as a barrier or a stepping stone?
4. What problems/difficulties did you encounter? How did you overcome them?
5. Evaluate your evaluation – how honestly and fairly and willingly did you assess your own performance? Could you have done better?

## Chapter Eight

This chapter is where you write up three experiments that you have conducted. You must write up **three** separate experiments that are relevant to your project in some way.

1. **Title of experiment:** *give the experiment a name that describes what it's about.*
2. **Objective:** *what are you testing?*
3. **Hypothesis:** *what do you expect to find?*
4. **Procedure:** *what did you do?*
  1. *describe step one...*
  2. *describe step two...*
  3. *describe step three... and so on.*
5. **Results:** *what did you find?*
  1. **EVIDENCE!!!** *It's very important to remember to **include photographs** taken while carrying out the experiment as evidence of the work completed.*
6. **Conclusion:** *what did you learn?*



## experiment ideas:

### materials:

- card: which card is best for modeling?
  - bookbinding card
  - mount board
  - breakfast cereal box card
- ease of cutting - is it easy to cut cleanly?
- sturdiness - is it stiff enough?
- reliability - will it hold its shape?
- gluability - is it easy to glue?

### adhesives: all purpose glue, superglue, polyvinyl adhesive (PVA), hot melt glue

- testing which glue is best for which type of material or application
  - which adhesive is best for bonding various materials?
    - wood, card, acetate, other materials you can think of
  - which adhesives are best for painting over?
    - apply adhesive to a piece of card, let it dry, paint over it, check the results
  - which glue offers the most support?
    - example, gluing a tree to the base
  - which glue offers the most time to work?
    - example gluing the walls to the base

### processing:

- cutting card:
  - which type of knife gives a better result when cutting various types of card?
    - stanley knife
    - marking knife
    - scapel
    - other
  - which method is the most reliable way to cut a square of card of side 100mm?

### other ideas:

- what's the best way to model a tree?
- does adding people to a model improve its function?
- how important is scale and proportion

### Final Note:

*Remember, these are only guidelines; you can add to them as you see fit. Your report can be handwritten (neatly!) or typed. Sketches should be made freehand, in pencil only, and colour used where appropriate. Photos that are printed on photo paper can be stuck into a handwritten report with Pritt Stick - if you are typing the report, copy and paste the photos into the report and then print it.*