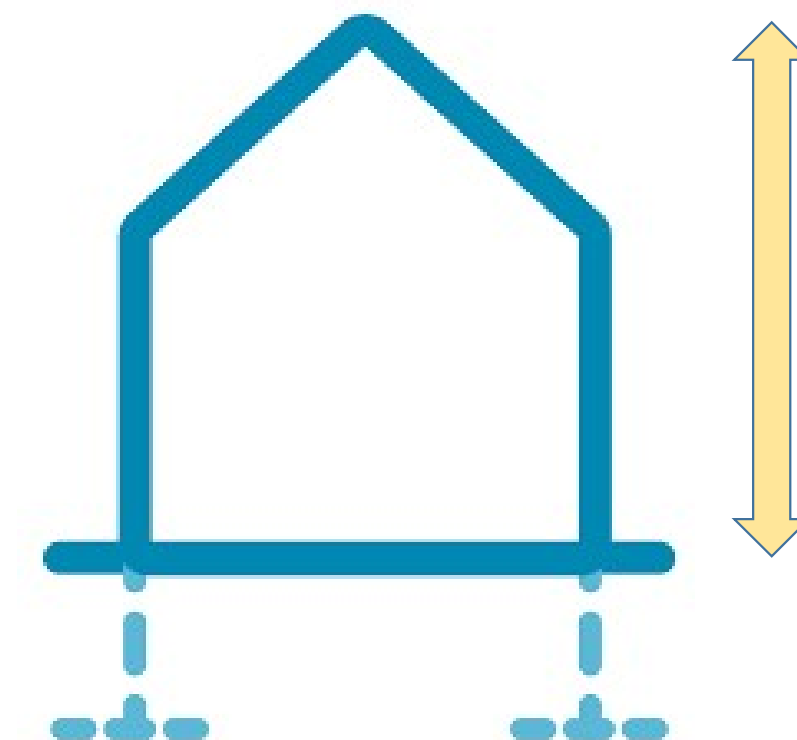


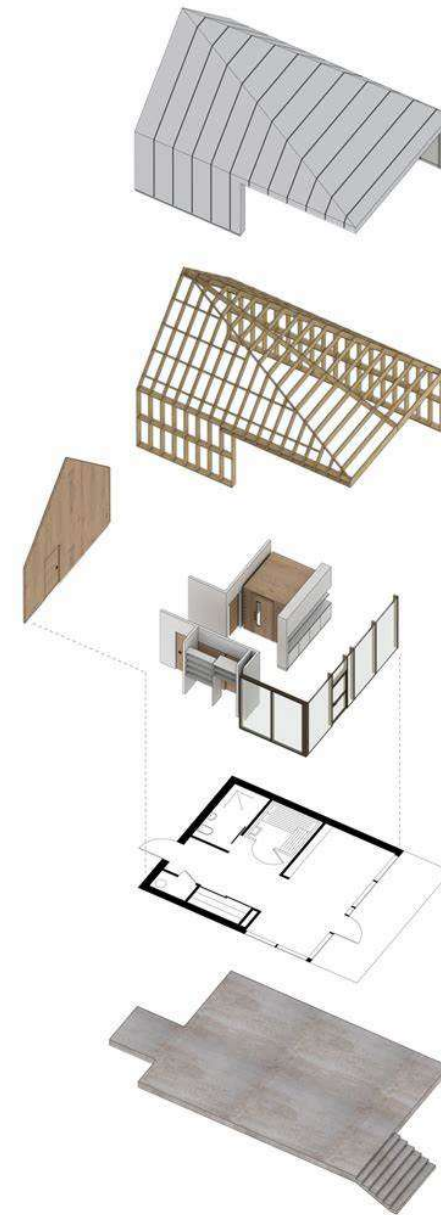
Superstructure 1: Fundamentals of Construction Technology



Superstructure

Session 1:

- What is it all about?
- What am I expected to do?
- How will it be assessed?
- Superstructure Introduction



< All teams

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	Name	Modified	Modified By	+ Add column
	Superstructure	Yesterday at 2:53 PM	Gavin Traylor	
	Assignment1_Level 4_ACBA4022_Sem1_202...	October 17, 2024	Alan Nantel	
	Borehole that can be associated with Assig...	October 24, 2024	Alan Nantel	
	CODE OF PRACTICE FOR GROUND INVESTI...	November 22, 2024	Alan Nantel	
	CODE OF PRACTICE FOR GROUND INVESTI...	November 1, 2024	Alan Nantel	
	CODE OF PRACTICE FOR GROUND INVESTI...	December 5, 2024	Alan Nantel	
	FOR DEEP FOUNDATIONS 14th DEC.pptx	January 3	Alan Nantel	
	FOUNDATIONS 02122021.pptx	January 3	Alan Nantel	
	General information for a desk study.docx	October 24, 2024	Alan Nantel	
	INTRODUCTION to FUNDAMENTALS.pptx	October 24, 2024	Alan Nantel	
	mumbles+Train+003.jpg	November 1, 2024	Alan Nantel	
	Prince of Wales Dock, 1949.jpg	November 1, 2024	Alan Nantel	



Module AIM

- *To cultivate the fundamental principles, materials and techniques commonly utilised in the construction of low rise residential and commercial buildings, and their related repair requirements following defect diagnosis*

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- analyse site evaluation, site and soil investigation techniques;
- evaluate the different types of sub-structure available for a range of low-rise building systems and techniques used in their production;
- **interpret and produce annotated sketches that illustrate a broad range of common constructional forms, demonstrating understanding of their potential defect and repair needs.**

What am I expected to do?

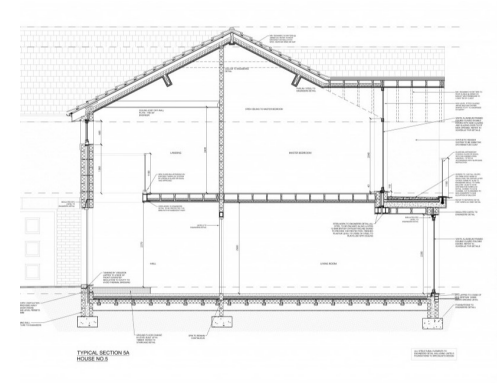
Lecture series over Semester 2, providing guidance on Construction Superstructure

General Overview (Me)

- Overview of Domestic / small scale building
- Building fabric and elemental approach to superstructure
- MMC & Alternative approaches.
- Suitability, Maintenance and repair.

General Overview (You)

- You need to know how to use the Library and Online resources
- You need to attend all timetabled activities
- You need to manage your time and meet deadlines
- Ask Gavin / Allan if you have any problems regarding the module



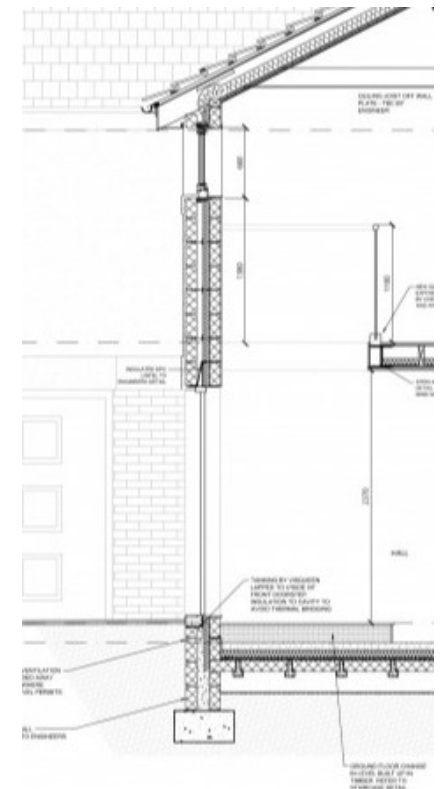
How will it be assessed?

Module Credit 20

24% Scheduled Learning and 76% Independent Learning



Assessment Component 2		
Mode of Assessment	Word Limit	Weighting
Case Study	2000 Words or equivalent	50%



Moodle - Reading List

Fundamentals of Construction Technology (ACBA4022)

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 Online reading List


Assessment
Specification 2024/25


Turnitin Submission
Links 2024/25



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Essential reading (8)

Material which is an essential part of the course and students are expected to draw on as a core part of their learning. Must be available from the library and should be available online.



Construction technology 1 : house construction

Book | Riley, Mike., Cotgrave, Alison., Fourth edition., London : Bloomsbury Visual Arts, 2018., Total pages 1 xv. 373 pages :

Essential

Available at Swansea Campus Y Fforwm Library Main Collection: 690 RIL



Building construction handbook

Book | Chudley, R., Greeno, Roger., 10th ed., Oxfordshire, England : New York, New York : Oxfordshire, England : New York, New York : Routledge, 2014., Total pages 1 online resource (979 p.)

Essential

[View online](#)



Building Construction Handbook [electronic resource].

Book | Chudley, Roy., Greeno, Roger., 8th ed., Hoboken : Taylor and Francis, 2013., Total pages 1 online resource (841 p.)

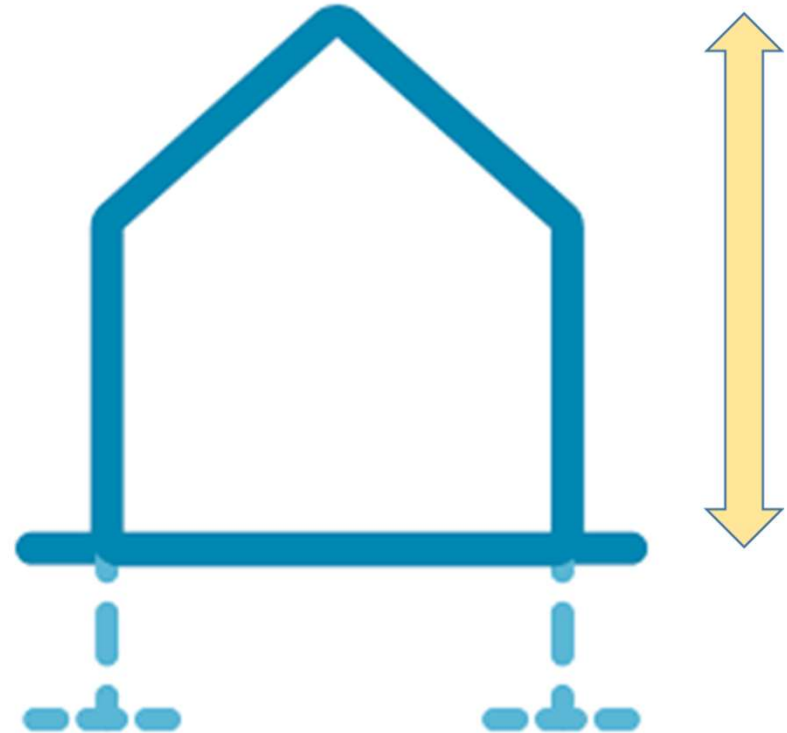
Essential

[View online](#)

Week 1:

Functions of Buildings

Introduction to Superstructure





There will be exercises as we go through the lectures – make notes and sketches as we go.

Functions of Buildings

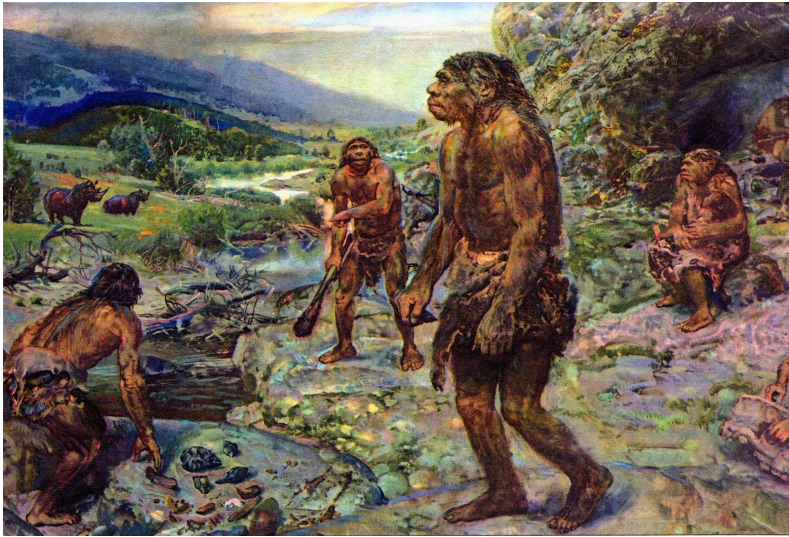
Why do we Build?

The use of buildings as protective structures or enclosures.

Since fire was first used by primitive people to provide light and heat, the use of energy to aid in environmental moderation has developed internal environments that reduce the effects and extremes in the external climate.



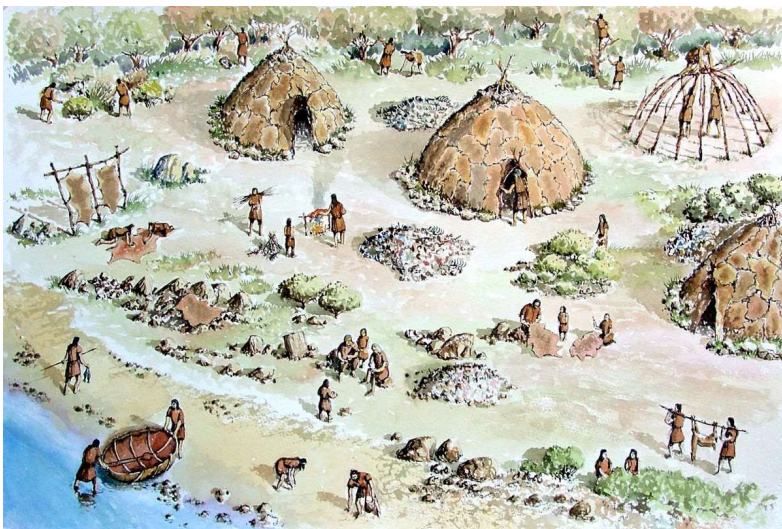
https://i.dailymail.co.uk/i/pix/2015/07/03/14/2A338A5800000578-3148511-image-a-21_1435930837225.jpg



http://4.bp.blogspot.com/-6CWvcEKKHBV/T6CVotA7KyI/AAAAAAAAAGTU/ySIEcOU92LQ/s1600/the_neanderthal_encampment_by_zdenek_burian_1950.JPG



https://kise.i3investor.com/files/my/blog/img/b1338_gonnersdorfsettlement.jpg



<https://i.pinimg.com/originals/41/ce/63/41ce63be5c59f90e1150a7ea6d97de51.jpg>



<https://museum.wales/stfagans/buildings/bryneryr/>

The use of buildings to house people, equipment and processes have resulted in the development of buildings that can control these internal environments with greater accuracy.

As well as protection and enclosure we can now consider:

- Thermal Insulation and temperature control
- Acoustic insulation
- Provision of Light (natural and artificial)
- Controls for humidity and ventilation
- Exclusion of contaminants.



Case study 1: Styles of buildings

Thermally light structures in Thailand

These dwellings are located in Thailand. The lightweight construction form is created by the use of locally available materials. The large openings allow air to pass through the building to cool the interior quickly. Thermally light structures of this type are common throughout the Far East. They utilise local materials that are readily available. However, with the advent of more modern construction forms and the incorporation of air conditioning systems they are now restricted to rural areas.



European vernacular buildings

These are examples of heavyweight construction forms found in England and France. The use of local stone and slate for the walls and roofing reflects regionally available materials, although the 'gothic' style of the building above is actually a copy of earlier styles. The building was constructed in the Victorian period. The windmill, in contrast, is typical of simple rural building styles.



A simple cottage dwelling located in the North of England is above. The use of slate for the roof and brick for the external walls is typical of many buildings of this age and type. In contrast, the buildings in the right-hand picture reflect an earlier form of building in which a structural timber frame is used rather than loadbearing external walls. Note that the upper floors project outwards over the street. This allows more floor area to be created within the dwelling while minimising the area of land utilised. This style was actually driven by economics rather than functionality. At the time of its construction taxes were based on the ground floor area of the building.





SAIN FFAGAN

<https://museum.wales/stfagans/thesite/>

Welsh Vernacular Building types

< All teams

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Fundamentals of Construction Technology (24-25)

Functions of Buildings

Hi, Gavin. When you submit this form, the owner will see your name and email address.

* Required

1. What do you consider to be the main differences between the terms 'Vernacular Building' and House construction'? * 

Enter your answer

2. How could these two styles vary in terms of the building performance? * 

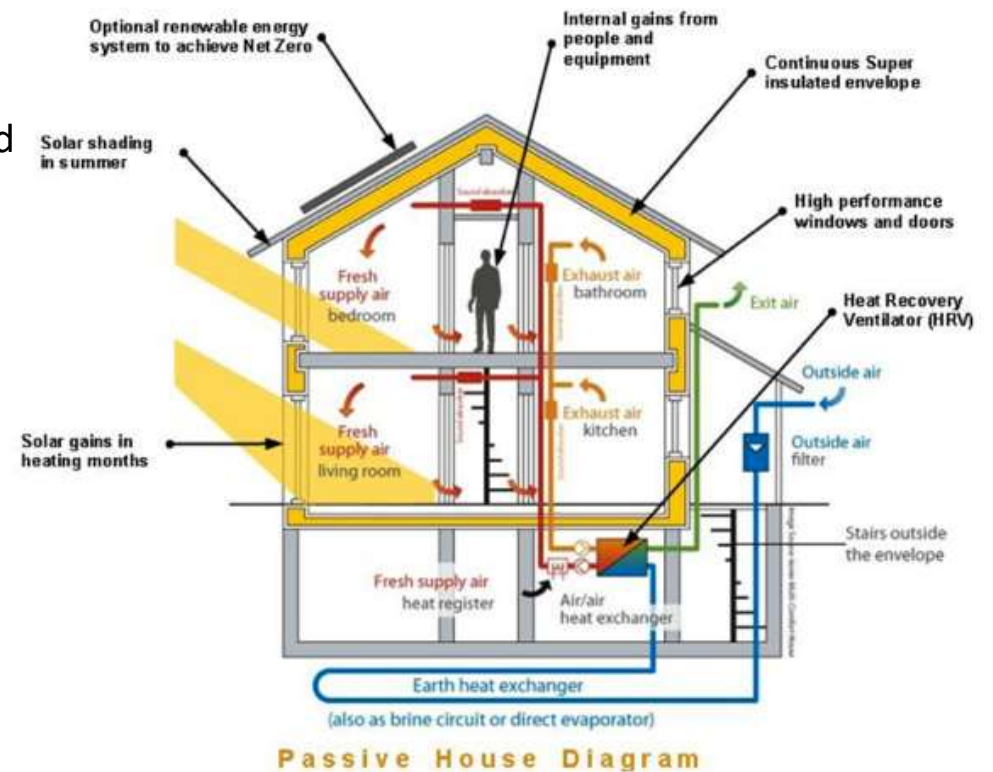
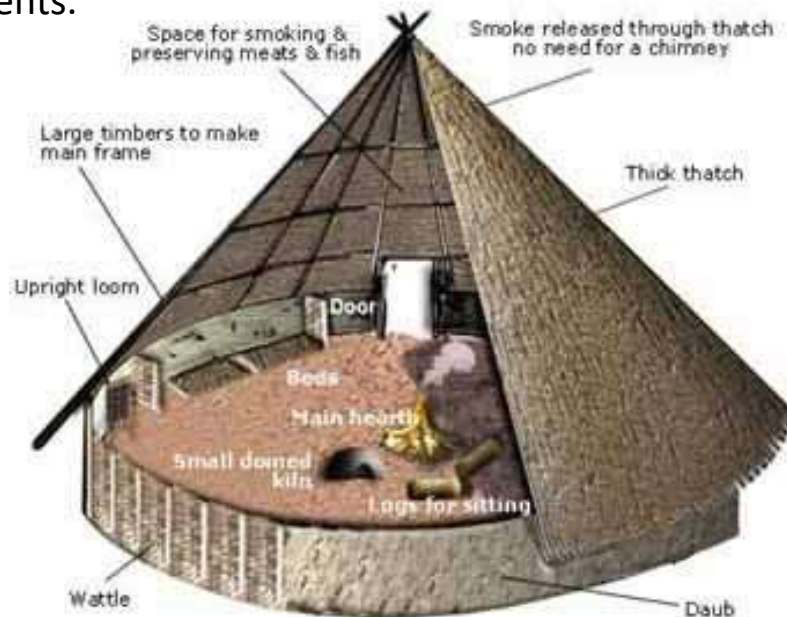
Enter your answer

3. Explain what you would consider to be a Thermally Light Building? * 

Building Styles:

A vernacular building style is specific to a region and uses the local materials available in its construction to form the building fabric.

Modern House construction uses a wide variety of materials and techniques and is not specific to any particular region. Construction methods, materiality of the building envelope and performance of the building fabric can be modified to suit the requirements.



Thermally Light V's Thermally Heavy:

Thermally light buildings are physically light in weight and have a fabric which has little capacity to absorb heat. Such buildings respond quickly to changes in external temperatures.



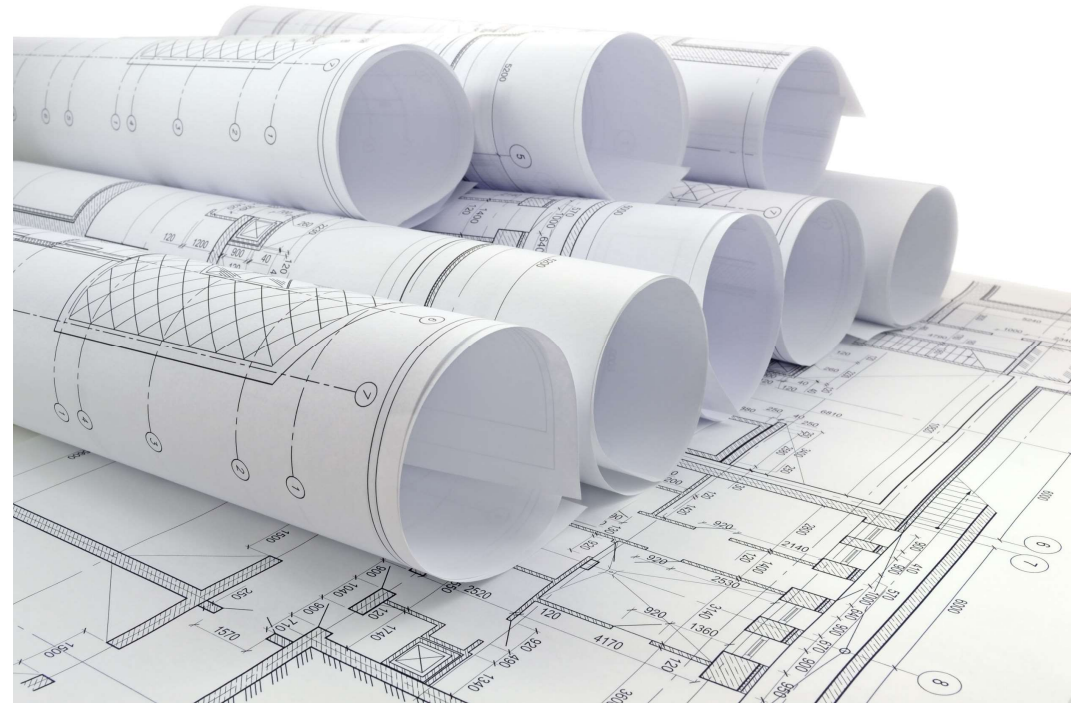
By contrast thermally heavy often have a heavy dense fabric which reflects some heat and absorbs much of the rest. They insulate the interior by reacting slowly to variations in external temperature.



Performance Requirements of the Building Fabric

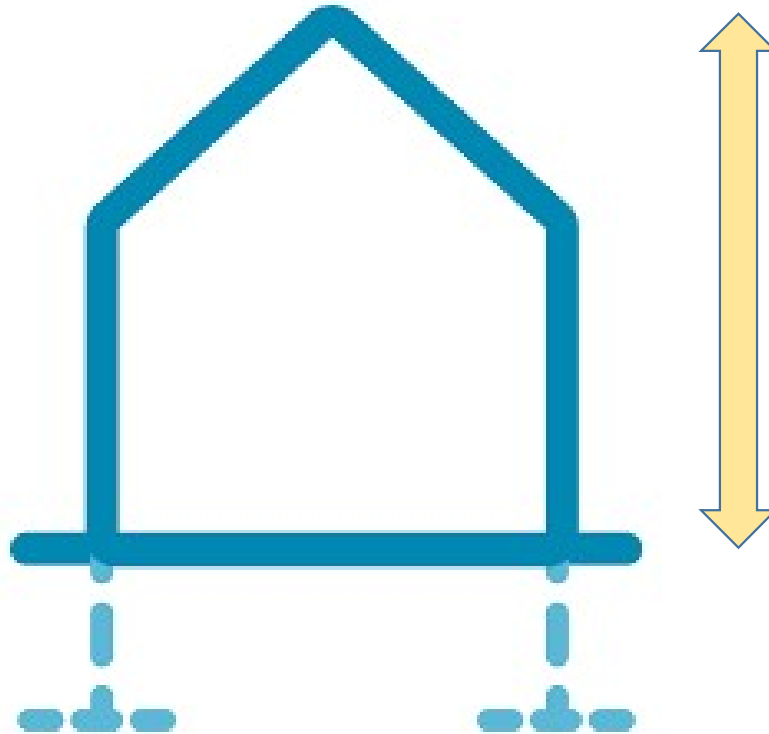
What are the key drivers in providing a building that is suitable for the need?

- Structurally Stable
- Durability
- Thermal insulation
- Protection from weather and exclusion of moisture
- Acoustic performance
- Flexibility to change to changing needs
- Aesthetics
- Buildability
- Sustainability



What is Superstructure?

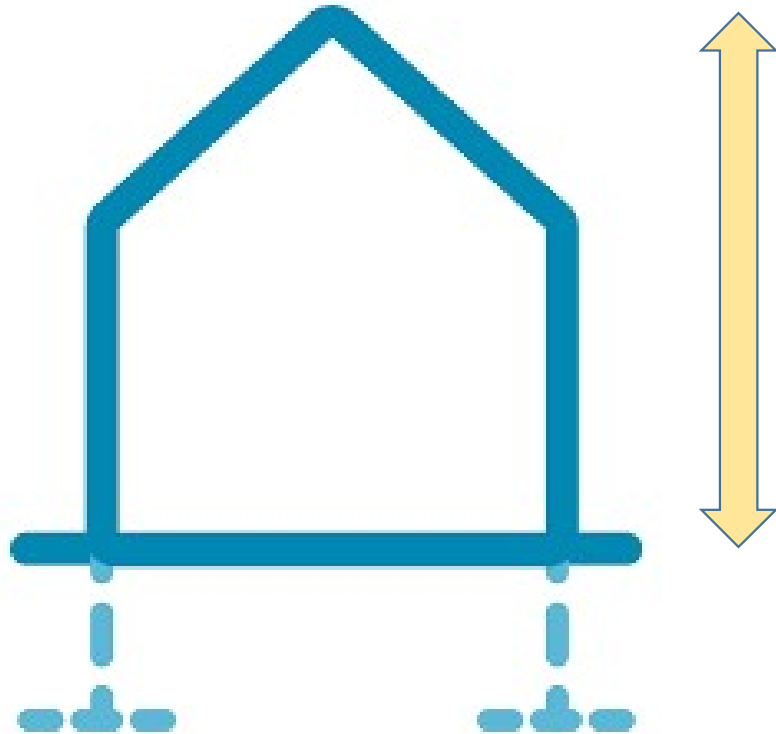
Superstructure



External Walls, Floors (upper/suspended), Roof, Frames (structure), Doors, Windows, & Openings, Internal Walls/Partitions, Stairs/ ramps.

Excludes: the substructure, finishes, fittings, furnishings, equipment and services

Semester 2:



- The Components of Superstructure.
- Compliance with the Building Regulations
- Structures
- Timber Frame Construction
- Thermal Performance & Condensation
- Offsite Construction

* Assessment for CW2 to be issued during Semester 2