

LEVEL 4 ASSIGNMENT

Student Name:	Mohamed Elhadi Hussien Salim
Student ID number:	2511440
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Lecturer:	Rhodri Thomas
Internal Verifier:	Allan Nantel
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Rhyd-y-car Terrace

Part 1

Introduction

Rhyd-y-car Terrace, located within St Fagans National Museum of History, serves as an excellent case study for understanding the development of working-class housing in South Wales during the period from the late eighteenth century to the close of the twentieth century.

The six houses, constructed by Richard Crawshay around **1795** to accommodate workers from his iron ore interests, embody not only the social environment surrounding the inhabitants but also the building techniques then current.

The six houses are arranged to represent a series of snapshots from six different eras: **1805, 1855, 1895, 1925, 1955, and 1985**, enabling a direct comparison to be made regarding how buildings modified to accommodate new technologies, legislation, materials, and standards of living.

Historical dwelling constructions were the result of rapid construction, which meant that comfort and functional ability were of little concern to the builder. This had the effect that many of the faults that exist in modern dwellings were present in the initial construction, such as the penetration of damp, lack of natural lighting, poor heating, and poor sanitation standards. Over the years, developments in construction technology, improvements in the availability of materials, as well as construction standards, have ensured that the construction of dwellings has, to a certain extent, been improved for the better.

The above assignment explores the major differences in the houses at Rhyd-y-car Terrace, taking into consideration various features such as window and door provision, wall detail and treatment, roofs and roof covering, eaves treatment and rainwater goods, floor structure, and interior woodwork.

The second part of the assignment supports this analysis by using labelled diagrams to show typical methods of construction used in houses **pre-1900, 1950s, and houses post-2000**.

Both the analysis and diagrams should show an understanding of how methods of constructing houses relate to defects, performance requirements, and societal changes.

Windows and doors

1805 There were small casement windows made of wood with multiple glazing bars. This followed glass production technology in those times, in which large glass sheets were costly to produce. Small window openings offered good insulation against heat loss. However, these offered poor illuminations and ventilation. The wood door was simple and solid without elaborate features for security, apart from draft and weather resistance.

1855-1895 Improvements in the manufacture of glass led to the production of larger panes of glass. This led to the increase in the use of sash windows. The design of the sash window provided greater lighting intensity along with the ventilation advantage provided by the sliding sash. The disadvantage with the design of the sash window was that it was liable to draughts and heat loss due to the gap that existed between the sashes and the frames.

Doors during the same era were more sophisticated, being the first to be framed. This made them more durable.

They were still not energy efficient.

Windows and doorways were also improved from the earlier designing to correct the drawbacks associated with a lack of comfort and efficiency.

1925 There was an improvement in the craft of jointing and the use of better timber to minimize the effects of wind leakage, while other windows were designed to be storm-proof.

1955-1985 Additional developments were made through improvements in materials science as well as construction regulations.

This is because windows were gradually substituted with more airtight designs, culminating in retained traditional designs where needed.

Furthermore, doors were improved through enhanced sealing, enhanced strength, and improved fixing.

These design improvements were geared towards enhanced energy efficiency, a problem prevalent in the initial house designs.

Wall Coverings

1805-1855 These houses had masonry walls constructed using local stone or brick and lime.

The walls were thick and relied on this thickness for strength and weather-tight protection.

The lime used in the walls enabled the moisture to evaporate.

Since there was no damp-proof course, it was common to find rising damp and moisture.

The walls were usually plain finish or lime render.

1895-1925 Some improvements were made, including better quality bricks and the progressive adoption bitumen.

These measures were intended to alleviate the problems of moisture.

1955-1985 A new building standard encouraged the use of cavity wall.

Cavity wall helped to reduce rain penetration and provided a much-improved thermal performance.

The development of both insulation in cavities and new materials for damp-proof helped to overcome many fundamental problems of solid wall.

These included heat loss and resultant damp.

Roof Coverings

Roofs were traditional cut roofs made of timber and supported by cut trusses, topped with locally available materials such as stone slates and clay ties.

These roofs had no underlay, and therefore rainwater could enter through the timber.

During the late part of the nineteenth century, roof felt was introduced as an underlay.

Cast iron gutters and better detail to eaves enabled better control of rainwater, thereby reducing the problem of moisture in the walls.

Yet, the mid to late twentieth century saw many changes in construction of roofs with use of prefabricated trussed timber, which consumed less wood, had faster construction rates, and were cost-effective.

Modern breathable coverings replaced the felt, which provided more ventilation, less condensation, and increased insulation levels for improved thermal resistance.

Eaves details and rainwater goods

1805 Presented very simple eave details, the roofs ended several feet below the external wall. This offered little shelter to the wall below it from the rainfall, resulting in a higher chance for the rains to run down the wall. The discharge of the rainwater from basic and/or non-existent rainwater goods ensured that the rains were discharged near the wall base, resulting in moisture entry into the building.

1855-1895 There was a rise in the use of improvements to eaves detail. Fascia boards made from timber were added at the end of each rafter to enable the addition of a cast-iron gutter. The gutter led rainwater away from buildings. This cut down on the amount of water that saturated walls and foundations. The downpipe discharged rainwater away from buildings to control dampness.

1925 There was greater standardization in the design for capturing the collected rainwater. The cast iron design was popular due to the strength it offered to the buildings. The joining systems improved to eliminate leaks. The eaves overhanging was also marginally enhanced for improved weather-tightness.

1955-1985 Rainwater goods became increasingly supplanted by lighter materials such as plastic (PVCu), which was easier to install and possessed lower installation costs and lower maintenance requirements.

Eaves details also received improvement, as the alignment between fascias, soffits, and ventilation grills was optimized to minimize condensation within the roof space. The overall aim was to improve performance and lower installation and subsequent maintenance outlays.

Floor coverings

Traditional floors were either solid ground floors consisting of compacted soil or ashes, or suspended timber floors with flooring boards fixed to joist bottoms.

Having such early flooring systems presented minimum resistance to moisture and heat currents. Which resulted in very cold internal spaces.

However, the suspended timber floor demonstrated greater comfort because of the creation of spaces for airflow.

These defects have been overcome with advancements in current construction that include damp-proof coverings and thermal insulation, which are now required with current building regulations.

Modern solid ground floors contain a thick low sub-base, concrete ground floor, insulation boards, damp-proof covering, and a layer of screed.

Wood suspended floors continue to be used as housing flooring, and this is currently made up of treated wood, wood for joist hangers, insulation between wood floors, and water-resistant chipboard decking.

Internal Joinery

1805 The level of internal joinery is very basic.

The doors are made of very roughly cut wood, often plank doors, and the skirting boards are minimal.

The circular staircase leading up to the loft space next to the fireplace is also a basic piece of joinery.

These can be basic joinery skills because the houses were constructed very quickly and cheaply for the workers. Aesthetic qualities were of no consequence to the builders.

1855 This is seen through better wood preparation and more standardized doorways, as well as more improved and less hazardous staircases.

Cupboards and shelves had begun to emerge as well. This is evident of better living standards and advancements within industry.

1895 Display home, examples of the effect of industrialization can be seen through joinery. With mass production and mechanization, better quality and uniformity were achieved through machine-made wood.

This brought about such changes as increased use of panelled doors and cupboards, as expectations for comfort and privacy rose due to lower production costs.

1925 Period Panelled doors, better staircases with proper handrails, and fitted cupboards in the kitchen were common.

These represent better standards of housing following the First World War and an emphasis on cleanliness and convenience.

1955 Home reflected a more utilitarian approach to joinery. There was less emphasis on ornate details, with the use of flush doors instead of the grooved doors used in the **1930s** design. Built-in wardrobes were also introduced during that era. This was a reaction to the materials shortages that existed following the war.

1985 There were factory-made joinery and modern-style kitchens and storage units that were fully fitted and equipped with minimal skirting and hollow-core doors.

There was a great deal of use of new materials in addition to wood, and there was simplicity in design that made it lightweight and low maintenance.

General improvements in living conditions in each of the six houses.

(Amgueddfa Cymru, n.d.a)

(Amgueddfa Cymru, n.d.b)

Conclusion

The terrace housing at Rhyd-y-car illustrates well the changes over time in constructional technique and performance driven by the problems encountered, technological developments, and advances in living standards.

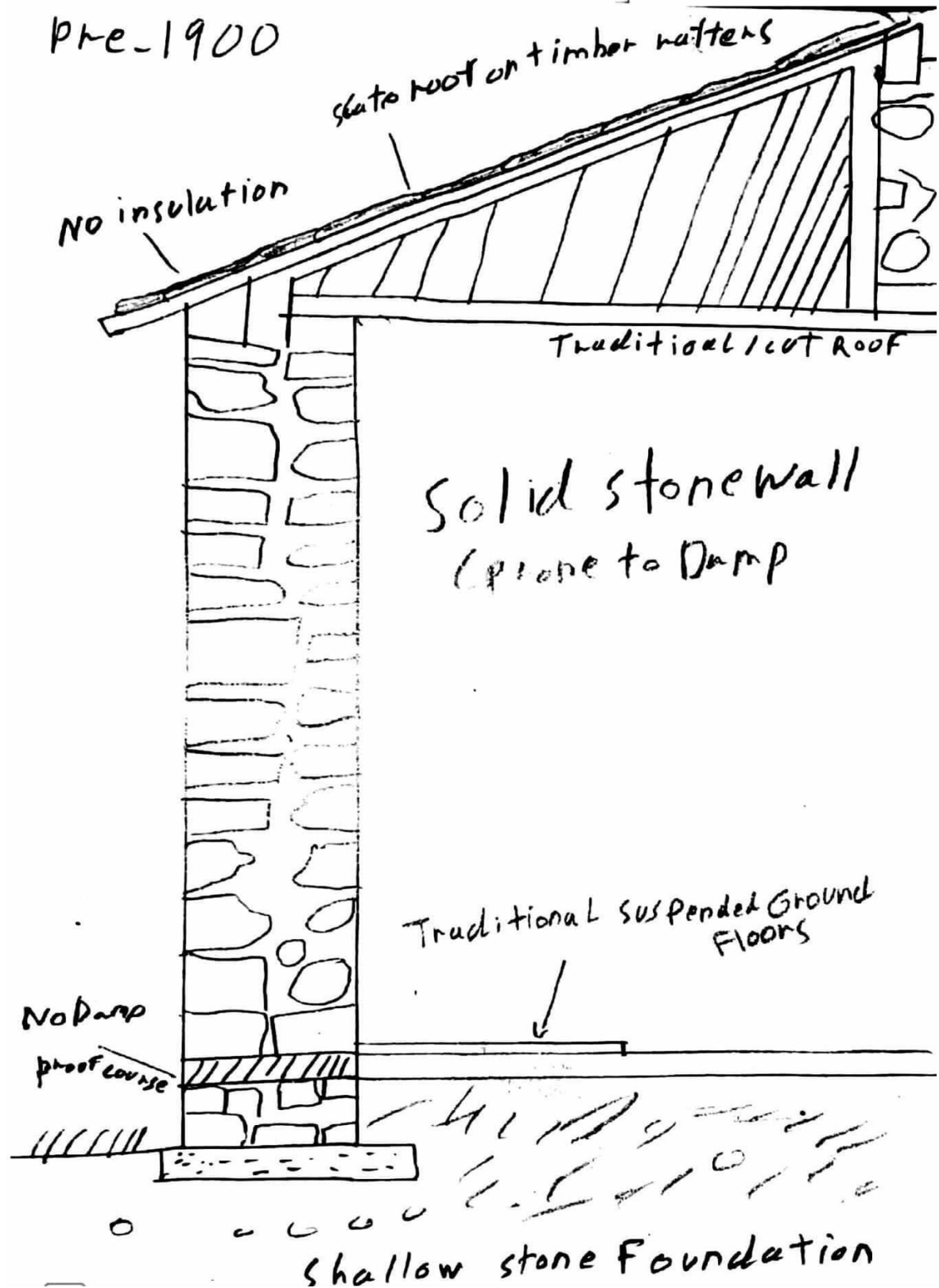
In the earlier period, the emphasis was on rapid construction on the cheapest possible basis to produce homes with problems of condensation, heat loss, and poor internal environment.

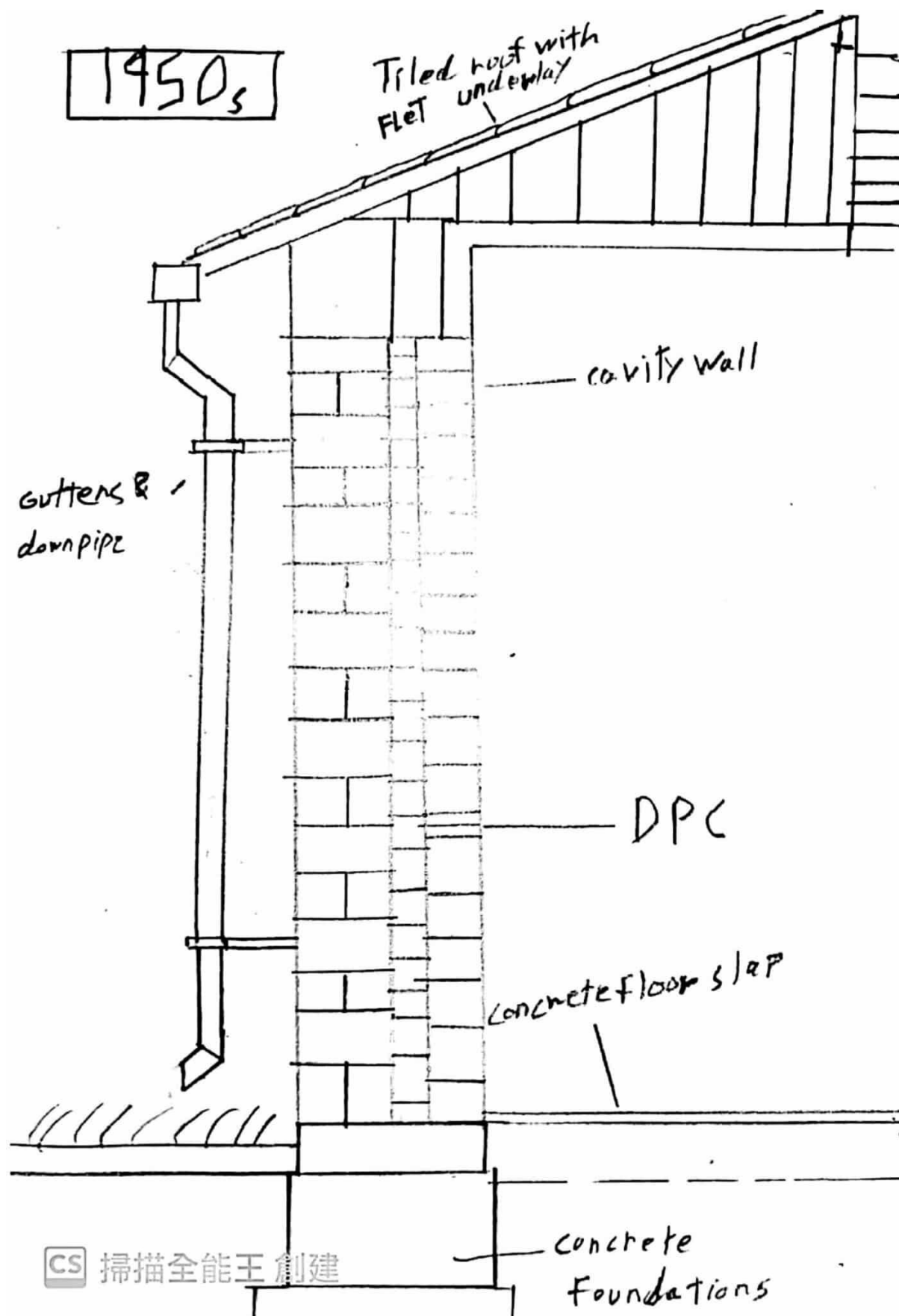
Advances over the period have introduced greater control over the environment, improved thermal performance, and greater durability to the structure.

Wall, floor, roof, window, and internal joining technological advancements show the gradual move towards healthier, better performing, and safe housing.

In this case study, the importance of learning from the experience of traditional construction to help modern construction is demonstrated.

Part 2





Post 2000

Insulated roof
with vapour barrier

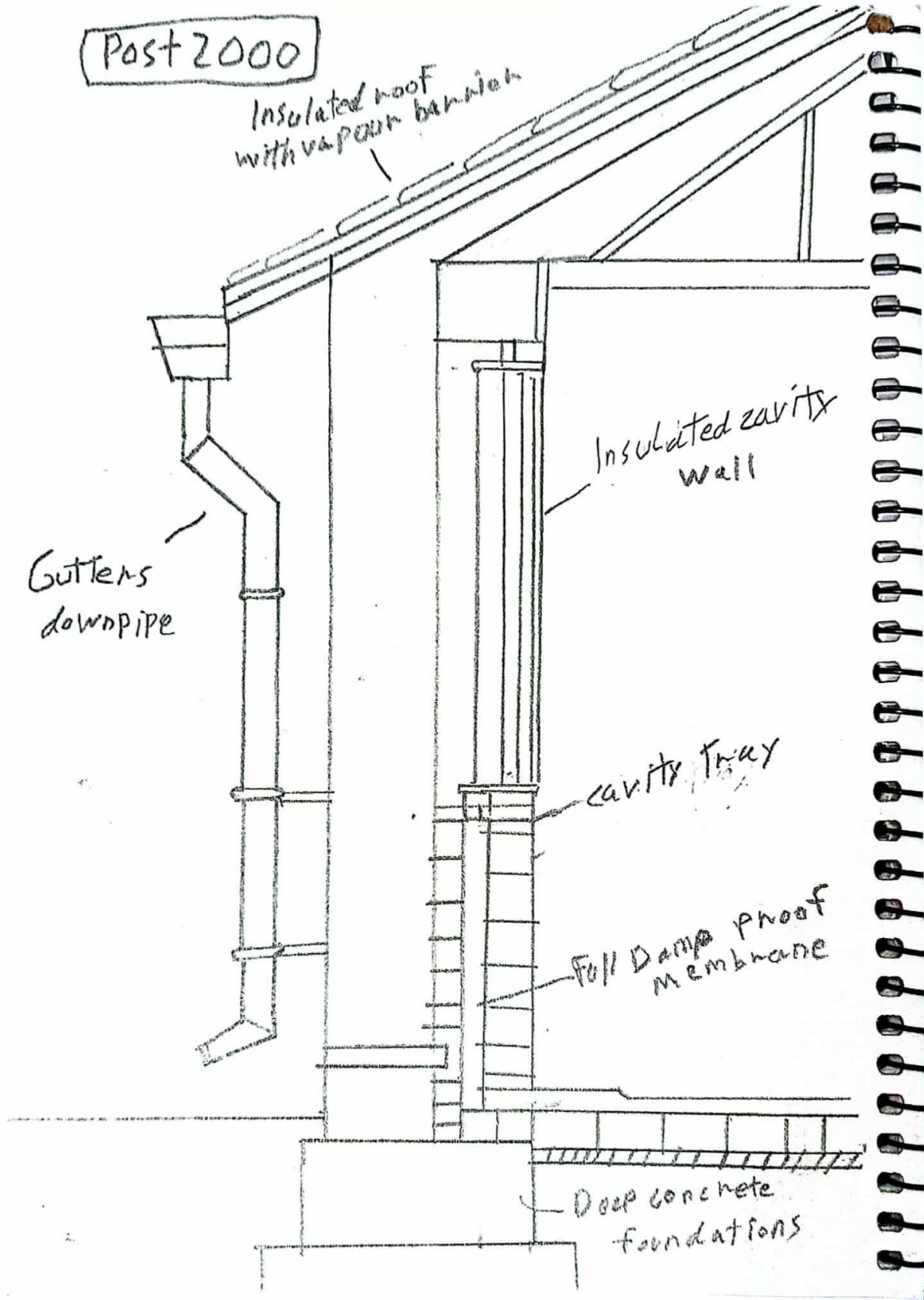
Gutters
downpipe

Insulated cavity
wall

cavity Tray

Full Damp proof
membrane

Deep concrete
foundations



References

Rhyd-y-car: Miner's Homes Through Time. *Google Arts & Culture.* National Museum Wales & Google. Available at: <https://artsandculture.google.com/story/rhyd-y-car-miner%E2%80%99s-homes-through-time/GwWhwQqgrbN8mA?hl=en> (accessed January 2026). [Google Arts & Culture](#)

Virtual Tour of Rhyd-y-car: Homes through Time. *Amgueddfa Cymru – Museum Wales.* Available at: <https://museum.wales/learn/activity/401/Virtual-Tour-of-Rhyd-y-car-Homes-through-Time-/> (accessed January 2026).