

Report on Llwynhendy **Care Home**

Jac Roberts 2404313

20-11-2024

Skills for professional practice

Hannah Williams

1. Introduction

1.1 Chosen Subject

This particular Project involves the construction of a new care home in Llwynhendy (Llanelli). The care home is a prime example of modern construction in regards to design and the services it offers.

1.2 Significance and Relevance of the Subject.

This project is significant to the author as he is part of the site management team, in the role of Trainee Project Manager for the last 12 months, having been involved in all aspects of the construction process on site during this time.

On completion the property will offer the community of Llanelli facilities for those with dementia in need of care and support.

1.3 Purpose of the Report.

The purpose of this report is to provide a comprehensive overview of the project, its status, background information, key stakeholders and design and engineering aspects.



Progress Picture including partial timber frame erection and the construction of the Ground floor slab

2. Description of project

2.1 Background Information

The project is located on a “brownfield site” near the heart of Llanelli adjacent to the well-known Parc y Scarlets rugby stadium.

The site was previously a primary school which has since been demolished.

The footprint of the new care home is approximately 1050m² and is over 4 stories in areas.

2.2 Key Stakeholders

The key stake holders involved in this project are as follows:

- The client (a company that specialises in the provision and management of care homes in the local area)
- Architect
- Civil & Structural Engineers
- Mechanical & Electrical Engineers
- Miscellaneous other consultants and specialists (including Geotechnical Engineers, Landscape Architects, Ecologists, Tree Surveyors, Health & Safety Specialists, Planning Agents, etc)
- Main Contractor (The Author's Employer)
- Sub Contractors (a significant number of sub-contractors involved)



Progress Picture (Roof Truss cassettes Installation)

3. Design and engineering

3.1 Design Principles / Architectural Features

3.1.1 Functionality:

This building will house those needing care very efficiently and will incorporate specific rooms and facilities built for purpose. Some examples of these amenities include drug rooms, sluices, ensuites and day care rooms.

3.1.2 Aesthetics:

The building has hipped pitched roofs and the elevations are mostly clad in anthracite coloured composite boarding with the lower levels being finished in a sandstone render. This gives the building a modern appearance whilst still tying in with the local Architecture.

3.1.3 Sustainability:

The building is constructed using a modern method of construction (MMC) having a modular timber frame build utilising prefabricated and insulated cassettes and there are elements of sustainability throughout the project from the materials used to the services utilised.

High levels of insulation are provided to minimise heat loss. Air source heat pumps are installed to reduce carbon footprint and running costs along with PV panels located on the roofs.

3.1.4 Fire Safety:

Safety is a key design aspect in this project with regards to fire safety, electrical safety, falls and excessive noise. Dry risers are installed whilst internal doors are fire rated between 30 minutes and an hour depending on the use of the room along with fire rated partitions and miscellaneous fire stopping materials E.g. cavity barriers.

3.1.5 Accessibility:

One of the main design requirements is ease of access for the elderly and those with mobility issues. Ramps and handrails are provided with two lifts within the building.

In regards to traffic accessibility a one way system is provided with ample car parking spaces and loading bays near the kitchens and service points.

3.1.6 Economy:

Costs have been kept to a minimum while keeping quality high.

The services and materials used will help keep running costs to a minimum.

Electrical components are all energy efficient along with high levels of insulation to keep heat loss to a minimum.

Proposed Layout of Upper Ground Floor Plan

3.2 Engineering Aspects

This project is built using a modular timber frame with elements of in-situ concrete and steel, including slabs and lift shaft bases.

The roofs are constructed using timber prefabricated trusses.

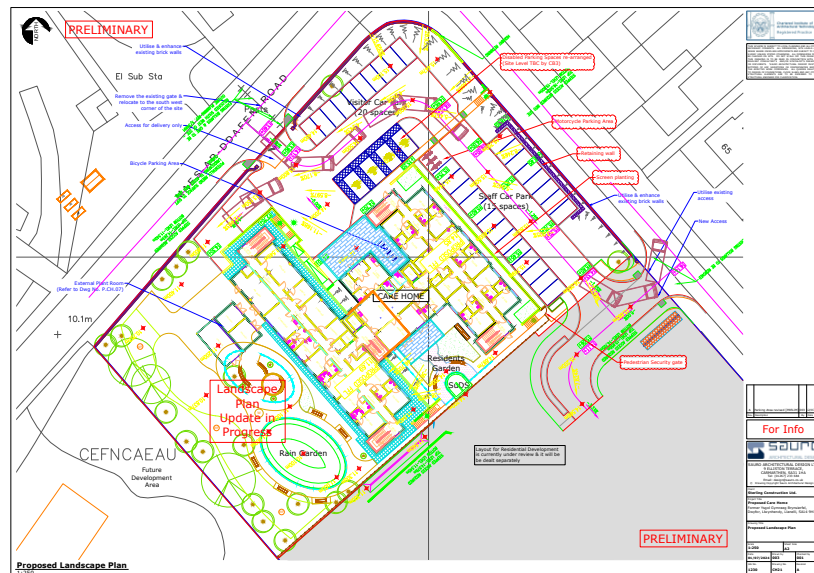
There is a sub ground level area that uses ground retaining concrete walls with all above ground level construction being timber frame with some steel columns.

Elevations are essentially a single skin timber framed construction having a combination of rendered finish on fibre cement boarding and composite cladding.

3.3 Innovative Design Elements

As mentioned above the building is constructed using a modern method of construction (MMC) having a modular timber frame build utilising prefabricated and insulated cassettes

The building also boasts a modern and effective heat camera system to monitor those living in the care home as well as a nurse call system to ensure safety.



Proposed Landscape Plan

4. Construction Process

4.1 Construction timeline

The project commenced in early 2023. A number of main contractors tendered for the works with Sterling construction being the successful bidder.

Due to the client wanting the building finished by early 2025 there was little time to produce finalised plans prior to commencement and therefore there was little option but to proceed on a design and build basis with designs finalised as the project progressed.

Summary timeline:

- Pre-construction phase September to November 2023
- Site preparation and excavations late November 2023 to January 2024
- Foundations, slabs, drainage and first phase groundworks January to February 2024

- Erection of modular timber frame and roofing Feb to April 2024
- First fix plumbing and electricity May to June 2024
- Plasterboard and skim August through to September 2024
- Second fix plumbing, electricity, Interior fit out and decoration started in late September 2024 and is ongoing.

4.2 Challenges during construction

Due to the extremely tight programme challenges encountered by the project team have included ensuring that the correct detailed specifications and designs were in place when required and also ensuring that regulations and statutory requirements were met. An example of this was a delay with the formation of the access into the site from the highway (Highways Act Section 278) due to not having approval granted by the Local Authority in time.



Progress Picture of front elevation (Main Entrance)

5. Conclusion

The project is of particular significance to the Author as he is part of the project team whilst the finished building will provide much needed specialist accommodation for those in need of dementia care.

Sustainable and innovative construction techniques have been used successfully and the project is on target to be completed early 2025.

Section 278 Highways act

Google.com. (2024). Highways Act 278. [online] Available at: <https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.legislation.gov.uk/ukpga/1980/66/section/278&ved=2ahUKEwiOkuXHrpGKAxWgSkEAHczGJ1gQFnoECB4QAQ&usg=AOvVaw3n47jNB4j371JkG-fmUn61> [Accessed 5 Dec. 2024].

Fire Stopping Cavity Barriers

<https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://nhbc-standards.co.uk/7-roofs/7-2-pitched-roofs/7-2-16-firestopping-and-cavity-barriers/&ved=2ahUKEwio5cuLvJuKAxUbUEEAHbsKAj0QFnoECCUQAQ&usg=AOvVaw1pPtr1t1ERTny54rwQ91-X>

MMC Timber Frame

Google.com. (2024d). Available at:

https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.labcwarranty.co.uk/technical-blog/modern-methods-of-construction&ved=2ahUKEwj_-aztvZuKAxVpWUEAHU-zAM0QFnoECBgQAQ&usg=AOvVaw2M-psDpmlWyqW35siVvgQK [Accessed 9 Dec. 2024].

Air source Heat Pumps

Google.com. (2024b). Redirect Notice. [online] Available at:

https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://en.wikipedia.org/wiki/Air_source_heat_pump%23::~:~:text%3DAn%2520air%2520source%2520heat%2520pump [Accessed 12 Dec. 2024].