

SWANSEA STANDARD

ABSE request of information
September 2020

Building Services - Architectural Design Group



Cyngor **Abertawe**
Swansea Council



Contents

Overview / Technology / Delivery..... 2
Specification / Moving Forwards 3
Case Study..... 4

Overview

What is the Swansea Standard?

As part of Council's desire to drive its own house-building programme for the first-time in a generation, a 'standard' has been developed which ensures the consistent delivery of energy-efficient, environmentally-conscious homes that exceed current regulatory performance standards.

The 'Swansea Standard' is a carbon-conscious whole-system build approach which reduces operating energy and Co2 emissions over the buildings life-time. The construction form is a 'fabric-first' approach – focussed to achieve at least a 25% improvement above the thermal performance prescribed in current Building Regulations (2013). The thermal envelope consists of a highly insulated timber-frame with integral components of high-performance doors & triple glazed windows - ensuring high thermal values, low air-leakage and reduced space energy heating demands and emissions - the timber-frame itself supporting CO2 'sequestration'. This 'recognisable' construction-form ensures that efficiencies can be delivered, the product is replicable and can be delivered at scale.

Whilst supporting Council's-own & wider environmental objectives – the ultimate aim of the Swansea Standard is to provide homes in which people want to live and of which they can be proud; homes which are comfortable and make a positive contribution towards health & well-being; homes which are highly energy efficient and cost-effective to operate thus contributing towards the eradication of fuel-poverty.

Technology Integration

As part of the Homes-As-Power-Stations (HAPS) agenda and drive towards energy-positive homes, the Swansea Standards also adopts & integrates sustainable technologies – most recently Ground-source Heat-Pumps, PV, MVHR and battery storage – which provide a renewable energy supply (both generated & stored) and further reduce primary energy demand & carbon emissions. Working in partnership with Welsh School of Architecture (WSA) these systems are continuously monitored and performance recorded to ensure both optimum efficiency is maintained and to provide evidence to inform our forward programme.

Delivery

All projects are designed and delivered by Swansea Council – in-house architectural-design and construction teams – and this co-ordinated approach, together with the positive engagement of an established & knowledgeable supply-chain, ensures that these enhanced building standards are consistently translated from design and through the construction-phase to ensure fabric performance targets are achieved and right-first-time delivery.

Current Specification

Target U-Values for building fabric (25% above min. building regulations requirements):

Building Element	Target U-Value (25% above min.)
External Walls	0.14W/m ² k
Roofs	0.11W/m ² k
Windows	0.13W/m ² k
Ground Floor	0.12W/m ² k

Airtightness Target – 5m³/ (m².hr)@50Pa (compared to 10m³/ (m².hr) @50Pa required by Building Regulations).

Materials

MATERIAL DIFFERENTIALS		
Building Element	Industry Standard (Building Regs.)	Swansea Standard
Slab insulation	100mm Celotex	150mm Celotex
Timber frame	75mm	140mm
Frame insulation	75mm Celotex	140mm Celotex
Cavity insulation	N/A	50mm
Roof	Cold roof	Warm roof
Windows	Double glazed UPVC units	Triple Glazed UPVC units
Internal studwork	50mm studwork. 2no 12mm Plasterboard	100mm studwork. 2no 12mm plasterboard & 2no 12mm ply wood sheet
Internal stud insulation	50mm Rockwool	100mm Rockwool
Internal door lining	90mm	160mm

Moving Forwards

We will:

- Continue to engage with tenants of our new-homes and use feedback to inform our future designs
- Continue to monitor building & system performance and employ the learning on future projects
- Continue to review our 'material palette' to identify opportunities to further reduce carbon-footprint & embodied energy of products & systems
- Continue our drive towards 'energy-positive' homes to positively contribute to health, well-being and tackling of fuel poverty

Case Study

More Homes development (HAPS – Homes as Power Stations) Parc Y Helig, Birchgrove, Swansea.

- Following on from the first new build pilot of 18no. Passivhaus homes, the Council has recently completed construction of its Parc-y-Helig scheme of 16no. homes
- The project demonstrates the Swansea Standard with sustainable technology integration (HAPS) of GSHP, PV, MVHR & Battery storage
- These energy & environmentally efficient new homes have been designed & built by the Council's in-house teams in Building Services
- Performance of these homes is being monitored over the next 3-years by WSA via tenant liaison and remote systems monitoring – tenants will be doing the same via Tesla App
- This post occupancy monitoring will evidence (or identify requirements for change where appropriate), the contribution of the created home-environment towards comfort, health & well-being and low (if any) energy bills/consumption

