

## The Hill Street House (Ty Stryd y Bryn)

A 100% Social Rent, 2 storey building on an existing car park

**Client:** Linc Cymru Housing Association and Newport City Council

**Type of Construction:** Offsite Volumetric modern methods of Construction (MMC)



**Project Location:** Hill Street House, Newport, NP20 1LZ

**Description:** Full Turnkey for building 12 NDSS 1-beds apartments using ZED PODS designs and BOPAS accredited build system which are owned 100% by ZED PODS Limited.



The development consists of a two storey terrace of 12 separate units. The ground floor units will be level access from a patio walkway on the car parking side, the first floor units will be accessed via a 1.5m wide external walkway accessed via two semi enclosed staircases.

Each apartment has its own independent structure which ensures robust party wall construction performance to comply with building regulations and the fire safety plan.

Our design ensures maximum daylight, and public and private amenities for wellbeing. Each residential unit is fully fitted to connect to utilities, including telephone and internet connectivity; and, with a full turnkey solution, each unit is fully self-contained, including a bathroom and a kitchen with appropriate facilities.



[Click to watch Project Video](#)



[Click to watch the BBC clip](#)



Above: Open plan kitchen and living space

# Key Innovation

As detailed, the development meets all the 'Must' and all the 'Should' criteria, and our focused 'WILL Goals'. ZED PODS key innovation criteria's to include Well-being of **Future Generations (Wales) Act 2015**. The development has the 7 WFGA Goals at its heart with our focus on CO<sub>2</sub>, capital and energy as our WILL goals. We are fully committed to the MUST criteria.

<p><b>HOUSING DELIVERY</b></p> <p>100% affordable, inclusive &amp; low carbon living <b>(WILL Goal: Capital)</b></p>	<p><b>LAND DEVELOPMENT</b></p> <p>Using a unique approach to bring car park into use for residential development <b>(WILL Goal: Capital/CO<sub>2</sub>/Energy)</b></p>	<p><b>MMC</b></p> <p>Off-site volumetric housing <b>(WILL Goal: Capital/CO<sub>2</sub>/Energy)</b></p>	<p><b>DESIGN &amp; LAYOUT</b></p> <p>Re-establishing link to encourage active lifestyles <b>(WILL Goal: CO<sub>2</sub>/Energy)</b></p>
<p><b>ARCHITECTURAL FEATURE</b></p> <p>Upriving local character and reinforcing safety and security for wider community. <b>(WILL Goal: Capital/CO<sub>2</sub>/Energy)</b></p>	<p><b>SUSTAINABILITY</b></p> <p>High-quality, ultra-low carbon, car free development <b>(WILL Goal: Capital / CO<sub>2</sub> / Energy)</b></p>	<p><b>HEALTH &amp; WELL-BEING</b></p> <p>Maximising opportunities for cycling, walking and sustainable transport including electric vehicle infrastructure <b>(WILL Goal: Capital/CO<sub>2</sub>/Energy)</b></p>	<p><b>REGENERATION</b></p> <p>Maximising the site value by turning an existing car park into a secured residential development with prescribed amenity spaces and services. <b>(WILL Goal: Capital/CO<sub>2</sub>/Energy)</b></p>



Hill Street is a steeply sloping site with narrow access, most modular providers will consider this site unsuitable.



We developed innovative logistics strategy, lifting plan, and module design to make this site viable.



## MMC Construction — Quality, Cost & Time efficiency

Our in-house design team use innovative grid-based methodology on BIM 3D software following DFMA principles. Together with off-site construction process, they have regenerated constrained sites like Hill Street town-centre car park into residential use (thereby increasing its value) while retaining most parking spaces. This would not be possible using a traditional construction approach.

Our volumetric modular homes are 90% completed at an offsite factory in Hull, which is one of the largest modular factories in the UK. The project benefits from economies of scale, manufacturing standards, efficiency and quality assurance, allowing construction of primary structures of the building to tolerances less than 3mm. The client also benefits from bulk procurement which overcomes the current issues of material shortage and price uncertainty.

We build 50% faster than traditional construction process. The local community benefits from minimal noise, minimal waste and minimal disruption.

We incorporate whole-life-cycle costing within design development. Our base line capital cost element includes full low-carbon specification with no additional cost to achieve sustainability objectives. The homes generate more energy than they consume, residents benefit from ultra-low energy bills.

We have designed the scheme for ease of use and maintenance and used materials that have long-life and low maintenance. The material specifications balances cost, quality & maintenance to provide best value from a whole-life-cycle cost perspective.



Groundwork completed on site ready for module installation



Housing modules manufactured in UK factory



Housing modules in delivery



*On-site Construction — minimising on-site works reduce the amount of noise pollution generated by machinery for cutting, drilling; fitting out the modules off-site means that for less materials and components are stored on site helping to keep the area clean and tidy; Off-site material cutting and processes reduce amount of airborne dust created during works, improving air quality.*

# As Built Performance

## Energy Performance Certificate

Calculation Type: New Build (As Built)

Pod 1 Hill Street House Hill Street NEWPORT NP20 1LZ	Energy rating <b>A</b>
Valid until 3 August 2032	Certificate number 0340-3894-7080-2202-7455

Above: 'As Built' EPC A rating of No.1 Hill Street House. All 12 units received rating A



## Sound Test Result

Sound test results exceed national average and ZED PODS targets ensuring residents will not experience any disruption from exterior sounds or neighbouring units. Testing demonstrates 51dB reduction between horizontal units and 56dB reduction between vertical units.

### Wall Test

Certificate Number	Plot & Source Room	Source Room Volume	Plot & Source Room	Source Room Volume	Target $D_{nT'w} + C_{tr}$	Result $D_{nT'w} + C_{tr}$	PASS
90896	Flat 4 Living Room	60.7m <sup>2</sup>	Flat 5 Living Room	60.7m <sup>2</sup>	>=45 dB	>=51 dB	

### Floor Test

Certificate Number	Plot & Source Room	Source Room Volume	Plot & Source Room	Source Room Volume	Target $D_{nT'w} + C_{tr}$	Result $D_{nT'w} + C_{tr}$	PASS
90897	Flat 1 Living Room	60.7m <sup>2</sup>	Flat 4 Living Room	60.7m <sup>2</sup>	>=45 dB	>=56 dB	

## Air Test Result

- Air test results varied between **0.87 - 0.99** m<sup>3</sup>/h/m<sup>2</sup> achieving near passivhaus standard
- Far below ZED PODS target of **2** m<sup>3</sup>.h-1.m<sup>3</sup>
- The achieved values are 80%+ better than the national compliance level of **5** m<sup>3</sup>/h/m<sup>2</sup>

Test Results			Pass
Target:	<= 10.00	m <sup>3</sup> .h <sup>-1</sup> .m <sup>2</sup> @50Pa	<div style="font-size: 2em; font-weight: bold; text-align: center;">0.87</div> <div style="text-align: center;">m<sup>3</sup>.h<sup>-1</sup>.m<sup>2</sup>@50Pa</div>
Air Flow Coefficient (C <sub>env</sub> ):	4.053	m <sup>3</sup> .h <sup>-1</sup> .Pa <sup>-1</sup>	
Air Leakage at 50 Pa (Q <sub>50</sub> ):	120.592	m <sup>3</sup> .h <sup>-1</sup>	
Air Flow Exponent (n):	0.87		
Coefficient of Determination (r <sup>2</sup> ):	0.992		

This is to certify that the above name building has been tested by a registered provider in accordance with ATTMA TSL1, TSL2 or TSL3, subject to the above statements regarding temporary sealing and deviations from these test standards.

This certificate is a short form report. If a full compliant report is required please contact the company that issued the certificate. Enquiries about this certificate should be made to: Scheme Manager, ATTMA, Unit 3, Tannery Road, Loudwater, Buckinghamshire, HP13 7EQ or visit [www.bcta.group/attma/](http://www.bcta.group/attma/)



## Anticipated Carbon Emissions

Part L Compliance		Standard New Build		The Hill Street House	
CO <sub>2</sub> (kg/m <sup>2</sup> /yr)	Total CO <sub>2</sub> (kg/Yr)	CO <sub>2</sub> (kg/m <sup>2</sup> /yr)	Total CO <sub>2</sub> (kg/Yr)	CO <sub>2</sub> (kg/m <sup>2</sup> /yr)	Total CO <sub>2</sub> (kg/Yr)
TER		UK Average DER		Anticipated DER	
33.16	12,664	15.82	6,042	7.16	2,734

\* New build data taken from ONS housing efficiency and median property sizes

## Carbon Savings (Tonnes CO<sub>2</sub> eq)

	CO <sub>2</sub> Emissions (tonne/yr)	Over 10 Years	Over 30 Years	Over 100 Years
Project Impact	2.73	27.30	82.0	273.4
Over Part L	46	458.92	1,376.76	4,589.22
Over Typical Build	30	301.64	904.91	3,016.38

## Water Savings (Litre)\*

Number of Occupants	Water Consumption (L Per Year)	Savings over baseline** (L Per Year)
12	440,184	42,945.31

\*Not including sprinkler demands or external usage  
 \*\* Baseline water consumption based on Wales Part-G Compliance of 110L/person/day from Building Regulations Part-G 2010 with 2016 amendments)

## Client's testimonials

*“ The Hill Street House is providing a safe place for our wonderful residents to live and flourish, knowing that this is a permanent place to call home. The project, which was made possible by our partnership with Newport city council, Welsh Government and ZED PODS, plays a part in tackling the lack of affordable homes across Wales. Linc will be looking for more opportunities to develop homes that meet government net zero targets and work towards a sustainable future.*

*The Hill Street homes mark a positive step in tackling the housing crisis in the Newport area and will be a model for further green schemes to combat the lack of affordable, energy efficient homes in south Wales.”*

**Louise Attwood**

Executive Director of Property & Commercial  
Linc Cymru Housing Association

*“ ...With around 9,000 people on Newport's housing waiting list, providing high-quality, energy efficient homes is vital. The ZED PODS technology appealed to us due to its environmental credentials. The Hill Street project takes a placemaking approach, creating a community that is connected and vibrant. With the train station just a short walk away and the city centre on its doorstep, its sustainable location is set to benefit our new residents. The energy efficiency measures in place, mean that we can provide our residents with homes that are cheaper to run and fit for the future, meeting our long-term commitment to their quality of life and wellbeing...By working alongside ZED PODS, Newport City Council, and Welsh Government, we hope these homes will enable our new residents to live happy, healthy, fulfilled lives.”*

**Sian Diaz**

Development Director  
Linc Cymru Housing Association

## Locals testimonial

*“ This Hill Street development uses some of the most up to date technology and environmental sensitive methodology to reduce costs and provide high quality accommodation. I am sure that if approved, the project is going to provide a wonderful, cost effective and stable opportunity for the 12 new occupants, one which I hope inspires many of them into training or gainful employment, where that is needed, together with a desire to be pioneers of positive community action.*

*I am delighted to support this development and hope that full retrospective planning consent is granted and, that moving forward, the local authority will review the success of the project and choose to replicate it in other locations across the city.”*

**Fran Richley**

Operations Manager  
Eden Gate Homeless Centre

## Residents testimonials

*“ I ended up homeless. Basically I broke down. I didn't feel like I wanted to be here anymore. The last few years have been a nightmare until I went back to church and then was lucky enough to be chosen to come here.*

*I was on the housing register for years and continued to work throughout that time. When I speak about it I get emotional. I've worked all my life, but private renting was complicated and too expensive. Everything I tried there was a barrier.*

*I just cried when I realised I'd got this place. I read the message and I cried. I thought: 'Finally a safe home.' My life is now stable, if it wasn't for this place I don't know how I'd have ended up. I hope to God everyone in need like I was gets their own little place as I have”*

**Joanne Bradley**  
Hill Street House Resident



Joanne Bradley was homeless before being selected as one of the first ever people in Wales to live in an eco-friendly modular home — Hill Street House



*“There is a real community spirit here, it's nice. When I walked in for the first time in September it was completely overwhelming, to go from what I was living in to this. I'm so happy here. Private renting was a no-go for me as there is no way I could have afforded it. It was either pay my rent or eat and don't pay the rent.”*

**Sam Lewis**  
Hill Street House Resident



Tenant Sam Lewis with BBC Matt Allwright