

Pre-engineering – a specialist housing landmark, courtesy of Terrapin



Pre-engineering Excellence

Prime Focus was looking for a fast and innovative way to deliver quality, affordable housing for the frail elderly. The answer was off-site manufacturing from Terrapin – a company with over 50 years experience in pre-engineering excellence.



Terrapin have proved time and again that preengineered building projects offer the client, end user and the environment a number of benefits over traditional construction methods. Through tighter quality control, a dedicated 'team' approach and innovative use of skills and materials, Terrapin consistently:

- Deliver increased return on investment through early completion times;
- Enable predictable planning & forecasting;
- Create low levels of material wastage;
- Cause minimum disruption to neighbours;
- Create buildings that are energy efficient.

Prime Focus decided the benefits of preengineering could be applied to its specialist housing project. The company worked in partnership with Terrapin to cost-effectively produce a pre-engineering

landmark – 131 one and two bedroom flats for the frail elderly. The project was completed with a common approach at three separate locations in the Midlands. 'Poppy Court' contains 96 modules, 'St Matthew's Place' contains 92 modules, and 'Oakwood Lodge' contains 105 modules.

Terrapin – delivering the vision

Prime Focus's vision was that pre-engineering can add significant improvements over traditional methods, from the beginning of a project to the end. To prove it, the housing association needed the help of a partner who not only shared its vision but also had the credentials to help deliver it. Prime Focus selected Terrapin – experts in off-site manufacturing with over 50 years experience.

A Prime Focus representative comments on the project: "You only need to look at the success of the three buildings to appreciate what's achievable through pre-engineering. It's a flexible and efficient approach that benefits greatly from close collaboration of all key skills under the same roof. Terrapin's preengineering excellence has saved us time



Spacious dining area in the central 'core' of Poppy Court



The use of different claddings and varying roof pitches result in an attractive building for St Matthew's Place



Poppy Court - two wings of three and four storey flats spread out from the central common area.

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Oakwood Lodge - the largest of the three projects comprising 105 modules



Deputy Prime Minister, John Prescott, at the official opening of Poppy Court

and, more importantly, for the elderly people that will be making use of the accommodation, pre-engineering has created an attractive, comfortable living environment with easy access and tried and tested facilities.”

Working together to meet functionality with design flexibility

The initial design stage combined the expertise and experience of Terrapin with Prime Focus and a team from Walker Troup (Architects) and Derek Evans and Partner (Surveyors).

The objective was to design a high quality, predictable, standard interior, incorporating the needs of an elderly occupier, that could be easily repeated throughout each of the three project building designs – based on a concept of a bespoke core area with residential wings of 2 and 3 storeys configured to suit the location – yet still allow for a high degree of exterior ‘architectural freedom’. Project 2 (St Matthews Place) involved the expertise of Wolverhampton MBC Architects, and Project 3 (Oakwood Lodge), Roger Dudley Associates. Preengineering makes this kind of interior standardisation possible while still allowing for a completely unique building envelope.



Working together to deliver precision, innovation and predictability

To hone the initial design and optimise every detail to facilitate pre-engineering excellence, a prototype was produced. Both designers and tradesmen worked together to develop the most efficient construction blue-print for the standard design – a set of time and resource-saving rules that would be followed exactly during the production of each separate module. Focusing on the dimensions the team established the most suitable materials for each module. For example, the optimum size of wallboard was worked out (4m x 2.4m) and sourced to make a few small

but significant design alterations to help optimise efficiency. For instance, simply moving the position of the sockets ensured the wall tiles would only have to be cut once instead of three times.

Working together towards an environmentally sustainable solution

The team’s combined efforts to optimise efficiency overcame the kind of environmental wastage often associated with traditional building sites. In addition, the fact that the main body of work was closed-door construction meant the neighbouring community was not exposed to the noise, dust and potential hazards associated with traditional sites.

Tim Mason of Terrapin comments:

“When you have everybody involved in the construction process working together to find the most efficient way to operate you achieve a predictable outcome in terms of speed, quality, meeting the clients needs and avoiding wastage. At Terrapin we see building pre-engineering excellence as a common sense approach to establishing the best practices on every job we do. With traditional building methods, the level of skills integration and teamwork created by Terrapin is very hard to achieve. It’s this focused, ‘concentrated’ approach to construction that sets us apart and delivers best value to our customers.”

Building beyond the traditional standard

A pre-production prototype was produced and tested for its convenience and ease of use for the frail elderly and those with disabilities, as well as to ensure the materials used met with the high standards for thermal-efficiency, general robustness, ease of maintenance and fire resistance.

The team worked hard to provide best value to the client and end user. Excellent soundproofing and insulation to well above normal traditional build standards is intrinsic in the product.

Over and above the normal Building Regulation requirements a further

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endorsement was provided by the Zurich Building Guarantee Company to provide an insurance backed warranty.

As expected, production ran smoothly and to schedule with the manufacturing team working in a controlled factory environment removing dependence on fair weather for this element. Each module was then water proofed for transport purposes and taken to one of the three pre-prepared sites for building completion. From a common basic concept, three architect's practices, using a variety of cladding and materials, created unique designs for each building to reflect changing functional and aesthetic requirements relating to each urban context. Project 1 was designed by Walker Troup Architects, Project 2, Wolverhampton MBC Architects, Project 3, Roger Dudley Associates.

The end result is attractive, comfortable living accommodation for approximately 150 people in three easily maintained building built to high performance specifications. The special needs of a small number of tenants were incorporated into the design.



Individual modules are craned onto previously prepared foundations

Pre-engineering – the benefits for Housing Associations are clear

Working towards a clearly defined, common goal under one roof, Terrapin and Prime Focus have quickly and efficiently delivered 131 one and two bedroom flats for the frail elderly.

The project's success lies in the fact that it is a complete solution, totally focused on the principles of Egan – a partnership approach in which the client is always able to see a clear and predictable outcome from their investment, a combination of collaborative, practical design expertise and innovative off-site manufacturing techniques; and Terrapin's 50 years of experience delivering pre-engineering excellence.

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