



APPENDIX

In response to Scrutiny Committee recommendation to Cabinet September 2020.

RECOMMENDATIONS FROM SCRUTINY

- 1. That, whilst bearing in mind the limited resources available, the Scrutiny Committee encourages Cabinet to explore the potential for modular construction (carbon neutral where possible) on appropriate sites at the earliest realistic opportunity.*
- 2. That Cabinet provides the Scrutiny Committee with a formal, written response to recommendation 1, above.*
- 3. That a written update on progress against the target of 50 homes per annum be provided by the Cabinet Member for Housing to the Scrutiny Committee in September 2021*

1. INTRODUCTION

- 1.1 In response to Scrutiny Committee recommendation to Cabinet in September 2020, Cabinet addresses recommendations 1 and 2 from the review. Recommendation 3 will be addressed within a report to Scrutiny Committee in September 2021.

2. BACKGROUND

- 2.1 East Suffolk's Housing Development Team have been progressing a number of workstreams which will directly contribute to the delivery of the Environmental Theme within the Council's Strategic Plan 2020-2024. These include the review of existing housing stock in accordance with the Council's carbon neutral ambitions, the development of Minimum Energy Efficiency Standard (MEES) for the Council's new build programme and the development of a procurement systems to help improve efficiency and streamline delivery of sustainable housing solutions.
- 2.2 This work also aligns with Recommendation 1 above and will be detailed within this report. The exploration of the use of Modern Methods of Construction (MMC) and Low Carbon design / construction is a key area of focus for the future of Council-led Housing Development. For example, such construction methods are being considered for at least part of the redevelopment of the former Deben High School site in Felixstowe. Early discussions are also taking place to consider the benefits of MMC in the redevelopment of brownfield land in Lowestoft.

3. RESPONSE

- 3.1 This briefing note outlines Housing's approach to modular construction, carbon neutral and low carbon design / constructions on appropriate sites within the current Housing Development Programme. It describes work that has been carried out to date and the next steps for new build housing delivery in the Council's journey to carbon neutrality by 2030.

4. EXISTING COMMITMENTS

- 4.1 The Council's Housing Development Strategy 2020-2024 identifies 'Environmental Sustainability' as an essential element in the creation of homes and communities in which people will want to live and work in the future. It notes that lowering the whole-life carbon footprint of properties will help tenants save money and can deliver lasting environmental, social, and economic benefits. To achieve this, the Council has committed to exploring the use of greener building technologies both within the design and construction processes. The team are currently exploring innovative design solutions which recognise the benefit of PassiveHaus principles and the value of carbon neutral design. For example, the Former Deben High School site in Felixstowe which is currently being designed to PassiveHaus standards and preliminary discussions regarding an innovative carbon neutral home are being considered for a single building plot in Beccles.

5. CURRENT WORKSTREAMS

- 5.1 The Housing Development team have been working collaboratively with the Council's Procurement team to carry out a series of market engagement events to better understand the sustainable housing development market. This work has been carried out to help inform the Council's housing development priorities and explore suitable delivery models, including modular and carbon neutral design, to address the collective aim to deliver more sustainable housing.

5.2 Why is the Council doing this?

Within the adopted Strategic Plan, the Council has committed to "lead by example" and the Council's pledge to become a carbon neutral by 2030 requires environmental benefits to be sought in every area of Council activity, including the development of new housing.

- 5.3 The Council has an ambitious Housing Development Programme and within its Housing Development Strategy it aims to maintain a rolling 3-year plan of development opportunities which will include enough sites to meet the Housing Revenue Account (HRA) Business Plan projection of 50+ new build housing units a year.

5.4 Recent Engagement and Research

Research into the adoption of modular or carbon neutral approaches was broken down into various stages:

1. Making it known to the MMC market that the Council is interested in speaking with organisations already delivering within the sustainable housing market.
2. Targeting several organisations including modular house builders, Sustainability & Biodiversity consultants, PassiveHaus designers, Smart House tech companies, and several others to understand best practice within the industry.
3. Collating expressions of interest from organisations interested in working with East Suffolk.

4. Over 30 expressions of interest were received. Of these, almost a quarter were modular house building companies which demonstrates a clear growth within this industry. Many organisations had already worked on award winning schemes including the well-known Goldsmiths Street in Norwich.
5. These organisations were invited to meet with the team and the outcome of these discussions are detailed in 5.5 of this document.
6. The meetings were informal discussions allowing organisations the opportunity to further expand on what they can do to help East Suffolk meet its sustainable housing objectives.

5.5 From speaking with a number of the above organisations there were some common themes:

- **Fabric First** - Heating and providing power within homes accounts for around 35.8% of total energy consumption and 34.8% of CO2 emissions. Buildings, specifically homes, provide some of the best opportunities for Local Authorities to improve energy efficiency and help move towards the zero-carbon target by adopting a 'Fabric First' approach.

The Fabric First approach works by maximising the performance of the materials that make up the building's fabric before considering the use of mechanical or electrical systems. This can help achieve a number of objectives including reducing capital and operational costs, improving energy efficiency, cutting carbon emissions and reducing the need for maintenance during the building's lifetime.

- **Performance Gap** - There is significant evidence to suggest that buildings do not perform as well once they are completed compared to their anticipated performance at the time of their design. The difference between anticipated and actual performance is known as the performance gap. Some factors contributing to the performance gap include:
 - Discrepancies between design specification and the 'as-built' product.
 - Practical buildability.
 - A lack of monitoring and feedback once the building is occupied.

The implementation of quality monitoring alongside the appointment of specialist sub-contractors will help to ensure projects do not fall short of the intended design specification.

- **One Size Fits All** - Speaking with modular housing providers and offsite construction companies, it is apparent that the same approach will never be suitable for all sites. The Council has a variety of land and property assets, however not all sites would be suitable for all types of delivery. Constraints around access, planning, geographical location, and orientation were common themes when discussing the suitability of sites for modular housing.
- **Off Site Construction Opportunities** - Off site construction not only offers speed and accuracy but can also offer economic benefits to development organisations willing to adopt these methods. Many organisations have opened factories in areas where demand is at its highest. Several companies also have associated training programmes which look to partner with local colleges to provide opportunities for local people to train in the construction methods required for production and on-site assembly. Satellite factories are common within the off-site construction industry where demand is high. The required level of demand is often achieved through collaboration agreements with several organisations with similar housing aspirations.

- **Assistive Technology** - Across East Suffolk it is estimated that 10% of the population are in fuel poverty. Compared to a national average of 10.6% this appears relatively consistent but localised data shows there are specific areas within East Suffolk where figures are as high as 19.2%. One of the best approaches to tackling fuel poverty is to build houses which are thermally efficient and affordable to live in. As previously mentioned, this can be done via a fabric first approach. However, understanding energy consumption is also vitally important. Assistive technology is becoming more common within homes and the innovation within this sector is enabling occupants to make the most of the buildings whilst relying less on external sources for energy. Studies show that people who are aware of their energy consumption are more likely to make reductions and minimise their environmental impact. These monitoring systems will not only help tenants understand their homes better but could also provide the Council with valuable data upon which to plan further future improvements.
- **Cost** - Is it more expensive to build sustainably? PassiveHaus homes are one area where there is well documented evidence on the cost differential between traditional vs Passive construction. According to The Innovation Centre for Passive Design, passive homes cost on average 8% more than a traditional build property. However, as innovation costs associated with early PassiveHaus projects begin to reduce and methodology becomes more widely adopted, passive design is becoming more affordable.

The above, notwithstanding the cost benefit to passive housing, is realised by the reduced running costs. Tenants benefit initially and immediately. The benefit for Local Authority landlords is demonstrated in an anticipated 31% reduction in rent arrears due to the reduction in fuel poverty and the consequent ability of tenants to be better able to pay their rent.

Modular homes are often described as a perfect solution to difficult sites. On average a modular home would cost between 4-8% more than a traditional property. This data is based on an '*off the shelf*' design and not the development of a new modular home. Costs are likely to be in the region of 15% higher than traditional projects for any new schemes developed by a Local Authority. Economies of scale can be expected to quickly reduce these costs where LA's can commit to repetition of design across several sites.

5.6 Following the success of the Council's market engagement initiative, potential development opportunities have been prioritised based on their suitability to deliver on three key areas, namely:

- **Traditional Build** - Projects where traditional construction approach is most suitable but sustainable innovation is incorporated within the design. This could be in the form of solar PV, air source heat pumps, rainwater harvesting and other simple but effective specification additions such as rainwater butts and landscaping to promote biodiversity and environmental sustainability.
- **Modular and MMC delivery** - Projects seeking sites which are suitable for offsite construction and require speed of delivery.
- **Alternative Innovation** - Projects where new and emerging technologies are explored, or specific accreditations are targeted for individual properties or developments.

5.7 Understanding what individual developments can realistically deliver will enable innovative solutions to be piloted whilst still maintaining scale of delivery. This approach will also enable the Housing Development Team to grow its own capability through live projects and then implement the most successful solutions into the programme as the Council progresses towards carbon neutral development. Without better understanding of the delivery options

outlined within this report, it could be considered premature to commit to delivering all future Council housing development via one particular route.

6 POTENTIAL PROJECTS

- 6.1 Since November, a number of potential sites have been reviewed to establish their suitability for a modular or off-site construction. The team is currently progressing the first of these schemes (circa 6-8 units) at Elim Terrace in Lowestoft and hopes to bring this proposal to Cabinet later this year for consideration.
- 6.2 The former Deben High School site is being progressed under the alternative innovation workstream. The proposal is for a certified PassiveHaus development of 61 units. A further site, in Beccles, suitable for one exemplar unit is being investigated to deliver a zero-carbon home in partnership with a local Architectural firm who specialise in alternative construction methods.

7 FINANCIAL IMPLICATIONS

- 7.1 There are several funding streams specifically directed towards the two areas, modular construction (carbon neutral where possible), Scrutiny Committee have asked Cabinet to explore. In December 2020, Housing Development team proactively engaged with the Council's Funding Team to ensure all opportunities relating to the implementation of MMC / Modular and Low Carbon Construction were captured, reviewed, and explored.
- 7.2 Whilst embarking on alternative construction methods and providing zero carbon homes may cost more initially, the long-lasting benefits will be realised by both the Council and our tenants in future years.

8 CONCLUSIONS

- 8.1 The Council is progressing pilot 'green' build schemes as a result of the commitments made within the Strategic Plan and existing service strategies. Cabinet can therefore be confident in accepting the recommendation from Scrutiny Committee that it explore the potential for modular construction (carbon neutral where possible) on appropriate sites at the earliest realistic opportunity.
- 8.2 The Council's commitment is to lead by example and the information and schemes outlined in this report are intended to be the starting point in a movement towards delivering sustainable housing as standard. There is an appetite within the affordable housing sector to explore the benefits of collaboration between Registered Providers and Local Authorities. East Suffolk has already begun working with other local stakeholders and partners to understand how collaboration can help drive forward a change within the affordable housing sector.