

Wiltshire Council

Environment Select Committee

13th July 2022

Construction of carbon zero homes

Executive summary

The purpose of this report is to provide an update to the Environment Select Committee on the progress of the Zero Carbon homes affordable housing programme.

Proposal

That the committee:

- a) Notes the progress to date
- b) Notes the future programme and the commitment to delivering carbon zero homes.

Reason for proposal

To provide an update on the progress of the Council house build programme and delivery of carbon zero homes.

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Purpose of report

1. The purpose of this report is to provide an update on the affordable housing programme and its continued commitment to deliver homes at zero carbon standards.

Background

2. In 2019 the council's Residential Development Team had completed the previous phase of new build development. This phase enabled a "proof of concept" programme, evidencing the benefits of the Council undertaking a "developing" role.
3. Evidence from the initial programme of development, further commitment was sought to continue developing new affordable housing, increasing the Council's housing stock, delivering homes and meeting a need that was not being met by the market. For example, older persons accommodation, rural housing and buying small s106 schemes that were not of interest to larger Registered Providers (RPs).
4. Before embarking on a new programme, the team spent time reviewing the product that would be delivered, they were keen to build homes now that would not need to be retrofit in 5-10 years time. An early decision was taken to remove gas from any projects in the pipeline but to also further explore other opportunities, technologies and to better understand the role that the construction industry had in the climate emergency.
5. In February 2020, the Council visited an "off-site" volumetric housing manufacturer in Dorset to review the possibility of building the next generation of affordable housing in factory controlled conditions.
6. In April 2021 an order was placed for 19 affordable homes to be manufactured using a Modern Method of Construction (MMC) approach. The homes will offer Zero Carbon in operation, are all electric, with Waste Water Heat Recovery and 3kw PV panels to offset energy used.
7. The homes take a fabric first approach, ensuring that the envelope of the building offers air-tightness, reducing down the running costs of the homes.
8. Being built in factory controlled environment, it offers further benefits to the project, reducing waste, reducing traffic movements to site and reduces the amount of construction vehicles built up around the site – thus improving the experience for the neighbouring properties.
9. The 19 homes that have been ordered have been completed internally (see appendix 1 – photos of the modules going through the factory and the suite of house types) and are currently being stored awaiting planning determination.

10. Subject to Planning approval the homes will go back through the factory for all external façades, windows and doors. Once transported to site, the roof is assembled on-site.

Main considerations for the committee

11. From the work that we have experienced, it has been clear that a modular, off-site manufacture offers huge benefits to the programme.
12. We consider this to be the future for our new build affordable housing programme, and as such have committed a further 3 year programme by recently tendering for a 3 year MMC manufacturer to work on a programme of 1000 homes, which is a combined demand for Wiltshire Council and Magna Housing Association.
13. By combining (aggregating) our demand, Wiltshire Council can seek greater efficiencies which is needed greatly in a time of never seen before cost increases in the construction industry.
14. Wiltshire Council are currently considered to be at the fore-front of the Government agenda to explore MMC, Zero Carbon and to deliver homes at speed.
15. Wiltshire Council have procured Rollalong (provider of the 19 proof of concept homes) along with Magna Housing to deliver the 3 year programme.
16. The tender process challenged bidders to share their Roadmap to Carbon Zero, which enabled us to see how Rollalong will be approaching their own business and supply chain to decarbonise as much of their processes as possible.
17. The tender also sought a robust Social Value response, seeking a requirement for bidders to show where their supply chain can support the local economy and where they can enhance their workforce with local staff.
18. Rollalong submitted a strong tender in response to both of these points which ultimately won them the tender for the next 3 years.
19. A further benefit to the 3 year tender, is the ability to fix prices in a very uncertain market. The unit price has been fixed until March 2023, and can only increase in line with inflation year on year.
20. Working with Magna Housing, we are able to share knowledge, skills and expertise. Magna have been the first to receive the Rollalong Homes on site, therefore we are able to learn key lessons from the initial installation that will be important for Wiltshire Council installations.
21. Other benefits include their dedicated marketing team who are keen to promote the work and the partnership which can be evidenced here in these two promotional videos:

[Magna's partnership with Rollalong, South West Procurement Alliance and Wiltshire Council. - YouTube](#)

[Meet the buyer event with Wiltshire Council and Magna Housing - YouTube](#)

22. Staff within the Residential Development Team are also being invited to speak at Webinars/conferences to share the journey that they have been on and encouraging other affordable housing providers to explore the opportunities to work collaboratively.

Environmental impact of the proposal

23. The embodied carbon in modular buildings is lower than that of traditional buildings.
24. MMC can reduce waste on site by up to 90% compared to traditional construction, and much of this waste can be recycled rather than sent to landfill.
25. Being manufactured in highly controlled factory conditions, significantly less noise and dust is created on development sites.
26. Modular construction reduces vehicle movements to and from the site of construction by up to 90%, reducing toxic fumes and carbon emissions, as well as reduced disruption to local residents.
27. It is up to 50% faster to build a modular building than it is to build from the ground up using bricks and mortar, so the buildings use less energy.

Equality and diversity impact of the proposal

28. The procurement exercise was undertaken through a Framework of Modular Manufacturers. This does reduce the ability for other "traditional" contractors from bidding for the work, but a wider "Market Engagement" event has taken place with local SME's to engage local contractors to provide the Principal Contractor role, providing the ground works.
29. Through the Social Value response, Rollalong have committed to employing residents from Wiltshire, specifically those with long-term unemployment.

Risk assessment

30. Risks are continually reviewed a programme level and at project level.
31. This greatest risk with this programme, is committing to order modules without Planning Permission. This risk is mitigated with early engagement with planning to understand the principal of planning on the site and a Pre-app for further feedback.
32. Further mitigation with this approach, is that homes that initially go through the factory are not bespoke, therefore if planning was not achieved on one site, the homes can be used on another site or possibly "traded" with Magna if they have an immediate site that the homes can be used on.

33. There is a growing risk at present with the growing cost of materials and labour in the construction industry. This approach is considered to be reducing the risk on the programme with a clear pipeline of work, the factory can bulk order and plan ahead to avoid shortages. In addition, the factory is not experiencing a shortage of skills within its workforce.

Financial implications

34. The growing costs across the sector have undoubtedly had an impact on the programme. From proof of concept price in 2019 to the updated tender price, we have seen a 17% increase in costs. Around 12% of this is attributed to price inflation and around 5% of this due to increased specification of the homes (both larger and with higher environmental credentials).
35. The cost of the Council's new build programme is £195m to deliver 1000 new affordable homes. This works out on average cost to be around £195k per property. The Council remains committed to delivering the best quality homes to residents, so are charging social rents for those available to let, despite the increased payback period resulting from this.
36. Following the updated tender costs and the growing groundworks costs, the average cost of a new build property has increased which will push the total programme over the agreed £195m.

Legal implications

37. There are no legal implications directly associated with the activity, with procurement regulations for the contract have been met through working with South West Procurement.

Options considered

38. We have considered whether MMC is the right approach and have concluded that both financially and environmentally this is the right decision. Having compared the financial costs of delivering the programme as traditional build, there scales are tipped in favour of MMC as this offers a better Whole Life Cost.
39. There is also a great deal of support from Homes England for schemes delivered through MMC, attracting higher grant rates.
40. Furthermore, there is a growing housing need and a continued pressure from Government to "build build build" to meet the housing demand.
41. Not progressing our affordable housing programme, is not an option.

Conclusion

42. Having taken all of the above into account, we are confident that the progress in this programme, to drive forward a housing programme that is considered a leading initiative, working with like-minded housing providers, will provide the

customers in housing need in Wiltshire, with a high quality home that is affordable to rent and affordable to run.

Background papers

The following unpublished documents have been relied on in the preparation of this report: None

Appendices

Appendix 1 – Photos of MMC product procured