Portsmouth CITY COUNCIL

Title of meeting:	Cabinet Member for Housing & Preventing Homelessness
Date of meeting:	8th March 2021
Subject:	Improved Energy Efficiency Standards for New Build Council Homes
Report by:	James Hill - Director for Housing, Neighbourhood and Building
Author:	Susan Whitehouse - Head of Design Services Andrew Waggott - Energy Services Manager
Wards affected:	N/A Housing Revenue Account (HRA) land held in Havant
Key decision:	No
Full Council decision:	No

1. Purpose of report

1.1 The Cabinet Member for Housing and Preventing Homelessness has asked the PCC Design Team to consider ways in which a formalised approach for building homes may be developed and applied to dwellings built for retention by the Housing Revenue Account (HRA) the report sets out the response to that request.

1.2 The report presents a draft set of principles to be tested to understand the financial and technical impact of their application, through a pilot scheme for two council housing development.

1.3 The pilot will allow the draft principles to be tested and evaluated prior to a further decision to consider the incorporation of the principles to social housing developments, where appropriate to do so.

2. Recommendations

2.1 That the Cabinet Member for Housing and Preventing Homelessness notes the draft Low Energy and Social Housing Design Requirements.

2.2. That the Cabinet Member for Housing and Preventing Homelessness approves the pilot to apply and test the attainment of the Passive House standard and the use of the Low Energy and Social Housing Design Requirement to two HRA council housing developments; Wecock Farm and Strouden Court.

2.3 That the Cabinet Member for Housing and Preventing Homelessness requests a study evaluating the pilot to be brought back for decision to determine the application to further council housing developments.

3. Background

3.1 The Cabinet Member for Housing and Preventing Homelessness has asked the PCC Design Team to consider ways in which a formalised approach for building homes may be developed and applied to dwellings built for retention by the Housing Revenue Account (HRA)

3.2 The environmental impact of new homes is of key concern to the council, in the context of the climate emergency and issues of air quality in the city.

3.3 The Council is committed that any new developments reduce energy costs for their tenants; wishing to ensure that new homes are financially affordable for households to heat and run.

3.4 The Council is keen to encourage new skills in low-carbon construction to be developed within the internal team; and wider supply chain within the area

3.5 Local Context:

3.5.1. The Council has a need to continue to build council housing homes to meet the demand from the housing waiting list. It also needs to deliver homes that are not only affordable to residents but also that are energy efficient and sustainable.

3.5.2. The environmental impact of these homes, from a carbon and air quality perspective, is a key concern to the Council. The Council's declaration of a climate emergency in March 2019, obligating a net zero carbon position for the city by 2030, means that new housing must have the lowest practicable embedded and operational carbon emissions.

3.5.3. As set out in the *Portsmouth Energy and Water at Home Strategy 2020-25*, the Council wants to ensure the lowest possible rate of fuel poverty within its housing portfolio. Significant work has been done off the back of this strategy, set out in Switched On Portsmouth's *Home Energy Support Service* paper (2021) to ensure that the retrofitting of existing homes is being considered. This *Low Energy Buildings* paper sets out the low energy considerations for homes which are yet to be built.

3.5.4. The Council is also keen to encourage new skills and jobs to be created in Portsmouth within the low-carbon-sector as well as to promote social value in all the projects it commissions. It is envisaged that the construction of low-carbon homes helps to further develop this supply chain within the Portsmouth area; this is aligned with areas of skills development highlighted within the *Skills and Labour Market Strategy 2020-25*.

3.6 National Context:

3.6.1. The government sets out Building Regulations (Part L), the minimum energy efficiency standards to which homes in the UK are to be built. Local planning authorities have some freedom to increase these minimum standards to suit local conditions; though this figure is capped at a 19% uplift for energy efficiency standards.

3.6.2. In recent months, the government has consulted on these minimum standards, through the Future Homes Standard Consultation. From the summary of responses, published in October 2020; it is anticipated that this will result in a requirement for an improvement of 31% on the current regulations.

3.6.3. The UK government is additionally obligated to legislate for the creation of nearly zero energy buildings (nZEB) under the EU's *Energy Performance of Buildings Directive*. The government are currently reviewing the building regulations in light of this. However current indications are that it is likely that any standards that are adopted, under nZEB, will set a lower energy efficiency standard than is being achieved by the Council already.

3.6.4. In November 2020, the government outlined a "*10 point plan for a green industrial revolution*". This paper included: *Homes and public buildings: Making our homes, schools and hospitals greener, warmer and more energy efficient, whilst creating 50,000 jobs by 2030*.

3.7 Energy Efficiency Performance Standards

3.7.1. UK Building Regulations 2013 (plus 19%) is the current minimum standard to which homes in Portsmouth must be built. The standard is easily achievable using standard building techniques and technologies; with solar PV, good levels of insulation and efficient combi-boilers being enough in recent builds to ensure that this standard is surpassed. Recent PCC delivered projects such as Temple Court and Eastern Road have actually achieved exceeded Building Regulations by 30%.

3.7.2. Passive House is an internationally recognised low energy building standard that is increasingly becoming the benchmark for ultra-efficient buildings. Passive House dwellings are built to rigorous comfort standards that ensures that they are free from draughts, condensation, and excessive overheating and are provided with a constant supply of fresh clean air. They achieve this with the minimum amount of energy, just 15kWh/m^2/a heating requirement; resulting in very low operational costs.

3.7.3. Passive House Institute Low Energy Building Standard (LEB) uses the same principles as the full Passive House, but allows for a higher energy consumption of the building. LEB uses a minimum heating requirement of

30kWh/m^2/a; although this is a minimum standard and can be exceeded if, for instance the primary aim of a project were full Passive House which could not be achieved for technical reasons.

3.7.4. Additional design requirements will often be included alongside Passive House standards, because Passive House is aimed purely at lowering a dwellings' primary energy consumption. These design requirements may, for instance, include for onsite renewable power; something which is not considered by Passive House.

3.8 Low Energy and Social Housing Design Requirements

3.8.1. Assessing the Viability of Standards

3.8.2. Various teams within the Council's building services have, for a number of months, been undertaking work to establish a formalised and repeatable strategy to ensure HRA housing is built to a high standard; without compromising the technical or financial viability of projects from proceeding.

3.8.3. The teams have sensitivity tested the impact of building to the higher Passive House standard on residents' bills and carbon emissions versus the current requirement of Building Regulations plus 19%. The details of this analysis can be found in Appendix A. Technical performance summary.

3.8.4. Meetings have been held with a number of peer local authorities who are developing their own HRA properties to the Passive House standard. These have helped to identify both benefits and challenges associated with Passive House standards.

3.8.5. Benefits include:

3.8.5.1. Reduction in resident's bills of around £445 per annum, and carbon emissions of 822kg/CO_2 per annum, for a standard 100m^2 house versus currently Building Regulations plus 19%
3.8.5.2. Reduction in nitrogen dioxide air pollution associated with the removal of gas boilers
3.8.5.3. Reduced maintenance and life cycle costs
3.8.5.4. Reduced rent arrears and voids
3.8.5.5. Fewer complaints arising from noise issues
3.8.5.6. Market value increase (rent and sale capital)
3.8.5.7. Future-proofed buildings, with less ongoing capital investment

3.8.6. Challenges include:

3.8.6.1. Increased capital cost associated with the higher standard of building

3.8.6.2. Staff training required for in-house design of properties to Passive House standards
3.8.6.3. Inadequate local supply chains and skills to be able to build to such standards
3.8.6.4. Upskilling residents to use their homes efficiently without encountering issues brought about by very high air-tightness, lack of space heating emitters and mechanical ventilation
3.8.6.5. Technical issues in some cases where the property aspect or position within a block may not allow adequate Passive House to be achieved

3.9. Proposed Low Energy and Social Housing Design Standards

3.9.1. Standards for PCC Builds

3.9.2. It is proposed that the Low Energy and social housing design requirements are piloted on two Council HRA developments to be built to Passive House standard, unless there is a compelling reason not to do so. These reasons can be split into two general themes:

3.9.2.1. The project will not attain financial viability using the Council's standard appraisal
3.9.2.2. The site density, layout and orientation precludes the ability for the homes to be built to the Passive House standard

3.9.3. If Passive House standard cannot be achieved the low energy and social housing design requirements primary aim must be to lower the energy consumption of the building to its lowest possible level.

3.9.4. In addition to the Passive House standard, the Council will build with a standard set of design requirements which have been developed by the design and energy services team. Not included within the Passive House standard itself; this will allow for the inclusion of renewables, batteries and communal heating and ventilation systems, where appropriate. These design requirements can be found in Appendix B. Low Energy and social housing design requirements.

3.10. The Council will pilot the technical & financial viability in seeking to build the developments at Wecock Farm and Strouden Court to Passive House standards, with the Low Energy and Social Housing design requirements set out in Appendix B.

3.11. These projects will be important case studies to pilot the approach, fully test and evaluate the challenges and benefits through the design, construction and operational phases of the properties; through ongoing monitoring and reporting.

3.12. Three in-house architects will be trained to be Passive House accredited by early summer 2021. This will enable more accurate analysis and detailed modelling of developments to be made.

3.13. The energy service team will increase their staff resources and training to enable their officers to play a more active part in client-side liaison on new HRA developments. The team will develop a strategy and handover training for tenants moving into these highly energy efficient homes.

3.14. The supply chain for design, consultancy and construction will be tested, and if necessary, a framework developed for future delivery of such projects.

3.15. Continued liaison with peer authorities to develop a network; so that learning and ideas can be exchanged and developed.

3.16. Train maintenance staff and contractors to be able to satisfactorily deal with the additional demands that Passive House builds can create.

4. Reasons for recommendations

4.1. The recommendations enable the aspiration to provide Passive House standard for new council housing developments to be piloted and tested with a draft low energy and social housing design requirement.

4.2. The recommendation only commits to pilot the approach, to fully test and evaluate the challenges and benefits through the design, construction and operational phases of the properties; through ongoing monitoring and reporting.

4.3. The recommendations requires the evaluation to be brought back to a future decision meeting to consider the adoption of the approach for further HRA council housing developments, where appropriate.

4.4. The evaluations will be carried out in three phases with each phase seeing a report brought to future decision meetings. The phases of evaluation will be The Design Phase, The Construction Phase and The Operational Phase.

4.5. The Design Phase will see us able to explain if the design is likely to reach the Passive House standard and if not what standard will be achieved and what the challenges have been.

4.6. The Construction Phase will see us able to report on the buildability of the design, and the availability, competency and capacity of the local supply chain to attain these standards.

4.7. The Operational Phase will include the experience of the residents focusing on how their home benefits them including their ongoing utilities costs, the usability of the technology and most importantly the resident's satisfaction with the property and

how the low energy design impacts this. This phase will rely on data collected from the residents and the building over a two year post occupancy period.

4.8. The Design, Construction and Operational Phase evaluation reports will include updates on the evolving activities and learning of the internal teams, within building services, as well as consideration of key factors such as financial viability, running costs, carbon emissions and technical challenges. Reporting will include the successes and/or challenges of adopting the higher energy standard.

4.9. The pilot studies will from commencement of design to the completion of the operational phase monitoring cover a period of four years. Other developments will be brought forward for delivery during this time period and so each phase of the pilot schemes evaluation will inform our ongoing design and technical build standards for future developments ensuring that we continue to adapt the approach and respond to technological advancements.

5. Integrated impact assessment

5.1 An Integrated Impact Assessment has been completed and no adverse equality implications were identified.

6. Legal implications

6.1 The legislative requirements are set out in the main body of this report and the Appendices.

6.2 No adverse legal implications are foreseen as a result of the proposed pilot scheme as set out in this report.

6.3 The Government is currently consulting on the proposed changes to the Building Regulations. The outcome of the consultation may have impact on the proposals above hence it is important to keep up with the latest changes to the legislation.

7. Director of Finance's comments

7.1 Whenever the Council appraises a development opportunity it compares the viability against it's 30 year business plan. This viability takes into considerations such as the capital cost, maintenance and funding of a development both the initial capital funding and ongoing revenue stream. The Council can not commit to developments that have a detrimental financial impact on it's 30 year business plan.

7.2 Anecdotally the cost of Passive House standards and the use of the Low Energy and Social Housing Design is perceived as more expensive than traditional energy efficient designs. The pilot will allow the Council to fully understand and quantify to what extent, if any, this is true.

7.3 There is a risk that these standards are not achievable when we assess the financial viability of the developments, the Council will ensure that it does not fully

commit to developments that would have an adverse effect on the Housing Revenue Accounts 30 year business plan and a financial appraisal will be updated at key gateways in the design and build process.

7.4 Initial financial appraisals have been carried out for the pilot developments that indicate that there could be a financially viable development built to these standards, but this is based on an initial estimate from an estimator, the next key milestone is to test the market through a tender process to see if those estimates are correct and for the financial model to be updated.

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Signed by: James Hill - Director of Housing, Neighbourhood and Building Services

Appendices:

1. Appendix A - Technical Performance Summary
2. Appendix B - Low Energy and Social Housing Design requirements
3. Appendix C - Integrated Impact Assessment report

Background list of documents: Section 100D of the Local Government Act 1972

The following documents disclose facts or matters, which have been relied upon to a material extent by the author in preparing this report:

Title of document	Location
Portsmouth Energy and Water at Home Strategy 2020-25	Microsoft Word - Appendix A - Portsmouth City Councils Final Energy and Water at Home strategy (switchedonportsmouth.co.uk)
Switched On Portsmouth's *Home Energy Support Service* paper (2021)	https://democracy.portsmouth.gov.uk/documents/s29329/Home Energy Support Service progress update from October.pdf

The recommendation(s) set out above were approved/ approved as amended/ deferred/ rejected by …… on ……

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Signed by: