

Case Study – Sensor Monitoring Equipment for Social Housing Properties

Introduction

Renfrewshire Council have undertaken an innovative procurement to deliver a range of economic, social and environmental outcomes. They contracted a Scottish SME who have supplied pioneering technology to maintain their social housing stock and to ensure their residents are living in good quality housing.

Background

Renfrewshire Council currently own and maintain 12,000 social housing properties. The Council is committed to promoting affordable warmth and tackling fuel poverty and is delivering projects to improve their housing stock.

In 2015, the Council's Housing Investment Team undertook a pilot project involving real-time sensor technology to measure internal environmental conditions of six properties including temperature, humidity and CO₂ emissions. The pilot involved monitoring 6 properties after carrying out energy improvement works.

The sensors allow the Council to more easily monitor the indoor temperature and humidity levels of the properties. Early detection and intervention to prevent damp and rot are able to be carried out before damage escalates creating poor quality housing and requiring greater repair costs. In addition, the technology can help identify tenants who may need energy advice and who can then be signposted to the Council's Energy Advocacy service.

The Council applied for funding to roll out the contract. They received the Scottish Enterprise Can Do Innovation Challenge Fund and also used funding from the Communities Housing and Planning Housing Revenue Account Capital Programme. This funding enabled them to upscale and plan to install approximately 1,100 of the sensors, over the life of the contract.

The requirement

The requirement was for a single contractor to supply an end-to-end service to monitor the internal environmental conditions including temperature, humidity and CO₂ levels, within the Council's social housing properties.

The dimensions of the sensors were to be comparable to a standard wall light switch to ensure the devices cause minimal impact. These should be installed by the Council's in-house team, under appropriate warranties provided by the contractor. The sensors were to be battery powered and tamper-proof and the battery should be replaceable to avoid having to replace the entire sensor.

Procurement process

In 2019, Renfrewshire Council prepared a Procurement Strategy for the contract. The strategy was informed by commodity supply market analysis and consultation with key stakeholders. The research, which informed the strategy, revealed a gap in the market for an innovative product.

The requirement for the provision of a single contractor who could supply the housing sensors went out to tender in 2019. The procurement was for a supply contract with related Service and Installation works was conducted via an Open Procedure under the Public Contracts (Scotland) Regulations 2015. The contract period was set at two years with the option to extend by 24 months, subject to contract performance and funding availability. The Award Criteria was split into Quality 60%: Price 40%.

Embedding sustainability requirements

The Council completed the Sustainability Test on the Sustainable Procurement Tools to inform the procurement strategy. The test helped identify the relevant risks and opportunities for the procurement of the sensors. Opportunities were identified across economic, social and environmental pillars of sustainability. The risks and opportunities identified through the Sustainability Test were incorporated into the award criteria, with emphasis on environmental/carbon impacts, Fair Work and community benefits.

Environmental Sustainability Requirements

- contribute to Renfrewshire Council's goal of being Net Zero by 2030 and Scotland as a whole by 2045
- contribute to National and Council climate outcomes and goals - increasing energy efficiency and decarbonising the Council's housing stock
- environmental management by providing their relevant policy or ISO 14001 certificate detailing any relevant waste management practices as per standard SPD environmental question 4D.2

Socio-economic Sustainability Requirements

- reduce costs of maintenance of the properties
- reduce the likelihood of tenants living in poor housing that may affect their health
- identify early tenants that may need support ensuring their homes are properly heated/ventilated
- help residents manage their heating and bills

Renfrewshire Council evaluates Fair Work and community benefit requirements in all tenders over £50,000. For this tender they made up 10% of the award criteria, 5% going to each.

Table 1 displays the sustainability question included in Renfrewshire Council’s tender documentation for this contract:

Table 1

<p>2.3.1 Community Benefits Outcome Menu</p>	<p>Tenderers should complete and return the document entitled “Community Benefits Outcome Menu” detailing the Community Benefits offered should the Tenderer be successful in being awarded this contract.</p> <p>The Council’s expectation is that 50 Community Benefit Points (CBPs) or more will be delivered under this contract.</p> <p>Tenderers are required to select community benefits they will offer should the Tenderer be successful in being awarded this contract.</p> <p>Tenderers shall complete and return the attachment to this question (Community Benefits Outcome Table) and the total CBPs offered shall be equal to, or greater than, 50 CBPs.</p>	<p>3%</p>
<p>2.3.2 Community Benefits Methodology</p>	<p>Tenderers should describe the methodology/approach that will be undertaken, specific to this contract, to ensure the delivery of the proposed community benefits in your Community Benefit (CB) Outcome Menu submission.</p> <p>Responses should include, but not be limited to, the following;</p> <ul style="list-style-type: none"> • Provide details of how the delivery and achievement of community benefits will be monitored and measured by your organisation. • Details of any organisations you have engaged with to support delivery of your submissions proposed community benefits. • Demonstrate how previous success in delivering community benefits will further aid successful delivery of them for this contract’s community benefit offering. • Provide the name of the individual who will co-ordinate the delivery of community benefits. 	<p>2%</p>

	Response Size: Tenderers response to this question should be no longer than a maximum of 1 A4 (2 sides) pages in length utilising Arial 11 Font. Any further pages will not be considered or evaluated.	
2.4.1 Fair Working Practices	Tenderer to describe how you will commit to fair work practices for workers (including any agency or sub-contractor workers) engaged in the delivery of this contract. Response Size: Tenderers response to this question should be no longer than a maximum of 1 A4 (2 sides) pages in length utilising Arial 11 Font. Any further pages will not be considered or evaluated.	5%

Evaluation of these responses was completed in line with the Council's Fair Work and community benefit policies at the time. This ensured that best practice was followed and that all community benefits offered were feasible and relevant.

The outcome

The Main Contract Works

In 2019, the Council awarded a two-year contract to a remote property monitoring supplier. Work is underway and the sensors are currently being installed in social housing by the Council's in-house maintenance team.

The contractor is providing all sensors, a wire-free network for connection to a software system and a software as a service system. These will provide the Council with data, reports and analysis of any environmental data collected including recommendations on a per property basis.

The system allows the Council to monitor the fluctuations in environmental conditions within domestic properties both when empty and when occupied. Additionally, it allows the Council to support early intervention to avoid damage to both the fabric of the property through rot and to tenant contents caused by environmental factors/the actions of the inhabitants. Where appropriate, it also allows the Council to offer appropriate training and support to tenants regarding ventilation etc.

The system offers tenants improved living standards while cutting property management and repair costs. The contract is providing a range of sustainability outcomes over its duration, including actions to tackle climate change and enhance socio-economic benefits within the local authority area. To ensure optimal use of the sensors, where there is a need, new tenants are being provided with guidance on energy efficiency from the council's Energy Advocacy service.

The Covid-19 pandemic impacted delivery of the contract and the initial contract period ended without the target number of sensors being installed. A contract variation was approved to extend the contract by 6 months, with the two optional 12-month extensions. Even on a smaller scale the contract produced promising results. By summer 2022, the Council had installed sensors in around 400 properties and visited 10-15 of these in person each month to assist the residents based on the data gathered.

Monthly reports were produced highlighting properties at risk from damp, mould, poor ventilation, high temperatures, fuel poverty, etc as well as whether there had been any change in the conditions causing these issues. This allowed real time data capture of how advice or assistance could improve conditions and address the root cause before it escalated. The data gathered also indicated that properties retrofitted under the Council’s Regeneration and Renewal Programme were performing well with reduced heat decay figures compared to average.

Community Benefits

The following Community benefits were included in the contract:

Community Benefit Description	No of People / Activity
Modern Apprenticeship	1
Work Experience Placement for an individual 16+ years of age	2
Work Experience Placement for an individual aged 14 to 16 years of age	1
Industry Awareness Event	4
Industry Skill Transfer to Schools	3
Non-financial support for a Community Project – Provision of sensors to local college for educational purposes	2

A unique benefit that the supplier intends to provide is supply of a number of the housing sensors to construction students at a local Paisley college. The students will learn about the use and implementation of the sensors.

Comments from Mr Ivan McKee Minister for Trade, Investment, and Innovation:
“During these unprecedented times it is hugely encouraging to see Scotland continue its proud tradition of world leading innovation... pioneering IoT technology, being delivered in partnership with Renfrewshire Council, is a fantastic example of how innovation and collaboration can help people live healthy lives at home, supported by remote monitoring.”

Comments from the director of the supplier:
“The results of the project have proven the business case for this service – it’s delivering significant returns by allowing the council to predict issues and be proactive with maintenance, which is invariably more cost effective than having to

deal with them after the fact. It also reduces the need for regular property visits and administration, while also leading to reduced premiums in large property portfolios.”

This project has contributed to Renfrewshire’s outcomes and, in turn to National outcomes.

Contribution to Renfrewshire Council’s Outcomes

Renfrewshire Council’s Vision is “Working together for a thriving and connected Renfrewshire, creating opportunities for all” and this contract contributes to a number of the Council’s own outcomes:

- Our Renfrewshire is fair - tenderers were assessed within this procurement process regarding their approach to ensuring fair working practices throughout their organisation and supply chain i.e. payment of the living wage, training and development opportunities.
- Our Renfrewshire is well – tackling inequality and improving housing conditions benefitting tenants. Addressing fuel poverty.
- Building strong, safe and resilient communities – the houses in which people live are fundamental to quality of life. This project will identify potential issues and or damage within the Council’s housing stock and proposes when to act.
- Creating a sustainable Renfrewshire for all to enjoy – the supplier has committed to deliver numerous Community Benefits.

Contribution to National Outcomes

The outcomes provided by this contract support and contribute towards a number of our national outcomes:

- Environment – We value, enjoy, protect and enhance our environment
- Health – We are healthy and active
- Communities – We live in communities that are inclusive, empowered, resilient and safe
- Poverty – We tackle poverty by sharing opportunities, wealth and power more equally
- Economy - We have a globally competitive, entrepreneurial, inclusive and sustainable economy
- Fair Work and business - We have thriving and innovative businesses, with quality jobs and fair work for everyone

Conclusion

The sensors have provided Renfrewshire Council’s social housing properties myriad sustainability outcomes. The sensors have resulted in social and economic

outcomes by contributing to good quality housing to tenants while addressing fuel poverty, offering jobs and training and giving tenants the skills/knowledge they need to manage their heating and bills. Environmental outcomes include climate adaptation through retrofit and maintaining good quality properties. The sensors will also help to reduce council costs through avoidable damages. It is an example of a contract that uses a holistic and innovative approach to deliver multiple benefits, helping Renfrewshire to meet its own outcomes as well as Scotland's National Outcomes.