



**Nottingham**  
**City Council**

**Energy**  
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**Energy Audit relating to heating provision**  
**Heathcoat Building**  
**September 2019**

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Energy Services, Nottingham City Council, produced this report. For any further information regarding the contents of this report please direct all enquiries to:

[energyprojects@nottinghamcity.gov.uk](mailto:energyprojects@nottinghamcity.gov.uk)

0115 876 3970



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## Site Details

Heathcoat Building  
 Nottingham Science and Technology Park  
 Nottingham  
 NG7 2QJ

**Assessor:** Kenneth Negus [kenneth.negus@nottinghamcity.gov.uk](mailto:kenneth.negus@nottinghamcity.gov.uk)

**Mechanical Engineer:** Neil Brennan [neil.Brennan@nottinghamcity.gov.uk](mailto:neil.Brennan@nottinghamcity.gov.uk)

**Salix contact:** Patrick Heron [patrick.heron@nottinghamcity.gov.uk](mailto:patrick.heron@nottinghamcity.gov.uk)

**Site Contact:** Will Cross [will.cross@nottinghamcity.gov.uk](mailto:will.cross@nottinghamcity.gov.uk)



## Audit summary

Energy Services have been contracted to produce an energy audit and heating assessment for Heathcoat buildings at Nottingham Science Park under the instruction of Will Cross and Bevis Mackie.

The report assesses the quotation previously received by Property for replacement boilers, assessment of the current heating system, provision of a specification for replacement of the boilers and competitive quotation including a potential Salix offering to reduce capital investment required.



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## 1. Analysis of current heating provision

The Heathcoat Building plant room has been on Nottingham City Council's service program for several years. The boilers heat the internal units within the property and are the singular method for heating provision for tenants.

The annual services of 2017 and 2018 have shown the boiler set to be degrading rapidly with the life span of them coming to an end. The 2018 service identified that the rear of the boilers were heavily corroded and the boilers were tripping to overheat several times daily to the extent that the building users were getting increasingly frustrated with the lack of constant heat when required.

It was agreed to maintain the boilers (and plant room) to 2019 with a view of pricing up and upgrading the complete system to modern energy efficient boilers.

The following was identified at the address above within the plant room:

- 2 x Floor Standing Ideal Boilers
- 1 x Cold Feed pipes run from expansion tank within attic void
- Primary circuit running onto a twin set of pumps and then a low loss header. (This is very rusty and in need of replacement)
- Secondary circuit feeding a Calorifier and then the heating system through standard emitters.
- Gas run from meter to appliances.

Since original assessment the current system has been decommissioned and the units are currently without heating



### Additional commentary

The building was built in the 1980s and is double glazed with radiators fitted with TRVs throughout the units. There is a mixture of lighting present and it would be recommended that in addition to the heating study that a lighting expert was consulted with a view to widespread replacement of lighting to LED.



It is noted that from an Energy Performance Certificate point of view there are multiple units which do not have a valid EPC and require assessment, it would be advisable for any improvement works to be undertaken prior to the EPC renewal to ensure the best grade achieved.

## **2. Assessment and analysis of original quotation**

The original quotation for replacement boilers was created in 2016 with an update in 2018 for Property's consideration.

The Energy Assessor evaluated the potential options of heating provision for the building including the installation of an efficient air source heat pump (multi-split) air conditioning system within the building which would serve all units providing heating and cooling. However, due to the existing infrastructure in place it would not be cost effective to completely transform the existing system installing the required infrastructure and removal of existing pipework and radiators.

From an Energy Performance Certificate (EPC) perspective gas central heating provides a greater efficiency rating than electrical heating so this also affected the decision to approve the proposal put forward by the HEI Mechanical and Electrical Services internal delivery team





The Flue will be completely replaced. It will however use the original flue run.

There will be an expansion vessel and a Mikrofill system installed.

There is no method of chemical dosing the system. A new dosing pot will be installed.

For controlling the heating, a new programmer, room sensor and pipe sensors will be installed.

For the heating controls, there will be a new Coster YCL740 system/ there will be an averaging room sensor and strap on pipe sensors.

The programmer will have a modem connected onto it for remote access and control.

#### EXCLUSIONS

This quote does not include a secondary heating pump set.

Any internal emitters/pipe works that is effected through a pressure system change.

## 5. Salix offering

Salix Finance enables public sector organisations across England, Scotland, Wales and Northern Ireland to take a lead in tackling climate change by increasing their energy efficiency. Salix provides 100% interest-free capital for the public sector to reduce their energy costs by enabling the installation of modern, energy efficient technologies and replacing dated, inefficient technologies.

Energy efficient technology cuts carbon emissions and reduces energy bills. However, upfront capital is a common barrier for public sector organisations seeking solutions that cut their energy consumption. Salix, a not-for-profit organisation funded by Business, Energy and Industrial Strategy, the Department for Education, the Welsh Government, the Scottish Government and Higher Education Funding Council for England, removes this barrier by making this capital accessible to the public sector.

As of March 2019, Salix has funded over 17,700 projects with 2,700 public sector bodies, valued at £842 million. This is estimated to save the public sector over £181 million and reduce public sector carbon dioxide emissions by 821,583 tonnes annually.

Nottingham City Council's Energy Services manage a Salix Recycling Fund which is a ring-fenced fund managed by the public sector organisation, with money provided by the organisation and match funded by Salix. The project loan is repaid into the fund from the financial savings delivered by the projects – this allows the fund to be continually used for energy efficiency projects, hence the term 'Recycling Fund'. At the same time the organisation continues to benefit from the savings that accumulate once the project has been fully repaid.

As an example: a school borrows £10,000 from the recycling fund to put in new lighting and a new boiler which will save the school £2,000 per annum from reduced gas and electricity usage. For up to 10 years these savings are used to pay back the interest-free loan. Once the loan is repaid, the



continued savings enable the school to use the reduction in energy budget for other purposes, such as the purchase of equipment. Some examples of projects completed by Energy Services include:

- Improving the heating controls at Wollaton Hall, saving 67,500kWh and £1,900 per year
- Upgrading lighting across the estate, creating significant financial and carbon savings and improving the quality of light found within our buildings – for example our car parks are collectively saving £80,800 per year by installing LED lights
- Removing Loxley House from the electricity grid and utilising Nottingham’s energy from waste network instead, saving £55,000 per year

Importantly, the loan repayments always either match or are lower than the energy savings modelled, allowing the site to benefit from energy savings straightaway following project completion.

For more information, please find attached a report outlining previous NCC projects the Salix fund has supported, or contact Patrick Heron on [Patrick.heron@nottinghamcity.gov.uk](mailto:Patrick.heron@nottinghamcity.gov.uk).

### **Heathcoat Building – Nottingham Science Park**

Current space heating and hot water demands are achieved through two Concorde CXA-40H 60kW Units.

The replacement units are two Remeha Gas Ace 120 65kW Condensing Boiler Units.

Remeha Units Installed Cost: £31,485.87

The Heathcoat Building had a gas meter installed relatively recently in 2017, giving an annual consumption of 161,666kWh.

The installation of efficient replacement boiler units will give a calculated consumption of 114,298kWh, a saving of 47,368kWh or £1,421.04. This saving can be used to repay a capital loan, with an annual loan repayment equal (or less) that the energy saving, meaning there is no budgetary pressure created by making repayments.

Salix Finance are able to fund loans of up to 10 years, which in turn vary the amount that the budget holder is required to contribute. Some examples of repayment structures and associated capital contributions are outlined below:

<b>Salix Finance Loan Options:</b>		
<b>Length of loan (yrs)</b>	<b>Salix Contribution (saving x length of loan)</b>	<b>Client Contribution (project cost – Salix contribution)</b>
5	£7,105.20	£24,379.80
10	£14,210.39	£17,274.61



## 6. Conclusion

In conclusion, it is highly recommended that the works as set out in the quotation within section 4 are progressed and the Salix offering provided progressed with the named contact within the introduction section of this report.

### Disclaimer

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