

Policy and Sustainability Committee

10.00am, Tuesday, 17 January 2023

Update on Air Quality Monitoring and the suitability of HEPA Air Filters in Primary Schools

Executive/routine Wards Council Commitments	Routine All
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1. Recommendations

- 1.1 Committee is asked to note this update and that a further update will be provided in three cycles.

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Report

Update on Air Quality Monitoring and the suitability of HEPA Air Filters in Primary School

2. Executive Summary

- 2.1 This report provides an update on the air quality in schools works carried out since November 2021 and, in particular, the use of the funding provided by Scottish Government as part of its COVID-19 response.

3. Background

- 3.1 In August 2022, Policy and Sustainability Committee approved the following actions:
- Provide an update on the Air Quality in Schools works carried out and any analysis on the impact since November 2021 including an update on how the Scottish Government funding was spent; and
 - Report to Committee on the suitability of rolling out HEPA air purifiers to all primary schools managed by the City of Edinburgh Council.
- 3.2 This report provides the information requested.

4. Main report

Installation and Operation of Sensors

- 4.1 As part of the Scottish Government's response to COVID-19, £1.115m of funding was allocated to the Council to support ventilation in schools.
- 4.2 Following this, and in line with guidance from the Scottish Government, in March 2022 the Council approved a proposal from CGi for the supply and set up of 3,000 carbon dioxide sensors as an addendum to the existing Smart Cities Project.
- 4.3 A key aspect of the sensor installation was that data could be collected via LoRaWAN (a software communication protocol and system) communications to enable access to be provided via a web portal to building users.
- 4.4 The sensors have an LED indicator that provides feedback on CO2 levels in a space. They also include temperature and humidity sensors, which offer the

opportunity to record wider building performance data on schools. By August 2022, these sensors had been installed across the Council's school estate.

Data Collection

- 4.5 However, in early August, some errors began to be detected with the sensors.
- 4.6 Initially, these were at a low level and site visits were coordinated to recover sensors for evaluation and replace with new sensors.
- 4.7 However, a higher failure rate was identified in the final tranche of sensors received from the manufacturer (covering circa 1,300 sensors). This issue has proved more significant, with over 400 sensors considered as having faults.
- 4.8 In addition, at present, LoRaWAN coverage is not sufficient to recover data from all the sensors. An audit of sites is underway to identify issues with sensor installation that may be contributing to the coverage issue.
- 4.9 It is not currently possible to confirm the full extent of faulty sensors but the number of sensors requiring replacement is expected to rise.
- 4.10 A programme has been initiated to replace faulty sensors and there are ongoing works to install more LoRaWAN gateways on Council buildings to improve coverage. Further sensors are being held in reserve so faulty sensors can be replaced upon identification.
- 4.11 Web portal access has recently been provided to Council officers. This has highlighted some further questions over some of the CO2 data which is currently under investigation. Once issues are resolved the intention would be to roll out of access to the web portal to schools. This is an ongoing programme of work. A verbal update on the status of the sensors can be provided at Committee.

HEPA Filters

- 4.12 The Council continues to follow advice from Scottish Government and the Health and Safety Executive (HSE) on High-Efficiency Particulate Absorbing (HEPA) filters.
- 4.13 In September 2022, the Scottish Government issued a Coronavirus (COVID-19): guidance on reducing the risks in schools.
- 4.14 The guidance states that "...HEPA filters may play a role in reducing airborne transmission of aerosols where it is not possible to maintain adequate ventilation. However, the available scientific evidence to date continues to support a primary focus on improving natural or mechanical ventilation, with CO2 monitoring playing a supporting role in identifying areas of concern. Expert advice from groups including SAGE and HSE states that air filtration devices do not provide any ventilation, and should never be used as a substitute for efforts to improve ventilation – other actions should be undertaken to improve ventilation before, exceptionally, considering use of air cleaning devices. It is therefore important to understand that air cleaning devices must not be used as a substitute for natural or mechanical ventilation (including the opening of windows and doors) during cold weather – doing so may increase risks to staff and pupils. Further work is ongoing in relation to

HEPA filtration and UV treatment, and the Scottish Government will consider this scientific advice as it becomes”.

- 4.15 Consequently, and at this time, the approach being adopted by the City of Edinburgh Council will continue to focus on ensuring spaces are well ventilated and only where other means of providing adequate ventilation have been exhausted will air cleaning or filtration be considered.
- 4.16 At this stage, air cleaning or filtration units will not be installed into areas which can be adequately ventilated.

5. Next Steps

- 5.1 It is proposed to provide a further update on the Council’s monitoring of air quality in schools in three cycles.

6. Financial impact

- 6.1 As part of the Scottish Government’s response to COVID-19, £1.115m of funding was allocated to the Council to support ventilation in schools.
- 6.2 The costs to date are summarised below:
- £140,000 - Pre LoRaWAN (Portable monitors and building adaptations);
 - £654,000 – CGi;
 - £41,000 – Portable monitors to private childcare establishments; and
 - £30,000 - Monitor installation (Costs to be confirmed).
- 6.3 The remainder of funding will be used for ongoing sensor costs and adaptations.

7. Stakeholder/Community Impact

- 7.1 Council officers will continue to work with CGi and with schools on the installation of sensors and monitoring of air quality.

8. Background reading/external references

None.

9. Appendices

None.