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The Energy Efficiency Standard for Social Housing post 2020 (EESSH2)

This document aims to provide some feedback on the draft Scottish Government Guidance for EESSH2. The feedback is mainly on the Air Quality section of the guidance and sets out the Associations concerns regarding the approach and measurement of air quality within energy efficient buildings.

Background

HHA have been constructing new build properties on the Shetland isles for the last 20 years with a significant focus on airtightness with an enhanced insulation detail. In general its new build properties built over this period have air changes well below 3ach and have Mechanical Ventilation with Heat Recovery (MVHR) installed.

The Associations approach to energy improvements in its older stock is fabric first with a drive to minimise the energy demand within its properties to help alleviate fuel poverty. In taking this approach it is imperative consideration is given to air quality and condensation risk and therefore suitable ventilation is generally provided. The Association is of the opinion that in order to truly make its properties energy efficient you cannot rely on drafts or leaky buildings to provide the air changes required but instead you must control them and recover any heat/energy whilst doing so.

Compliance with EESSH2

The new EESSH2 milestone is:

All social housing meets, or can be treated as meeting, EPC Band B (Energy Efficiency rating), or is as energy efficient as practically possible, by the end of December 2032 and within the limits of cost, technology and necessary consent. There will be a formal review in 2025 in which Air Quality and Environmental Impact will be considered.

The current route for assessment is using SAP (new build) and RdSAP (existing buildings) through the production of an EPC. Once the initial EPC has lapsed on a new property, after 10 years or following improvements, it will have to be assessed using RdSAP which limits the ability to fully model performance.

RdSAP measurement

RdSAP cannot accurately model ventilation systems and therefore makes an assumption based only on whether there is supply and extract system installed or not. The Association sees this as a barrier to promoting the installation of highly efficient ventilation systems to ensure good levels of air quality are provided within energy efficient buildings. I have detailed a case study below as an example of how RdSAP treats ventilation systems and confirm the outcome is the same on other property types.

Case Study – [REDACTED], Lerwick, Shetland

In 2014 the Association carried out significant energy improvement measures to one of its older properties and I have noted some brief details below:

Initial EPC rating using SAP 2009: (See Appendix A)

- Band D (59)
- EI Band B (85)

Energy Improvement measures (fabric first approach):

Retro fit – insulation fitted internally to all external walls. (0.19W/m²K)

Retro fit – insulation fitted internally to suspended timber floor. (0.18W/m²K)

Retro fit – insulation to the loft space. (0.18W/m²K)

Insulation backed plasterboard fitted to all door and window returns on external walls.

In order to ensure total coverage to external walls, minimise thermal bridging and achieve airtightness, works included the removal and reinstallation of kitchen, bathroom and utility room fittings. Other necessary works included redecoration of all external walls, window and door returns and minor electrical works.

Total works cost for energy improvements £[REDACTED]

Modelled EPC rating SAP 2012: *following the above improvements* (See Appendix B)

- Band C (73) *converted for EESSH to SAP 2009 (75)*
- EI Band B (91)

The above works resulted in an increase of (14) SAP points which is approximately £[REDACTED] per point. The Environmental Score has also increased by (6) points to (91) reducing the effect on the environment.

In considering the air quality for this property the decision was made to install a [REDACTED] MVHR system to ensure the correct level of air changes are achieved following the insulation upgrade. The chosen system has a heat exchanger that is 88% efficient at recovering heat and is designed and commissioned for the property with extract and input ventilation.

Total works cost for ventilation/air quality improvements £[REDACTED]

EPC rating SAP 2012 *following the installation of ventilation for air quality* (See Appendix C)

- Band D (64) *converted for EESSH to SAP 2009 (66)*
- EI Band B (83)

By ensuring suitable air quality measures are put in place for this property the Association has incurred a (9) point reduction in the SAP score and the Environmental Impact score has dropped down to (83) which is lower than the initial rating of (85) prior to any work being done. In monetary terms this equates to (£[REDACTED]) or 65% of the total cost.

HHA Concerns

As can be seen from the case study above the Association is concerned that the current method for assessment (RdSAP) unfairly penalises the installation of ventilation systems which are essential for maintaining good air quality. The fact the software will reduce a SAP score by 9 points will have a significant impact on decision making in relation to ensuring good air quality is maintained whilst trying to meet the EESSH 2 target. The Association therefore suggests that a property should be 'treated as meeting' the standard using the SAP score prior to any reduction due to ventilation systems being installed.

The Association is also concerned about the requirement for landlords to collect 'air quality impact data' before and after installation of energy efficiency measures. From experience of collecting information on temperature and humidity, using log tag technology, in its properties the Association has found this to be very time consuming and costly. The quality of data is also questionable due to a number of factors including:

- To what extent should the measurement cover? (*what areas of the property?*)
- For how long should this be collated for? (*days, months, a year?*)
- To what extent should the data be considered (*are there set thresholds, triggers?*)
- Positioning of monitoring equipment (*being moved/covered by tenants*)

It would appear that the requirement to carry out pre and post air quality monitoring is to determine if a ventilation strategy would be required, due to increased air tightness, and it is the Associations opinion that this should be considered at the outset as part of a design risk assessment.

There is an existing 'retrofit standard' PAS 2035 which details best practice guidance and provides a specification for the energy retrofit of domestic buildings which could be used to ensure proper consideration of air quality in the design process.

Appendix A – Initial EPC for [REDACTED]

Appendix B – Energy Summary Information following improvement works and after ventilation installation.

Appendix C – Current EPC following reduction in SAP score due to ventilation works.