

DCLG project: Ventilation and indoor air quality in naturally-ventilated, energy efficient new homes

Background

Energy efficient new homes are built to higher standards of airtightness than homes of previous generations. This means that they are more dependent on effective ventilation to ensure that a satisfactory level of indoor air quality is maintained.

DCLG (the Department for Communities and Local Government) has commissioned AECOM to undertake this research project aimed at assessing the level of ventilation and indoor air quality in a sample of new homes. This work will help to inform the future development of guidance for the provision of ventilation in new homes.

We are seeking your help in recruiting the sample of homes for this study. We are looking for a mixture of private and social housing.

Study summary

- Looking to recruit 100 homes in total for visual inspection and occupant interviews
- The following measurements will be undertaken in around 50 homes
 - Temperature and Relative Humidity
 - Carbon Dioxide
 - Extract fan flow rates
- More detailed measurements will be taken in a selection of these homes, including:
 - Air permeability and dwelling air exchange rate
 - Volatile Organic Compounds & Formaldehyde
 - Nitrogen Dioxide & Carbon Monoxide
 - Radon
- This work will inform future guidance on the ventilation in new homes.

Recruitment criteria

We are looking for homes that meet the following criteria.

- Designed to comply with Approved Document L 2010 (Conservation of fuel and power) and Approved Document F 2010 (Ventilation)
- Have Part F System 1 natural ventilation systems (trickle ventilators and extract fans and/or a cooker hood).
- Designed to have an airtightness of less than 5 m³/(h.m²) and for which SAP calculations are available.
- The building completion date is prior to December 2014.
- The home is located in England

What will the research involve for each household?

There are three levels of involvement in the study. The monitoring team will select which homes fall into each category.

- i. Visual inspection only – This will comprise a single visit to around 100 homes during which there will be a visual inspection of the ventilation system in the home. The participating home will be paid £50.
- ii. Limited monitoring – Around 50 visually inspected homes will be taken forward to the limited monitoring stage. This will include a short interview with an occupant. Monitoring equipment will be left in the home at the time of the visual inspection and collected a week later. The participating home will be paid an additional £50 (£100 in total for the study).
- iii. Detailed monitoring – A selection of the homes participating in the limited monitoring will be taken forward to the detailed monitoring stage. The monitoring team will revisit the home to measure its airtightness and leave further monitoring equipment in the home for a week to allow a more detailed evaluation. The participating home will be paid an additional £100 (£200 in total for the study).

All monitoring equipment left in homes will be unobtrusive (i.e. small and quiet). All equipment will be left in locations that will be agreed between the residents and the research team e.g. out of reach of any small children.

Communication of findings

Overall findings from the research will be documented in a report to the Government that will ultimately be made public. Care will be taken to ensure that the findings from individual homes are anonymised and the support provided by developers and social housing providers will be acknowledged.

Findings from the research will be fed back to the residents and the developers and social housing providers for each participating home.

Where the indoor air quality is found to be satisfactory, no further follow-up will be deemed necessary. In situations where action may be required, further investigations may be made. This may include discussions with the residents to further understand the reasons. Advice will be offered to residents where reduced indoor air quality is likely to be related to lifestyle and/or under-use of ventilation. If the cause for unsatisfactory indoor air quality is related to inadequate ventilation provision, follow-up discussions will be held with the participating developer or social housing provider prior to any feedback to the residents.

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