

# MEV Ventilation Systems in Derwenthorpe

## Keeping the Environment Fresh & Saving Money

Lotherington & Seeböhm Quarters

### Our Houses

- Every house in Derwenthorpe is equipped with a mechanical ventilation system.
- In the Stephenson Quarter, the systems are of the Mechanical Ventilation Heat Recovery (MVHR) type; In the Lotherington and Seeböhm Quarters the systems are of the Mechanical Extract Ventilation (MEV) type.
- Both the MVHR and the MEV systems have the same purpose: to keep the internal environment fresh whilst keeping heating costs to a minimum.
- The systems are not unique to Derwenthorpe, they are installed nationally – as specified by the Building Regulations.

### Why do we have these systems?

- Houses lose heat in two ways: firstly, through the structure (floor, walls, roof); secondly; through the leakage of warm air (gaps in the structure, open windows etc.).
- Houses in Derwenthorpe have been designed to minimize heat loss: firstly, by means of a highly insulated structure; secondly, by means of a tightly-sealed construction.
- If a tightly-sealed house is not ventilated, the air will start to smell stale within hours and the wet rooms (shower, bath) will produce mould growth within days.
- The purpose of both the MVHR and MEV systems is to provide ventilation at a *precise, controlled rate*, thereby keeping the environment fresh whilst not wasting money on heating costs.

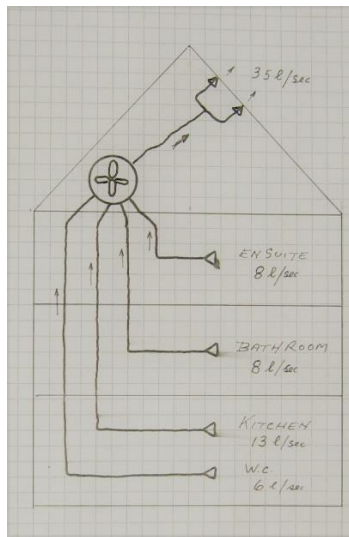
### Do our systems work?

- To save you money, your ventilation needs to be: properly specified, properly designed, properly installed, properly commissioned and properly maintained.
- Generally, the systems in Derwenthorpe are well specified, designed and installed and are potentially well able to function perfectly.

- Unfortunately, a significant proportion of systems in Lotharinton and Seeborn cannot work properly as a consequence of a particular shortcoming in their installation.
- This document describes the problem and provides guidance on how you can identify whether your system may have a problem.

## Firstly, how do the systems work?

- The systems use a single, central extract fan mounted in the roof space. This fan sucks air through individual ducts from each wet room and the kitchen. The combined air flow is then pushed through a single duct and discharged to the outside through two "ventilation tile" mounted in the roof. Here is the schematic:



- The following picture shows a typical installation. The four suction ducts from the three wet rooms and kitchen are at floor level. The common discharge duct to the two roof tiles is at high level.



- The fan is designed to operate continuously at a very low 'trickle' setting for the full 8,760 hours of a year. On this setting, the fan will be inaudible and consume electricity at a rate of approximately 6 to 10watts resulting in an annual consumption of 52 to 87kW.hrs (about £8 to £13 a year).
- If a light is switched on in a wet room or the kitchen switch is turned on, the fan will run at a higher 'boost' setting. The fan will be just audible in these rooms, but not intrusive. Assuming 5% of operation in year, the additional cost will be about £26.

## So, what is the problem?

- In general, these systems use an extractor fan of good quality and are well designed and well installed.
- Unfortunately, a significant number of systems suffer from a restriction to the discharge of air through the ventilated roof tile. The restriction to the flow of air results in under-performance, a noisy fan and high electricity consumption.
- The cause is either:
  - Only one roof tile has been fitted instead of two, or
  - The installation of a non-standard tile, or
  - Both.

## How can you check your system?

- Look at your roof from the street outside.
- Firstly, you should see two ventilated roof tiles in close proximity to each other. It does not matter if one is above the other, or if they are side by side, or staggered – there should be two together.
- Secondly, look carefully at the tile itself. There are two types in use and you will need to look carefully to see the difference.
- The following pictures show the genuine 'Sandtoft 20/20' tile and a copy of the Sandtoft tile made by another manufacturer. Unlike the Sandtoft original, the 'copy' is highly resistant to air flow.



*Figure 1 The genuine Sandtoft ventilated tile*



*Figure 2 The genuine Sandtoft tile*



*Figure 3 The copy of the Sandtoft tile...*

- In summary:
  - If you have a two roof tiles which are genuine Sandtoft tiles, your system should be satisfactory
  - If you have a single tile which is a genuine Sandtoft tile, your system is unlikely to be satisfactory.
  - If you have either single or twin tiles of the 'copy' type, your system will be unsatisfactory.
- The DRA are discussing a course of remedial action with DWH