



## HEAT RECOVERY VENTILATION SYSTEMS

### The Elephant in the Room.

The lesser known third law of thermodynamics states that heat energy travels from hot to cold and as such, has a tendency to decay from higher grade to lower grade energy. The objective of modern building physics is to defeat this law in so far as possible by preventing this heat decay or loss at every opportunity. This is done mainly by installing insulating materials in our buildings, but also by reclaiming heat from exhaust air and putting this heat to the best use possible by pre warming incoming air. This is done using air to air heat exchangers which are passive in nature and use no energy to do this. They are simply plastic plates arranged in a clever way that most of the heat moving past in one direction is absorbed by the colder stream going in the other direction on the other side of the plate. This is an example of using the third law to our advantage.

The fact that electrically operated fans are used to create the air movement in these exchangers, has little to do with the whole subject of energy conservation and capture, but has more to do with creating a healthy environment. Air will always have to move into and out of our buildings to ensure they are healthy places to use. This movement will always have a cost, even so-called natural ventilation has a cost to move, but this cost should not be associated with the energy conservation bit (Part L) and should only be associated with the healthy buildings aspect which is Part F.

What I am trying to get to here is that heat recovery ventilation is a central part of the strategy to conserve energy in our buildings and should be treated with the respect it deserves. At the 'See the light' event in UCD, in early November, speaker after speaker (including myself) reiterated this point. I provoked a defensive reaction from a staff member of the DOE when I brought up this point from the floor at the closing session. To be fair to this individual, he has proven to be a champion of low energy construction but his hands are tied by a system dating back to the days of the British Empire.

This one hundred year old elephant can only be eaten bit by bit with the help of all strata of society from the politicians to lobby groups and to individuals both within and without.

On the other side of the coin, this respect also needs to be earned by the industry and it needs to invest firstly in R&D and secondly in cleaning up its image. We in ProAir invest disproportionately to our size in R&D and hence take a more long term view. When the industry wakes up and tries to adopt this approach, perhaps then the two government departments involved in this will take this HRV subject seriously.

(Part 2 of this article will deal with the renewables tab in the DEAP)