

Submission Regarding the Inquiry on Energy Efficiency Improvements

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Background

New houses (Class 1 buildings) in Queensland must achieve a minimum energy rating of 5 stars (out of 10), in accordance with the Queensland Development Code (QDC) Mandatory Part 4.1 – Sustainable buildings.

The star performance rating set out in the QDC is currently focusing on passive design features to create a more comfortable home, including orientation, insulation, ventilation, etc. Additionally, energy-efficient lighting and water conservation requirements are outlined, but these do not affect the star rating.

Proposal

Since an onsite wastewater treatment system can significantly add to the energy consumption of a household, the type of system used should be considered when determining the energy star rating of a new house.

Justification

The average Australian household uses electricity at a rate of nearly 19 kWh per day (DEWHA, 2008). Compared to this, conventional aerobic onsite treatment systems for individual households that are capable of treating wastewater to AS/NZS1546.3 typically use from 2.5 kWh to 10 kWh per day (US Environmental Protection Agency, 2000). Proven and highly effective treatment systems are now available that achieve the same high standard of treatment, while using almost no electricity. For example, our Biolytix® onsite treatment technology uses only 0.12 kWh per day, that is, 20 to 80 times less than conventional systems.

The reason for the high energy consumption of many onsite wastewater treatment systems is their using blowers to mechanically aerate wastewater. By contrast, low-energy systems such as the Biolytix® product mimic natural ecosystems using invertebrate organisms to achieve aerobic treatment conditions. In these systems, the energy needed to maintain an aerobic environment is obtained from the waste that is treated.

The above considerations are gaining in relevance as more and more local governments and house owners are viewing the traditional septic tank as an undesirable option. One reason for this paradigm shift is that the anaerobic treatment processes taking place in septic tanks generate methane, a greenhouse gas 21 times as potent as carbon dioxide (Tchobanoglous & Leverenz, 2008). The US EPA (2008) has determined that wastewater treatment accounts for approximately 7 percent of the US methane emissions. Furthermore, the effluent quality of septic tanks is far inferior to that of aerobic treatment systems, which is suitable for yard irrigation (Beal, Gardner, Christiansen, & Beavers, 2005). Beal et al. anticipate that the trend to install aerobic treatment systems instead of septic tanks will accelerate with increasing population densities.

References

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