

Living and Sustainability: An Environmental Critique of Design and Building Practices, Locally and Globally

1. **Paper / Proposal Title:** The economic value of noise and overheating in buildings.
2. **Format:** Conference presentation and written paper
3. **Author(s) Name:** Diana Sanchez and Barry Jobling.
4. **University or Company Affiliation:** Company: Hoare Lea
5. **Abstract (300 words):**

The quality of the indoor living environment plays a vital role in protecting health and promoting well-being. The context of increasing urbanization brings additional challenges such as intensified effects of climate change due to the urban heat island and increased noise pollution. The role of a holistic sustainable design for providing healthy spaces becomes fundamental to effectively address these challenges. Building design, however, is ordinarily driven by the need to comply with often disconnected regulations, leading to treating the environmental parameters as separate despite their interdependence for determining the impact on people. The case for noise and overheating is an example of how compliance with standards on one matter fail to provide a healthy environment when other factors are also taken into account. As a result, our health and wellbeing have been negatively affected, to either exposure to high levels of noise or high indoor temperatures. We have undertaken a study to give some perspective on the economic scale of this challenge. We have applied an approach to quantify and monetize the value of the impacts from noise and overheating in dwellings across London. A methodology and results are presented for two hypothetical scenarios for residential properties in London. The implications have also been considered with regards the significant number of new homes planned. The

cost of the combined impacts on health from exposure to excessive noise and temperatures in homes in London could represent around 15% of total NHS budget allocation for Clinical Commissioning Groups for the capital in one year. The cost of getting the design of our buildings wrong is pretty high. Not only in hard revenue but on the social impact on the lives of our families and neighbors. But, what if we get it right? The value of good building design goes well beyond the savings. It is about ensuring a sustainable future for all.

6. Author(s) Biography (200 words each):

Diana Sanchez. Executive Consultant. BSc (hons), MBA, AMIOA.

Diana is an economist with 10 years' experience developing innovative sustainability strategies and approaches for integrating, managing and measuring social and environmental impacts with companies around the world. Currently, she is working in sustainability strategies and promoting innovation in Hoare Lea. In recent years she advised and supported Heathrow's noise strategy agenda, in particular on the noise impacts of the proposal of a third runway. In addition, she provided technical responses to the Airport Commission's consultations regarding quantification and monetisation of aircraft noise effects on health and quality of life. She has published various papers on these matters and presented at international conferences. Diana has also advised the United Nations Human Settlement Program on sustainable and responsible urban development strategies.

Barry Jobling. Technical Director. MSc, BSc (Hons), MIOA

Barry began his professional career in contract management on large civil and environmental engineering projects, going on to specialise in Acoustics in 1998. He has expertise in a wide range of acoustic related disciplines, including environmental noise impact assessment, (transport, industrial, leisure), architectural acoustic analysis and design, instrumentation development, specification standards production, much of which has involved practice in field and laboratory measurements and computer modelling. Barry is a member of the Institute of Acoustics and outside Hoare Lea Acoustics he has sat on a number of British and International Standards committees and have published numerous technical papers on acoustics.