

BUILDING PERFORMANCE DIGEST

Making buildings better

Welcome to the **Building Performance Digest**. In this regular newsletter we highlight some of the issues that arise once buildings have been designed, constructed, commissioned and occupied. Many are typical of the kinds of problems addressed by the **MSc Advanced Building Performance Evaluation**.

MSc Advanced Building Performance Evaluation (ABPE)

This Masters programme covers a broad range of strategies and methods to carry out holistic assessments of building performance and identify solutions to post-occupancy issues.

The team

Course leader:

Dr Gabriela Zapata-Lancaster.

Contributors: Dr Hiral Patel, Prof Christopher Tweed, Prof Wouter Poortinga and external guest lecturers and tutors.

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Get involved

If you want to highlight building failure problems you have encountered, let us know. We are always keen to include a range of energy and environmental related problems in the programme.

Contact us

If you are interested in studying this programme, please email architectureadmissions@cardiff.ac.uk

Website

www.cardiff.ac.uk/architecture/courses/postgraduate-taught/msc-advanced-building-performance-evaluation

FROM FAILURE, WE LEARN

How do we make better buildings? Answer: by learning from the mistakes we have made in the past.

This month's theme is learning lessons from buildings in use. It is rare to find a building that so totally meets the needs of its users and owners that we have nothing to gain from studying it. If we choose not to study actual buildings in operation, we miss the most important lessons for future design. At the Welsh School of Architecture, we are committed to learning from the failure of past designs to help designers make it better next time.



Its all in the details

– Good design and installation of services is essential to deliver good building performance. Often we find that due to errors in details, the gap between designed performance and actual performance achieved in buildings widens.

The photograph shows difficulties insulating hot water pipe, resulting in heat loss.

RESEARCH ON BUILDING PERFORMANCE AT THE WELSH SCHOOL OF ARCHITECTURE

Our teaching is closely linked to research in the School. Here's a sample of our research activity.

Funded projects

Smart Energy Research Laboratory, EPSRC funded collaborative project.

[\(Read project information\)](#)

Energy monitoring kits for housing associations, EPSRC Impact Accelerator Award.

The Health Impacts of Structural Energy Performance Investments in Wales: An Evaluation of the Arbed Programme. National Health Institute for Research (NIHR).

[\(Read the project report\)](#)

Selected publications

Zapata-Lancaster, M.G. and Tweed, A.C. (2017). *Users in context: actions and practices in four BREEAM certified buildings*. Presented at: *Passive and Low Energy Architecture (PLEA)*, Edinburgh, UK, July 2017.

[\(Read the article\)](#)

Hou, G. and Tweed, A.C. (2019). "An investigation of thermal comfort and the use of indoor transitional space." Presented at The 9th International Conference of SuDBE2019, Reading, UK. Awarded best paper.

Patel, H. and Green, S. D. (2019). *Beyond the performance gap: reclaiming building appraisal through archival research*. *Building Research and Information*.

[\(Read the article\)](#)



User experience of Passivhaus – The strict control of air movement into and out of a dwelling represents a new experience for many builders and occupants and is not always seen as a self-evident gain. The above photo demonstrates testing of uncontrolled air leakage around a door frame using a smoke pencil.

[\(Read the article\)](#)

STORIES FROM THE WEB

Here are a few selected articles we found about building performance that may be of interest to you:

Lessons Learned from 4 Zero Energy Buildings

[\(Read the article\)](#)

Four buildings, four stories. Here are lessons learnt from the USA. One of success in achieving energy use reduction at no extra cost. One of questioning energy performance metrics. One of failure of building materials claiming to achieve energy reduction. One of improving building performance through monitoring.

Why tools for buildings and cities performance simulation need to evolve

[\(Read the article\)](#)

This article discusses some of the pertinent issues with performance simulation tools and questions facing the future of building performance simulation.

Case Study - Floth 69 Robertson Street, Fortitude Valley

[\(Read the article\)](#)

Australia's leading building services firm designed their own head office, achieving accolades for its net zero operational carbon design in Asia Pacific region. The findings from the occupant surveys also showed improved occupant satisfaction in the new HQ compared to their old office.