



How architects
use research –
case studies from practice

Sofie Pelsmakers

Sofie has a particular view on the research requirements of architects, in particular research into the performance gap – the gap between predicted performance of a building and that as-built.



Sofie Pelsmakers strongly believes that there need to be more systemised and robust processes to shape the research that is part of architects' everyday practice; there are few standardised guidelines to formalise data collection and encourage research practice. Sustainability – the focus of Sofie's research – is one of the most quantifiable and scientific fields of architecture, and she believes that many of the processes from this field could be applied to others.

She notes that environmental performance is just one area where there is a lack of detailed guidance on product specification, installation and commissioning. This may be responsible for a performance gap – that between the rated performance of construction products and their performance in use.

The architect

Sofie Pelsmakers is currently a doctoral research student at the UCL Energy Institute, she has worked as a senior lecturer in Environmental and Sustainable Design at the University of East London and is a cofounder of Architecture for Change, a not-for-profit environmental building and research organisation with an emphasis on practical advice to help clients and architects deliver environmentally friendly buildings.

In 2012 she published *The Environmental Design Pocketbook*, (RIBA Publishing, 2012) which was commended for its contribution to practice-based research. Sofie sits in an unusual position as both an academic and a practising architect.

She believes that at present, the majority of architects see the sole purpose of research as informing project work and practice efficiency. If architects were able to see how their research could have cross-sector impact, architectural research would improve and strengthen.

Understanding research

Sofie's research background is strongly influenced by academic practice, and she has spent time reflecting on how architects use research in their everyday practice.

This perspective is slightly tangential to other architects interviewed, who often were unable to dedicate time and resources to research outside of project time.

Research “is just part of the job.”

Sofie recognises that practices undertake research intrinsically in their everyday activity, though they may not regard this as research, but she does not consider talking to clients to be research. She feels architects should be encouraged to see a distinction, and more importantly a value, in challenging the status quo of conducting project-based research. Sofie believes that changing the current approach of research in practice would enable specific project based research to become meaningful and useful to the rest of industry. For her, this process of change is centred on three main areas: transparency, standardisation (or systemisation) and access.

Transparency

Sofie notes there is a 'performance gap' between the capabilities of a product or building and its actual output or performance, and believes that architects are too trusting of product specifications as well as lacking the capacity to investigate and conduct their own tests; they never go to the primary source. Traditionally architects are recognised for their ability to be inquisitive and generate original, creative designs and so are well placed to undertake research, but these skills need to be applied more thoughtfully to how they can investigate, record, evaluate data and share their findings.

She proposes that the increasing uptake of BIM software may offer a solution as architects may feel their decision making is more exposed, and in turn will be encouraged to question their own sources of information more thoroughly.

Sofie believes that transparency also extends to the dissemination of the individual practice's research findings and lessons learned to the wider industry. This is to ensure the entire industry benefits and delivers better buildings together.

Standardisation

Sofie notes that standardising and systemising research processes would help architects to address the performance gap.

In an academic sense, research methods need to be systemised, repeatable and comparable; in architectural practice they are currently too ad hoc, informal and non-comparable. In the long term, standardisation and systemisation of data collection on product and building performance would benefit architects and clients, as there would be:

- improved efficiency in selecting materials and products for clients; and
- less time spent chasing 'dead ends' for products.
- a feedback loop, ensuring we learn and disseminate knowledge gained to understand – and reduce – the performance gap, leading to better performing buildings.

Standardisation and systemisation would also add rigour to architectural practice, increasing architects' drive and competition between practices.

Part of the struggle is to be able to translate academic research into something that is meaningful and useful for architects. Current systems are not well suited to help academics disseminate their work amongst practices, nor are practices generally in a position to receive academic insights. Sofie is concerned that the skills gained by students whilst studying architecture are not being effectively applied in the workplace.

Research “is just part of the job”

Access

Beyond lacking capacity to conduct research, Sofie believes that architects are faced with barriers to accessing data on product performance and effective practice. Few practices have access to the academic journals which publish peer-reviewed scientific data on product performance and the monitoring of buildings. Most frequently architects are likely to access secondary industry literature, such as building regulations and planning policy documents (for example from the Construction Information Service).

Knowledge about the relationship between energy performance and building design is constantly developing, though in many cases there are currently no precedents or research-based guidelines available to practices. In order to gain insights – and to be able to apply them – architects need to engage directly where those insights are being generated, in this case primarily within academic institutions.

Sofie's *Environmental Design Pocketbook* attempts to bridge the knowledge gap between academia and industry by translating useful academic research into an industry publication, as will a future publication for 2016. Sofie believes that if more architects and construction industry professionals see the value of residing in both worlds, the construction industry will have a better opportunity to understand and reduce the performance gap.