

Beyond Performance

Maurizio Sabini

EDITORIAL

Technological research and innovations have heavily influenced the development of architecture through its history. Modern architecture itself would have not been possible, with its formal, spatial and symbolic characters, without the new possibilities offered by new material technologies. Advancements in engineering and technology allowed to build taller, larger, and faster, but also with lesser internal supports and larger cantilevered volumes, and larger transparent surfaces. And, they allowed the fundamental principle of the separation between structure and envelope, thus unleashing a revolutionary linguistic research. And the digital revolution at the turn of this century allowed, through unprecedented computational performance, unimaginably complex forms. All the while, by building cheaper, faster, and through pre-fabricated (thus industrially controlled) components, which now can be digitally custom-fabricated. In other words, form followed (also) performance.

In our times though, the context in which (and the perspective through which) we build got more complicated. We have come to realize that, as we stated in our call for this themed issue of the TPJ:

... the world [is] facing increasing environmental challenges amidst an unprecedented public health crisis and rising social inequalities and racial tensions, the call for a healthier and more sustainable physical environment is becoming an unavoidable imperative. The design fields have a responsibility and a unique opportunity to answer this call, and thus the need for a new materiality is emerging with urgency. We need more sustainable materials, more efficient and lasting construction systems, less waste, smarter recycling

processes, community driven experimentation, research and innovation for a new tectonics capable to leverage our collective design intelligence across disciplines, communities and cultures.

The contributions gathered here try therefore to address some of these issues. To frame this effort, we asked Anupama Kundoo to offer her perspective through a position paper, where she aptly broaden our understanding to the cultural, social and economic repercussions that any transformation of the built environment entails. As she has rightly observed in her paper:

The strategies discussed below [in this paper] can help thoughtful design professionals achieve multiple objectives at once – reduce a building’s environmental footprint, extend finite resources, house more people, develop human capital by teaching building trades and skills, and support local economies. The most important principle guiding any effort to alter mindsets and practices surrounding urban materiality is this: the emergent built environment must facilitate better lives for all of humanity.

The various contributions articulate this themed issue through different perspectives.

We open with a couple of general discussions that try to frame new emerging approaches: from the “two in one” principle (Müller-Puch et al.), to the new urban landscapes that are being generated by the exponential growth of timber constructions (Luoni), to a re-appraisal of the potential of the vernacular, especially when it comes to material culture (Sharad & Mhatre).

Then we offer a look at an experimental project by Sung Ho Kim and his team at Axi:Ome, where a bio-engineered skin of moss cells shows the possibilities of cutting-edge envelope design research. Obviously, performance (and aesthetics) is still a concern, but within a broader pursuit for a more sustainable built environment.

Along this line of inquiry, but with a more in-depth and focused research approach, we offer investigations on “unlikely materials,” such as salt (Pungercar & Musso), organic materials (Yatmo et al.), dredged materials for vault constructions (Liu & Liu), and bio-char (Forren).

As much as new perspectives on traditional and unlikely materials are needed, these ought to be coupled and augmented by innovations based on new digital technologies. Hence, the contributions on FDM or fused deposition modeling (Baudoin & Johnson), SMA or shape memory alloy (Parlac) and 4D printing with shape-changing composites (Gebetsroither & Schürer).

We thought to appropriately close the issue with a book review (Kousidi) of a recent book by Antoine Picon, *The Materiality of Architecture* (2020). In fact, we find the message in Picon’s book particularly resonating with the

overall effort of this themed issue. As articulated by Kousidi, “the book, as the author underlines, is not about the material dimension of architecture but about the virtual connection between ‘matter and humans’ through the lens of materiality. It engages therefore with an issue that extends far beyond the realm of matter and materials, emphasizing the relational dimension of architecture.”

As materiality is one of the founding aspects of architecture, we need to get it right for our time, needs and aspirations, so that architecture is better positioned to play an increasingly important role for the future of our built environment and our communities.



Anupama Kundoo,
“Wall House,”
Auroville, India
(1996). Photo by ©
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