

DESIGN FUTURE FORECAST: SCATTERED FABRICATIONS WITH A CHANCE OF AGENCY

Essay by Sheila Kennedy, AIA responding to three questions on the future of architecture posed by Ana Miljacki, PhD; MIT Associate Professor of Architecture.

Reference: *Uncertain Futures*; Miljacki, Ana, ed.
SA+P MIT Press, 2009 http://www.anamiljacki.com/wp-content/content/Book_UncertainFutures.pdf

1. What is your vision for the Future of Architecture?

The concept of 'future' in design brings up two modes of thought and action in architecture. Taken alone, each is self-limiting, but taken together are essential to the contemporary practice of architecture. One is the mode of thinking sited in some unspecified moment 'of the future'. These projects 'of the future' give license to projections of the architectural imagination to magically displace the specific needs and problems of the present. The other is a mode of direct action where architecture is so attentive to the local and immediate material conditions of the present that it loses its ability to define an alternative future reality. This limits its potential for widespread impacts—both within architectural discourse itself and in the larger territory of the world.

The practice of architecture has always been about linking possible realities with the potential to transform specific terms and conditions of the present. Architecture formulates a vision for how things could be in the future, then creates a set of plans and instructions for getting there from the present. Our practice at KVA MATx remains committed to the idea of agency in architecture and the full engagement of the architectural imagination, which inevitably must involve a considerable address of the present. By agency, I mean the capacity, condition, or state of acting on or exerting power through the particular expertise of the architect. Agency may be used to advance systemic change within institutions assumed to be 'given', to create new cultural ideas, to shift people's perceptions and propose new ways to get things done. This position is not always well understood with respect to the inevitable future orientation of 'pure' academic research at universities. That is in part why our materials research division MATX was created-- to establish an organizational model for research within practice.

2. What recent transformation in the world (or in your field of expertise) will significantly affect the role of the architect, or the profession of architecture in the future?

The world is experiencing a significant shift from centralized regimes of production and consumption to more distributed models. This transformation encompasses the rise in micro-credit organizations, information sharing through crowd sourced and open sourced networks, the movement towards hybrid global/local fabrication and the shift from centralized electrical power to distributed energy generation. In architecture, the tendency towards de-centralization is compounded by the scattering of architecture's own fabrications: the ways in which architecture's stories (theories and histories) are represented and told, and the ways in which the material things of architecture are imagined and made (objects, tools, buildings and cities) This diversification weakens the discipline but at

the same time serves to catalyze emergent local/global networks of collectivity. There is then the chance of an expanded agency for architecture to link emergent local/global issues with the internal discourses of the discipline.

Three transformations are of particular interest: the de-centralization of the construction industry (who makes what and how), new forms of access to energy (how it is delivered, in what material form and to whom), and the shift in our cultural understanding of materials from static properties to dynamic material behaviors. The dispersed model of the new 'infrastructure' will engage a collection of active materials, each with formal and aesthetic problems and potentials that may be designed, fabricated and integrated into distributed surfaces, objects and elements of architecture and urbanism. What was once thought to be 'beyond' the physical structure of architecture is now actually material and thus decisively in the territory of the architect.

As the culture of materials change, so do disciplinary notions of 'infrastructure' inherited from modernism: 'served' and 'servant', 'front' and 'back', 'center' and 'periphery'. We now have the opportunity to imagine alternative organizations of architecture and urbanism from the cavity wall typology of modernism to the modern division of the city into 'sectors' of industry, leisure, and living.

3. What are its implications for your work?

These transformations have shaped the direction of our research at KVA MATx, the organization of our studio as an interdisciplinary practice and the physical form of our studio workplace. We bought the former Blue Bird Bottling Plant on the wild edge of Boston's South end. We design a new type of workspace which integrates a design floor, a large prototyping workshop and an opto-electronics 'skunkworks'. At KVA MATx, whether we are consulting for industrial manufacturers or university clients or for our own initiatives, we try to see the organization of the various threads of a problem in their present "pre-figural" moment, before they actually form themselves as a pattern. The goal is to define the value of their emergent potential to transform what could happen in the future. One takes that knowledge back into the present in order to identify the obstacles that stand in the way of that future, and design a way forward to get there from the present.

Intuition is important in this effort, as is design, which always produces knowledge about a problem. Historical research and precedent are increasingly important. A degree of tenacity also helps. New problems are being confronted at the intersection of the small scale of the object with the larger scale of urbanism. In our practice, we find ourselves returning to the fundamentals of form, form families, and the development of aesthetic questions for material phenomena (electricity, media, information access) once considered to be without form. Ironically, the parametric software and CAM tools that allow us to begin to consider questions of emergent digital materiality also have the potential to distance us from the present conditions of practice. Construction *in practice* requires the fluid movement from the virtual 3-D digital model to a flat, 2-D schedule of parts which are then assembled into a 3-D physical reality. Digital machine outputs *in practice* require the architect to work directly with materials in the material/ machine interface and be much more adept at understanding and

predicting material performance. Yet in many schools, 3-D printing and the segregation of studio, classroom and workshop are beginning to erode the architect's ability to make things, to understand the resistance of materials.

Architects need to continually invent strategies for relevancy without giving up the realm of architecture's unique areas of creative expertise. We need a formulation of research with a continuum between basic (core disciplinary) research and applied research, where one leads back to the other. This requires the architect to scrutinize the problems of the present in more detail, without compromising her or his ability to imagine alternative futures. What do we want to achieve? What can we do right now, with what we already have? How can this help us create better futures? The best projects of architecture will be those that have the ability to move between the future and the present to transform the discipline from within.

1. .FABRICATION/culture of materials

return to making in a new ways. commitment to exploration of bridge technologies between 3-D modeling and 3-D construction by way of the flat sheet patterns and folding structures, tensile structures and soft structures. Adaptability, agility of products and surfaces. ironic (why ironic? because the rise of software really does require a more in depth knowledge of working with materials, it does not replace it. lessening or reduction in the architects' ability to make things, in terms of material fabrication (in the hands of scientists or engineers)

2.. **return to the fundamentals of form in relation to space and experience** form families and aesthetics. to address design in new intersection of the small scale of the object and a larger scale of urbanism. qualitative aspects. the giving of atmosphere to things considered to be without form such as electricity. what the architect can do, beyond "competency and architecture's nervous current pre-occupations with technical performance.

1. **Culture of materials** when is a material, design for multiple conditions in time, and the emergence of digital tools that allow us to design for temporal variables, different 'states'.

3. AGENCY

Better scrutiny of problems in the present. for **strategies for relevancy in the larger arena of producing solutions and ideas that are erelvent in the larger world without giving up its realm on unique expertise.** Better knowledge of the past, and in precedent. KVA MATx does a lot of consulting with manufacturers who are thinking carefully about the future, or at least the near future. In this work, the key is to try to see the organization of various threads in their **present "pre-figural" moment**, before they form a discernable new pattern; you aim to define the new pattern before it takes a conventional shape. **The key clues** are found in the present, you just have to be willing to take risks to see them and organize the effort to bring them into a future reality. Intuition is important, so is historical research and precedent. A degree of tenacity also helps.

expanded agency of the discipline how the architect imagines the work of architecture in relation to the world. what kinds of knowledge the architect creates... the unscripted ability to imagine, the transformation of existing terms conditions,

cultural

understanding **of materials, from static material properties to dynamic systems of behavior.**

2. **new forms of energy** (how the new infrastructure re-organizes architecture (what its material vehicles are, how it is provided and to whom), and overlaps between objects, architecture, MIT statement)

3. de-centralization of the construction industry (who makes what and how),

PART OF IMPLICATIONS? changes in the cultural or disciplinary understanding **changing culture of materials and its intersection with performative possibilities** The historic term 'infrastructure, coined in the planning of the Maginot Line and used to describe a larger system above or beyond physical 'structure' of architecture, has in fact shaped the organization of architecture and urbanism from the inherited wall types of modernism (cavity wall) in architecture to the modern organization of the city and its relationship to 'sectors' of industry, leisure and living. NOW (new transformation, evolution, what we thought was infrastructure is really actually material and thus squarely in the territory of the architect.

Outreach global, vectors for new contacts, new connections between local and global populations, methods of construction, and the recognition of spatial problems in a society that is rapidly

between people ??? **expanded agency of the discipline** how the architect imagines the work of architecture in relation to the world. what kinds of knowledge the architect creates... the unscripted ability to imagine, the transformation of existing terms conditions,

nature of the research question. nature of the research question is changing by locating it first in the future then almost immediately back in the present. what do we need to achieve, what could the future look like, then how

how architects make things happen that are meaningful and important in the larger world, outside our cultures our familiar realm of the academic,

in academics the discussion between "research" and "practice" is impacted as well. we need a new formulation of research with a continuum between basic (or core disciplinary) research and applied research, where one leads back to the other.

it changes the nature of the research question by locating it first in the present then in the future. what can we do right now, with what we already have? then how can this help us get better for the future. basic applied research. since practice and design is a form of knowledge this lead to doing better. creating value,

This is what the best projects of architecture have the ability to move between the future and the present, to transform the limitations of the present to transform asset of terms, to **transform the discipline from within**, from practicing in it.

AGENCY
