

Research

A Culture of Inquiry



DesignIntelligence®
Quarterly



BILLIE FAIRCLOTH

Partner at KieranTimberlake

As a partner at KieranTimberlake, Billie Faircloth leads a transdisciplinary research team to better understand questions around the built environment. She spoke with DesignIntelligence about the integral role a culture of research and the power of inquiry play in design process.

DesignIntelligence (DI):
Your website tells us that you “conspire to pursue an answer to the question, ‘Why do we build the way that we do?’” What is the answer?

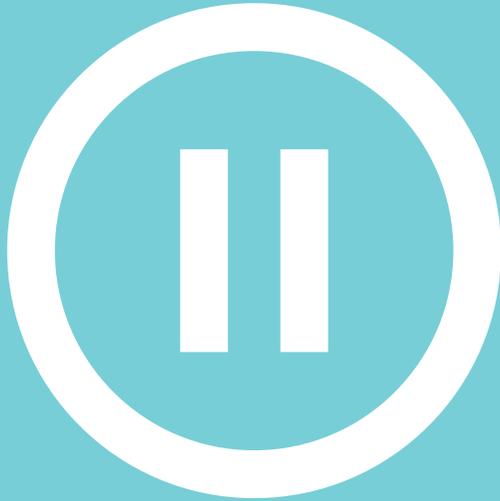
Billie Faircloth (BF):
This question comes from an essay called “Architecture and Construction” written in the early 1980s by structural engineer/architect Eladio Dieste. He was reflecting on several decades of work from his practice in Uruguay and trying to understand the differences between his approach and the dominant pressure of a market-driven construction practice.

This question resonated with me because I grew up in the industry. My father started out very young working on construction sites and in the middle of his career opened his own construction firm. I was employee number two, behind my sister. At age 14, I had already listened to many years of conversation about building and construction.

In hindsight, this question — which I believe is the question in our industry — points to the larger, broader work we have to do to understand building culture, by which I mean the culture that exists around the things we build. The question points to two things: the

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*Why do we build
the way that we do?*



agency we have to shape the outcomes of the things we create, and simultaneously, the agency we feel we lack to control the outcomes of the things we have created.

The question can only be tackled through collective intelligence — consciously, through talking about the outcomes of our design and building activities. The outcomes can only be understood if we're willing to see and learn from the things we have created. KieranTimberlake was founded to ask these kinds of questions, both about the things we're creating and their outcomes.

DI: Research is so integral to the culture of your firm. How is doing on-project integral research changing your process?

BF: It can be incredibly powerful to allow architects to pause and ask a targeted question associated with

specific systematic inquiry, allowing them to have a high degree of certainty about their intuition. Over the last 35 years of this firm, we have committed to building a research culture and to evolving in such a way that we continue to realize — we hope — better and better versions of that culture. The first step is to provide the resources to answer questions and to allow questions to be the basis for design invention and innovation.

There are a lot of assumptions around what a program of research is. Many believe research will be a kind of panacea to address, solve, or cure something. As we have engaged this process of culture-building, we have never approached research as a cure-all. That's not the point.

Rather, we have approached research as a way of helping us expand what's possible; to identify the goals and



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no shortage of questions

aspirations we should be aiming for and to put in place rigorous systematic inquiry so we can meet those goals and achieve our aspirations. For our practice, research is not a program — it's not a division or a studio. It's a position we have taken philosophically; as a firm of more than 100 individuals, we should be able to ask questions, plan ways of answering them and use those answers to elevate the profession.

We have never suffered from a shortage of questions. We have always defined projects, their objectives and the methods to interrogate them with clarity, whether it's a modular vanity, a multifunctional wall or the vegetative dynamics of seven installed green roofs. All those projects can be defined in terms of the questions we're asking, the anticipated outcomes, and how those outcomes might produce knowledge and enliven our practice.

DI: As you wrote in your 2019 article for Architecture Australia, “Searching and Searching Again: Research in Practice,” your firm shares an impressive list of developmental milestones in your research evolution: a “commitment to return profit to [the] practice to support proactive research (2003); the declaration of an ISO-certified design research process that is audited annually (2005); the decision to hire a dedicated, transdisciplinary research group (2008); codification of a research query process for data collection, analysis, modelling and simulation, physical prototyping and original experiments (2011); the strategic growth of the research group to 10 percent of our overall staff (2012); the first successful public release of an internally developed architectural tool for use by the profession (2013); the further articulation of a design computation platform as a companion to our more

established research platform (2015); and, most recently, the formalizing of a collective intelligence model in which every architectural project begins with a complementary team of architecture, research and communications staff (2016).” Were these milestones part of a plan or recognized reflectively?

BF: We have built infrastructure here to support research. Some of that infrastructure includes decision points — what do we want to do next? What we want to do next can be guided by our own strategic plan for research. It’s a three- to five-year plan in which we have identified a range of subject areas we would like to prioritize for proactive research.

But we also prioritize collective intelligence and want research to originate from every place in our firm. We want everyone to have access to what they

think might be done or a question they might want to ask — this too is proactive research. We have a history of it in our firm — projects like SmartWrap™, Cellophane House™, Ideal Choice Homes, the Green Roof Vegetative Survey, and more recently the work we did with UNICEF, Designing the 21st Century Ger project in Mongolia.

Not only do we have a filter given by our strategic plan, but we also have a process for stating the question we want to ask, the importance of that question and the expected outcomes. We have the ability to dedicate resources, staff, time and money to these questions.

DI: But did the decision to commit to this culture evolve over time, or was there a plan from the onset?

BF: It absolutely evolved. It began as a declaration: “We are going to grow our research culture and we are going to return profit to grow that research culture.” Yet this has grown into a process that is integral to our firm’s work and to our design philosophy.

When I started in 2008, the firm was in the third or fourth generation of research. Then, the decision was made to take the next step, to grow a dedicated research group and make it transdisciplinary, one where members in the group have backgrounds in subject areas like materials engineering, environmental management, urban ecology and physics. The premise of such a research group was part of a strategic plan, but we recognized that we needed other people’s knowledge and methods to sufficiently see the gaps in our own industry. At every milestone reached, we have continued to look forward and ask: Now what? What’s next?



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DI: In this world of accelerating pace, how does adding inquiry to your process impact scheduling? Given never enough time, how are you able to do more — ask and answer questions — within the same deadlines?

BF: We have certainly been in the position where a question we are attempting to answer for a project could benefit from more time. What we began to do early on was to test the questions we could answer over the course of a project.

Much of the work we engage falls under normative categories. In some instances, we're asking questions that require us to map an observation or to diagram a certain condition. In other instances, we are measuring, collecting data, analyzing it and interpreting it to help guide a decision. Sometimes, we are actively building a model to interrogate a certain condition.

For a given project, we might engage anywhere from three to 10 different questions depending on project scale, scope and duration. But the work we are doing is connected to a decision to be made. We want the results of the work to be actionable and either tell us to do something or not to do something, to engage something or not to engage something, to support and amplify the design process.

DI: In 2016, Metropolis magazine published the article, “How Architects KieranTimberlake Turned Their Office Into an ‘Incubator,’” which talks about the HVAC experiment and some of the lessons learned from the work you did within your own office space. This included people sweating and complaining. What were your takeaways from the challenges of experimenting on yourself? Did it enhance your empathy for your clients and partners to whom you're doing this on many occasions?

BF: That's exactly why we did it. In the past, when we have challenged a client to consider minimizing resource consumption, we have thought, “There might come a time when we could test this out ourselves.” In the experiment, we integrated over 300 sensors in our building to understand the relationship between different spaces, conference rooms, desks, et cetera. Ultimately, we failed to eliminate HVAC, but we succeeded in learning quite a bit about ourselves, our building, our culture and what it takes to know a place.





DI: Since the publishing of “Refabricating Architecture” in 2003 and projects like the Cellophane House, there has been a rising interest in prefabrication. Yet, many people are not ready for it because it can also eliminate options. What has been your experience in this realm? I find many clients and partners aren’t ready for it because it shifts decision-making flexibility forward — the late changing of minds we’ve conditioned them to enjoy.

BF: We can look across the industry and see the continued interest in, and promise of, offsite fabrication. And we can continue to see companies emerge that are attempting to vertically integrate all aspects of design fabrication and delivery into their offerings. We continue to persist in applying principles of offsite fabrication when and where it makes sense. But infrastructure for offsite fabrication is

sometimes unavailable, and there is not a distributed network to deliver projects using offsite fabrication. We have been fortunate to work with clients who also want to persist in that mode.

It’s an interesting manifestation of an answer to the original question: Why do we build the way that we do? People are trying — and have tried for many decades — to change the nature, process and relationships in building and designing building construction simply through the delivery.

DI: Looking ahead five or 10 years down the road, what is your vision for the future of research at KieranTimberlake?

BF: Research hasn’t changed — it’s a way of thinking, a design philosophy. It can be informal, and it can be formal. We will continue to do it because it’s integral to the way that we think.

What has changed, as we have matured our own internal practices, is that now we desperately need to focus. The industry needs to focus on engaging projects day in and day out to reduce embodied and operational carbon. This goes beyond research. It requires us to approach our projects from the outset with a mind to tackling the whole carbon picture. My focus over the past six months has been to tackle this question with a group here at KieranTimberlake.

Billie Faircloth is a Partner at KieranTimberlake and leads a transdisciplinary group of professionals leveraging research, design, and problem-solving from fields as diverse as environmental management, chemical physics, materials science, and architecture. She fosters collaboration between disciplines, trades, academies, and industries to define a relevant problem-solving boundary for the built environment. Overseeing investigations via empirical experiments, prototypes, and analysis, she leads technology development that informs high-performance design, including Pointelist™, a wireless sensor network, Tally™, a life-cycle assessment application, and Roast, a post-occupancy survey tool.

She has taught at the University of Pennsylvania School of Design and Harvard University, and served as Portman Visiting Critic at Georgia Institute of Technology and VELUX Visiting Professor at the Royal Danish Academy of Fine Arts. Prior to KieranTimberlake, she was an assistant professor at the University of Texas at Austin School of Architecture. Her articles have been published by the Journal of Architectural Education, Princeton Architectural Press, Royal Danish Academy of Fine Arts, and ACADIA. She is the author of *Plastics Now: On Architecture's Relationship to a Continuously Emerging Material* published by Routledge in 2015, and the recipient of Architectural Record's Women in Architecture Innovator Award in 2017.

Now, we need action. How do we tackle some of the big challenges we face as a society, like climate change, injustice, human health and helping communities thrive? After a decade of building research infrastructure, proving that a transdisciplinary group can thrive and extend agency in practice, I'm committed to focusing on projects that demonstrate how important it is to have both research and design thriving equally and side-by-side.

