

Research should be fundamental to all professions. Unfortunately, this is not the case in architecture. Architecture is probably the only profession without a research foundation. The engineers have ASHRAE, the lawyers have the American Bar Institute and the medical profession has copious biomedical research facilities. This is not to say there is no architectural research. There are modest efforts at the various schools of architecture, but it is academically driven. Most universities support research as a component of their educational mission. Building material manufacturers conduct research to support their commercial ventures. There is a very modest effort by the AIA Committee for Knowledge to support research, but it is reasonable to say there is no comprehensive architectural research program that is driven by the profession. Research has not been endemic to our profession and in a separate paper I will explore the reasons why. This is a peculiarly American phenomenon. Canada has their National Research Council, the U.K. has their Building Research Establishment, the Netherlands has the Boucentrum Institute, Sweden has their Center for Building Technology and Germany has the Fraunhofer Institutes.

There was an abortive attempt by the AIA to establish a research foundation to support our profession through the AIA Research Corporation in the late 70s and early 80s, but it never gained sufficient traction and eventually failed. There is the National Institute for Building Sciences (NIBS), but despite its name, it is more oriented to regulatory issues than research. There is building research done at some of the national labs, but it is narrowly oriented to mainly energy issues. There is an Association of Architectural Research Centers (AARC), but it is a loose alliance of architectural schools that have some research activity going on. Obviously, the US architectural research scene is very fragmented and the results not well known or distributed.

This lack of national leadership was and is seen as an opportunity for Burt Hill. We have believed in the past that doing research internal to the firm was valuable, and we believe it will be in the future. It is encouraging to see the rejuvenation of an activity that created so much value for us in the past.

Research is a general term that can be defined in many ways. The most common understanding is a two dimensional model that was developed by an obscure but powerful scientist named Vannevar Bush. He was the scientific advisor to FDR during WWII. He was probably one of the most influential people of the 20th century. At the end of the war, he wrote the definitive study, "Science, the Endless Frontier: A Report to the President for the Program for Post-War Scientific Research." This report defined how research ran for the next 50 years as an intellectual discipline and a business.

What Is Research?

- A search for knowledge through discovery.
- A systematic process of inquiry.

This seems to imply that research is discovery driven. While this may be true, much research is not original discovery but is repetitive discovery more properly described as advanced learning. Therefore, it is appropriate to add:

- Advanced educational opportunity

Different entities will use different emphasis of the definition. A corporation will likely emphasize discovery, a university will likely emphasize process of inquiry and advanced education. I would suggest that architectural research should exhibit a reasonable balance between all the elements of the definition.

The linear, 2D model of Vannevar Bush has been refined by the major national research funding agencies over the last 15 years. Both the National Science Foundation (NSF) and the National Institutes of Health (NIH) have been promoting "Translational Research." This modification provides for the research to be of clinical or process origin and that it is multi-disciplinary in its undertaking. It's simply saying that we want the results of past experiences to inform new research. It puts particular emphasis on the skill of "framing the question". I believe the Burt Hill research models should heed this development. "Models" is purposely plural. I am suggesting that Burt Hill research initially follow two models:

Funded Research

Funded research would be characterized as specific projects with a research program, done independently of our normal work and funded either by the firm or an outside source. Its emphasis would be toward discovery and process of inquiry. To the maximum extent possible, it should be translational and multi-disciplinary.

Integrated Project Research

Integrated project research would add a research element to each of our projects. It would simply recognize the above obvious parallel between the Vannevar Bush classical research model and our existing programming–design–document–construct process and allow us to embed research throughout our practice. Integrated project research would have education as its emphasis and would simply entail creating a rigorous feedback loop that would be used at the end of each project. This feedback loop would be used to gather all relevant data about the project and conduct a review of its process history, identifying those events that went smoothly and should be repeated and those events that were troublesome and recommendations for remedy should be offered and documented. This effort in itself may be the "clinical" source for suggested funded research projects.

There are other efforts emerging within the firm to better organize project data so we can use our past work to more easily inform our future work. This feedback loop would be an integral part of that effort.

The continuing education of our staff is critical to our existence. We all realize that our work has become so complex that the four or five years of formal higher education most of us received will never last us through a lifetime of practice. Part of the responsibility of a professional is to keep him or herself educated with knowledge that is current and relevant to their profession. A substantial part of that responsibility is personal, but the opportunity to use our day-to-day experiences as a learning event is greatly enhanced by the use of feedback loops, hence the educational emphasis. Feedback loops allow a professional 25 years out of college to truly have 25 years of experience, not five years experience five times.

The Future

In management as well as research, when one wants to entertain a new venture it is wise to “review the literature.” In reviewing the literature on firms that have created their own research capability, one stands above all others in the world – the ARUP Company. ARUP is without a doubt the most innovative engineering firm in the world, and they attribute that fact to their research group. ARUP has 9,000 staff in 86 offices in 37 countries. They set aside 8% of their gross receipts for research.

ARUP would be a firm to emulate. As Burt Hill’s research capability grows and matures, it would be great to someday have a research support group similar to ARUP’s that could give research support in the form of computational skills, various science disciplines, monitoring, imaging and metrology services and a central research library and information management services. In this way, any Burt Hill staff member that wants to do research would have tremendous in-house services to assist them. Although ARUP funds a substantial amount of its research, research at Burt Hill was once a profit center, and I believe that may be possible once again in the future.

Conclusions

An interest in research should be a part of each and every one of us. As professionals we should always be learning and advancing our craft. We should be curious. We should be asking “why” and “why” again. We should be always trying to improve our ability to frame the right question. We should develop hypotheses.

Being curious, asking penetrating questions, developing hypothesis, testing hypotheses are the essentials of the research process. Do you see how similar they are to the

design process? I wouldn’t be surprised to find that architects and engineers turn out to be some of the most competent researchers ever.

Understanding the research methods may quite logically inform our design processes. There are entire architectural curricula formed around the notion of “Design as a Method of Inquiry.” I’m expecting serendipitous spin-offs from our research efforts.

Working with intelligent, inquisitive people is a joy. Any program designed to increase the level of intelligence and the level of curiosity within the staff will certainly make Burt Hill an enjoyable place to work.

We must be careful to not be inwardly focused with our research. We must stay aware of all research being done in the industry. Applying research to practice will be its own challenge. Burt Hill may want to develop a capability to “Translate research into the vocabulary of the building industry.”

Professional services firms often have a problem differentiating themselves from their competitors. Potential clients frequently are unable to adequately identify differences between firms. The establishment of a vigorous and robust research capability within the firm will certainly set us apart from our peers. It will give the firm an intellectual luster that will aid us in attracting the type of client we want to work for and the type of people we want to work with.

