

Designing with the Craftsman's Eye/Building with the Artist's Conscience: A Design/Build Experiment

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INTRODUCTION

Until modern times, in many cultures, designing and building was one integrated process and in many cases the architect and builder were the same person or group. Although there have been persons referred to as architects since ancient Greece, Architecture didn't become a profession as we know it until the 18th century in England and the 19th century in the U.S. and Japan. The first designer/builders to immigrate to the US were highly sought after skilled craftsmen from Europe. The majority were carpenters because of the abundance of wood in North America. The master craftsmen were wealthy, highly respected and enjoyed good standing in society.

Professional architects began to immigrate from England to the U.S. in the early 19th century and they seem to have been in instant conflict with the established builders of the day. The man credited with being the first professional architect in the US, Henry Latrobe wrote at the time that

the business in all of our great cities is in the hands of mechanics [builders] who disgrace the art but possess the public confidence, and under the false appearance of oeconomy have infinitely the advantage in degrading the competition. With them the struggle will be long and harassing.¹

The gulf that still exists today, in the US, between Architects and Builders, and theory and practice has its origins during this period. Latrobe wrote that

the profession of architecture has hitherto been in the hands of two sets of men. The first of those [gentlemen] who from traveling or from books have acquired some knowledge of the theory of art, know nothing of its practice, the second of those [mechanics] who know nothing but the practice, and whose early life being spent in labor, and in the habits of a laborious life, have had no opportunity to acquire the theory.²

Considering the high place in society that many of the skilled carpenters held at the time it is understandable that they might have regarded Latrobe's attitude of superiority as ludicrous. But even today, for Architects, like Latrobe, trained with the aesthetic sensitivity of an artist it is frustrating to have the creative process terminated in the middle when the drawings are handed over to a builder who is unconcerned with the design intent. Without good communications between the Architect and Builder, both sides are left feeling frustrated and alienated. Indeed, this situation coupled with a strong sense of individualism common in the US today makes collaboration between different factions difficult and has rendered our construction industry dysfunctional compared to cultures more adept at collaboration.

DESIGN/BUILD SCHISM

One casualty of the schism between design and construction is the expressive, appropriate, and creative use of materials in buildings. Today, most architects don't have enough experience working with materials to understand their properties and application. Architectural education in general is focused on the intellectual problems associated

with building design and construction and produces professionals who lack an intuitive, practical sense for construction. Interestingly, the famous educator Maria Montessori made a similar criticism of general education when she wrote,

In fact, when we believe that we are completing education through intellectual culture we are making thinkers fit to live only outside the world, not practical men. He must then, of necessity, fill up the great gap in his education, by beginning again, now when his education is completed, the training of the senses necessary to put himself in direct contact with the world around.⁵

On the construction side, the builder is often most concerned with the bottom line and naturally gravitates to the most familiar and economical means to an end. The materials used for economy and convenience such as the ubiquitous drywall leave nothing for our sensory experience of the building except space and form which often seem superficial when rendered in generic materials. In his book "an Architecture of Reality" Michael Benedict refers to materiality as one of four factors that contribute to the "realness" of a building. Benedict writes, "*It reflects our intuition that for something to be real it ought to be made of "stuff", material having a palpability, a temperature, a weight and inertia, an inherent strength*"³

In addition to the lack of sophistication in the use of materials, modern buildings are also often hindered by a lack of craftsmanship and care taken in their construction. Methods which speed the construction process, and reduce costs often eliminate skilled labor and simplify work to the point that anyone, working part time, can accomplish an "acceptable" level of quality. Skilled craftsmen have been replaced by unskilled labor and construction work has the reputation of being a low level, low paying job who few take pride in.

The last concerted attempt at bridging the gap between design and construction happened in the arts and crafts movement in England in the late 19th and early 20th century when architects were looking at vernacular architecture as a way of breaking with historical styles. Margaret Richardson in her book "Craft Architects" characterizes the attitude of architects of that era when she writes that "*all the architects were interested in craft and in employing plasterers, painters, carvers and sculptors to enrich a building.*"⁴

JAPANESE DESIGN/BUILD TRADITION

Although the crafts tradition that made the arts and crafts movement possible in Europe and the US in the early 20th century has been all but lost in those countries, it lives on in other cultures. Japan is one example. With an abundance of skilled craftspeople still active the Japanese architect has the advantage of being able to borrow from their wisdom and benefit from their skill. The simplicity, honesty, quietness, lightness and sophistication of vernacular Japanese architecture is achieved with materials that are heavy and unsophisticated. Earth is made to look light and elegant. Heavy ceramic tile roofs look as though they are floating above thin wooden pillars. Twisted logs are choreographed to meet each other perfectly to form roof structures. These are all tricks of the craftsman that add a sense of wonder to Japanese architecture.



Figure 1. Carpenter cutting joinery

THE DESIGN/BUILD EXPERIMENT

What if the architect had the eye of the craftsman? What if the builder had the conscience of an artist? The design/ build experiment evolved from these questions; from my consciousness of the gap between design and construction; and from the personally being ill prepared to design buildings because of a lack of knowledge of building materials

and systems. The experiment was to learn a building trade and to develop an acceptable level of skill so that I could participate in the construction of my own designs to see what, if any affect this would have on me as a designer, the building product and the construction process. I chose Japan as the location because I had already done research on the work of the Japanese carpenter and the master builder tradition still exists there along with many skilled craftspeople.

DEVELOPING THE CRAFTSMAN'S EYE

As I began to learn the Japanese construction process I found that the level of physical involvement that the craftsman has with the materials and tools nurtures an intuitive sense about building. For example, post and beam construction requires that the carpenter handle and alter every piece of wood that goes into a building. He must imagine the space of the building each time he works on a wooden member to imagine how it would be seen in the completed structure. The level of physical and sensory involvement that the carpenter has with the building far exceeds that of the architect. This kind of involvement is important for developing intuition about the use of materials and proportional relationships. This intuitive sense is what I refer to as the craftsman's eye. Antonio Gaudi talked about the importance of this kind of intuitive connection when he said, "*I possess the gift of seeing space because I am the son, grandson and great grandson of boilermakers*"



Figure 2. Frame Raising

When a carpenter cuts a post and beam frame, he/she has an inventory of every structural member, its size and the kind of joinery in his/her mind. That level of involvement is not possible when building scale models or preparing working drawings in an office. The mental exercise of imagining the space of the building while cutting the pieces of the frame contributes to the craftsman's intuitive sense of building space and form. For the carpenter who cut the frame there is a unique sense of creation on the frame raising day. It is a time of remarkable transformation when hundreds of carefully measured and cut pieces come together to define a space and what was an open site in the morning is filled by a structure by that night. The experience is the equivalent of an architect building a full scale model of a design idea in a single day. The impact of this experience on the designer and his ability to visualize structure and space is immeasurable.

The craftsman's eye can also be said to be associated with the building process itself. In the case of Japan and other age old building traditions, the building process has evolved over hundreds of years of human involvement and is composed of a series of events in rhythm with the human condition to the extent that engaging in the process is a nurturing and enriching experience. The buildings created by such a process have the intangible mark of intimate human involvement. For the Architect the building process is known to the extent that the process itself becomes part of the design. This relationship is obvious in Japan where the construction system has evolved over hundreds of years but an architect mastering contemporary building practices can incorporate that knowledge into the design in the same way. The lack of such awareness among most architects and the separation of the building professions have resulted in a building industry reliant on fragmented building processes seldom considered as integral components of the design.

In addition to learning from the work that I physically engaged in, I benefited equally from watching and assisting the work of other craftsmen at the site. Knowing the work of all of the trades became a great benefit when I designed and a sense of ease and confidence accompanied that knowledge. I also found that the level of trust and respect I received at the construction site was much greater because of my involvement in the process.

The following are three of the projects that I designed and built in Japan during my experiment with craft in architecture and the merging of design and construction. Each of these projects utilizes locally produced vernacular building materials to take advantage of the wisdom of local craftspeople and to support the local economy and culture. I was fortunate to have very open-minded clients who allowed me to experiment with materials and structural systems to reinterpret them in innovative ways. As my skills evolved, I was able to build more complex and innovative structures and the true meaning and advantages of being a designer/builder became increasingly evident.



Figure 3. *Sadowsky House Frame*

The Sadowsky House

The first project was a small house for a young couple in the countryside of Awaji Island. I designed the roof in two tiers with a clerestory between, reminiscent of the tobacco drying warehouses in the area. This vernacular roof form lets in natural light and induces natural ventilation. Because this was the first building that I constructed, I tried to keep the structure simple so that I could concentrate on fundamental issues. I wished to collaborate with local craftspeople so I incorporated many elements from vernacular buildings such as a wooden post and beam structure, earth plaster infill walls and ceramic roof tiles. I was determined to develop my skills with hand tools and an intuitive sense for materials so I cut as much of the post and beam frame as possible by hand and only used power tools where absolutely necessary. The same

couple has lived in this house for 14 years. The difficulty of making the transition from designer to builder was eased by the year of apprenticeship but there was still a steep learning curve when it came to planning and building on my own. The understanding of accrued through the making of this project allowed me to design the next project with greater confidence and freedom. The craftsman's sense that I gradually acquired was generating ideas from the materials and processes themselves rather than artificially.



Figure 4. *Shikimi Cottage interior*

Shikimi Cottage

This cottage was built as a retreat for an organic vegetable co-op from Osaka. The experience in marking and cutting a rectangular frame on the first project gave me the confidence to experiment with materials and systems on this one. I decided to test the versatility of a post and beam structural system on a more complex geometry. I chose a dodecahedron shape which fit well on the site. The geometry demanded that all of the joinery be cut at angles not found in vernacular Japanese architecture. Although the form was experimental an understanding of the fundamentals of post and beam construction helped me to make the structure seem very natural.

The walls are earth plaster as before but this time I experimented with pigments and additives to the lime plaster finish coat to give it a rich color and rough texture. The design combines vernacular ele-

ments with original elements, to make a free-flowing plan and a dynamic space with a contemporary feeling and the warmth and spirit of a vernacular building. The knowledge I had gained about materials and structural systems to this point were crucial to the design concept and physical manifestation of it. The experience of building altered the way I approached design and my attitude about detail and materiality. This building possessed an authenticity that the award winning buildings we had designed in the office did not.



Figure 5. *Atelier Bu Interior*

Atelier Bu

This project was a continuation of the structural experiments that I started on Shikimi cottage. The structure is the same dodecahedron geometry but this time, I tested the adaptability of the traditional wall system and wrapped the earth wall on the exterior of the columns so that it formed a perfect radius. Round building forms are seldom found in vernacular Japanese architecture so I didn't have a model to work from. However since I had already made a dodecahedron shape the step to a round form was not difficult and the construction was actually easier and faster than the dodecahedron. We had to find an economical method of making a circular foundation and ruled out flexible plywood because of the high material cost. We finally implemented a system, that the foundation contractor suggested, of spreading mortar on wire mesh

to act as formwork, and we were able to finish the foundation within the budget. The plaster craftsman was very skilled and he suggested a method of application to the exterior walls that enhanced the beauty of the building with horizontal reference lines. I departed from vernacular precedents on the interior and covered all of the walls in horizontal wooden slats that accentuate the curvilinear form while giving the interior a warm glow. Each of these design decisions was made spontaneously at the site, during construction. Some were the result of my interaction with the building as it evolved. Others were the result of the input of experienced craftspeople. Without question, the building improved during its construction as a direct result of my own involvement and the close collaboration with other craftsmen.

CONCLUSION

This paper is not a nostalgic call for the return of the master builder, a near impossibility in the economic, social and technological climate of our times. Nor is it specifically an argument for design/build although that model most effectively accommodates an architect's involvement in the entire process of building. In a more general sense the experiment described here was inspired by the author's perception that Architects are increasingly remote from the materials and processes from which their buildings are made and the schism between design and construction is detrimental to the building industry as a whole. As a result it may be argued that many contemporary buildings lack a sense of "substance" or "realness". The phrase, "Designing with the craftsman's eye", refers to the architect's challenge of designing with an intimate knowledge and sense of materials and building processes. "Building with the artist's conscience" is likewise a challenge to the builder to look beyond the pragmatic to the poetic and artistic. The experience outlined here was a very intense and extreme example of how a designer can learn from immersion in the act of building and is clearly not practical for most. But, whatever the method of acquiring it, an intuitive sense for materials, structure and building processes is an invaluable asset to the architect, the building industry and ultimately the built environment.

The days of a building industry composed of individual master builders executing entire projects

from design through construction have long since past. Today, collaboration is the key to successful building projects. Architects who have cultivated their craftsman's eye can collaborate with builders who have likewise cultivated their artist's conscience, not for the sake of nostalgia but to give contemporary architecture the illusive sense of richness, spirit, substance and realness that it so often lacks. This potential for synergistic collaboration is the real promise of "Designing with the Craftsman's Eye and Building with the Artist's Conscience".

ENDNOTES

1. Letter of 12 July 1806 to Robert Mills, in John Van Horne, ed., *Correspondence & Miscellaneous Papers of Benjamin Henry Latrobe* [New Haven, Conn.: Yale University Press, 1986], vol. 2: 680.
2. *Ibid*, vol. 2, 239.
3. Michael Benedikt, *For An Architecture of Reality* [New York: lumen Books 1987] pp.44
4. Margaret Richardson, *The Craft Architects* [New York: Rizzoli International Publications, Inc., 1983] pp.7
5. Maria Montessori, *The Discovery Of The Child* [Madras: Vasanta Press, 1962] pp.193
6. J.D. Sedding, *Architecture- Old and New*, 1881
7. Juan Perucho, *An Architecture Of Anticipation* [New York: Tudor Publishing Company,] pp.60