

Raiders of the Lost Art: The Vanished Treasures of Architecture

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It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity.
—Charles Dickens, *A Tale of Two Cities*

These past few years have challenged our profession. We have experienced a surge in work like never before. It has tested our resources, and it has had a catalytic effect on the way we practice and view what we do professionally.

We now use electronic tools to deliver our services. The way we work and communicate has changed dramatically for most architects. Our telephone does not have a cord anymore, and the Architect Registration Examination can no longer be taken with a number 2 pencil. These changes have brought us to the threshold of a new and profoundly different way to work. Alas, BIM!

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You may recall our past observations in the articles, "Your Grandfather's Working Drawings" and "The Speed of Life," where we gazed nostalgically upon "the way it was." We now find ourselves worn thin by work and winter, and we succumb to the urge to



take yet another look both back and forward at the wonder and promise of our profession and the ensuing changes over the years.

Substance in all experiences

It is easy to feel that much of the artistry in our practice has been raided over the years by advances in technology and changing priorities; the passing of the Chief Draftsman's one on one mentoring, the longer spaces between communications and mail deliveries that gave us more time to contemplate, discuss, and ponder.

Our commentary in "Grandfather" took on mixed reviews, some opining sentimental banality and others grateful for the fond look at past experiences. Responses were divided essentially by age group, of course. We were grateful for all these observations since our core purpose is to stimulate.

Accordingly, we believe that there is substance in all experiences, in our losses as well as our gains, so buckle up, and get ready for a look at the architectural practice of our apprenticeship, the vanished treasures, and those from whom we learned.

The beginning of the New Age

There will come a time when you believe everything is finished. That will be the beginning.

—Louis L'Amour

We both grew up in the rural south, drinking sweet tea and eating sandwiches made from "light bread". Staples at the dinner table were red beans and rice, fried chicken and mashed potatoes. Our parents had a flickering old black and white TV on which we perpetually adjusted the outside antenna as we struggled to watch cartoons on Saturday morn-

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ing. The lingering shock and misery of World War II and Korea caused adults to speak in hushed tones because memories of fallen loved ones hovered close by and pictures were still displayed on the mantel. We got Lionel and American Flyer train sets and Strombecker slot car tracks for Christmas. For all those enchanting memories at home, so it was with architecture.



1. The reign of the Chief

Back then the world within an architecture office was ruled with an iron hand by the Chief Draftsman. There was no "Studio Director" or "Senior Designer," or even a "Project Manager." You were expected to get your butt on your stool (right, there weren't any "brand name" office chairs) by 8:00 a.m. and keep your head down and elbows up until quitting time, which would be decided by the Chief. The "coffee bar" had yet to be named, and it certainly was not a place for gathering.

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Not long after "modern" practice began to emerge in the late 1970s, it became clear that the reign of the old Chief Draftsman was coming to a close. The modern studio began to emerge as an office organizational concept, and for many firms the "departmental" distinction between disciplines began to blur. Aesthetic pursuits, or "Design," always important, became a dominant idea even in venerable old "production" firms. The days of the old Chief Draftsman, already numbered, continued to dwindle, and essentially he was gone.

2. A lost art—Rapidograph

Drafting with ink required the use of reservoir ink pens such as those made by Mars or Koh-I-Noor (Rapidograph). For a young draftsman in the late '60s and early '70s, a rite of passage was obtaining your first drafting pen. The best choices for school design studios were an "0" (ought), "1" or "2," and a "3." These numerical designations delineate the width of the line drawn by each pen, though an artistically qualified draftsman's repertoire of line widths was in reality limited only by the imagination.

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These numerical designations are also the genesis of the modern term "pen table," that portion of a CAD program where "line weights" are specified. Most draftsmen (no politically correct "draftspersons" back then) developed unique techniques for the combinations of lead, wax, and ink lines used



in their drawings. These techniques would realistically be viewed as artistry.

A boring duty, yet in retrospect an introspective treasure, was the need to regularly clean your pens. There was often a longer line at the sink by the coffee pot for pen cleaning than for refreshment.

3. Another lost art—standing on a stool

Contemplation of the artistry of drawings was once a prevailing idea in the architect's mind. Taking the time to contemplate and worry about the quality of the communication aspects of a drawing was an inherent part of document preparation. No supervisor questioned why these communication skills were of concern. It was common in the drafting room to look down a row of drafting tables and see someone standing on their stool squinting down at their drawing. Drawings were taped to the angled surface of the drafting board, and the best vantage point for scrutiny was up on the stool.

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Stool standers included designers squinting at their renderings as well as draftsmen who viewed their technical drawings as essential presentations of their art. No one laughed or found this curious, and someone else would soon be up on their stool, squinting down. A draftsman standing on a stool was accepted as reverent recognition of the concern for communication quality. Today, one does not see draftspersons, or CAD operators, standing on their stool squinting at their computer screen.

4. The New Age—sepia tones

They that will not apply new remedies must expect new evils.
—Francis Bacon

It was common at one time for the beginning draftsman to serve some time as a “tracer,” tracing what were then the standard details and back-

grounds of practice. Standard details were maintained in a notebook and could be taped under a sheet of tracing medium—tracing paper, mylar, or linen—and traced over by the draftsman. Similarly, the initial floor plan background would be drawn by an experienced draftsman, then additional copies for consultants or for reflected ceiling plans could be traced above the original. The experienced architects in an office would frequently visit with the “copy boys” explaining the nuances of the details, floor plans, and backgrounds. Construction materials and products were largely generic and changed slowly so the detail book was easily kept up to date. Eventually ammonia process sepia tracings were developed and replaced the need to replicate details and plans by tracing. With this invention an essential element of drafting apprenticeship vanished.

Sepias helped speed up the practice by allowing drawings to be easily and inexpensively replicated

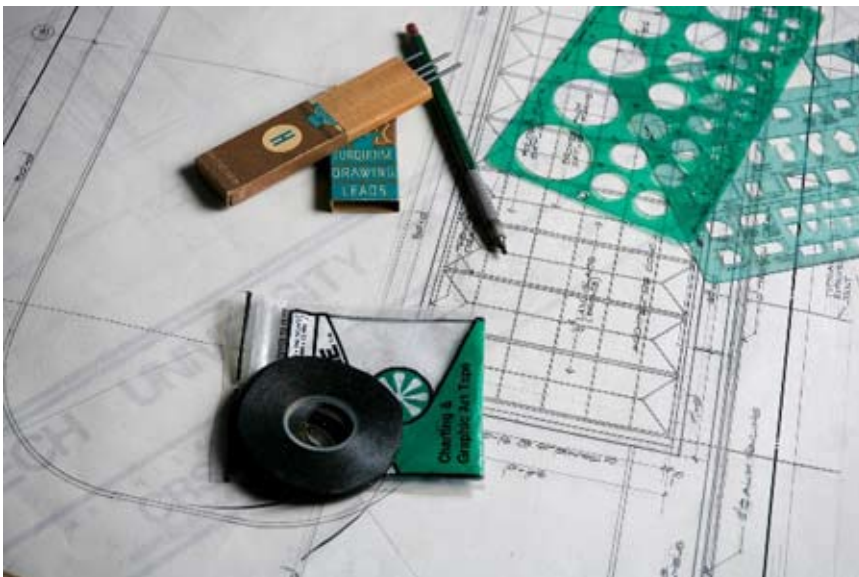
Sepia “eradicator” was used to erase a part of the sepia image from the back of the paper or mylar, and new drawing elements were drawn on the front. The sepia print often picked up heavy background from the original tracing, and the eradicator removed it, leaving unsightly white smears around the revised detail on “blue-line” reproductions. Nevertheless, sepias helped speed up the practice by allowing drawings to be easily and inexpensively replicated.

5. Pin bar—layers and levels

Original tracing and sepia copies shared the characteristic of having just two layers, a front and a back. This limitation of layers ruled the organization of drawing components for many years. Still, the tracing media of the time offered one more layer than the papyrus of ancient times. Drawings were thought of as artistic compositions and were considered to be proprietary to the artisan—the architect or draftsman who prepared them. Consequently, a drawing sheet was usually prepared by one or just a few draftsmen who controlled drawing preparation and content.

Drawing on eight layers was a great improvement over the traditional two

A desire for speed and the erosion of the artisan’s control brought about a new phase with “pin bar” drafting. Several sheets of tracings were registered on a pin bar, a flat strip of metal with vertical pins that aligned with holes along the edge of the mylar sheet. Stacking the sheets on the pin bar aligned the sheets and allowed one background to serve as the basis for several different drawings. For example, a single original background sheet could become the base drawing



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for both a floor plan and a reflected ceiling plan. Due to the limitations of the light source in a vacuum frame printer, only about four tracings were all that could be overlaid. Nonetheless, drawing on eight layers was a great improvement over the traditional two. With pin bar, the artisan lost proprietary control of at least some of the composite drawing, and another essential element of apprenticeship was gone.

CAD technology arrived amid incredible controversy, and drawing preparation became faster still. Communications between people with more experience and people with less experience lessened, and teaching and counseling in the ways of the old Chief Draftsman was pushed even further from the profession's collective memory. The turning of the experience quotient for apprentice architects entered full swing. Refer to our August 2005 AIArchitect article, "Your Grandfather's Working Drawings." [http://www.aia.org/aiarchitect/thisweek05/tw0805/tw0805bp_risk.htm]

6. Placeholders

A practice common in CAD drafting today is to imbue a drawing with "placeholders" to mark the location for information that has not been developed or is not yet known. This is a modern practice facilitated by the fact that CAD drawings are very easy to copy and to change. Popular to the point of being cultural in many firms, placeholders offer the impression that a drawing represents a state of completion that doesn't actually exist. The drawing is thus, at least partially, an illusion.

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Drawings drawn by hand, in graphite, wax, and ink seldom incorporated an excessive number of placeholders, if any at all. Everyone understood all too well the limitations of the drafting medium as not being tolerant of excessive changes. Through the generations the technique of drawing construction lines was developed. These lightweight construction lines made it possible to ghost in an area of the drawing without risking ruining the "tooth" on the surface of the linen, paper or mylar. Lines were not finalized until design knowledge was sufficient to allow completion of the drawing, and accordingly the drawings did not become illusory. Moreover, communication of reliable information was more enhanced then, than it is now.

7. Proprietary endeavors

Architectural practice has been significantly complicated by the fact that construction materials, products and systems aren't as generic as they used to be. Addressed in detail in "Drawing the Line," [<http://www.aia.org/aiarchitect/thisweek05/tw0902/>



[tw0902bp_riskmgmt.cfm](http://www.aia.org/aiarchitect/thisweek05/tw0902bp_riskmgmt.cfm)] products and systems these days tend to be very proprietary. This serves to create an environment where products and systems, although "conceptually equal," are actually "nominally different." Architects have more products and systems available on the market from which to choose, and therefore they are not as familiar with the specifics of how each product or system can be incorporated into their build-

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ings. This causes the architect to yield some control over their designs to vendors and subcontractors who furnish and install the product or system. This diminished level of communications extends to the builders as well.

8. CAD—vanishing spaces

When drawings were drawn with pen or pencil by the artisan's hand, they were drawn in a conventional drafting room. People sat side by side and talked to each other, face to face, about the designs they developed and the physical documents they prepared. Today, in our electronic environment, drawings are commonly prepared by multiple parties, drawn at life size, in a "room" that is limited only by the extent of the universe.

There is no longer a tangible edge to the paper in the computer world

There is no longer a tangible edge to the paper in the computer world. The drafters of documents today seldom communicate by actually speaking to each other, indeed they may share only the language of the software they

use and they may not know who their coworkers are. CAD is a marvelous tool that has profoundly changed our profession, but as we opined in Your Grandfathers Working Drawings, it has contributed a great deal to turning the experience quotient upside down. Many architects today may understand computer drafting, but they may not understand buildings or the art of communication.

The future

The future ain't what it used to be.
—Yogi Berra

Building information modeling (BIM) promises to be an even more marvelous tool than CAD. We believe that a process wherein the architect's design evolves contemporaneously with the contractor's plan for construction will foster a closer collaboration among architects, consultants, contractors, subcontractors, and vendors, the inevitable outcome of which can serve to return the application of experience and detailed knowledge to its rightful place within the design process. This, in turn, may foster an increased opportunity and perhaps a desire

for more open communication and interaction.

Yet, despite the need we all feel to work together, to be seen as eager and adaptable and to not be perceived as a detractor, BIM can also be viewed by some as a cloud on the horizon. These concerns must not be shouted down or swept aside if the architecture of the future is to benefit from the promise and potential of BIM. The most important issue, in the vein of "Your Grandfather's Working Drawings," is that the upside down experience quotient in our profession today places those who understand this technology the least, the leadership of integrated practice, closest to the threshold of the future. What concerns?

- The generations who will inherit our profession must be the prime movers into BIM and integrated practice
- The profession is presently mired in lawsuits that are becoming increasingly more aggressive in blaming architects for every conceivable thing that goes on during construction
- Potential liability issues involved in sharing the BIM "model" are significant
- Training is more difficult, for today at least, as BIM requires a way of thinking about designs, building, and drawings that differs significantly from the two-dimensional world of today's CAD and our current drawing culture
- Penetration into the marketplace is presently somewhat minimal, and in the vendor and subcontractor market, it is likely to remain minimal for smaller companies for quite some time.

We are not detractors, we are believers

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We are not detractors, we are believers. But just as much as we believe in BIM, find it fascinating, and have each delivered projects with this technology, we also believe in facing reality.

Conclusion

The universe is change; our life is what our thoughts make it.
—Marcus Aurelius Antoninus,
AD180

Architecture as a profession has traditionally been steeped in effective and thorough communication. Bricks don't care much about communication, they just like to be laid straight, true, and plumb. Water doesn't care much about communication, as long as its "users" understand that it does very much like to run downhill. Without effective communications among each other, architecture is a lost cause. Without effective communications between each of us and the profession we love, there are no effective architects and hence, no meaningful architecture. Life as an architect cannot devolve into a constant race to do things faster and more efficiently. There is a limit beyond

which it cannot go. Life as an architect must involve contemplation of the art, loving caresses of the medium, and never-ending introspection about how we can effectively communicate with ourselves and others who interact with us.

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When we were young, we thought that we were different from and could not understand our parents and grandparents. Now we find that we are not understandable or recognizable by our children. The more seasoned among us actually emulate our elders, if we'll allow ourselves a look inside. The apprentices among us are just as certain as we were of our forebears, that we don't understand them at all. The future has always been what the future was. That is, except for Rapidograph pens, 1000H Clearprint drafting paper, and that little can of Pounce. The loss of the treasures of our past sends us a profound message that, if

recognized, can strengthen us for the present and the future. Most things will never be as they were, but one undeniable constant remains. Like it or not, change is our future... us, all of us.

As you put on your coat and gather up your briefcase headed to your next meeting, amble by the digital sender, or stop by an intern's computer station, and gaze at what is before you. And as you observe, understand that in an instant, it all can and will change. Then head for the door and try to be careful out there.

Reference

This series will continue next month in *AIArchitect* when Grant and Jim will continue to explore the stimulating aspects of our practice. If you would like to ask Jim and Grant a risk- or project-management question or request them to address a particular topic, contact them through *AIArchitect*. [dgordon@aia.org]

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