

## **Design as a Process The Project Development Process**

**Daniel Davis  
Ward College, University of Hartford**

### ***Abstract***

There has always been a lot of discussion about the design process, and yet it remains very difficult to define in precise terms. Architectural design is both an art and a science, both action and reaction, and both intuition and analysis. But essentially, design is a problem solving and decision making process.

This paper proposes the belief that the entire project development process requires a constant stream of design decisions. Design opportunities exist within every phase, not just the schematic design and design development phases as many believe. Just as the engineer cycles through design, build, and test, the architect cycles through design, draw/model and presentation, and during each cycle the design should be reviewed, critiqued and improved.

An awareness of what occurs and why during the project development process can provide students with a better understanding of the impact the process has on the final project design. The key to a successful project lies not with the initial concept but with the designer's ability to manage the design process.

### ***The Architectural Design Process***

Many are familiar with the "typical" architectural design process: the phases of planning, programming, schematic design, design development, construction documents, bidding, and construction administration. Additional phases may also be included such as site evaluation, interior design and post-occupancy services. Each phase has a particular set of issues and procedures, but all involve a design and decision making component.

During the planning phase goals are developed and a schedule is established. Programming determines the specific requirements of the project itself. Schematic design involves considering alternative design options and establishing a preliminary approach. The design development phase refines the schematic design. In the construction document phase specifications and drawings are produced that document the design and direct the construction team. The bidding phase follows and a construction contract is awarded. Then, construction administration ensures that the project is built as specified.

### ***A Case Study of the Design Process***

Many students, and clients as well, obtain a false impression of the design process when they are limited to viewing completed projects. In contrast to what many are led to believe, the built

entity may contain little resemblance to the initial concept. A thorough case study can provide students with both an overall view of project requirements and a comprehensive view of specific architectural and engineering techniques and technologies.<sup>1</sup>

Pedagogical studies have demonstrated that a case study approach to architectural and engineering education provides a greater understanding of design projects.<sup>2</sup> Using a real project as a case study, the Mount Pleasant Corporate Center<sup>3</sup> in Valhalla, New York, this paper will demonstrate how a design team navigates the process, responds to challenges, and progresses from the original idea to the final reality. Few projects follow the classic procedure mentioned above. “*Stuff*” happens and the design team must be prepared to react, make choices, solve problems and on occasion lead the design in a totally new direction. In this case, five very interesting years passed from the early discussions with the client to the building’s ultimate publication in Architectural Record. As with all projects, design challenges and opportunities were continually presenting themselves throughout the process.

### ***The Designer’s Role in the Process***

The role of the designer varies from office to office and the greatest differences are apparent when comparing a large architectural office organized by departments to a small one organized with teams. Typically, the role of the designer in a large departmentally organized office allows for some involvement in programming, heavy involvement in design, limited involvement in documentation and little if any involvement with construction. This occurs because a large office often approaches projects in a linear fashion, with specialists controlling the phases that require their expertise. This is unfortunate, because every phase demands design expertise and those who organize their projects this way are missing many opportunities to improve their designs. Conversely, in a small team organized architectural office the designer is usually heavily involved throughout the process, in every phase from making sure that an appropriate site is selected to assisting with the building photography after construction is complete. This occurs because small offices often approach projects with a team that is usually led by the designer who stays involved with the project from beginning to end. The project presented here was done by the small office team approach and will demonstrate a full range of design opportunities that can occur during the process.

The design team approach has another benefit. The idea of the designer as an artist has been an accepted one for many years, as aesthetic fixations have focused mainly on style and form giving. With the design team approach the designer cannot work in a vacuum, isolated from social, technical, economical and mundane responsibilities. The design can then evolve from an exclusive process to an inclusive process involving people, discussions, events, problems, ideas and solutions.<sup>4</sup>

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<sup>1</sup> Chinowsky, P. S. and Robinson, J., “Enhancing Civil Engineering Education Through Case Studies,” *ASEE Journal of Engineering Education*, January 1997, pp. 45-49.

<sup>2</sup> Fitzgerald, Nancy, “Teaching With Cases,” *ASEE Prism*, March 1995, pp. 16-20.

<sup>3</sup> This project was designed and managed by Daniel Davis, AIA while a Partner at RSA Architects.

<sup>4</sup> Shoshkes, Ellen, :The Design Process: Case Studies in Project Development,” Whitney Library, Watson-Guption Publications, 1989, pp. 8.

### ***Project Background***

The original plan for this project involves relocating a international computer industry corporation from a midtown New York City townhouse to their own corporate office and warehouse facility in the upper Westchester County suburbs. However, in its final form the building has become a speculative, multi-tenant office facility, housing high-tech corporations as well as the development company who built it.

### ***The Site Acquisition Phase***

The design process begins. Datasaab is a Swedish computer company specializing in banking computers and automatic teller machines. Their present offices, located in a five story townhouse in New York City, are far too small and difficult to get to. Their business is growing and they need a new corporate headquarters. The corporate president resides in Greenwich, Connecticut (not far from our architectural office), and needless to say they start to consider the popular Westchester/Fairfield County region. The company could also benefit from being near the Westchester County Airport.

Our firm, Renato Severino Associates (RSA), is contacted and considered for the role of architect. Ultimately we are selected due to our experience with large projects. We then enter into a contract with Datasaab for the standard architectural services, plus the additional services of assistance with site selection and programming.

When doing a site search, the ideal site is inevitably elusive. All sites offer advantages and disadvantages. The best site we can locate is a challenging one in a good location. So the old adage “location, location, location” holds true again. The site is purchased, despite the topography, which will necessitate seventeen feet of compacted fill, redirecting a drainage ditch, construction of a retention basin and a lot of miscellaneous additional site work. This selection has a critical impact on the project concept or ‘parti’, future design opportunities, and most specifically the size and shape of the building. Negotiations take place and the chosen site is purchased from Savin Business Machines, the neighbor to the north. An IBM facility occupies the site to the west and PepsiCo the south; the property to the east is heavily wooded.

### ***Planning and Programming***

Meetings are arranged with Datasaab’s management and staff to develop a plan and a program. Of course almost everyone on the staff asks for more space than they could ever need, expecting their requests to be reduced by management. Finally, it is determined that the building will be organized as two office floors above a discrete warehouse and building entrance lobby. Due to budget constraints, the building is initially planned as a 72,000 square foot (SF) structure with the possibility of a future addition.

### ***Design, Presentations and Approvals***

After a lengthy design phase and the consideration of many options, the design receives the approval of the Datasaab president and corporation. This is followed by a presentation to the parent company, who sends representatives in from Sweden. Comments are received and the project design is modified as we react to owner input. The design becomes more conservative

and less flashy. Fortunately approval is finally given. As the architect we now feel that much closer to seeing our design efforts become a reality.

Now we are required to make presentations to the Town of Mount Pleasant Planning & Zoning and Inland Wetlands Boards. The Planning & Zoning Board (P&Z) consists of one architect, a dentist, a lawyer and a man wearing shorts, but the almost complete lack of relevant expertise in no way limits the debate. Discussions include moving parking areas, adding trees, and an attempt to hide the building with landscaping. Revisions follow and ultimately P&Z approval is given without too much damage or redesign. Inland Wetlands approvals are easily obtained, since wetlands are not adversely effected by the proposed construction.

### ***Construction Documents***

As is the case with almost every building project, the development of the construction documents reveals new design problems and opportunities. To my surprise, I find it quite enjoyable to work on the documents, drawings and specifications. Another old adage: “You don’t mind when it’s your own child” comes to mind. There are plenty of chances to refine the design and develop details that are consistent with the overall design concept. After a number of months the documents are completed.

### ***Construction Delayed***

Shortly after completing the construction documents, but prior to bidding the work, we learn that Datasaab has just been sold to another Swedish company, Erickson. As it turns out, Erickson already has plenty of office space and no interest in building a corporate facility for the former Datasaab company. Erickson sells the site, including our documents, to the New York based real estate company of Peregrine and White.

At this point, disappointment sets in as the project looks like it is dead and will never be built. Reluctantly, we begin to work on other projects, with only a model and a stack of drawings to show for all our effort.

### ***New Owner, New Plan, New Program***

A year passes and we are contacted by the Saturn Construction Company. They inform us that they have bought the former Datasaab site, including our documents, and want to talk with us about starting the project up again. Saturn is a general construction company that originally was an electrical construction company. They are now starting a real estate development company. We are contracted at a competitive fee to make revisions and redesign the building. The building originally designed for Datasaab will become the first speculative office project for this construction company turned real estate developer.

A new owner often means a new program. The direction given to us by the developers is clear: maximize the size of the building and likewise maximize their profit. The size of the building is limited by a number of restrictions, most importantly the zoning regulations. However, a creative look at the regulations reveals two interesting things. Although only three story buildings are allowed, if one floor is placed slightly more than 50% below grade and the entrance is on the floor above it, an acceptable four story building can be created. The Town of Mount

Pleasant would consider this to be a three story building plus a basement, and there are no restrictions to prevent the basement from being rentable office space. Secondly, if a portion of the required parking is indoors or covered (that is, in a parking structure) an increase to the size of the building is also allowed. The 3 story 72,000 SF building quickly becomes a 4 story 130,000 SF facility with a parking structure and other development driven amenities.

We then tour speculative office buildings in the area for a better understanding of the quality level of this market type. Fortunately, the owner understands the meaning of quality and good design: the building will lease-up faster and maximize their investment. As the architects we also hold the position that quality architecture represents a success for us. To the developer, success is a fully rented building, not necessarily a beautifully sculpted building. We are fortunate not to find ourselves at odds with the developer and that satisfying results can be provided for all.

### ***Design, Presentation and Approvals, Again***

The design is nearing completion and presentations to the owner are made. They give their approval, yet the project remains in a constant state of flux. Building innovations and value engineering efforts are continually being discussed. “What if we do this...” “I just saw this...in another building.” “My sister-in-law thought of this...” Out of this situation came a number of very interesting results: the building materials are upgraded from stucco and concrete to aluminum panels and travertine, a screen wall and covered drop-off area is converted into a sweeping curved canopy, an excessive number of curved corners are eliminated and costly large radius curved glass panels become smaller segmented curves. A simple and rather spartan corporate facility for a computer company has become a slick and much more refined speculative office building targeting high technology tenants.

We now have to convince the local review boards that the facility they previously approved has been improved but is still within their regulations. However, our role of leading the consultants through the approval phase has been changed, and lawyers are now doing most of the presentations. The presentations are now more elaborate, more confusing, and with our diminished control, the P&Z requests more design modifications. Eventually, the project is approved by the Town of Mount Pleasant. It has been months since Saturn Construction revived the project, but it continues to move ahead.

### ***Construction Documents, One More Time***

Construction documents for a construction company that owns the building and intends to build it themselves are quite different from a set of documents that are meant to go out for open competitive bidding. We do not have to be too concerned about change orders, but we do have to worry about design changes being made in the field without our involvement.

Saturn Construction develops a demanding budget, estimate and fast track schedule for construction, and more revisions are necessary. A benefit to working with a construction company in this capacity is the opportunity to learn about actual construction costs and schedule concerns. Ultimately, the subcontracts are negotiated and again more revisions are suggested.

The value engineering reviews will be constant and the design will remain in flux until the building is actually built.

### ***Construction Finally Begins***

Finally construction is underway. As Saturn Construction wins other construction contracts, project staff changes occur, and they rely on the superintendent for continuity and control. The direction given to the superintendent by the project manager is to “just build it”, as quickly as possible, do not call the architect, and do whatever you have to do to move the project along. Oddly enough the superintendent really likes the building and wants to make sure it turns out as intended, so without telling the project manager or the office he contacts us frequently for answers to questions and unforeseen situations. On a few occasions design changes have to be made to compensate for construction oversights and unforeseen situations. Under more typical conditions the architect could have directed the contractors to remove and redo their work, but with the contractor as the owner this does not happen.

### ***Completion and Occupancy***

The facility is finished on schedule, more than four years after we first started the project (which could have been completed in as little as 20 months). The high technology companies originally targeted as desirable tenants are exactly who moves in: AT&T, NYNEX and the Saturn Company. The tenants do not use the space as efficiently as we had hoped, but everyone seems satisfied. The facility has stayed fully leased since its completion, making it a financial success as well as an aesthetic one.

### ***Post Occupancy Work***

Just because the building is finished does not mean our work is complete. One of the last things to do before we can begin to seek publication is get the building photographed. Appointments are made more than two months in advance, and we pray for good weather and no site disturbances. The photography work is done by an internationally recognized photographer Norman McGrath of New York over two beautiful days and the results meet with everyone’s satisfaction.

The photographs, a written explanation of the project, the process that created it, and our theories about its success are submitted to Architectural Record (AR). After a couple of months Herb Smith, Senior Editor at AR, informs us that they plan to include the project in an upcoming issue dedicated to suburban office buildings. The building is expected to be in the September issue, but 4 months later it is published in the January issue.

The project is then submitted for a number of local and national AIA design competitions/awards and is fortunate enough to win an AIA Westchester Design Award. Everyone efforts seem to have paid off: a happy client, a leased building, a handsome facility, a magazine publication, a design award and quite an education about the building design and construction process for all involved.

### ***Conclusion***

Today, while the design process only exists in the memory of those involved, the building stands as a sleek, refined, low-profile structure. It has proven to be a building of low-maintenance, yet keeps its identity amongst the corporate neighbors of IBM and PepsiCo. As a free-flowing piece of architectural sculpture, the form may appear arbitrary, but it directly responds to a complex set of site constraints including property lines, set backs, topography and retention basins.

The composition of off-white aluminum panels and tinted glass that reflect the surrounding landscape and sky above is only one of the many schemes studied and examined by the design team of architects, engineers, contractors, owners and building officials,. The final form of the building alone provides little insight into the discussions, evaluations, negotiations, and modifications which occurred during the design process. The project was provided on time and under budget, rented up quickly, remains fully occupied, received a local American Institute of Architects Design Award and has been a success on many levels.

In conclusion, design is basically a problem solving and decision making process, and the key to a successful project lies not only in the building's form but also in the process that creates it. Hopefully an understanding of what takes place during the entire process will increase acceptance of the idea that design itself is an ongoing chain of events that is not complete until the project is actually built and occupied. Also students of architecture and engineering need to be alert to both the value of the design professionals as members of the design team and have an understanding of how choices are made that affect the built environment. It is my belief that these ongoing design efforts, if approached optimistically, will typically improve the project. Design reviews should be sought out and not, as often occurs, avoided because they benefit the project in ways that cannot be anticipated. This was clearly the case here at the Mount Pleasant Corporate Center, where the final building form and design was far better than the original concept or any of the other subsequent solutions.

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### ***Author's Biography***

Daniel Davis, AIA is an Assistant Professor of Architectural Engineering Technology at the University of Hartford's Ward College of Technology where he teaches architectural design, history and theory. Davis has 16 years of experience as a Design Architect and many of his projects have been published in architectural journals and won design awards. Davis received a Bachelor of Science Degree from Catholic University, a Bachelor of Architecture Degree from Pratt Institute and his second professional degree, a Master of Architecture, also from Pratt Institute.