

Northwestern University
Executive Management for Design and Construction

Design Management
PROJ_MGT 474

Course Objective:

Design is all around us and subtly influences our daily personal and business lives. Practitioners who understand the attributes, quantitative and qualitative aspects and the process of achieving successful project design can positively influence the success of their Projects and improve the quality of the built environment in the process.

This course looks at the design process and results from the point of view of all the stake holders including the Owner, Architect, Contractor and Users. We identify and explore design attributes that positively influence a projects performance and the pitfalls that can derail a project. We will discuss how to build and manage a successful design team that can reliably deliver a quality project and how that design team can effectively deal with the other team members. These issues will be examined as applied across several real estate product types and different size projects with focused case studies looking at what is successful and yields results while acknowledging efforts that were less successful and why.

Week-by-week description of the course:

Week 1 Design Team Creation and Management

The roles and the organization of design team members will be explored within the context of project schedules and objectives. Success or missteps are ultimately dependent on the selection and organization of team members. Methods of identification and selection of team members will be evaluated. Owners and Contractors interactions with the design team will be considered as they impact optimal results. The importance of design on perception and schedules will be considered as it relates to the team selection. The phases of the design process and schedule are defined and evaluated.

Week 2 Effective Design as Part of the Approval Process

Projects don't go forward without having designs that comply with regulations and secure sufficient support from needed stake holders. Design team member roles in the process, coordination with Ownership, common pitfalls and pathways to success we be reviewed. The essential roles of Civil, Environmental, Traffic engineers and Architectural design we be considered. Understanding the right amount of design needed to secure approvals. Effective techniques for Engineers and Architects to support an Owners approval process will be considered.

Week 3**Site Plan Design and Its Results**

Having a Functional site plan that address the users functional needs and municipal requirements are essential to moving a project forward with a predictable time frame, and acceptable economic return. Project examples addressing roadways, curb cuts, parking, view corridors, signage, transit, landscaping and other site planning aspects important to uses will be explored. A Large-scale master planned development will be evaluated and the elements of its design explored.

Week 4**Conceptual Design and Its Importance in the Design Process**

Conceptual design involves the start of the design process, with the arrangement of the parts of a building and the positions of buildings on the site. Important adjacencies are explored and established. Massing studies are done, design inspiration and expression start to evolve. Functional elements like parking and services provisions for delivery and rubbish removal must be allowed for. Public and pedestrian access planned. All these requirements are expressed in block plans, isometric illustrations and quantified in the creation of the earliest program and proforma. Municipal zoning restrictions on design will be discussed with a real life example. Conventions in area calculation will be defined and illustrated and their importance considered. Area segregation methodologies will be shown and building planning efficiencies and their importance revealed. A case study will explore a small midrise urban mixed use project that was considered at a site in Chicago, including the program and proforma creation defined by the concept design.

Week 5**Development of the Design to a Budget and a Schedule**

As a project moves from concept design to a more detailed design the budgets and schedules must be checked and maintained while maintaining the important elements of the concept. Establishing a project budget and how to achieve a design that fits within the budget will be explored and illustrated. The main elements of a development schedule will be evaluated and the influences of the various phases discussed. We will start to consider the elements of the design and how they can be understood and controlled as the design evolves, starting with building foundation systems and soils impacts. A guest speaker will contrast a limited service hotel against a luxury resort's design influencers.

Week 6**Architectural Design Details Are Important**

Building on the discussions initiated in week 5 we will explore the design details that positively impact the user experience including arrival and the entry experience. We will consider scale and proportion, materiality and lighting's impact. Entrance doors, every building needs them and they are your first experience entering, it should be a positive experience. We will discuss how to encourage a positive entry experience. The building façade will be considered

with its functional aspects and how image, brand and cost influence design decisions. Important but often neglected areas such as sidewalks, restrooms and roof decks will be examined.

Week 7

Technical Design and Engineering - What Works and What Doesn't

Details matter with engineering as well as architecture, they influence the function and cost of projects. Inspired designers know what's best for the projects objectives. The balance between Costs and performance will be explored. Material and systems selections and their impact on design and the user's perception will be evaluated. We will look at notable substructure failures and how they might have been avoided. Major factors in in the selection of structural systems will be considered. Façade failures and considerations will be studied. Vertical Transportation design elements, decisions and results will be discussed.

Week 8

The Architect/Engineer/Owner/Contractor Interface and Impact

In this session, we evaluate the contractual and practical relationship between an Architects his sub consultant team members, third parties including owner direct consultants, the owner's representative and the various Contractors. The importance of program creation and maintenance will be reviewed. The value and process of mockups will be studied. The impact of site logistics and phasing plans on design issues will be considered. The place of design software such as CAD, BIM, their use on a project and their limitations, ownership and risk mitigation will be evaluated. Contingency management and its place in the design and construction schedule will be considered. Successful team management techniques will be discussed.

Week 9

The Power of Project Design and Branding

The architectural design can attract or repel buyers and users and is often used to project a sense of what is within, reinforcing image and brand. Different product type designs having different design objectives. To most people, Design is what they see and how they feel about it. In reality it is a small part of project expenditures and timing but it is the most visible and can be very powerful in influencing the success of a project. We evaluate both small and large scale design successes and failures. We will consider amenities that are expected by product type. Style and its influence will be considered. The impact of illustrative techniques and Virtual design and virtual reality will be considered. The difference between environmental graphics and wayfinding will be understood. The emerging field of experiential design discussed. We will have a guest speaker who will describe their design process and interaction with clients and builders needed to deliver exceptional projects.

Week 10 Book Report Essays and Discussion

In this concluding class, we will review each student book report essay considering one of the four books describing relevant issues in detail the process of Design and Construction and meaningful lessons gained from these candid stories.

1. **Building Seagram** – Phyllis Lampert’s scholarly history of the design and construction of one of Mies Van der Rohes’ most famous buildings.
2. **High Rise** – Jerry Adler’s book describing how 1,000 men and women worked around the clock for 5 years and lost \$200 million dollars building a skyscraper.
3. **Skyscraper: The Making of a Building** – Karl Sabbagh’s story of the design and construction of Worldwide Plaza. Sabbagh is also the creator of the PBS TV series *Skyscraper* which features this project.
4. **Hongkong Bank: The Building of Norman Fosters Masterpiece** – Stephanie Williams’s narrative of the six-year effort to create one of the world’s most expensive buildings.

Grade Determination:

Final Book Report Essay	30%
Homework & Assignments	30%
Class Participation	40%

NOTE: This course description explains the essence of the material covered. Canvas is the best source for the most up-to-date information about specific details for any given offering of the course.