Building Stories

RENEE CHENG
University of Minnesota

P+L

Title: Arch 5650: Building Stories elective course open to any M.Arch student, typically the class is composed of students from all levels of the program, some who have completed the required professional practice class and others who have not. Building Stories meets twice per week for seven weeks, falling within the School's spring modular system. Two architects, one coming each Tuesday, the other each Thursday, do not need to coordinate with each other but are loosely linked by themes such as global practice or practice management.

ACSA Awards Practice and Leadership Award Entry: Building Stories

nominated by Renée Cheng, AIA, Professor, School of Architecture
College, of Design, University of Minnesota

BUILDING STORIES

Each class session, the practitioner tells a story from a project, leaving off at a decision moment while giving the students all the information they had at that time. The following week, students propose solutions and the practitioner reveals what actually happened.

Building Stories, a course developed by two full-time faculty with extensive expertise in documenting case studies, uses a cliff-hanger format. Some of the most fascinating stories from practice fall within areas that are notoriously difficult to teach in a classroom setting: financial, contractual, personnel, management, etc. Stories can be told during internship mentoring, but an effective academic setting can make learning targeted, consistent and accessible to larger numbers of students.

This professional practice elective has been offered to M.Arch students since 2009. Building Stories meets twice per week for seven weeks, falling within the School's spring modular system. Two practitioners, one coming each Tuesday, the other each Thursday, do not need to coordinate with each other but are loosely linked by themes such as global practice or practice management.

Non-faculty practitioners who have detailed knowledge of the project join discussions. By placing the students in the shoes of the practitioner, Building Stories makes the minutiae of practice mesmerizing.

THE CLIFF-HANGER

The cliff-hanger is a storytelling format employed by penny-dreadfuls, pulp-fiction, and action movie series.

While stories from practice may lack car chases, they are full of charged human situations, financial drama and passionate design advocacy. These stories, told well, can rival any of Scheherazade's Thousand and One Nights.

EVERYONE HAS A STORY TO TELL

Building Stories' prime objective is to address the most difficult to teach areas of professional practice, those underserved areas without a home in professional curricula.

Most practitioners have one or two very knowledgeable colleagues they turn to for advice on project management, contracts or conflict resolution. Most will also be able to name a few colleagues who are natural teachers, who can explain even complex things to a relative novice. Unfortunately for the schools, the overlap between these two sets is extremely small, explaining why there are so few excellent professional practice teachers. Compounding this problem is the fact that teaching is hard. Teaching when the students have no immediate "need to know" is practically impossible. If a student needs to know the size of a structural member or the rise-to-run ratio of an ADA compliant ramp in order to advance their design, they are extremely receptive to anyone providing tools or information that will meet their need. Building Stories places students in the position where they urgently need to know how to address difficult practice issues.

CLASS STRUCTURE

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7
INTRODUCTION Objectives and Expectations **CASE CONTEXT**	**CASE ISSUE #1** Assignment Questions and Deliverables	**6 STUDENT PRESENTATIONS** Discussion	**CASE ISSUE #2** Assignment Questions and Deliverables	**6 STUDENT PRESENTATIONS** Discussion	**CASE ISSUE #3** Assignment Questions and Deliverables	**4 STUDENT PRESENTATIONS** Discussion
ILLUSTRATED NOTEBOOK ASSIGNMENT						
CASE STORY #1 In-class example How to set up a problem Propose a solution **CASE STORY #2**	**3 STUDENT PRESENTATIONS** Discussion **CASE STORY #3**	**3 STUDENT PRESENTATIONS** Discussion **CASE STORY #4**	**3 STUDENT PRESENTATIONS** Discussion **CASE STORY #5**	**3 STUDENT PRESENTATIONS** Discussion **CASE STORY #6**	**3 STUDENT PRESENTATIONS** Discussion **CASE STORY #7**	**3 STUDENT PRESENTATIONS** Discussion **WRAP UP**

ONE FORMAT / MANY STORIES

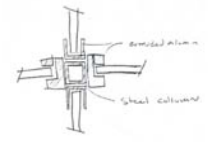
Building Stories is a framework that can support a variety of project stories told from a variety of points of view.

STORY #1: THE DETAILS

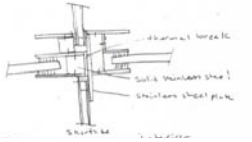
PLOT: Architect 1, specialist in detailing of high profile design projects, covered construction conflict resolution. Each session addressed a different detail condition. Students were given the design intention, climate information, primary materials, structural dimensions and HVAC clearances. Students researched manufacturers and precedent studies to produce wall sections. Sections were reviewed according to criteria of design consistency, appropriate thermal and water management. Group discussed cost, material specification, construction sequence, tolerances, trade sequence and other issues related to construction and design. After reviewing the student's work, the practitioner revealed the actual completed detail. Non-faculty partner of Architect 1 actively participated in developing course material and plans to attend discussions this spring.

CLIFF-HANGER: Architect 1, specialist in detailing of high profile design projects, covered construction conflict resolution. Each session addressed a different detail condition. Students were given the design intention, climate information, primary materials, structural dimensions and HVAC clearances. Students researched manufacturers and precedent studies to produce wall sections. Sections were reviewed according to criteria of design consistency, appropriate thermal and water management. Group discussed cost, material specification, construction sequence, tolerances, trade sequence and

STUDENT PROPOSAL



ACTUAL RESOLUTION

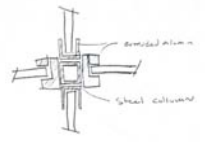


STORY #2: MANAGEMENT

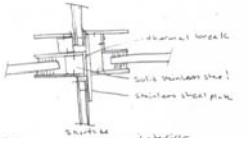
PLOT: Architect 2, a project manager working for a large contractor, covered project and practice management issues. Each class session focused on a different aspect of the same project, the renovation of the contractors' own office. Over the course of the project, the budget and scope tripled and major strategic planning and marketing issues were raised. Students were asked to diagram decision-making structures, distinguishing the umbrella construction company from the sub-groups managing buildings and performing construction services. Students were also asked to outline a strategy for resolving issues, such as steps to terminate the contract for a consultant.

CLIFF-HANGER: Architect 1, specialist in detailing of high profile design projects, covered construction conflict resolution. Each session addressed a different detail condition. Students were given the design intention, climate information, primary materials, structural dimensions and HVAC

STUDENT PROPOSAL



ACTUAL RESOLUTION

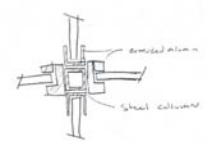


STORY #3: DEVELOPING WORLD

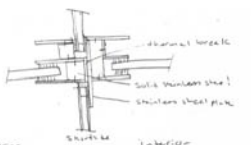
PLOT: Architect 3 owned a small US firm working in developing countries. Stories from this session focused on a full range of issues in pre-design, project and practice management and entrepreneurship. Each class covered different design issues and construction issues. Non-faculty partner in the firm consults on story development and attends some discussions. Design case example: a church for a remote pilgrimage site in Madagascar regularly housing 500 people expanding to provide covered space for 2000. Students proposed ways that a low cost building could use limited materials, skills and transport. Discussion included project financing, risk management and entrepreneurship.

CLIFF-HANGER: Construction case: local architect stopped work on a project due to poor concrete. Students had to outline the plan of action, similar or different to responses typically followed in the US. In this case, students identified issues were both relational and technical. Discussions cover design in the developing world has relatively low cost of labor, high cost of materials/transport, unstable governments, and politics of NGO's.

STUDENT PROPOSAL



ACTUAL RESOLUTION

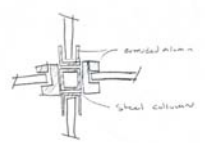


STORY #4: BUILDING AN ICON

PLOT: Architect 4 owns a firm known for iconic buildings in the Middle-east. Stories covered the full range of issues similar to 3 above, except with an emphasis on commercial strategies used with high profile clients. Each class covered different projects, revealing firm business strategies, risk management and marketing negotiations. Students were asked to make mock presentations, evaluate risks for business opportunities and recommend ways that American architects can position themselves in a niche markets abroad.

CLIFF-HANGER: Construction case: local architect stopped work on a project due to poor concrete. Students had to outline the plan of action, similar or different to responses typically followed in the US. In this case, students identified issues were both relational and technical. Discussions cover design in the developing world has relatively low cost of labor, high cost of materials/transport, unstable governments, and politics of NGO's.

STUDENT PROPOSAL



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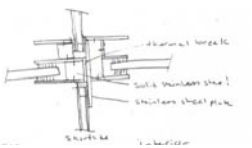
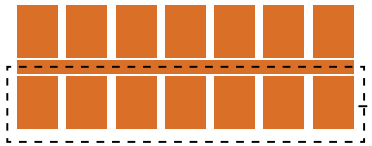


ARCH 5650 BUILDING STORIES



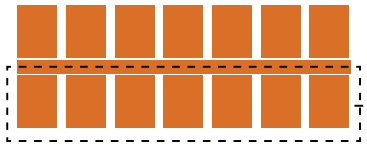
DETAIL DESIGN
DEVELOPMENT

Walker Hennepin Facade
GLASS TO ROOF DETAIL

Project: Walker Center Facade
Location: Minneapolis
Instructor/Architect: John Cook, HGA
Theme: Details
Student: Katy Dale

Problem is described by practitioner, John Cook, executive architect, explaining design goals of the glass to roof connection of Walker Art Center by design architects Herzog and de Meuron

ARCH 5650 BUILDING STORIES



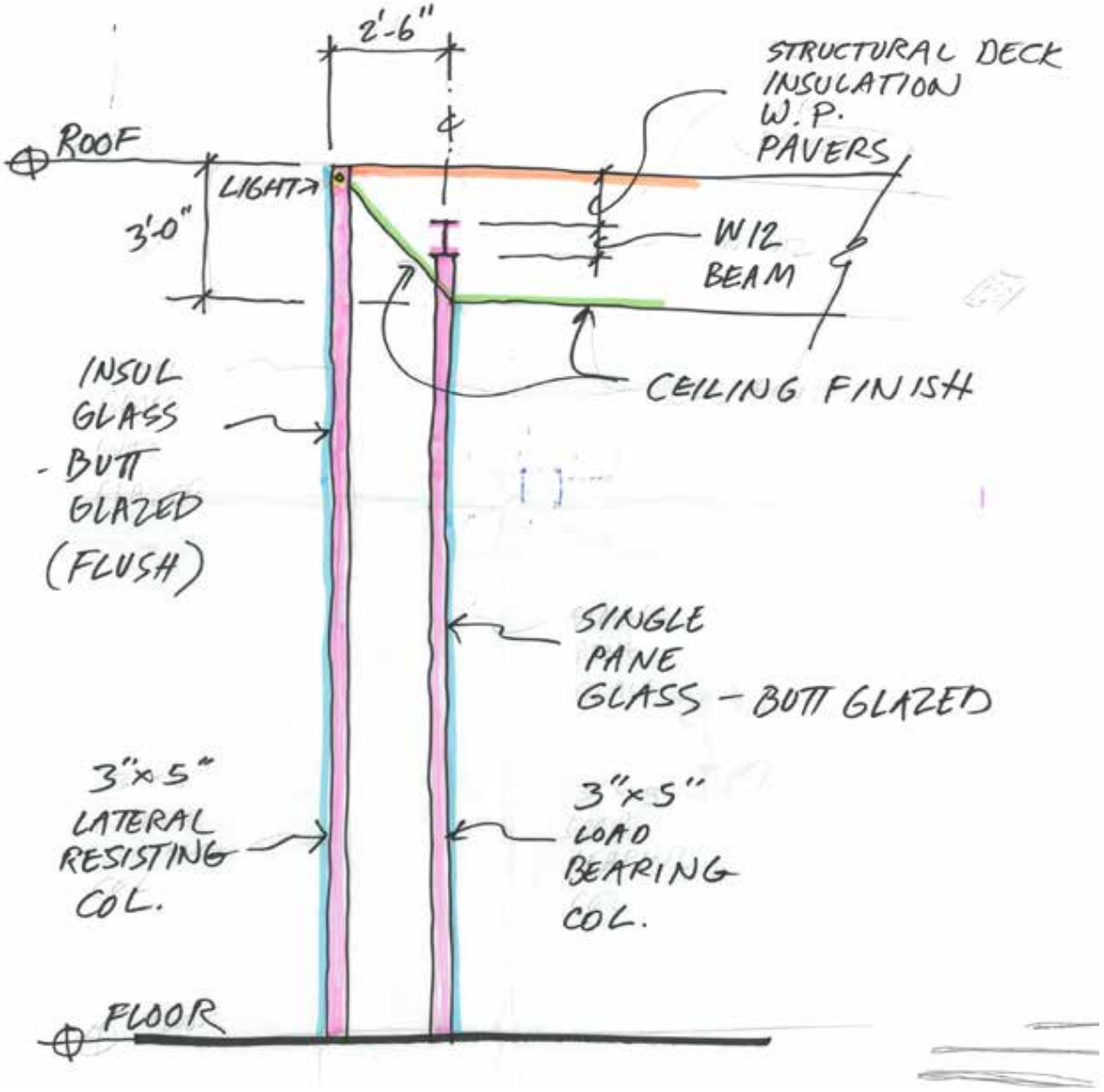
DETAIL DESIGN
DEVELOPMENT

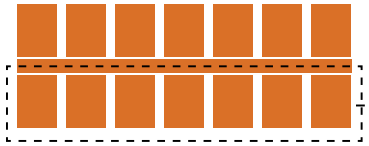
Walker Hennepin Facade

GLASS TO ROOF DETAIL

John Cook
VICE PRESIDENT, HGA

Sketch from architect John Cook describing the minimum dimensions and clearances that the students must incorporate into their design.





DETAIL DESIGN
DEVELOPMENT

WALKER HENNEPIN FACADE

GLASS TO ROOF DETAIL

STUDENT WORK

What are the systems?

Glazing:
exterior insulated glass
interior single pane glass

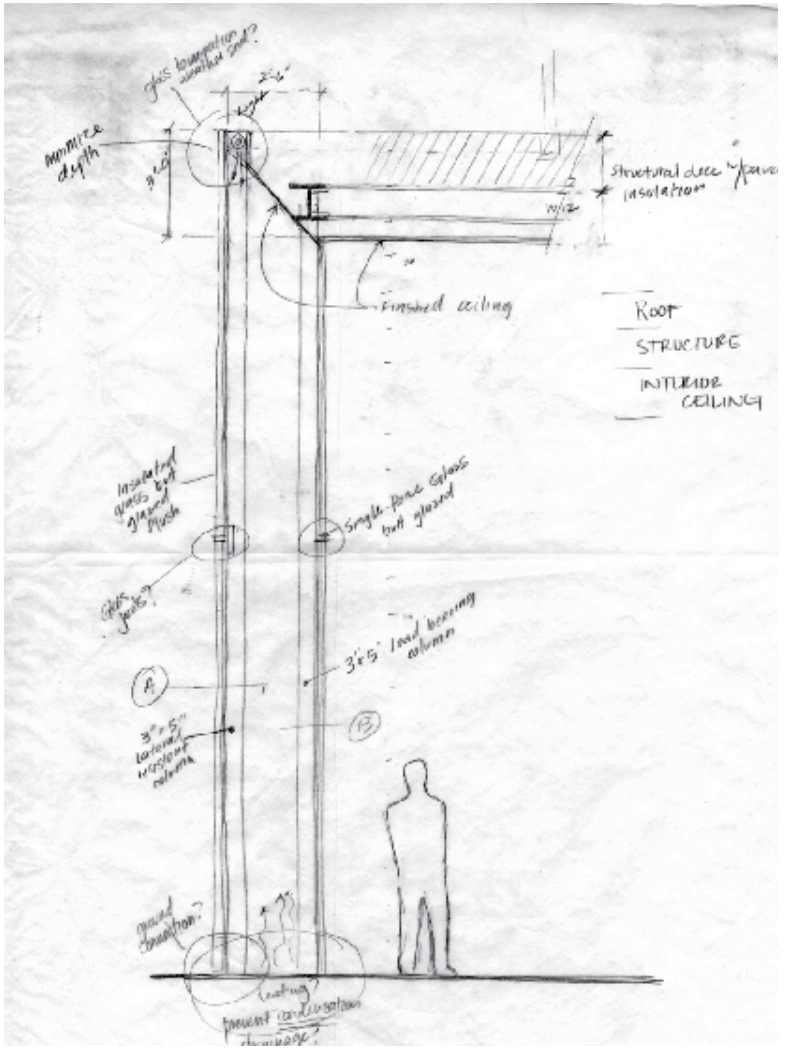
Structure:
steel frame - W12 beams
3"x5" lateral resistant column
3"x5" load bearing steel column

Roof:
structural deck with pavers

Interior:
ceiling finish system

Other:
utilities? (MEP, HVAC, FP)

Student, Katy Dale, initial sketch identifying key areas of the wall section she proposes



Student sketch and reference source for how mullion and glazing might be handled

WALKER HENNEPIN FACADE

GLASS TO ROOF DETAIL

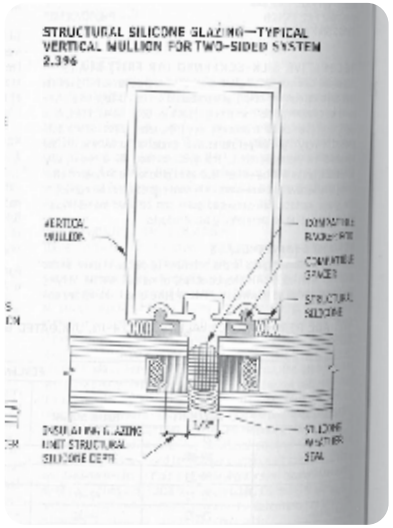
STUDENT WORK

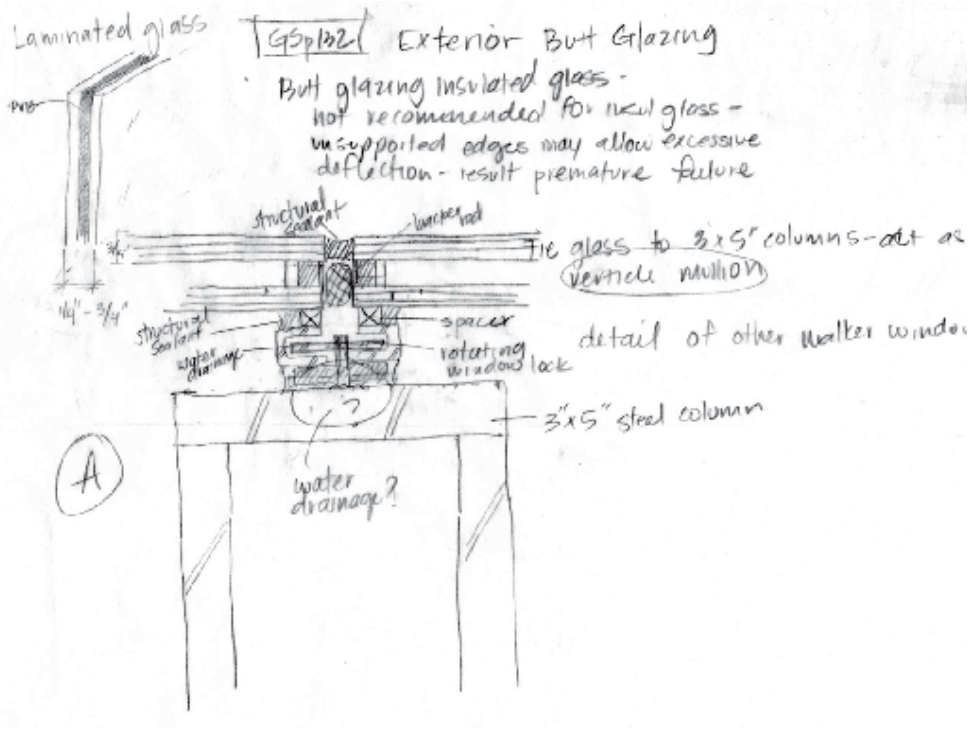
Exterior Glazing

Considerations:

Vertical mullion for insulated glass; Butt glazing insulated glass is not recommended; deflection may cause premature failure

Walker window detail from Assign #4





Student sketch of structural considerations

WALKER HENNEPIN FACADE

GLASS TO ROOF DETAIL

STUDENT WORK

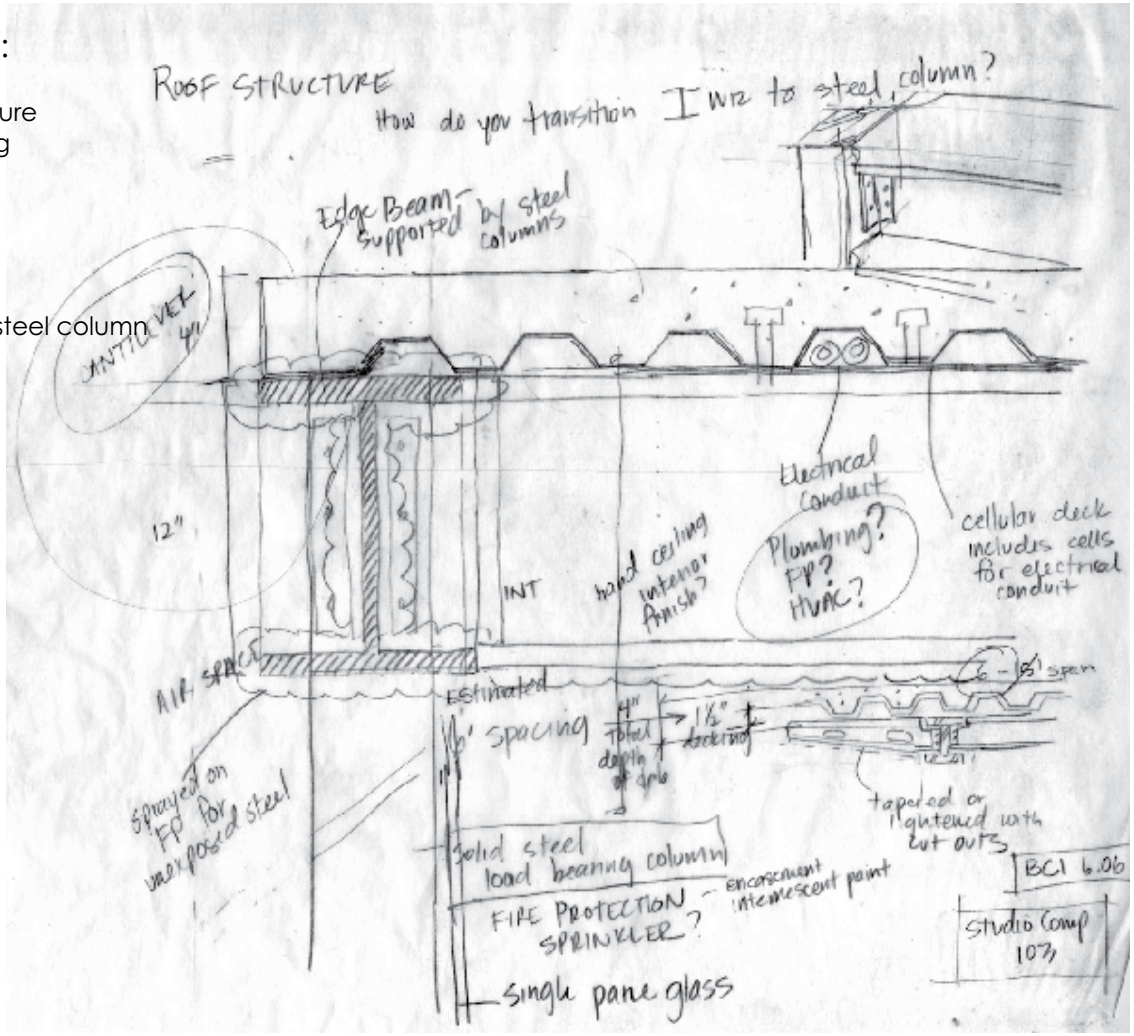
Structure

Considerations:

Primary steel structure
- size & spacing

Roof deck
- type
- thickness

Transition to 3"x5" steel column
- welded?
- bolted?



Student sketch and reference of generic roof layers applied to this particular situation

WALKER HENNEPIN FACADE

GLASS TO ROOF DETAIL

STUDENT WORK

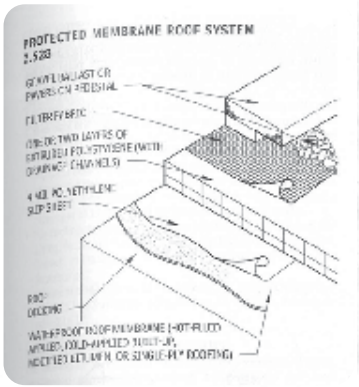
Roofing System

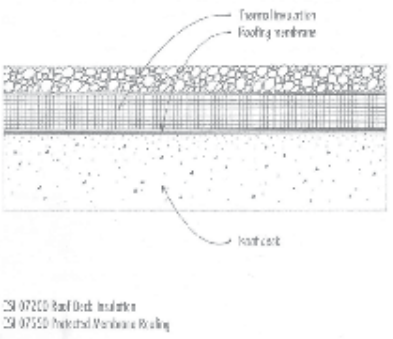
Considerations:

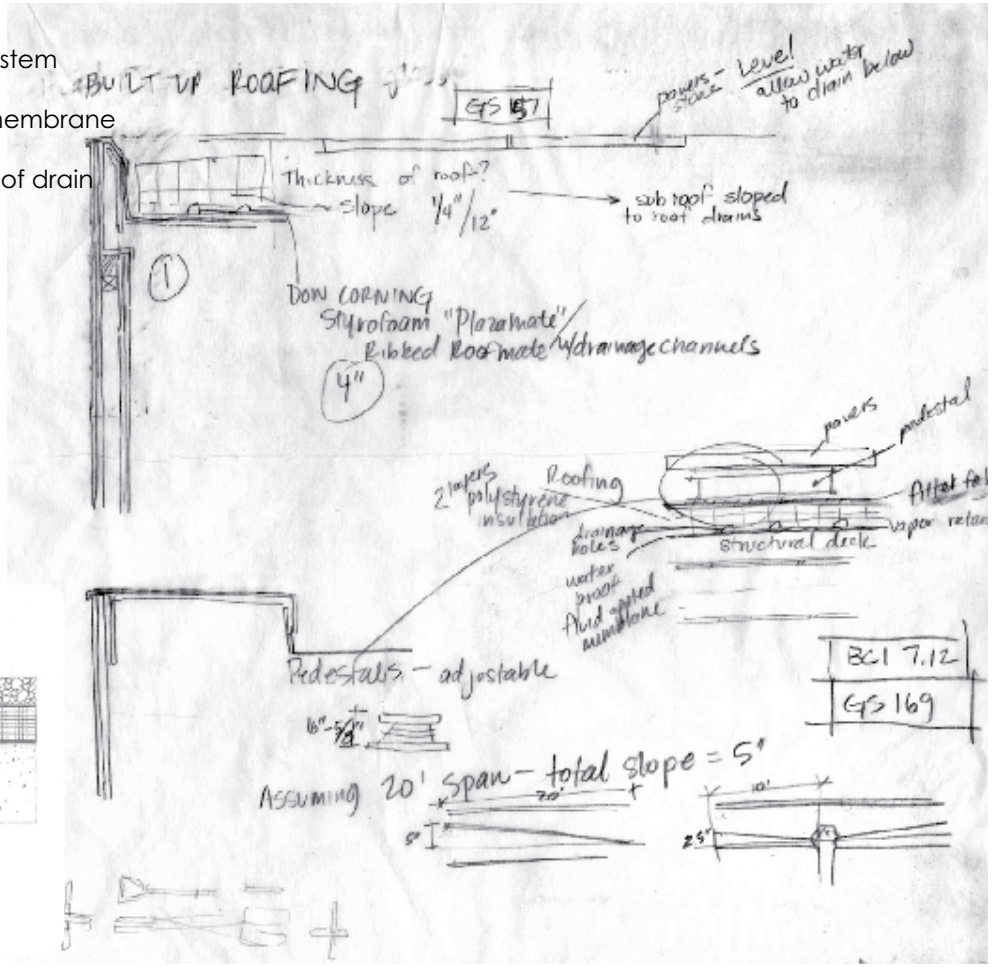
Leveling paver pedestal system

Insulation/waterproofing membrane

1/4"/12" slope to interior roof drain







Student sketch of support for cantilevered segment of roof parapet

WALKER HENNEPIN FACADE
GLASS TO ROOF DETAIL

STUDENT WORK

Cantilever to Exterior Glass

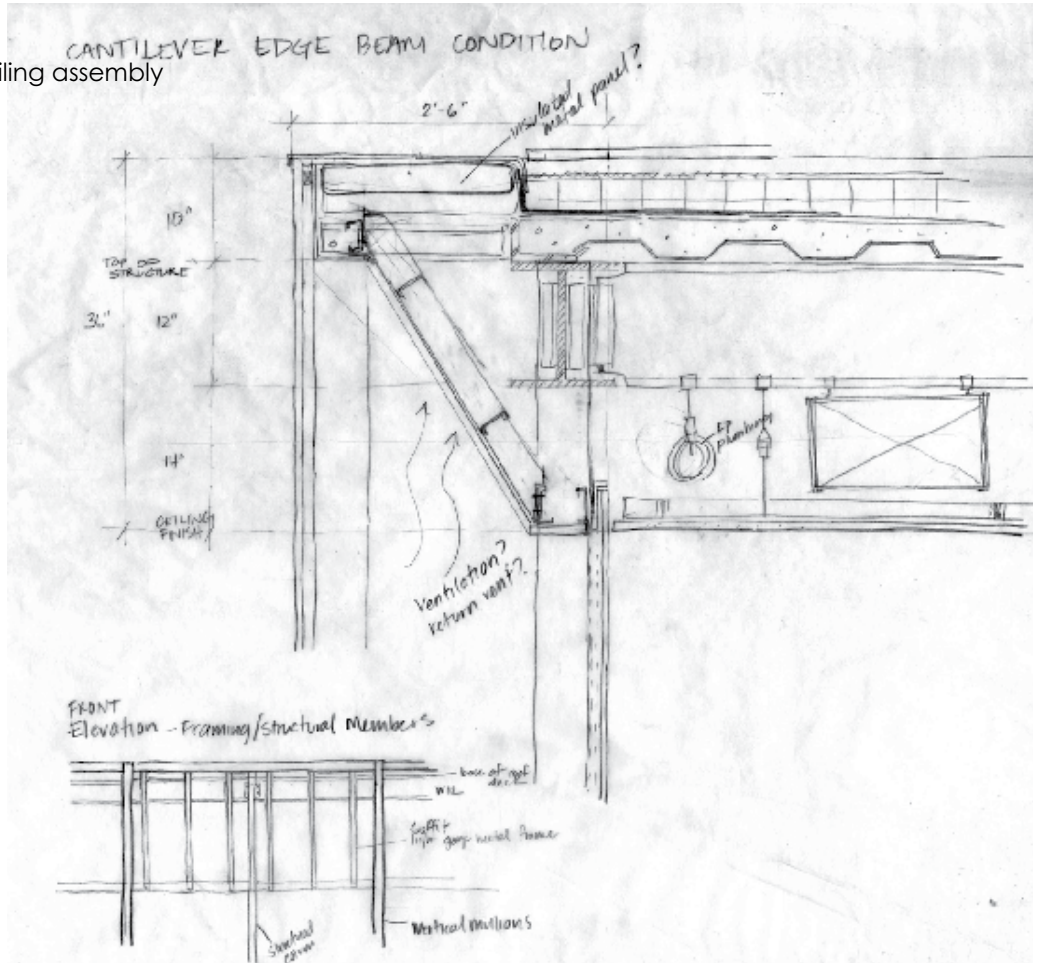
Considerations:

Minimize depth of roof/ceiling assembly at glass

Roof deck termination

Finished soffit

Electrical lighting



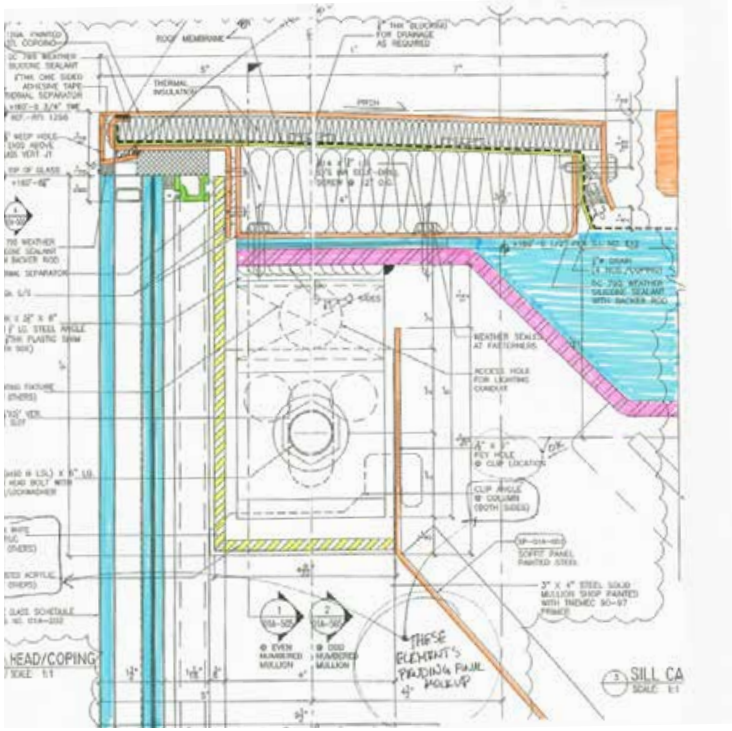
Actual realized detail by instructor

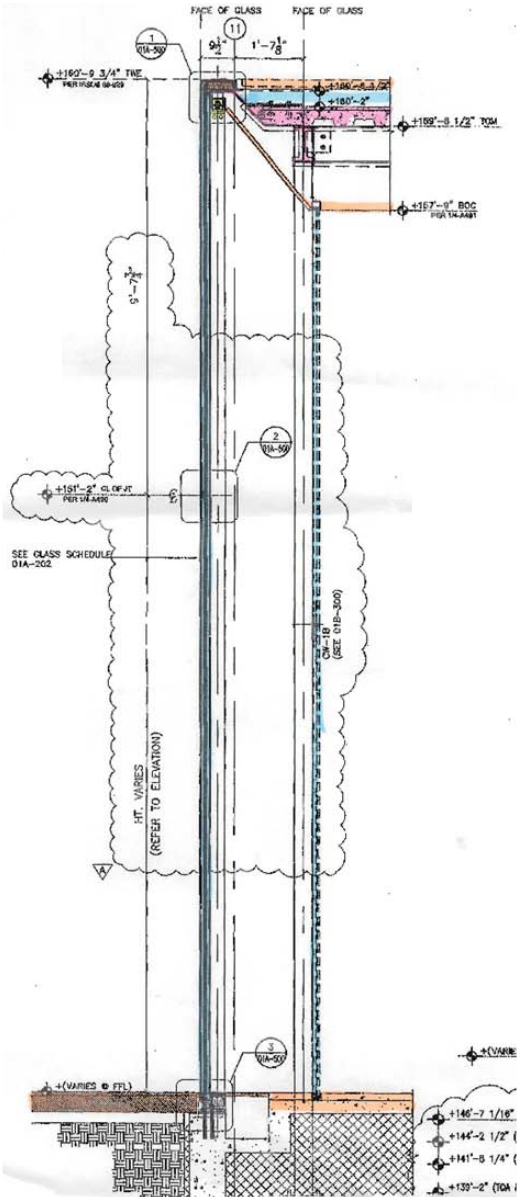
ARCH 5650 BUILDING STORIES

DETAIL DESIGN
DEVELOPMENT

Walker Hennepin Facade
GLASS TO ROOF DETAIL

John Cook
VICE PRESIDENT, HGA





ARCH 5650 BUILDING STORIES

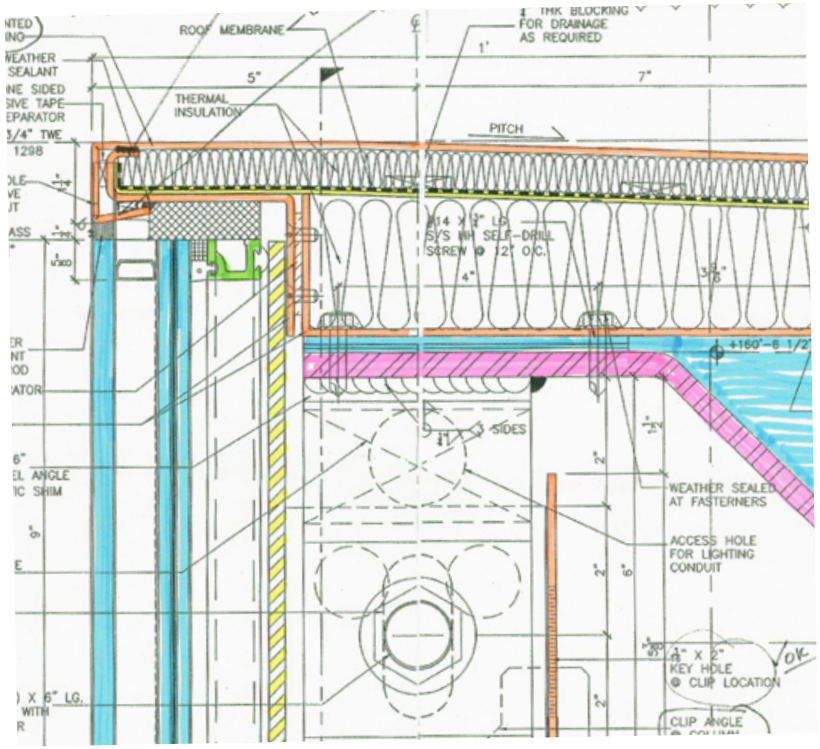
DETAIL DESIGN
DEVELOPMENT

Comparison of actual detail on left and student proposed detail on right shows all basic systems were addressed with different, but feasible alternatives

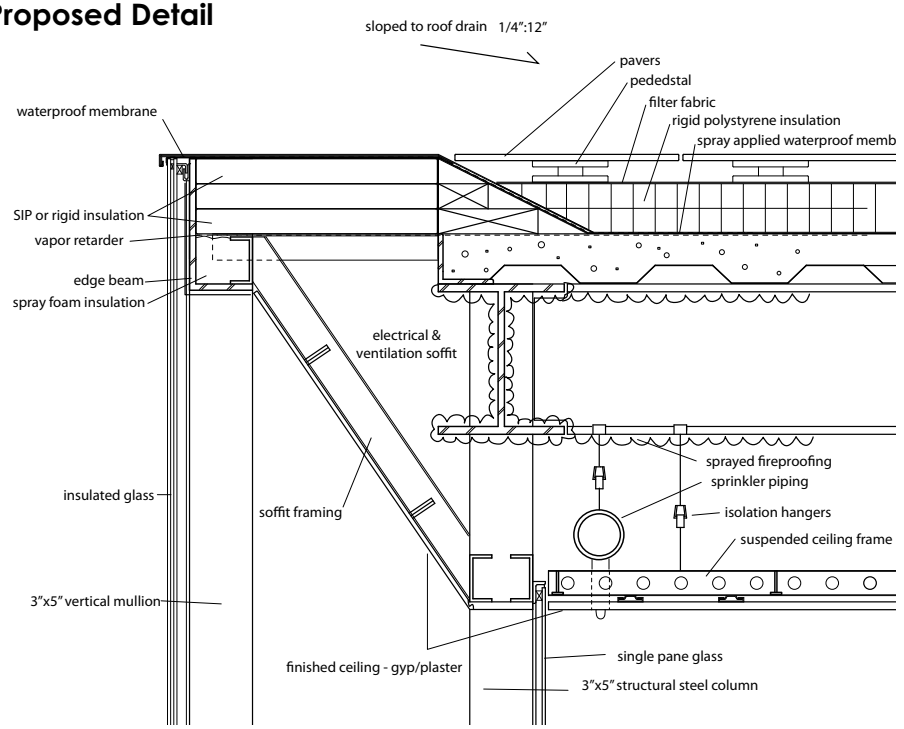
Walker Hennepin Facade

GLASS TO ROOF DETAIL

FINAL DETAIL



Proposed Detail



SCHOOL OF ARCHITECTURE - UNIVERSITY OF MINNESOTA
PROFESSIONAL PRACTICE MODULE

ARCH 5650 BUILDING STORIES

CONSTRUCTION
MANAGEMENT

Project management of a new entry sequence for an existing office complex
Focus on decision making and schedule.

Mortenson Campus

Linda Morrissey
senior construction manager
mortenson construction

Project: Mortenson HQ Entry
Location: Minneapolis
Instructor/Architect: Linda Morrissey
Theme: Details
Student: Eric Stowers

Student work showing diagram of tasks and project phases on timeline

ARCH 5650 BUILDING STORIES

CONSTRUCTION MANAGEMENT

Mortenson Campus
student work

ENTITY ACTING AS OWNER: *M.A. MORTENSON COMPANY* → *MORTENSON CONSTRUCTION - MINNEAPOLIS OPERATING GROUP*

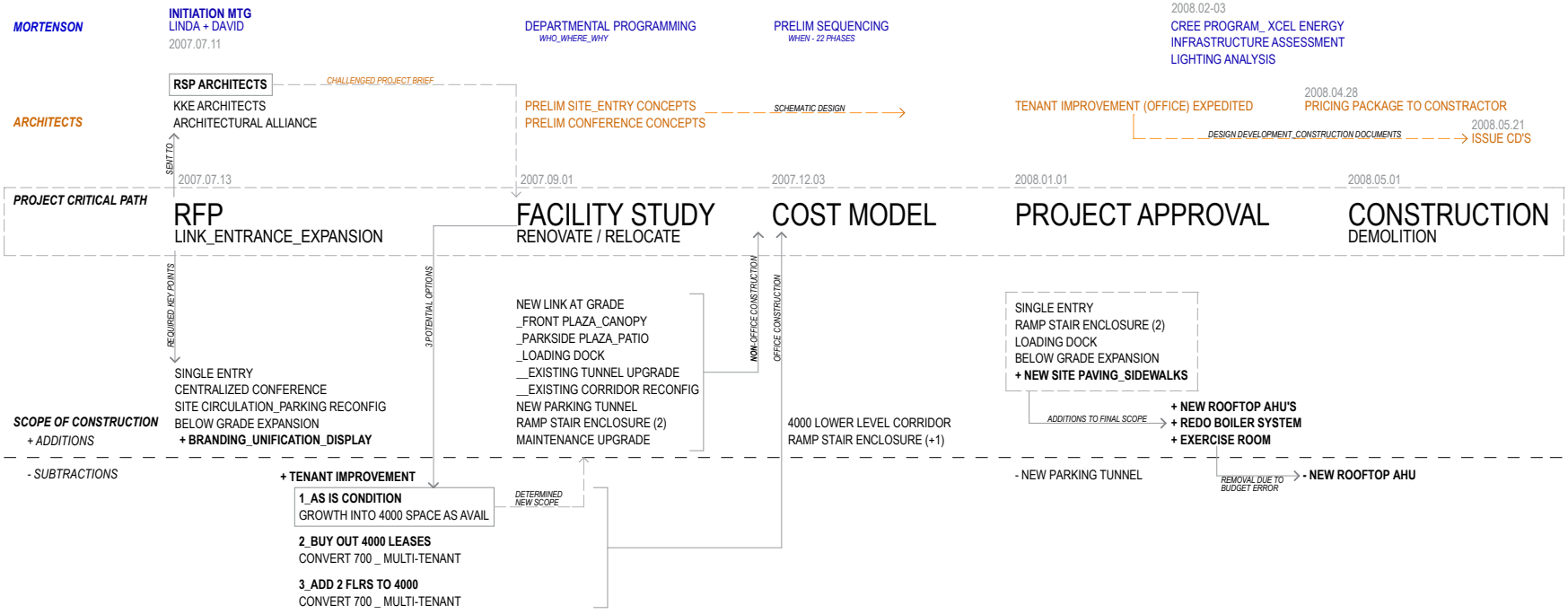
BUILDING OWNERS:
700_ M.A. MORTENSON COMPANY
4000_ NORTH WIRTH ASSOCIATES

LINDA MORRISSEY_ PROJECT MANAGER
DAVID MORTENSON_ EXECUTIVE VICE PRESIDENT
MORT MORTENSON JR_ CHAIRMAN OF THE BOARD
JIM LESINSKI_ V.P. STRATEGIC MARKETING
_ FACILITY MANAGER

ARCHITECT: RSP *ARCHITECTS*

DELIVERY METHOD: *DESIGN_BUILD*

PRIMARY USER GROUP: *MORTENSON CONSTRUCTION*



Student work showing diagram of organizational chart, timeline of who was involved at what time in the project sequence

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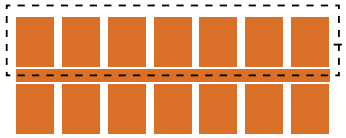
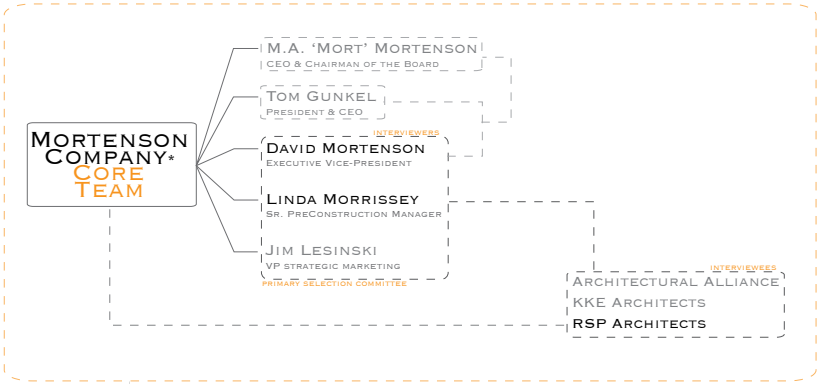


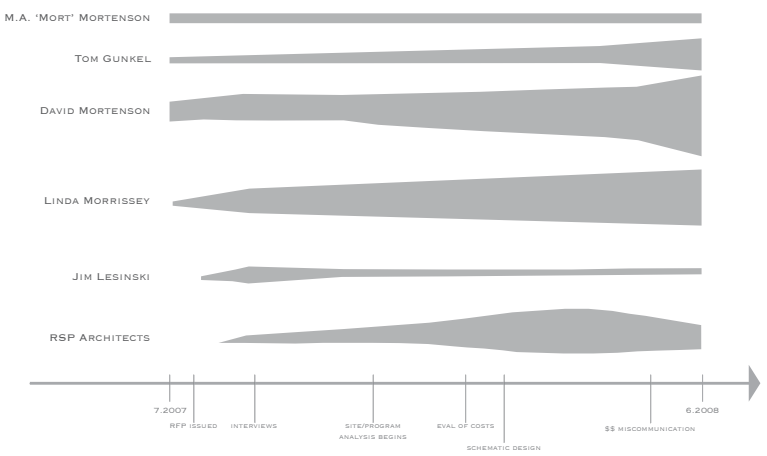
CONSTRUCTION MANAGEMENT

Mortenson Campus
student work

CHARACTER INTERACTION



IMPACT/INVOLVEMENT



PROJECT TIMELINE

DECISION THAT A DESIGN WAS NEEDED FOR NEW ENTRANCE SEQUENCE
INSTIGATOR?

DECISION TO MOVE FORWARD AND TAKE ACTION

7.11.2007 LINDA MORRISSEY (PRE-CONSTRUCTION MANAGER, MORTENSON CO.) MEETS DAVID MORTENSON
DISCUSS PROJECT GOALS & PROJECTED PATH

7.13.2007 RFP ISSUED TO PROPOSERS

7.16.2007 SITE WALK-THRU

7.19.2007 ARCHITECT INTERVIEWS_ THREE FIRMS
RSP ARCHITECTS SELECTED AS PROJECT ARCHITECTS

SITE & PROGRAM ANALYSIS CONDUCTED BY RSP ARCHITECTS

CRITICAL MOMENT
REVEALS NEW CHALLENGES & NEEDS IN CURRENT COMPANY CONDITIONS
PROJECT SCOPE CHANGES_ INITIAL PROJECTED BUDGET: $1 MILLION

9.2007 EVALUATION OF COSTS
DEVELOPMENT OF PRELIMINARY CONCEPTS
FINALIZING PROGRAM

_ NEW PROJECTED BUDGET: $15 MILLION

SCHEMATIC DESIGN PROPOSALS_ THREE SCHEMES

SCHEME 1 CHOSEN_ ~$8 MILLION

12.2007 FINANCIAL EVALUATION & PRELIMINARY SEQUENCING

1.2008-4.2008 PREPARATION_ ADDITIONAL ASSESSMENTS. PRICING PACKAGE. TESTING. CONSTRUCTION DOCS

5.2008 MISCOMMUNICATION
MISTAKE CAUSES SIGNIFICANT BUDGET CUT

COMPANY BACKGROUND

*M.A. MORTENSON CONSTRUCTION COMPANY ACTING AS OWNER, DESIGN/BUILDER, AND PRIMARY USER

_M.A. MORTENSON COMPANY IS A PRIVATELY HELD CONSTRUCTION COMPANY WITH SIX GEOGRAPHIC CONSTRUCTION OFFICES

_APPROXIMATELY 400 TEAM MEMBERS ON THE MINNEAPOLIS CAMPUS

PROJECT BRIEF

_MINNEAPOLIS OPERATING GROUP DESIRED A PHYSICAL SEPARATION FROM CORPORATE HEADQUARTERS (PROGRAMMATIC)

_NEW ENTRY SEQUENCE THAT IMPROVES THE FUNCTIONAL AND AESTHETIC EXPERIENCE FOR VISITORS (FUNCTION & AESTHETIC)

_INTERNALIED PROJECT STRUCTURE WHERE THE MORTENSON CONSTRUCTION COMPANY ACTS AS GENERAL CONTRACTOR FOR SELF

_PROJECT LEADERS_REGULAR COMMUNICATION BETWEEN LINDA MORRISSEY (SR. PRE-CONSTRUCTION MANAGER) AND DAVID MORTENSON (EXECUTIVE VP)

_INTERVIEW & HIRE RSP ARCHITECTS

_FACILITY STUDY CONDUCTED TO DETERMINE WHETHER TO RENOVATE OR RELOCATE

_REVALATION OF NUMEROUS NEEDS AND CHALLENGES SIGNIFICANTLY BOOSTS PROJECT SCOPE

QUESTIONS & PROJECTIONS_ WHAT IF?

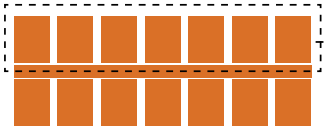
_THE EVENT WITH THE GREATEST IMPACT THUS FAR IS THE FACILITY ANALYSIS THAT REVEALED MANY SUPRISES AND CHALLENGES

_WHAT IF A DIFFERENT ARCHITECTURE FIRM WAS SELECTED? WOULD THE FACILITY ANALYSIS BEEN DIFFERENT? HOW WOULD THE SCOPE OF THE PROJECT CHANGED?

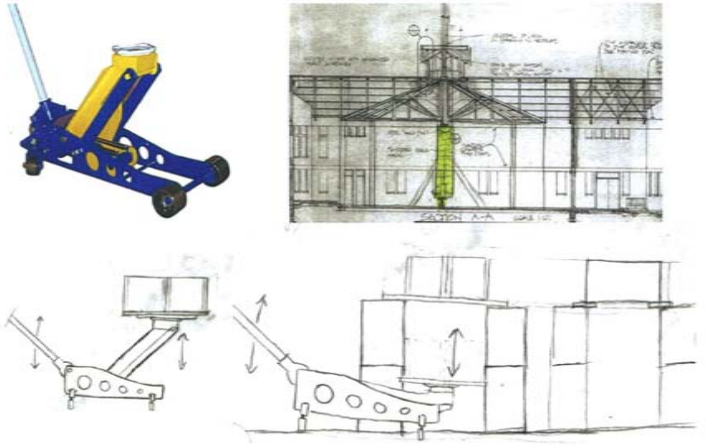
_WHAT IF DAVID MORTENSON HAD NOT MADE THE BUDGET ERROR? HOW WILL THIS AFFECT THE FUTURE OF THE PROJECT? THE FUTURE OF THE COMPANY?

QUESTIO FOR LINDA MORRISSEY FROM YOUR EXPERIENCE TO THIS POINT IN THE PROJECT AND WITH EXPERIENCES FROM DIFFERENT PROJECTS, WHAT HAVE YOU LEARNED OR WHAT WOULD YOU HAVE DONE DIFFERENTLY?

ARCH 5650 BUILDING STORIES



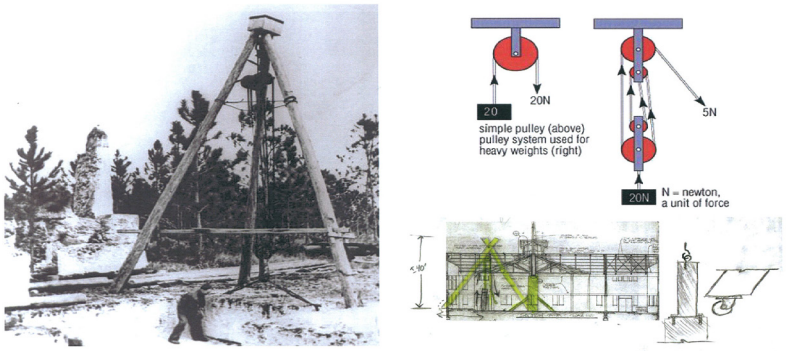
Third World Practice



Sean W. Kelly_Arch 5650 Building Stories_Inst. Poul Bertelsen_Construction Story 2_04-06-2010

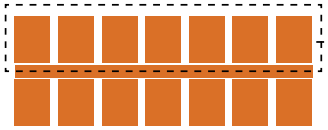
Project: Roman Catholic Parish Church
Location: Loruvani, Tanzania
Instructor/Architect: Poul Bertleson, MSAADA
Theme: Global Practice
Student: Eric Kelly

The student response to the problem posed by the practitioner, Poul Bertleson. The problem was how to achieve a king post structure for the roof of this new construction without the use of scaffolding, cranes or other expensive mechanical devices. Labor is inexpensive but structural material and machines are limited. This student considered several options based on historical examples of block and tackle and from simple jack tools assumed to be available.



Sean W. Kelly_Arch 5650 Building Stories_Inst. Poul Bertelsen_Construction Story 2_04-06-2010

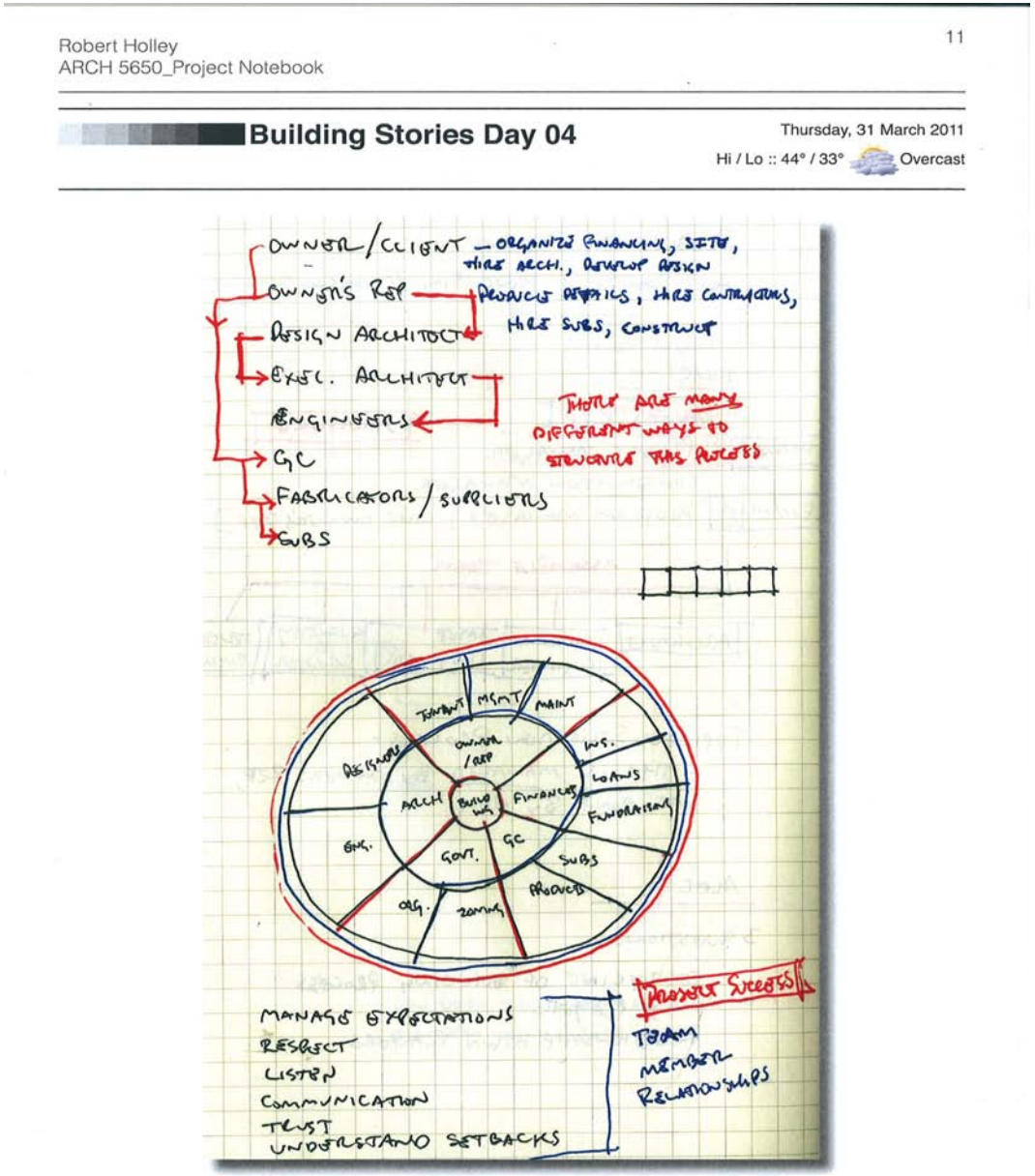
ARCH 5650 BUILDING STORIES



Client Point of View

Project: Weisman Art Museum, University of Minnesota
Location: Minneapolis
Instructor: Tom LaSalle, LaSalle Group (owner's rep)
Guests from Frank Gehry's office
Theme: Project Management
Student: Rob Holley

The problem was how decisions were made in the design of the addition to the Weisman Art Museum. Since several members of the team were in class, students notes focused on the decision making process and outcomes of team success



Syllabus

COURSE DESCRIPTION

Professional practice education by means of case study analysis
Prerequisites: None (although Arch 5621 Professional Practice is advantageous)
Teaching Format: 7 week half-semester module, five hours per week, two sessions of two and half hours each.

COURSE OBJECTIVES

The intent of this class is to provide a structure where practitioners can share lessons learned through their own experience with minimal preparation and while offering maximum learning to the student.

This course will enable the students to:

1. Acquire practice knowledge through case studies analysis and professional practice simulation,
2. Understand practice knowledge through decision-making processes to resolve cases at critical moments, and
3. Work collaboratively with peers and practicing professionals to learn about the dynamics of practice.

INSTRUCTORS

Reflective practitioners have much to offer students. Through their experiences with real-projects of varying complexity and types, they can impart specific knowledge and introduce broad principles that are critical to the daily practice of architecture.

Renee Cheng, Professor, author of this course
Contact: rcheng@umn.edu
Office Hours: Thursdays 2:30-3:30 Rapson 101, Wednesdays 10-11 MacNeal 32

Julie Macleod
Contact: jom.macleod@gmail.com
Office Hours: email to arrange

Nathan Knutson, AIA, LEED AP Managing Principal, VJAA, Minneapolis, MN
Contact: nathan-knutson@vjaa.com
Office Hours: email to arrange

COURSE TOPICS

Focus of this version of Building Stories will be design and program as a primary driver of architecture. There are many times over the course of a project where the design ideas are challenged by logistical, programmatic, cost or other factors. Two practitioners with extensive design practice experience will share their stories of working in high stakes design projects. Julie Oseid MacLeod will use the Princess Nora University (the largest University for women in the world) as a base for her stories. Nathan Knutson will focuson program as driver of design in VJAA's 2015 PanAm games, Tulane and St.John's projects.

COURSE STRUCTURE

The course has two parallel courses embedded within its structure. Each week we will alternate between presentations of case study examples of the instructor's professional practice projects followed in the next week by critique/comparison/ discussion of student's proposed resolutions of case studies.

Alternating Weeks: Presentation of Cases

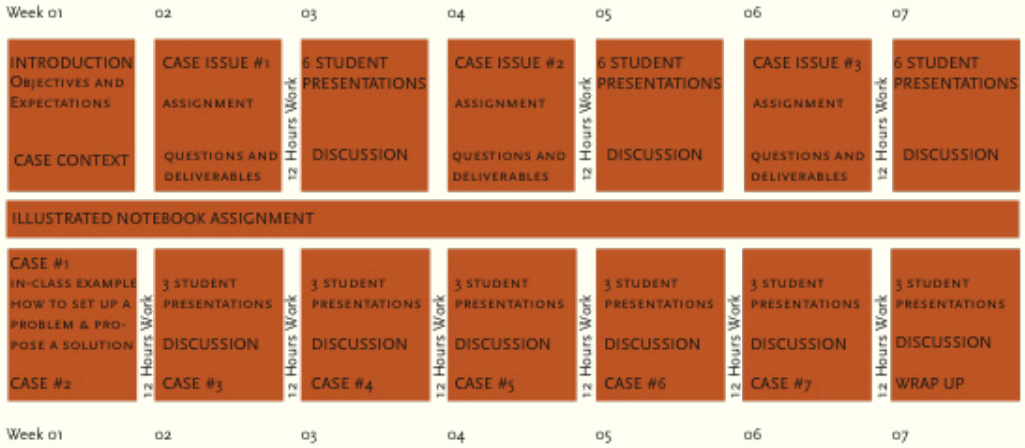
Instructors will use diagrams, drawings, images, models and other media to explain case study projects and frame a decision moment during the project development. The case will be used to elicit questions about the project and to set the framework for the week's assignment.

Alternating Weeks: Review of Student Analysis of Cases

Students will be asked to speculate on the possible ways to address the critical moment by presenting a decision-making path and proposed solution.

SCHEDULE

Julie Macleod: 2 ½ hour class session on Tuesday



Nathan Knutson: 2 ½ hour class session on Thursday

Assignments:

Student work will consist of two case study analyses – one for each instructor's sequence. Deliverables will vary depending on case type and theme. Case analysis assignments should require students to clearly present their thought process as it led them to their proposed solution, decision or course of action. This may be in the form of sketch-quality drawings, precedent analysis, text or diagrams as prescribed by the instructor. Students should expect to devote 12 hours for each of the two analysis exercises. Each case analysis assignment will have detailed expectations and describe deliverables estimated to fit within this time frame.

Project Notebook

Each student will be required to complete a detailed notebook with sketches that gives evidence to the understanding of each case as well as the ability to analyze, argue, communicate, decision-make, defend, reason and research each case independently (see description on last page of syllabus).

Reading

No readings are required but numerous reference materials will be needed including: Architects Handbook for Professional Practice and Architectural Graphic Standards

Attendance

Format of this course makes it extremely difficult to accommodate absences. Absences may be grounds for failure or withdrawal at the discretion
of the instructor.

Grading

Activity	*% of final grade*
Knutson Case Analysis: Content & Presentation	25%
Macleod Case Analysis: Content & Presentation	25%
Notebook: Content & Presentation	40%
Class participation	10%
Total	*100%*

Final grades will be based on the following University Grading Policy:

Grade	*points*
A outstanding work	90-100
B more than required	80-89
C meets requirements	70-79
D less than required	60-69
F failed. insufficient work	60 or below

Late Work

Late work will be accepted only at the discretion of the instructor and is subject to 1/3 grade deduction for every 24 hours past the deadline.

Incomplete Work

Incomplete work will not be accepted without instructor's prior approval and written agreement as to revised due dates and grading policy. The grade of incomplete can only be given if the work is substantially complete and the student has documentation of illness or extreme circumstances.

Project Notebook Requirements

Compile all required content in a thoughtfully designed bound notebook, electronic or hard copy. There must be an identifying cover and spine on the binder for hard copy. Partition and sub-divide each topic in a way that helps to organize the information. You will be graded on the clarity of this organization, graphic composition as well as the content. Use color to separate text from annotation

Notebook Contents (minimum required content)

- Complete and legible seminar notes, text and graphics as appropriate
- Annotated relevant information distributed during class
- Design sketches of problems posed and solutions offered - DO NOT reprint moodle
- unless you annotate to show why you are including
- Analysis of problems posed and solutions offered, use color to show your comments
- Photographs (edited and annotated)
- Strategy and solution for individual assignment
- Critique of individual assignment (what were the questions and comments)
- Annotated Bibliography: Sources of information (Including Web)
- Additional materials for at least 25% of the class sessions
- Name (or Initials) and Date on every entry (in a consistent location)