

Part 2 Interim Progress Report

North Carolina State University
School of Architecture
Robin Abrams, Head of the School of Architecture
Last Accreditation: 2012

CONDITIONS/CRITERIA NOT MET

2. SPC B.7 Financial Considerations

No evidence was found that “Fundamentals of building costs such as acquisition costs, project financing and funding, financial feasibility, operational costs, and construction estimating with an emphasis on life-cycle cost accounting” were addressed in the classroom setting or in required student assignments.

We now address this in ARC 561 Professional Practice. The syllabus to the course is attached, as well as the slide presentation from the particular session.

CAUSES OF CONCERN

Transfer credit procedures

The school of architecture is not asked to assess more than a handful of students for transfer credit each year. When asked to do so, they have a system in place through which the program head reviews transcripts, course descriptions, and portfolios as appropriate. Student files, however, do not document transfer decisions and evidence in detail. In order to meet NAAB's new emphasis on rigor in course transfer policy, student files will need to be upgraded concerning future transfers. For NAAB purposes, what is being transferred is SPCs, not course credits, so files should document this aspect of transfers as well.

We have a transfer credit record-keeping procedure that somehow did not get conveyed to the visiting team. We make use of a university form entitled “North Carolina State University Advanced Standing Certificate. The pdf is attached at the end of this document.

Financial uncertainties

Even though the college has done an admirable job addressing funding reductions from the state without affecting the educational experience of architecture students, further reductions could have a significant negative impact. Cost savings from administrative reorganization and special allocations from the chancellor's office cannot be counted on as future strategies to overcome additional reductions in public funding. With the unknown political commitment for ongoing public funding of higher education at the current level, there is concern of what additional impacts funding reductions would have.

The state legislature continues to impact the university's budget but this year we did not experience any impact on the school's budget. We continue to seek external funding and funded studios as the opportunities present themselves.

Diversity

Since the previous 2006 visit, considerable strides have been made in achieving gender diversity among faculty and student bodies. Recent tenure-track teaching and research hires have also contributed to an intellectually balanced and increasingly diverse faculty. However, efforts to increase ethnic and racial diversity are lacking, particularly among the student demographic of the accredited programs.

In 2007 the School of Architecture adopted a Plan for Diversity with a primary goal of achieving a critical mass of historically underrepresented minority faculty and students. The plan lists several

areas for affecting change that can be summarized as the following: diversity of philosophies; faculty and student recruitment; admissions procedures; scholarships and financial support; advising and mentoring; and visiting faculty. The APR states that in response to the Plan for Diversity for the School of Architecture, efforts made to date include: a careful screening of student applicants to diversify the freshman pool, a three-year commitment of department head as a University ADVANCE Scholar, a mentoring program pairing minority students with professional mentors to improve retention, and proactive recruitment of minority faculty. Aside from participation in ADVANCE, little progress has been made on these efforts. While the goals of the Plan for Diversity are comprehensive, implementation has been insufficient.

Given that the 2006 NAAB visiting team identified Social Equity as a “not met” condition, the team finds that more specific measures are necessary to fulfill the program’s goals for diversity.

We have undertaken a concerted effort at graduate student recruitment, participating in the NOMA graduate school fair and discussion; recruiting trip to North Carolina A&T, a HBCU, where we met with undergrad students in landscape architecture, architectural engineering, and graphic design; and a recruiting trip to Hampton University. Architecture participated in the university’s Building Future Faculty event, which netted a fantastic hire for our College, an African-American PHD from MIT, who has joined the Graphic Design Department, but for whom we are hoping to make a joint appointment in architecture.

CHANGES IN PROGRAM SINCE LAST NAAB VISIT

The primary change to our program is development of the Integrated Path to Licensure. We are one of the inaugural schools. We are in the beginning stages of making changes to our curriculum to implement IPAL. We will be able to report these changes in our next Annual Report.

North Carolina State University Advanced Standing Certificate

Students Name (Last) (First) (MI)

Student ID# /College & Curriculum

Date of Birth

Name of Institution

Address (include Country)

Semester attended

Note: All credits allowed toward advanced standing are conditional upon satisfactory work in subsequent courses. The "Add/Delete" column is used to evaluate or reevaluate awarded international transfer credit. (For **reevaluated** course work, the previous credit must be deleted through Reg & Rec first before replacement credit can be added)

TRANSCRIPT : (circle one) Semester Hrs Quarter Hrs New transcript or Reevaluated

CATALOG #	CREDIT HRS	GRADE	COURSE TITLE	+/-	NCSU COURSE #	CREDIT HRS
ANT 354	3	A	Contemp. French Cultures	+	ANT 3**	3

All transfer credit received in Undergraduate Admissions during the week will be processed on Friday and will take at least 48 hrs to to show on students PR. Please make sure student understand this.

Credits for this page TOTAL
TOTAL Credits for student

Dean or University Official's Signature & Date :

The Practice of Architecture

Faculty: George Hallowell, PhD, AIA
george_hallowell@ncsu.edu, cell: 206.450.1167
Marshall E. Purnell, FAIA
Teaching Assistant: Andres Barrero, habarrer@ncsu.edu

Class Meeting Times: Thursdays: 7:10PM - 9:55PM
Leazar Hall, Room 310

Office Hours: By Appointment, Contact: George Hallowell

Course Overview *Overview:* This seminar and lecture course is designed to address the issues of professional practice in architecture. The class will focus on the evolution of architectural practice and how someone entering the profession can begin to understand the choices in practice. What does it mean to be an architect and what does society expect from us? How do firms differ in composition and focus, and what are available choices for your career path? The profession is changing rapidly and many architects wonder if their practice will be viable in the next decade. The semester will examine the forces at work in shaping the practice of architecture, and help students to understand the world that they will be entering in a context of traditional practice, new directions, and the larger world in which architecture exists.

In-Class Research Exercise: Most class sessions will begin with an introduction to the topic for the night and a description of several problems/topics to be examined by class teams. The class will be divided into teams of 4 or more students for each session. The teams will use laptop computers to research and develop a presentation that addresses the topic or problem assigned to them. A beginning list of readings, sources and references will be provided in advance on the class Moodle page as appropriate. The class will employ and teach basic research skills to investigate the topics under consideration. The team composition will rotate every other class session. The instructors and guest(s) will circulate through the teams providing insights and assistance in guiding their inquiry. Near the end of each class meeting, the class will reconvene as a whole, and each team will present a 10-minute response to their research assignment. The team presentations will be open forum discussions, with all students and faculty participating. Each team and team member will be assessed based on the quality of participation and research conducted in each class session research assignment.

Several sessions will be structured as panel discussions, where the panelists will present varied points of view, followed by an open discussion with the

class. Individual and written assignments will also occur during the semester, focusing on the type of writing and communication that is important in practice: The ability to convey clear ideas through compelling and succinct language.

Case Study: A major component of your final grade will be a semester-long written and oral case study of a professional architectural practice. During the first class session, teams will be selected for the research and writing of your case study. A list of possible architecture firms for the case study will be posted, and teams will select one firm for study – note that only one team may select an architectural practice for study (no duplications).

Learning Outcomes	<p>After successfully completing the course, a student in ARC 561 will be able to:</p> <ul style="list-style-type: none">• <i>Work collaboratively to quickly form research teams and investigate a specific research task</i>• <i>Generate and present a coherent and concise team presentation to a group of their peers</i>• <i>Apply simple existing life-cycle cost estimating software to compute cost estimates</i>• <i>Describe and understand the role of the client in the process of design</i>• <i>Itemize and detail the role of the architect and architectural firms in project management</i>• <i>Define the professional ethics and legal responsibilities faced by architects in today's world, and explain the social responsibility of architects in their local and global community</i>• <i>List and diagram current models of project delivery in architecture</i>• <i>Research and present findings on the requirements of architects practicing in other countries around the world</i>• <i>Describe and evaluate common office organizational structures and management practices</i>• <i>Identify and evaluate alternative career paths available to architectural program graduates</i>
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Preparation and Requirements	<p>Each class session will require efficient collaboration and team skills, a focused and effective work process, and preparation. Following the end of each week's class, the class Moodle page will reset with a new set of links, videos and readings for the next class session. Previewing these links and resources will greatly enhance your ability to efficiently complete the following week's research assignment within the allotted three-hour class period. The links and other resources will merely serve as a 'jumping-off' point for teams to begin their research. You are expected to begin with the resources provided, but find as many additional, relevant sources as are needed to complete the assignment. The last hour of the class will be used for teams to provide short, concise 8 to 12 minute presentations to the whole class on your research findings. Teams are expected to keep a written record of the sources they have used, but may use any combination of oral or graphic methods to present their findings to the class.</p>
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Everyone will be required to bring a laptop, tablet, smartphone, or other device with internet capabilities with you to each class period. When the Moodle page resets for the next class, you will also be given team assignments for the next research exercise, so you may also wish to communicate with your team in advance. If your team elects to present their findings with MS Powerpoint or other visual media, please bring a flash drive or use the class Google Drive account to transfer the presentation to the class computer (or you may use your own laptop with the class projector).

- Deliverables
- *A Written Case Study of an Architectural Practice*: Specific requirements will be provided by the second class meeting.
 - A final 15 to 20 minute team presentation to the entire class of your case study firm on one of the last two class meetings.
 - *10 Separate In-Class or Take-Home Research Assignments, and in many cases a presentation to the class. For each student, the lowest grade received on the in-class assignments will be discarded before averaging.*

Readings and Resources

Most of the necessary resources for the class such as: videos, websites, movies and other resources will be available as linked through the class Moodle page, on the reserve shelf at the library, or in digital reserve through the library. We will be assigning regular readings from the following text as background for many of the class research projects, and you may wish to purchase online or from the bookstore:

Pressman, A. (2006). *Professional practice 101 : Business strategies and case studies in architecture*. Hoboken: Wiley.

Both the Pressman text, and: *The architecture student's handbook of professional practice*, (2009). Hoboken, John Wiley and Sons

are insightful texts and will also be on the reserve shelf in the Design Library for your use, along with additional useful references.

Assessment

All grades will be reported numerically during the course. Grades will be accumulated and presented on the class Moodle site. The only conversion to a letter grade will occur at the end of the semester as your numerical scores are converted to a letter for final submission to the University system. The in-class research exercises, semester case study, participation, and attendance will count for the following percentages of a 100 point scale:

In-Class Exercises (averaged):	65%
Attendance:	5%
Participation:	5%
Written Case Study	15%
Case Study Presentation	10%
Semester total:	100%

The following scale will be used to convert number to letter grades:

A+	98 – 100 points	Exceptional and unique work
A	94 – 97 points	
A-	90 – 93 points	
B+	87 – 89 points	Good work, somewhat above the required
B	84 – 86 points	
B-	80 – 83 points	
C+	77 – 79 points	Satisfactory work, not exceeding required
C	74 – 76 points	
C-	70 – 73 points	
D	60 – 69 points	Unsatisfactory, not meeting requirements
F	Below 60 points	Failure, demonstrating a need to repeat the class

At the end of the semester, number grades will be calculated to two decimal places for the final letter conversion

Attendance

Attendance for every class is mandatory, and critical to the success of the class. We will endeavor to comply with the University Policies of attendance and submittal due dates: <http://policies.ncsu.edu/regulation/reg-02-20-03>

A portion of your grade will be assigned for attendance. During the first day of class attendance is not taken, however, beyond this point, you will have 1/14th (one of the fourteen weeks in the class, or about 7% of your attendance grade deducted for each **unexcused** absence). In an effort to reward energetic involvement in the course, 5% of the final grade will also be given based on participation: quality and frequency of comments, questions, and discussion.

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.1) Information can be found at http://www2.ncsu.edu/ncsu/stud_affairs/counseling_center/dss/

Academic Integrity Statement

Strict standards of academic honesty will be enforced according to the University policy on academic integrity. We expect that student's final upload of any test or individual assignment means that you have neither given nor received unauthorized aid. Consult the following website for further details: http://www2.ncsu.edu/prr/student_services/student_conduct/POL445.00.1.htm

Schedule
(Preliminary)

The following course schedule is preliminary, and students are encouraged to check for updates on the Moodle page frequently. The class Moodle site will also change regularly to allow additional resources, new in-class research, readings, and team assignments to be posted.

Date	Week	Topic	Instructor/Guest
Aug 21	1	Welcome and Introduction, Exercise - "What's Next?" <i>* Assign teams for Case Study Project</i>	
Aug 28	2	Social Responsibility, Life Safety, and Ethics <i>* Student teams to select Case Study Firms</i>	Erin Sterling Lewis, AIA
Sep 4	3	Contemporary Models of Practice: Including office management and office structure	Kevin Montgomery, FAIA
Sep 11	4	Collaboration: Teams, Partners and Consultants <i>*Teams to submit outline for written Case Study Project</i>	Marley Carroll, FAIA
Sep 18	5	Project Management	Marley Carroll, FAIA
Sep 25	6	Cost Estimating Lifecycle Costing	Gray Talley Marley Carroll, FAIA
Oct 2	7	Construction Administration	Scott Shell, AIA Andrew Nagle, AIA
Oct 9	8	FALL BREAK: NO CLASSES	
Oct 16	9	Project Delivery Methods <i>* Teams to submit 50% case study written draft</i>	David Davis, AIA John Morrison Marley Carroll, FAIA
Oct 23	10	The Client	Marley Carroll, FAIA
Oct 30	11	Starting Your Own Professional Practice Firm	Philip Szostak, FAIA Prof. Christian Hölljes
Nov 6	12	Communication and Business Development <i>* Teams to submit 75% case study drafts</i>	Jeffrey Paine, AIA Lynn Dunn
Nov 13	13	"What's Next II": The Future of Our Profession	Kenneth Luker, AIA John Martin AIA
Nov 20	14	Alternative Careers	Lisa Johnson, AIA Will Johnson, Josh Peery
Nov 27	15	THANKSGIVING HOLIDAY: NO CLASSES	
Dec 11	16	<i>Final Case Study Presentations and ALL Final Written submissions</i> on Official Exam Day for this class	NOTE: Class will meet from 6:00PM TO 9:00 PM (This day only)

Cost Estimating & Life Cycle Costing

“When we mean to build, we first survey the plot, then draw the model; and when we see the figure of the house, then must we rate the cost of the erection; which if we find outweighs ability, what do we then but draw anew the model in fewer offices, or at least desist to build at all?”

– William Shakespeare: Henry IV, Part 2, I. iii, 1598



□ **GRAY TALLEY**

- Vice President of Preconstruction for Shelco Inc: a North Carolina based general contractor
- LEED Accredited Professional
- Green Advantage certified building practitioner
- B.S. in Construction Engineering & Management from NC State University



□ **Marley Carroll, FAIA**

- Creative Director, C Design Inc.
- Previous positions include:
- Vice President of Design, Clark Nexsen
- Principal-in-Charge, Odell Associates
- Corporate Architect for R.J. Reynolds Industries

❑ Why is it important?

- ✓ The Owner's interests are protected, and therefore our **Value** increases
- ✓ **Marketing:** Every RFQ, RFP, and Interview must deal with the cost – often the single driver of the conversation
- ✓ **Knowing Costs** can avoid risk and cost of missing budgets (redesign!!)
- ✓ Protects your design quality and priorities



Camp Thunderbird Pavilion

Total Project Costs: What's in – What's out? What is the cost of work?



Understanding Budget Components

- ✓ Land
- ✓ Utility Assessment
- ✓ Architecture and Engineering Fees
- ✓ Other Consultant's Fees
- ✓ Parking Assessment
- ✓ Geotech Report
- ✓ Land Survey
- ✓ FF&E
- ✓ Owner 'In-House' Costs
- ✓ Bricks and Mortar

Also:

- ✓ CM Fees
- ✓ Bonds
- ✓ Design Contingency Inflation/Timing

UNCC Belk Gym

Cost Estimating

UNC CHARLOTTE BELK GYM RENOVATION SD COST EVALUATION

August 20, 2013

COST OF CONSTRUCTION

Cost of Work (including Sub-Bonds/Insurance)
9% CMR GC Fee
1.3% Bonds / Insurance
10% Estimating Contingency

SUBTOTAL

COMPARABLE AP COST ESTIMATE

5% Construction Contingency

TOTAL

VARIANCE

UNCC BUDGET

- + (1) MOTOR SEATS
- + (1) C.R.I.A.
-
-
***\$13,600,664.00**
-
\$680,033.00
\$14,280,697.00
-\$1,636,303.00

CMR ESTIMATE

\$12,487,000.00
\$1,124,000.00
\$170,000.00
\$1,378,000.00
\$15,159,000.00
\$16,276,000.00
\$758,000.00
\$15,917,000.00

INCLUDED IN TOTAL:

Racquetball Court Structure and Upfit	\$845,000.00
2nd Level Square Footage Increase	\$305,000.00
Front Lobby Addition	\$631,000.00
Natatorium Alterations	\$132,000.00
Front Entry Plaza/New Brick Paving	\$68,000.00
Basketball Court Refinishing/Re-striping	\$163,000.00
Gymnasium Storage Rooms with Spectator Viewing Above	\$128,000.00
New Basketball Goals	\$110,000.00
New Pool Deck to Ground Floor Elevator	\$160,000.00
Roof Replacement	\$802,000.00
Cleaning/Re-pointing of Building	\$33,000.00

*OC-25 Estimated Construction Cost includes \$400,000.00 in Movable Equipment

SUMMARY OF PROJECT IMPROVEMENTS AND SCHEDULE

IMPROVEMENTS INCLUDED IN SCHEMATIC DESIGN:

- 8,000 Square Feet of Fitness
- Modernized Building HVAC
- First Floor Square Footage Increase over Racquetball Courts
- Second Floor Square Footage Increase Overhang to Gymnasium
- Front Lobby Addition with Clear and Dedicated Circulation
- Natatorium Finishes and Alterations
- Elevator from Ground Floor Locker Rooms to Pool Deck
- Front Entry Plaza with Brick Paving
- Basketball Court Refinishing/Re-stripping
- Gymnasium Storage Rooms with Spectator Viewing Above
- Cleaning/Re-pointing of Building
- New Stairs for Improved Vertical Circulation and Security
- High seating capacity Auditorium/Lecture Hall



SCHEDULE

- Advanced Planning, Design and State Reviews
- Owner Move Out
- Construction Phase
- Owner Move-In
- Closeout

ESTIMATED DURATION

- February 01, 2013 - April 16, 2014
- May 12, 2014 - July 14, 2014
- July 16, 2014 - August 1, 2015
- August 1, 2015
- August 31, 2015

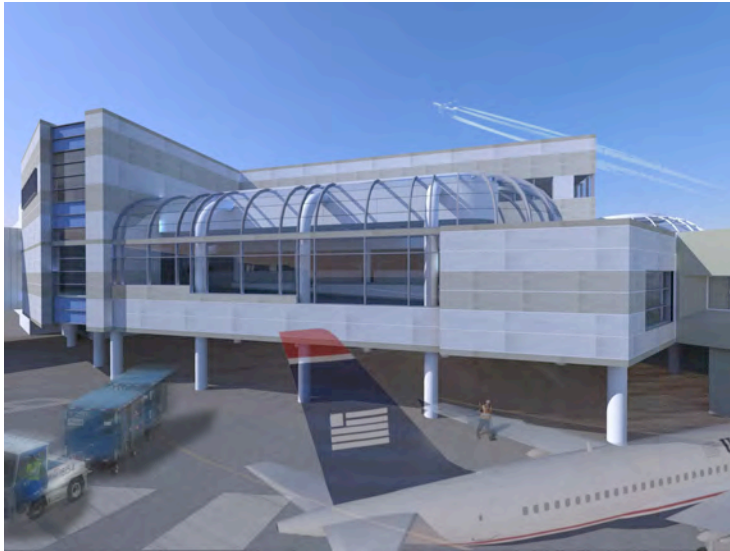
Proposed Second Level Prefunction



Proposed East Elevation



Architect's Cost Estimating



CDIA



UNCC Motorsports Building

- ❑ **Charlotte Douglas International Airport**
Airport Statement of Probable Costs
 - ❖ **Predesign Estimate 9/13 (in-house)**
 - \$2 million construction cost
 - Early Design Documents
 - 5 pages in length
 - 9 divisions of 33
 - ❖ **Estimate Summary 10/13**
 - 2 pages
 - 9 divisions
 - Used per contract documents (Local, etc.
- ❑ **UNC – Charlotte : Motor Sports Building**
 - ❖ **Construction Documents Est. 5/10 (in-house)**
 - 42 pages in length
 - 37 of 33 divisions
 - Take-offs; meals; existing projects; engineers; industry standards for general conditions
- ❑ **Other Methods for Architect's Estimating**
 - Cost Consultant
 - Contractor's Help and Advice

Understanding Project Economics



UNCC Fitness

❑ Public Projects

- Whose Budget is it anyway?
- Funding Sources
- Capital / Operational Cost Conflict
- Contractual Obligation of Cost Management

❑ Private Projects

- Funding / Loans – Development, Construction
- Income Source : Sale? Lease?
- Understand Development Model
- Timing
- Distinguishing between Owner / User or Tenant

❖ Follow the Money!

❑ Public / Private Partnership

- Understand the Project Structure

Architects have a **terrible reputation** for not controlling costs!

This perception is reinforced by contractors

Because of this perception:

We have diminished credibility and control with the Owner

- We can regain control by **understanding** and **clearly communicating** cost information that is useful to owner in making decisions
- Understand difference between **Project Cost** and **Construction Costs**



- By understanding Contractor fees, Inflation, Contingences, etc.
- By understanding how **Project Delivery Methods** affect **Costs**
- By developing and using software, forms, precedent project information, published cost resources – Means – consultants, etc. to monitor costs
- By developing a **collaborative relationship** with the contractor
- Beware of using **Square Foot** cost to make decisions

Also...

Because the Architect creates the early design – she or he knows more about the project than is conveyed in Documents

Therefore we should have a method of making estimates that fits the information that is **shown** and **“not shown”**

Life Cycle Costing



❑ **What is Life Cycle Costing?**

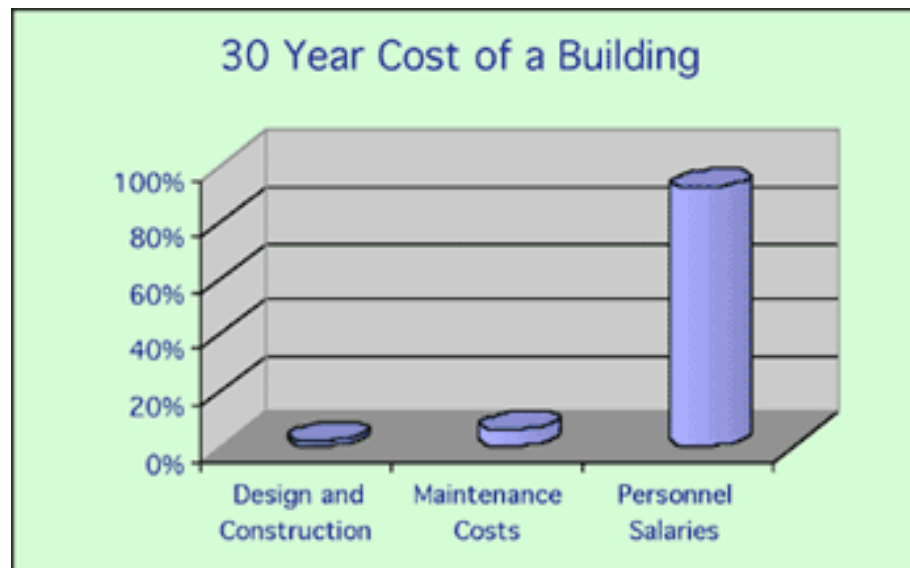
- “Life cycle costing (LCC) is an economic assessment of an item, system, or facility by considering all significant costs of ownership over an economic life” AIA Handbook, p. 673
- *Expressed in terms of equivalent costs* – To be comparable, baseline used for initial cost must be the same for other costs such as:
 - Maintenance
 - Operations – (costs such as energy/power use)
 - Replacement
- Life Cycle Costing is used to compare various options by identifying and assessing economic impacts over the whole life of each alternative

❑ Life-Cycle Cost Analysis (LCCA)

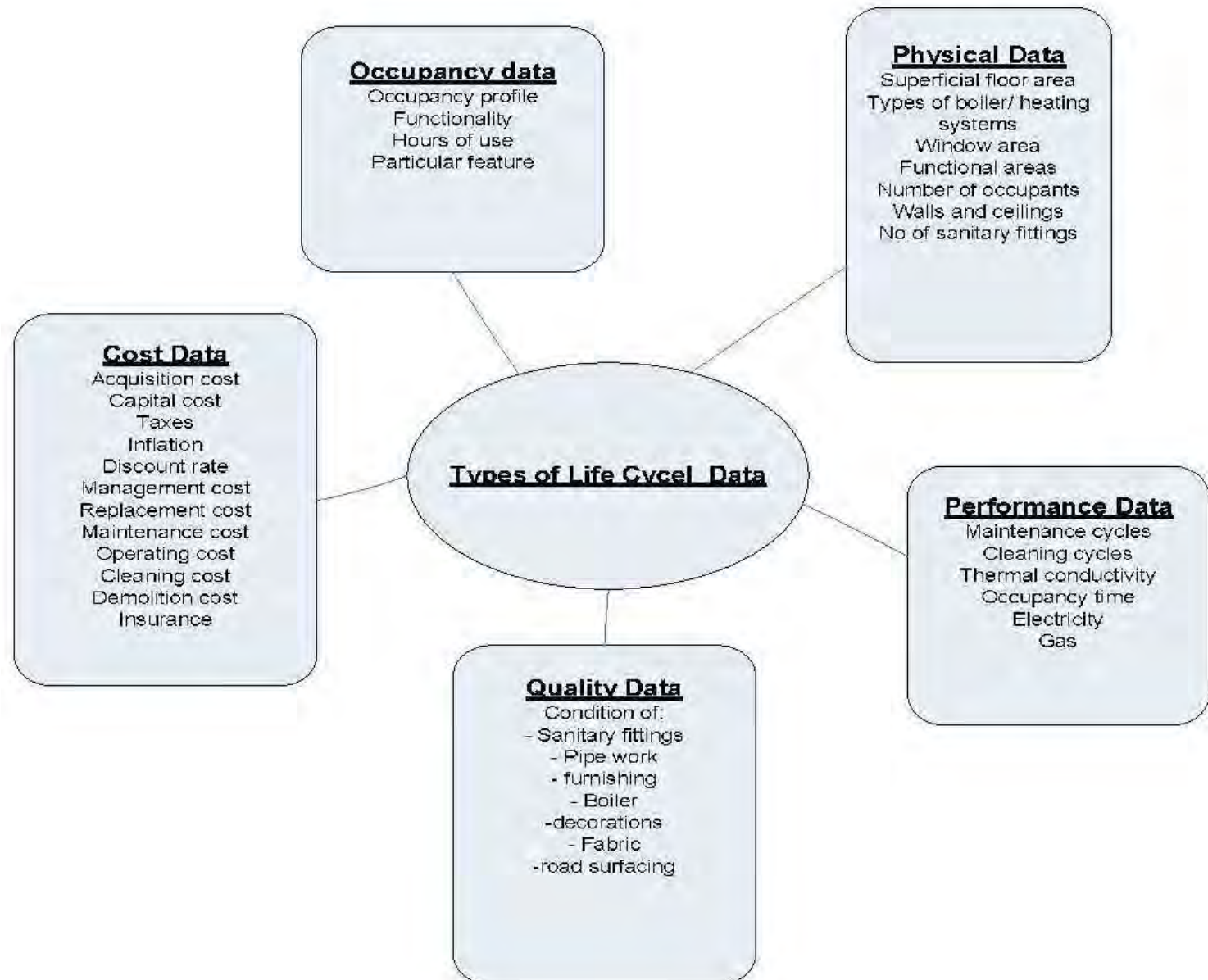
- “The purpose of an LCCA is to estimate the overall costs of project alternatives and to select the design that ensures the facility will provide the lowest overall cost of ownership consistent with its quality and function”

National Institute of Building Sciences - <http://www.wbdg.org/resources/lcca.php>

- The LCCA takes into account all costs of acquiring, owning, and disposing of a building or building system
- Useful when project alternatives differ only with respect to initial costs and operating costs, but have to be compared in order to select the one that maximizes net savings.



□ What Data is Required to Perform a Life Cycle Cost Estimate?



□ **An Example** – A typical High School AIA Handbook, p. 682

