USC School of Architecture

LAST UPDATED 8/21/19

ARCH 526: PROFESSIONAL PRACTICE:
LEGAL AND ECONOMIC CONTEXT, PROJECT DOCUMENTATION (3.0 UNITS)
Design methodology, typology programming, site analysis, budget formulation and pro-forma procedures. Office management, emphasizing professional service and professional ethics as well as project management focusing on the architect's responsibilities during construction.

Semester: Fall 2019
Lecture: Fridays, 10:00 am - 11:50 am
Lecture Location: HAR 101
Labs: please go to the lab you are enrolled in
Wednesdays, 9:00 am - 10:20 am
Wednesdays, 10:30 am - 11:50 am
Fridays, 12:00 pm - 1:20 pm
Lab Location: WPH B36

Instructor: Michael Hricak, FAIA and Karen Kensek, LEED BD+C
Office: Watt 351 and Watt 309
Office Hours: send email to schedule an appointment
Contact Info: hricak@usc.edu and kensek@usc.edu (we will try to respond to emails within 24 hours Monday-Friday or on the Monday following a weekend or holiday break)

Class Assistants, Office, Office Hours, Contact Info
Zhiying (Nicole) Liu, Watt Hall third floor (MBS second year studio), TBA, liuzhiyi@usc.edu
Qihang Lin, Watt Hall third floor (MBS second year studio), TBA, qlin@usc.edu
Yushi Wang, Watt Hall third floor (MBS first year studio), TBA, yushiw@usc.edu
One more TBA

IT Help: Dipak Shirke
Contact Info: dshirke@usc.edu

Prerequisite(s): ARCH-500a or ARCH-605b.
Co-Requisite(s): None
Concurrent Enrollment: None
Recommended Preparation: Working knowledge of Revit and Rhino

Course Description

The goal of this course is to provide an opportunity to demonstrate the student's ability to comprehensively describe an architectural project by making a series of informed design decisions across scales and disciplines and memorializing these choices in an integrated collection of drawings, documents, and data.

The course explores the manner by which architects create and convey information. Design intent is shared using technical graphic and text information and other means of communication. Data collection and transfer is emphasized through various documentation systems. The student will prepare basic documents necessary for an understanding of the design intent by other design, engineering, legal, financial, and construction professionals.

The course includes an introduction to the basic laws and regulations that affect the practice of architecture as they relate to both design and the creation of construction related documents including the role of those authorities having jurisdiction (AHJ) over the project; the review, approval, and permit process; the role of peripheral regulatory agencies; and planning, zoning, and building codes.

The "anatomy" of standard construction information is presented through an overall review of project documentation, detailing, specifications, document formats, and project organization. The course includes a lab portion to demonstrate comprehensive, fully coordinated, and dynamic construction documents via several platforms of building information modeling (BIM) and other pertinent software. Other topics in the class include the role of collaboration, legal responsibilities, building materials and assemblies, financial considerations, project leadership, the role of ethics in making design decisions and in professional behavior, and project and practice management.

To effectively communicate their intentions architects must understand the various stakeholders' roles, concerns, agendas and responsibilities. These include the client(s), the users and occupants, project consultants (e.g. structural, MEP, energy, etc.), contractors, sub-contractors, fabricators, suppliers, government officials (e.g. inspections and code compliance), attorneys, and other professionals involved in the process. Communication thus becomes not a static list of one time deliverables, but an on-going process – requiring consistent information management and coordination by the architect.

Learning Objectives

By the end of this course, students will be able to

1. Model a building in Revit, transfer data from Rhino to Revit, and generate construction documents and drawings using professional design and construction industry standards.
2. Understand the workings of a construction project, the related areas of responsibility and the roles played by the various participants, using AIA Document A201 – 2017 "General Conditions of the Contract for Construction" as a guide.
3. Navigate the documentation and construction process within a contractual environment.
4. Fulfill the NAAB Student Performance Criteria: B.4, B.10, D.1, D.2, D.3, D.4, D.5

Course Notes

Not Revit: Please note that this is not a Revit class, but includes some lectures on Revit and includes other topics dealing with building information modeling (BIM). You will be introduced to some of the commands and create a Revit 3d model, but if you wish to learn a lot about Revit specifically, please take a class that focuses more on it. If you are completely new to Revit, you will need to spend additional time catching up.

Communication

Communication and collaboration are essential for design professionals working on any project. Therefore, we want you to feel comfortable asking questions and giving feedback on this course just as we, and your classmates, will be providing you with feedback on your assignments. If you have questions or comments, please speak to us directly after class or email us.

Technological Proficiency and Hardware/Software Required

Software Required: Download Autodesk Revit 2020 from http://students.autodesk.com. The software is also available on the school and campus computers. Students may also wish to download Navisworks and a free trial version of Enscape, which works both with Revit and Rhino.

You will also need to bring a laptop to lecture on Fridays. If you do not own one, you can check one out on campus. https://itservices.usc.edu/spaces/laptoploaner/

We will be using Blackboard as a method of distributing class information and receiving your assignments. Please make sure that you know how to download and upload files.

Required Materials

Perkins, Bradford (editor), American Institute of Architects, **The Architecture Student's Handbook of Professional Practice (ASHPP**), Fifteenth Edition, John Wiley & Sons, copyright 2016. ISBN 9781118738979

A201- 2017 General Conditions of the Contract for Construction
http://content.aia.org/sites/default/files/2017-04/A201_2017%20sample%20%28002%29.pdf

Kensek, Karen, **Building Information Modeling**, Routledge, copyright 2014.

Effective Use of the IBC/CBC, pages vii through xvi.
http://www.ecodes.biz/ecodes_support/free_resources/2013California/13Building/PDFs/Effective%20Use%20of%20the%20IBC_CBC.pdf

OR

http://www.bsc.ca.gov/codes.aspx, Choose….2013 Triennial Edition, Part 2 California Building Code, Building Volume 1 "Effective Use of the IBC/CBC"

Optional Materials

Books and articles

AIA Draft Documents for Review and Comment: E203™–2012, Building Information Modeling and Digital Data Exhibit; G201™–2012 Project Digital Data Protocol Form; and G202™–2012 Building Information Modeling Protocol Form.

assorted readings of Blackboard: aiab095712 - AIA BIM contract documents.pdf, AIACC_IPD.pdf, bimforum.org-lod (folder), software skills needed.pdf

Brand, Stewart, **How Buildings Learn, What Happens After They're Built**, Penguin Books, copyright 1994.

Ching, Francis D. K. and Winkel, Steven R., **Building Codes Illustrated: A Guide to Understanding the 2012 International Building Code**

Nordenson**, G., Reading Structures: 39 Projects and Built Works,** Lars Muller Publishers, Copyright 2016

Lewis, P.; Tsurumaki, M.; Lewis, D.J. **Manual of Section**, Princeton Architectural Press, Copyright 2016

NCARB Mongraphs - Heating and Cooling Design for Buildings

Wakita, Bakhoum, and Linde**, The Professional Practice of Architectural Working Drawings 4th edition**

Teaching Videos

Lynda, accessable from Blackboard (search on Revit, Rhino, Grasshopper, and Dynamo)

revitcourse.com

YouTube content

Description and Assessment of Assignments

Below is a general overview of the assignments. We will provide a detailed assignment description for each one on Blackboard. Pay special attention to deadlines.

Late work will not be accepted; turn in what you have ON-TIME, before the beginning of Friday class. It is better to turn something in for partial credit than receive a zero.

It is critical that you finish by the deadlines that have been set. Each assignment builds on the next. Usually you will be turning in a paper based assignment and a file on Blackboard. Students are strongly encouraged to come by with work in progress for suggestions before the work is due and come by after grading to learn how they could improve in the future. Please read the assignments carefully – some are done as individuals and others as team assignments. Assignments vary – check the individual assignment descriptions as to what you turn in and whether or not you additionally turn it in on Blackboard. There are **no make-ups** on assignments or quizzes.

As the semester progresses, there might be changes to the assignments if we determine that other topics need to be covered.

Sheet Listing

You will be given an example list of sheets to turn in that applies to the assignments. Assignments vary (read the specific assignment description), but the following is the basic framework:

1. Title sheet / Comprehensive project summary diagram / Building data calculations
2. Site plan / plot plan
3. Ground floor plan
4. Typical floor plan
5. Structural diagram
6. Elevations
7. Sections
8. Door and window schedules
9. Typical mechanical layout
10. Large scale wall sections
11. Details (enclosure, vertical circulation, access points)
12. Something additional specific to that assignment (e.g. exploded axon or outline specs).

BIM Assignments

The BIM assignments are intended for you to develop specific skills necessary for the completion of the comprehensive building drawing set.

BIM 1: showing Revit proficiency, house workshop or equivalent (11”x17”)
BIM 2: Revit small building, the Villa Savoye (11”x17”)
BIM 3: Rhino to Revit (11”x17”)

Comprehensive Building Drawing Set (CBDS)
Your comprehensive building design from spring semester studio will be used to create a set of drawings documenting your building. This will be done in teams of two using your previous semester's studio project.

CBDS 1: comprehensive studio project – partial set (11"x17" – half size 22"x34")
CBDS 2: comprehensive studio project – all sheets (22"x34")
CBDS 3: comprehensive studio project – final submission (11"x17" – half size 22"x34")

Final Exam/Project
A final exam/project will be given in the course.

Grading Breakdown

Grades will be recorded in the Blackboard gradebook. It is important to meet with the class assistants soon after grades are posted for individual feedback as the assignments generally will not be turned back to you. The instructors are also available to give feedback. Email to schedule a time to meet. If there are changes to this chart, you will be notified.

Assignment	**% of Grade**	**% of Total Grade**
BIM 1	3	**15**
BIM 2 – teams of two	5	
BIM 3	7	
CBDS 1 – teams of two	10	**60**
CBDS 2 – same team of two	20	
CBDS 3 – same team of two	30	
Final Exam	10	**10**
Quizzes (5) drop the lowest grade of 6 quizzes	3 percent each	**15**
	Total	**100**

Grading

Graduate students need an average of B- to pass. As this is a required course, you need to pass Arch 526 to graduate. Students failing the course will need to take it again the next fall semester. If at any time you feel that you are doing poorly in the class, you should set a time to speak to the instructor on how to improve future work. Late assignments will not be accepted. "Bonus" work will not be given. Assignments or quizzes cannot be redone. We will give you advice on how to improve in future assignments.

Course Specific Policies

Critiques of Work
Several times during the semester, you will be required to sign up for reviews with the instructor and guest critics. These will be included as part of your CBDS grades.

Technology in the classroom
This class focuses on digital work although paper and pencil sketch work might also be done. Therefore, expect to use personal electronic devices (laptops, tablets, and phones) only for the purposes of note taking, researching online, and uploading assignments. Students using a device for purposes not directly related to the class will be asked to put the device away.

Academic Integrity

Unless otherwise specified, you are expected to complete all the work yourself. Copying other people's work or downloading digital files will result in a zero on the assignment and disciplinary action.

Attendance

Regular class attendance in lecture is necessary as students are required to learn the material and take quizzes on it. There will be required quizzes during class time. Labs are essential for learning the software. "Desk" crits will be used to convey information and test your understanding of the work.

The University of Southern California recognizes the diversity of our community and the potential for conflicts involving academic activities and personal religious observation. The University provides a guide to such observances for reference and suggests that any concerns about lack of attendance or inability to participate fully in the course activity be fully aired at the start of the term. As a general principle students should be excused from class for these events if properly documented and if provisions can be made to accommodate the absence and make up the lost work. Constraints on participation that conflict with adequate participation in the course and cannot be resolved to the satisfaction of the faculty and the student need to be identified prior to the drop/add date for registration. After the drop/add date the University and the School of Architecture shall be the sole arbiter of what constitutes appropriate attendance and participation in a given course.

Please contact Karen Kensek at kensek@usc.edu by the end of the second week of class if you anticipate conflicts with religious holidays including missing lectures, inability to finish homework assignments on-time, or other items that may hinder your work in this class.

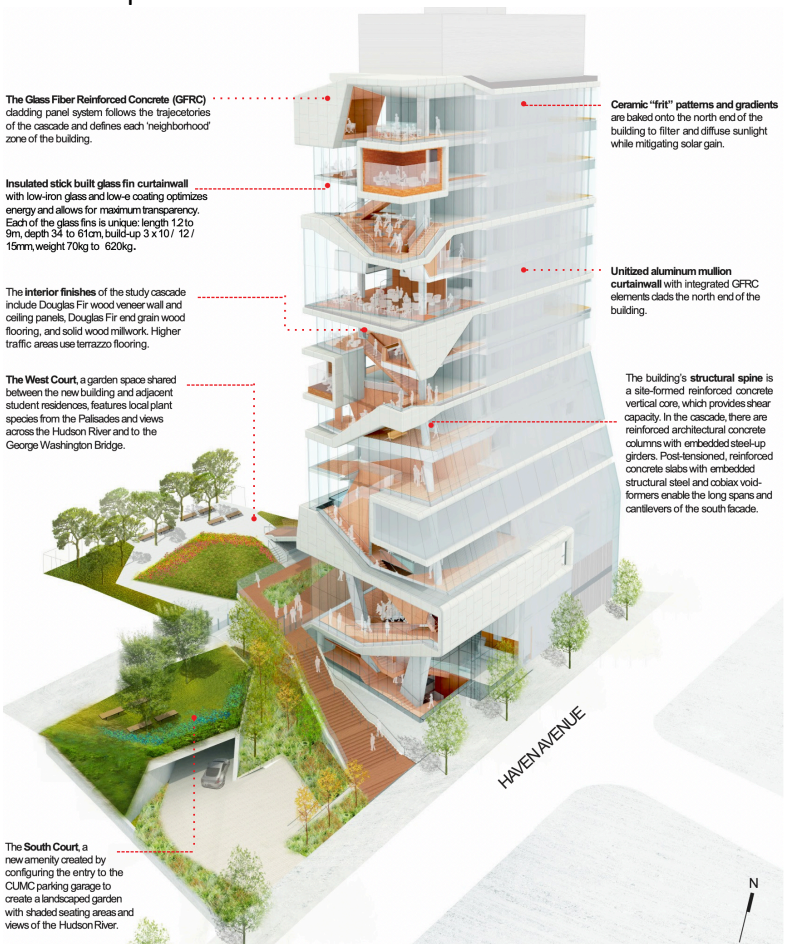
Classroom Norms

Sharing our work with others and opening ourselves to critique (or peer feedback) can be a vulnerable process. To model the expectations of a professional work environment in our field, and promote a respectful classroom environment, we agree to the following.

- Do not interrupt when someone else is speaking
- Critique design work, not people
- Support critique with evidence, or speak from personal experience
- Allow everyone to critique (i.e., don't dominate or remain silent)
- Keep a positive tone when offering critique and responding to it
- Accept critique in the positive spirit with which it is given as a means of development

Course Evaluation

Student feedback is essential to making this course the best it can be. Students will have an opportunity to submit comments on the mid-semester evaluation and the standard USC course evaluation survey at the end of the semester. Feel free to bring concerns directly to the instructors if there are problems.



Annotated axonometric. Roy and Diana Vagelos Education Center - Columbia University Medical Center, Diller Scofidio + Renfro with Gensler

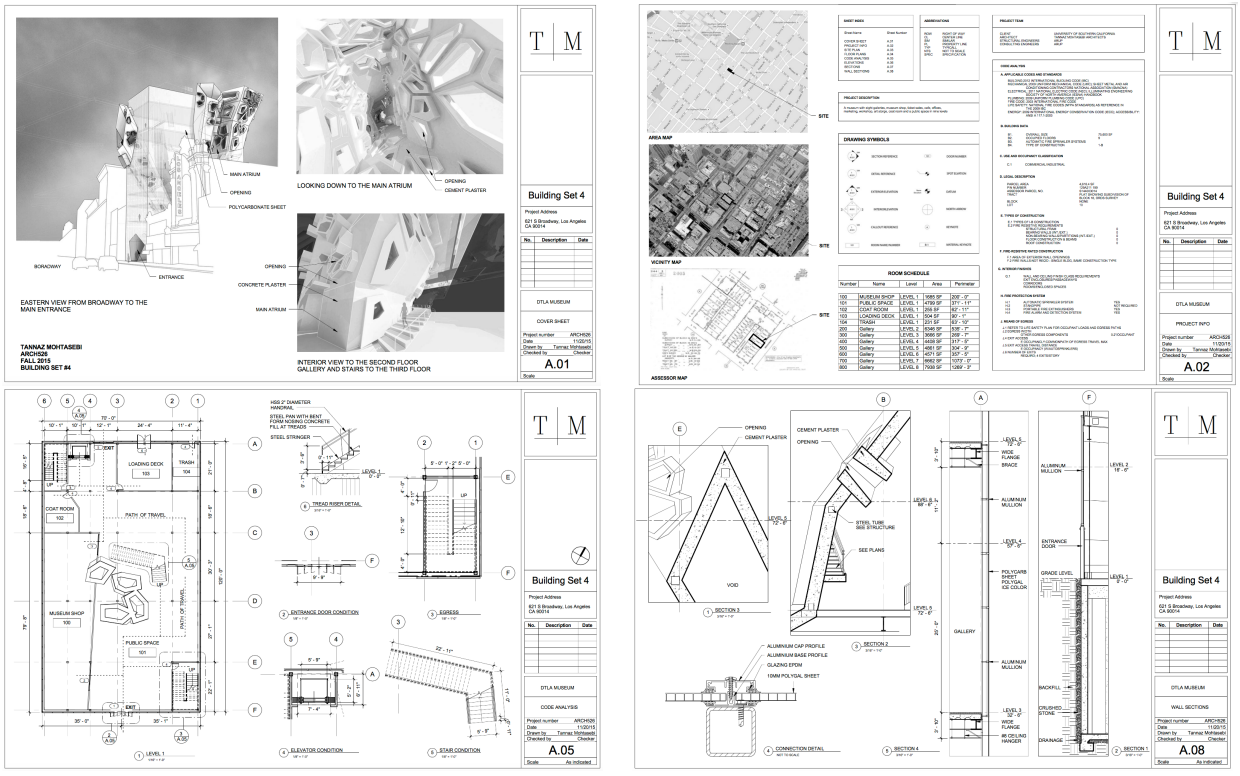
Course Schedule: A Weekly Breakdown

Assignments are due as digital files uploaded to Blackboard before the start of class on Fridays and due as print outs in class at the start of class also on Fridays at 10 am. As previously mentioned, late assignments are not accepted in the class. Please turn in whatever you have on time.

	Labs (WPH B36) **Lab 1**: Wed, 9 am – 10:20 am **Lab 2**: Wed., 10:30 am – noon **Lab 3**: Friday, noon – 1:20 pm	**Friday Lecture (HAR 101)** 10 am – 11:50 am	**Assignments Due** – Friday, 10 am in class (HAR 101) and on Blackboard **Required Readings**
Week 1 Aug. 28, 30	Revit family overview Family, type, instance, System, loadable, in-place Generic model versus mass **KK**	Technical Documentation 1 (B.4) Anatomy of Construction Information/ A201 An Introduction & Tour **MH**	ASHPP Section 7.2 A201: Article 1 & 2 Routledge: introduction, Chapter 1
Week 2 Sept. 4, 6	Rhino to Revit interoperability overview of methods Generic models (context) Mass (Revit) Convert from Revit mass Grasshopper/Dynamo/Excel 2D to Revit 3D families Native Revit families **KK**	Financial Considerations (B.10) The Intersection of Design, Data & Commerce Basis for cost calculations, determining building data. **MH**	**BIM 1 DUE** ASHPP Sections 9.3 & 9.4 A201: Article 8 & 9 Routledge: Chapter 2
Week 3 Sept. 11, 13	Revit adaptive components, pattern based **KK**	Stakeholder Roles in Architecture (D.1) The Communities Served by Architecture & Your Roles **MH**	ASHPP Sections 3.3 & 6.1 Routledge: Chapter 3
Week 4 Sept. 18, 20	Revit adaptive components **KK**	Technical Documentation 2 (B.4) Understandable Complexity: The Art and Science of 3D **MH**	**BIM 2 DUE** ASHPP Sections 7.1 A201: Art 3 & 4 Routledge: Chapter 4
Week 5 Sept. 25, 27	Rhino to Revit using Grasshopper, Dynamo, and Excel **KK**	Rhino to Revit Guest Lecture Tentatively: Kais Rawi and Laura Karnath, Walter P Moore **KK + guests**	Routledge: Chapter 5

Week 6 Oct. 2, 4	Introduction to Revit Structure **KK**	Project Management 1 (D.2) The Cast of Characters: Roles, Responsibilities, and Risks **MH**	**BIM 3 DUE** ASHPP Sections 7.4 A201: Art 2, 3 & 4 (REVIEW again) Routledge: Chapter 6
Week 7 Oct. 9, 11	Introduction to Revit Mechanical **KK**	Project Management 2 (D.2) How Projects Get Built: Options for Project Delivery **MH**	ASHPP Sections 8.1 & 8.3 A201: Art 5, 6 & 7 Routledge: Chapter 7
Week 8 Oct. 16, 18	BIM360 Guest Lecture Tentatively: Scott Davis, Autodesk **KK + guest**	**Fall Recess** Friday lab students should attend one of the Wednesday sections.	
Week 9 Oct. 23, 25	Revit family parameters **OR** Enscape or Twinmotion **KK**	Technical Documentation 3 (B.4) How Data becomes Information and is Transformed by Knowledge **MH**	**CBDS 1 DUE** Handout Routledge: Chapter 8
Week 10 Oct. 30, Nov. 1	CBDS 1 team reviews. Schedule a time for your team to meet with Prof. Hricak during lab time. Bring CBDS 1. Turn in your typed review notes with CBDS 2. **MH**	Business Practices (D.3) Financial and Professional Sustainability and Success **MH**	**REQUIRED CBDS 1 REVIEW** ASHPP Sections 4.5 & 4.10 Routledge: Chapter 9, Conclusion
Week 11 Nov. 6, 8	Navis Manage **KK**	Legal Responsibilities (D.4) Risks and Rewards **MH**	**CBDS 2 DUE** ASHPP Section 2.1 & 2.3
Week 12 Nov. 13, 15	CBDS 2 team reviews. Schedule a time for your team to meet with the guest critics during lab or lecture time. Bring CBDS 2. Turn in your typed review notes with CBDS 3. **MH + guests**	CBDS 2 team reviews. Schedule a time for your team to meet with the guest critics during lab or lecture time. Bring CBDS 2. Turn in your typed review notes with CBDS 3. **MH + guests**	**REQUIRED CBDS 2 REVIEW**

Week 13 Nov. 20, 22	Required in-class exercise: outline specifications **MH**	Technical Documentation 4 (B.4) Communicating Design Intent **MH**	
Week 14 Nov. 27, 28	**Thanksgiving Recess**	**Thanksgiving Recess**	
Week 15 Dec. 4, 6	Required in-class exercise: working with authorities having jurisdiction over your project **MH**	Professional Conduct (D.5) The Ethics of Design Decision Making **MH**	**CBDS 3 DUE** ASHPP Section 1.3
FINAL EXAM / PROJECT	Monday, December 16, 8 – 10 am		



Tannaz Mohtasebi (Fall 2015 – partial comprehensive building drawing set)

Course Expenses

The instructors estimate that the cost for books and materials in this course is under $120.

Accreditation Statement

The USC School of Architecture's five year BARCH degree and two year and three year M.ARCH degrees are accredited professional architectural degree programs. All students can access and review the NAAB Conditions of Accreditation (including the Student Performance Criteria) on the NAAB Website, https://www.naab.org/accreditation/accredited-programs/ .

Architecture 526 is responsible for covering material in SPCs B4 (ability), B10 (understanding), and D1-5 (understanding).

Realm B: Building Practices, Technical Skills and Knowledge
Graduates from NAAB-accredited programs must be able to comprehend the technical aspects of design, systems and materials, and be able to apply that comprehension to architectural solutions. Additionally the impact of such decisions on the environment must be well considered. Student learning aspirations for this realm include

- Creating building designs with well-integrated systems.
- Comprehending constructability.
- Integrating the principles of environmental stewardship.
- Conveying technical information accurately

B.4 Technical Documentation
Ability to make technically clear drawings, prepare outline specifications, and construct models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.

B.10 Financial Considerations
Understanding of the fundamentals of building costs, which must include project financing methods and feasibility, construction cost estimating, construction scheduling, operational costs, and life-cycle costs.

Realm D: Professional Practice
Graduates from NAAB-accredited programs must understand business principles for the practice of architecture, including management, advocacy, and acting legally, ethically and critically for the good of the client, society and the public. Student learning aspirations for this realm include

- Comprehending the business of architecture and construction.
- Discerning the valuable roles and key players in related disciplines.
- Understanding a professional code of ethics, as well as legal and professional responsibilities.

D.1 Stakeholder Roles In Architecture
Understanding of the relationship between the client, contractor, architect and other key stakeholders such as user groups and the community, in the design of the built environment. Understanding the responsibilities of the architect to reconcile the needs of those stakeholders

D.2 Project Management
Understanding of the methods for selecting consultants and
assembling teams, identifying work plans, project schedules and time requirements, and recommending project delivery methods.

D.3 Business Practices
Understanding of the basic principles of business practices within the firm including financial management and business planning, marketing, business organization, and entrepreneurialism.

D.4 Legal Responsibilities
Understanding the architect's responsibility to the public and the client as determined by regulations and legal considerations involving the practice of architecture and professional service contracts.

D.5 Professional Conduct
Understanding of the ethical issues involved in the exercise of professional judgment in architectural design and practice and understanding the role of the NCARB Rules of Conduct and the AIA Code of Ethics in defining professional conduct.

Academic Conduct
Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
engemannshc.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call
engemannshc.usc.edu/rsvp
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086
equity.usc.edu, titleix.usc.edu
Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421
studentaffairs.usc.edu/bias-assessment-response-support
Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.
The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu
Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710
studentaffairs.usc.edu/ssa
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101
diversity.usc.edu
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.