

Rensselaer Polytechnic Institute
School of Architecture
Architectural Program Report



Submitted to:

National Architectural Accrediting Board
September 7, 2009

Introduction to the Program (1)

1 Introduction to the Program

1. Introduction to the Program

The APR must include the sections described below.

1.1 History and Description of the Institution

The Rensselaer School was established in Troy, New York, in 1824 by Stephen Van Rensselaer *"for the purpose of instructing persons ... in the application of science to the common purposes of life."* It is *"...the first school of science and school of civil engineering, which has had a continuous existence, to be established in any English-speaking country"* according to Palmer C. Ricketts in his preface to the second edition of his History of Rensselaer Polytechnic Institute (1914). A nonsectarian, coeducational institution, the university offers degrees from five schools: Engineering, Science, Architecture, Humanities, Arts and Social Sciences, and the Lally School of Management and Technology, as well as interdisciplinary degrees in information technology.

In 1833 the school became the Rensselaer Institute, and in the 1850s its purpose was broadened to become a polytechnic institution. In 1861 the Institute's name was changed to Rensselaer Polytechnic Institute. Rensselaer maintains an online archive of seven rare books covering the Institute's early history. Published between 1855 and 1968, the books detail Rensselaer's founding and development, and place the school in the context of scientific and technological education in the 19th and 20th centuries.

One Legacy — Many Pathways

Rensselaer is a diverse community of dreamers and doers who share several characteristics. They are drawn to the sciences and technology, and to disciplines ranging from architecture and engineering to business and the arts. They love to tackle complex problems, and they have a sincere desire to improve the world. Yet the people of Rensselaer are true individuals: everyone who comes here seeks a pathway to greatness that is uniquely his or her own.

Bold Exploration

When students come to study at Rensselaer, they will benefit from a proud legacy of bold exploration. Rensselaer Polytechnic Institute was established in 1824 as the first technological university in the English-speaking world. The Institute was organized around a concept considered quite radical for the time: that students should actively engage with their studies by performing experiments and exploring other participatory forms of learning, rather than sitting passively in lectures.

A Fully Realized University

Over time, as Rensselaer has evolved into a fully realized university of 5,350 undergraduates and 2100 graduate students, this groundbreaking approach to education has generated wave after wave of innovation and discovery. One Rensselaer graduate masterminded the first moon landing; another, the building of the Brooklyn Bridge. Our alumni **invented** e-mail and helped develop sunscreen. They have established and led successful enterprises, from Texas Instruments (inventors of the first silicon transistor) to Vicarious Visions (creators of *Guitar Hero III*).

Become A Pioneer

Rensselaer students, will walk in the footsteps of these pioneers — and become one. They will enjoy access to world-class research facilities, and work along side exceptionally talented researchers on challenges that range from eradicating cholera to combating global warming. Whether you study architecture or arts, mechanical engineering or music, bioinformatics or business, Rensselaer is a paradise for people who yearn to fulfill their dreams, and improve the world in the process.

RENSSELAER SCHOOL OF ARCHITECTURE

1 Introduction to the Program

Enrollment

Resident Undergraduate Students (Fall 2008)

Full-time: 5,357, Part-time: 10

Undergraduate Total: 5,367

Graduate Students (Fall 2008)

Resident Full-time: 1,092 Resident Part-time: 108

Resident Total: 1,200

Non-Resident: 887

Non-Matriculated: 67

Graduate Total: 2,154

Total Students Enrolled: 7,521 (Fall 2008)

1.2 Institutional Mission

Rensselaer's Mission Statement:

Rensselaer educates the leaders of tomorrow for technologically based careers. We celebrate discovery, and the responsible application of technology, to create knowledge and global prosperity.

Rensselaer pursues this goal: To achieve greater prominence in the 21st century as a top-tier world-class technological research university with global reach and global impact.

Spectrum and Nexus

These two concepts help explain the unique environment that is Rensselaer. Our university promotes excellence across a broad continuum of disciplines — from engineering and biotechnology to athletics and the arts. Rensselaer's creative spirit also fosters limitless opportunities for diverse disciplines — and people — to connect, intersect, and enrich one another in ways that benefit the larger world.

Rensselaer's mission statement was approved by the Board of Trustees in May 2000. Its adoption along with the Rensselaer Plan articulates a strategic vision and delineates the means to achieve it. An "evergreen" plan designed to be revised on a regular basis, "The Rensselaer Plan will guide our decisions and provide the framework for school and divisional performance plans that will serve as the basis for each year's operating plan and budget. Performance plans will define means and metrics, and when prioritized, will create the case for major new resources." A copy of the Rensselaer Plan can be found following this section.

1.3 Program History: The School of Architecture

In 1848, Rensselaer's senior professor and director Benjamin Franklin Greene travelled to Europe to undertake the first systematic study of educational models, examining among others the Ecole Des Beaux Artes and L'Ecole Polytechnique in Paris. Upon his return in the 1850's he wrote, "The True Idea of a Polytechnic" premised on looking forward, toward the creation / building of a new world, and proposed that The "Rensselaer School" become "The Rensselaer Polytechnic of Engineering and Architecture", asserting architecture to be essential in any polytechnic "worthy of the name". While fulfillment of this vision would have made Rensselaer's School of Architecture the first in North America, Greene's recommendation finally became reality in 1929 and the first architecture students graduated in 1933.

The Department of Architecture (later the School of Architecture) remained small in its early years, placing its emphasis upon a pragmatically oriented professional program. Professor Turpin Bannister, one of the founders of the Society of Architectural Historians, introduced the study of history into the program in the

RENSSELAER SCHOOL OF ARCHITECTURE

1 Introduction to the Program

1930s (the Society of Architectural Historians was founded while he was on the faculty at Rensselaer). After the Second World War, the program grew in size and developed depth in structures and building construction. A design emphasis emerged in the 1960s, with concern for urban and community issues.

The School of Architecture offers two professional degree programs leading to NAAB-accredited Bachelor of Architecture (BArch) and Master of Architecture (MArch) degrees. The Bachelor of Architecture program has been continuously accredited by NAAB since 1945. The Master of Architecture (first professional degree) was accredited by NAAB in 1979 and has since been continuously accredited.

It is through architecture that a future shaped by technology and imagination in response to contemporary challenges will be made real. Though architecture is the most public of the arts, it is also in these times a context for the most needed and far-reaching creativity that can positively affect urbanizing societies and threatened environments. To enable, inspire and equip its graduates an education in architecture must deal with the physical, structural and performance demands of building(s); must equip students to be capable and creative in advanced computational techniques that empower design imagination, while enhancing predictability, performance and the integration of multi-disciplinary concerns integrated within buildings (complex systems) and, must provide experience of the global context within which architects practice. Such issues are at the core of the undergraduate and graduate programs in architecture at Rensselaer.

The School of Architecture offers its professional degree students semester-long international programs in Italy, India and China, complemented by numerous short international academic travel workshop opportunities. The semester-long Built Ecologies program, embedded within Rensselaer's Center for Architecture Science and Ecology [CASE] at Skidmore Owings and Merrill [SOM] in New York City, creates the context for undergraduates and graduates to work together with faculty from multiple disciplines, practicing architects and engineers on the development of emerging, next-generation, sustainable building technologies.

Faculty and programs at the School encourage study and research between disciplines. The studio environment supports the most ambitious applications of information-based design and technology and places high value on creativity. Design is central to architectural education, and at Rensselaer it is taught by 17 permanent faculty complemented by clinical and adjunct professors drawn from research and practice throughout the region and beyond.

The Greene Building

Home of the School of Architecture, Greene has its own Architecture branch library, houses the studios, faculty offices and administrative spaces, a Fabrication Lab (digital and non-digital shop), Ph.D. spaces and research labs as well as a gallery for showing and reviewing students' work, seminars and lectures. In Greene one multimedia equipped classroom and several seminar rooms may be scheduled for classes or meetings however many of architecture's lecture classes are scheduled in other classrooms on campus.

The Fabrications Lab was relocated and expanded to 4000sf in 2008-09. It includes a 380sf ceramics laboratory, a 440sf laser / 3D printing suite with two laser cutters and a 3D printer, and a 430sf milling suite with a 4'x8' bed, 3-axis, CNC milling machine. A general shop / machine room is equipped with traditional hand and power tools and an 840sf class / benchroom space accommodates shop-based classes and project assembly work.

Undergraduates and Masters degree students in our NAAB accredited professional programs experience an exceptional combination of material engagement and advanced computational design with emphasis on techniques that enable a progressive agenda within the rapidly ever-changing conditions of the architecture discipline and world. Supporting subject areas in emerging technologies, sustainability, history and theory

1 Introduction to the Program

are taught as integrated knowledge and skill sets for the designer and professional. Over 57% of undergraduates participate in one of our semester-long programs in Italy, India or China, and together with the New York City semester program, all undergraduate students have opportunity to spend at least one semester embedded in a second dynamic learning setting.

The M.Arch.I is a 3 1/2-year first professional degree program for students holding bachelor's degrees in alternative fields. Applicants with previous architecture study will be considered for advanced standing. By competitive application M.Arch.I students can also participate in several international programs of study, or for a semester in New York City in the Built Ecologies program at the Center for Architecture Science and Ecology [CASE].

The undergraduate program has, in recent years increasingly benefited from the development of new Masters of Science and Ph.D. graduate programs in Lighting, Architectural Acoustics and Built Ecologies. They have attracted to the school gifted faculty from architecture and kindred fields, the majority of whom have advanced degrees in areas of specialization significant to architecture. They have added minor areas of concentration to the undergraduate curriculum in acoustics and lighting and an opportunity to study for a semester in NYC at CASE. The expanded student body is more diverse and mature, and the research culture of these programs creates a healthy respect for research in architecture and for the benefits of bringing knowledge from other disciplines.

In addition to the M.Arch I, the graduate program also offers Masters Degrees in Architectural Acoustics, Built Ecologies and Lighting, all of which can lead to the Ph.D. in Architectural Sciences. The Lighting program is taught within the Lighting Research Center, the preeminent setting for lighting research nationally, and a model for graduate research and scholarship. The Architectural Acoustics program is one of only a few in the nation with an exemplary reputation for student work and scholarship. Built Ecologies, linked to Rensselaer's Center for Architectural Sciences and Ecology in New York City, is a research and education program focused on emerging materials and technologies for a next generation of sustainable building and building system design that are driven by issues of energy and the environment. The Built Ecologies program, colocated in Troy and in NYC provides a structured opportunity for upper level B.Arch and M.Arch1 students to join graduate research initiatives in the SOM / CASE context while completing related course and studio-work.

The School of Architecture offers the Doctor of Philosophy degree in Architectural Sciences to candidates who are prepared to undertake innovative and substantive research that adds to the body of knowledge drawn on by the design disciplines. The Sciences in this context refer to those disciplines that support and shape our understanding and production of the built environment including its physical, biological, environmental, social, cognitive and cultural contexts. The Ph.D. is an inherently interdisciplinary degree in which concentrations can be elected in Architectural Acoustics, Built Ecologies, and Lighting where distinguished faculty from within the School and across the Institute collaborate on research projects that are informed by both disciplinary depth and trans-disciplinary integration.

The Ph.D. is intended for those who desire a career in teaching, research, specialized professional practices or consulting. The program is intended to build knowledge, skills, insight and experiences that will enable these individuals to make an original and lasting contribution to their chosen field beginning with their dissertation and continuing into their professional lives. The program is structured to foster a community of students and scholars, a collaborative environment in which lateral flows of ideas and influences enrich the research agenda of each member of the community.

The School of Architecture has two Centers, the Lighting Research Center, now in its 20th year and the much younger Center for Architecture and Ecology, launched in 2008.

The Lighting Research Center

The Lighting Research Center (LRC) is the leading university-based research center devoted to lighting and offers the world's premier graduate education in lighting, including one- and two-year master's programs, and a Ph.D. program. Since 1988, the Center has built an international reputation as a reliable source for objective information about lighting technologies, applications, and products. It provides training programs for government agencies, utilities, contractors, lighting designers, and other lighting professionals.

Its mission is to advance the effective use of lighting and thereby to create a positive legacy for society and the environment. We investigate lighting issues and educate the next generation of lighting leaders. Our programs cover a range of activities including both laboratory testing of lighting products and real-world demonstration and evaluation of lighting products and designs. We conduct research into energy efficiency, new products and technologies, lighting design, and human factors issues.

The Center for Architecture Science and Ecology

The Center for Architecture Science and Ecology (CASE) is addressing the need for accelerated innovation of radically new sustainable built environments through the development of next generation sustainable building systems. Co-located on the Rensselaer campus and in lower Manhattan, CASE unites advanced architectural and engineering practices with scientific research through a unique and intensive collaboration between multiple institutions, manufacturers and professional offices within the building industry. In partnership with Skidmore, Owings & Merrill (SOM), the School of Architecture is pushing the boundaries of environmental performance in urban building systems on a global scale, through research using actual building projects as research test beds.

By bringing together ambitious building design professionals with research faculty and advanced students dedicated to the exploration of emerging building technologies, the research center creates an intellectually vibrant educational setting for advanced degree and professional program students. The School has focused its built Ecologies program on the development of next generation performance driven building technologies to support clean, self sustaining built environments aimed at innovating and implementing changes to building practices in three priority areas: energy consumption; sustainable resource management; and quality of access to essential resources.

1.4 Program Mission

Mission: To prepare the most effective practitioners of architecture and its related fields, for international practice in the 21st Century.

The most effective 21st century practitioners will have to be

- capable in their craft and
- knowledgeable and aware of the many and increasing numbers of integrated concerns that affect what buildings are, how they perform and how they are conceived, developed and constructed.

To be leaders in the profession, Rensselaer graduates need to be

- creative innovators
- quick to recognize and discern the most important and emerging criteria, and
- confident and able to respond effectively in the context and control of a larger vision.

To participate in internationally and have global impact, architects must,

- be prepared to recognize and address different situations

1 Introduction to the Program

- value difference and diversity
- be aware of the environment we all share

Vision: *Restructure the School of Architecture to become an international center for the integration of innovations in technology and science into design at many scales from products to community.*

To facilitate innovations in technology into design the school seeks to create a larger intellectual context for architecture studies, integrating first principles, allied disciplines, and interdisciplinary enterprise in the creation of a vibrant settings which support knowledge integration, vision and sets a trajectory for lifelong learning and research.

Our current mission statement was developed in late 2001 as part of the initial performance planning process. It was approved by the faculty and administration within the process and has been reaffirmed as we move through the annual performance planning process. We have since strengthened the LRC to National preeminence, been recognized for exceptional scholarship nationally in Architectural Acoustics and realized a new advanced degree and research program in Built Ecologies which integrates our professional students. We have created a Ph.D. in Architectural Sciences and launched the Center for Architecture Science and Ecology CASE at SOM in New York City – all consistent with our vision for the School.

1.5 Program Self Assessment

This section should briefly outline the program's strengths and challenges and include a plan to address those challenges. Candor in conducting and reporting the self-assessment increases its value to the accredited degree program and to the NAAB and, if well done, will largely anticipate the VTR.

The strengths of the school as follows:

- An intellectually diverse and distinguished Faculty
- Quality of students
- Access to Internationally Renowned Research Centers within the School of Architecture
- Situated within an Institute with a world-class reputation for Science and Engineering Research
- Access to the Experimental Media Performing Arts Center (EMPAC) for lectures and interdisciplinary events
- A commitment within the curriculum to environmental awareness

Balance between professional capacity and creative and critical skills

The professional programs' balance between building professional capacity and creative and critical skills is one, which prepares students for leadership in diverse practices. The program is professional and it is progressive, accomplished in equipping students with intellectual skills and knowledge that create confidence and form a trajectory for lifelong learning and leadership in a changing profession and world.

Performance and Rankings

In the profession high pass rates on the ARE (6th among NAAB schools in 2007)¹ speak to proficiency and based significantly on how graduates are perceived in the workforce, Rensselaer's School of Architecture is ranked 20th in 2008 by Design Intelligence Magazine.

Access to Technology

¹ NCARB website – latest data - 2007

1 Introduction to the Program

The Polytechnic setting, and in particular Rensselaer's research platforms, infrastructure and intellectual capital provides an immensely rich setting for the development and integration of new techniques, systems and materials into the Architecture enterprise.

International Programs

Rensselaer offers many exceptional international program and travel opportunities that are built into the curriculum and provide every student the opportunity to broaden their exposure to various settings and cultures.

Area Strengths

Area strengths include computational design, technology-design integration, fabrication and interdisciplinary initiatives chief among which are the Bedford initiatives joining engineering and architecture faculty and students in collaborative learning settings, and the Built Ecologies education and research program focused on developing next generation sustainable building systems. Built Ecologies is located within CASE, the Schools newly launched Center in partnership with and at the offices of SOM in New York City.

Challenges facing the School and plans to address them

Faculty Loading

Challenges facing the school in recent years include faculty loading and in particular staffing the undergraduate final project / masters thesis in a manner that serves the students well without overloading faculty and impacting their ability to excel in scholarship, research and advancement. While the final project and masters thesis has been covered, coupled with the already high teaching load, time to commit to other important activities is constrained. Administrators in the school also carry full teaching loads.

Plan to address challenge:

- *Two new faculty hires have been authorized*
- *Change the standard base teaching load for design teachers*
- *Change the teaching load expectation for administrators*
- *Seek several more faculty lines in association with changing teaching load expectations*

B.Arch Final Project and M.Arch 1 Thesis

The B.Arch Final Project / M.Arch Thesis is a faculty guided independent endeavor which expects each student to identify develop and execute a critical project. While the caliber of student projects has improved from one year to the next we feel there is significant room for improvement. A change in faculty over loading and a reassessment of the current coursework structure is a priority in order to strengthen this area in the professional curriculum.

Plan to address challenge:

- *Reassess the research component of Final Project in order to increase critical thinking and overall preparation for the final design proposal*
- *Reassess the criteria for student group clustering in the context of linking faculty and students together as productive units*

Faculty Diversity

Our student body diversity is strong with well over 50% women students and approximately 15% underrepresented minority students. While we have had women and underrepresented minority tenure track faculty hires in the past several years and women faculty have advanced in rank and responsibility, we do not consider progress sufficient. We have in the same period lost women faculty to other positions, one to a Deanship and one to an aspirant research an education program.

1 Introduction to the Program

Plan to address challenge:

- Proactively recruit women and minority candidates to future full time and adjunct positions
- Improve our mentoring of all rising faculty, with a particular focus on women and minority faculty.
- Invite lecturers that celebrate as role models the achievements of women and minorities within our profession.

Re-Populating the M.Arch 1

By 2006 any and all financial aid for Masters of Architecture students within our education and general funds had been reduced and/or rebudgeted, dramatically impacting our ability to bring in students. At a private university full tuition over 3-½ years leads to a cost of education at over \$125k (not including living expenses). As a result, in 2006 we had only three entering students, in 2007, only four and none in 2008. Given that a NAAB accredited professional program cannot possibly integrate research in the same way as a PhD program, a different graduate tuition/financial model is required. In 2008, the Institute implemented of a merit scholarship model late in the 2009 admission cycle. It yielded 6 excellent students in the first year. Our intent is first to expand to one section (12 students) per year, by Fall 2010, and two sections per year (24 students) per year by 2013.

Plan to address challenge:

- *Implement a Merit Scholarship model to compete with cost of attendance similar to programs in peer and aspirant Institutions. (begun in 2009 yielded six new student²)*
- *Reassess the current curriculum model of our 3 ½ year 112 credit NAAB accredited program to offer a contemporary and critical educational experience for our students based upon maximizing our unique research based resources here at Rensselaer.*
- *Create Rensselaer distinction by formalizing concentrations and International and NYC semester options.*

² Anticipate the ability to yield 12 well qualified students per year beginning in FY10

Progress Since the Previous Visit (2)

2. Progress Since the Previous Site Visit

Continuing accreditation is contingent on the Board's determination that deficiencies are being systematically addressed. The following two subsections explain what the APR must include.

2.1 Summary of Responses to the Team Findings

This section must include the school's response to the previous *Visiting Team Report (VTR)* for conditions "not met" and to the "causes of concern."

CONDITIONS NOT MET

Section 3.13 (formerly section 3.12) STUDENT PERFORMANCE CRITERIA

The program must ensure that all graduates possess the skills and knowledge defined by the performance criteria set out below, which constitute the minimum requirements for meeting the demands of an internship leading registration for practice.

3.13.10. National and Regional Traditions (formerly 3.12.12)

Understanding of national traditions and the local regional heritage in architecture, landscape design and urban design, including the vernacular tradition

1. We have added additional experiences in the national traditions and local heritage beyond the required introduction course Design History and Society. Design History and Society continues to focus centrally on national and regional traditions as well, including the recent addition of the Jeffersonian survey as a regulator of the American landscape.
2. A required 4th year course Cities/Lands (ARCH4040) addresses national and local/regional heritage in landscape, urban design and vernacular architecture in the following ways. Course readings include selections from texts on American and European landscape traditions. Readings also demonstrate the substantial shifts in attitudes toward nature (and the relations of settlements to these attitudes) over several centuries in the overall American experience. The tension between the New England Puritanical and the Jeffersonian Agrarian Farmer traditions, as evidenced in conflicted attitudes about American settlement patterns is explored in readings. Films focused on the development phases of New York City, the Hudson Valley communities and Erie Canal are shown and discussed to develop an understanding of the reciprocal relationships between urban development and linkages to regional resources and transportation infrastructures. The course places vernacular architecture in cultural and historical context through field trips to the Lower East Side Tenement Museum in New York City and the Albany Institute of History and Art. Toward the end of the semester reports by teams of readers extract relevant materials from assigned texts to share with the whole class on issues of national (as well as world) settlement logics, including the role architectural assemblages play in the idea of the good city.
3. The Building and Thinking of Architecture 1 and 2 consider the influence between culture and geography in contributing to regional and national traditions in architecture throughout the Western and non-Western worlds. However, in that the focus of these two courses is on architectural developments from antiquity through to the 16th century, no attention is given to the Americas in this respect.
4. The Building and Thinking of Architecture 3 has several lectures that focus on the work of Thomas Jefferson and Frank Lloyd Wright. In examining their work, these lectures also discuss the cultural, ideological, political, and geographical contexts in which this work occurred.
5. Modernity in Culture and Architecture contains lectures and readings on the evolution of the American City, the American landscape, and the Prairie School.
6. Architectural Design 2 engages in the design of a small house within the existing historical fabric of Troy, NY and housing within the emerging 21st century urban fabric of Boston.

3.13.14 Accessibility (Formerly 12.14)

Ability to design both site and building to accommodate individuals with varying physical abilities.

1. The Design Development studio along with the co-requisite Professional Practice has developed more rigorous requirements in dealing with issues of accessibility.
2. The core curriculum has adjusted the nature, scale, and sequence of design exercises. The Architectural Design 2 studio focuses on the house and housing. As part of that studio, issues of accessibility and life safety are formally addressed as part of a sequence of lectures given to all students in the studio and are required constituents of the major project of that studio.

3.13.16 Program Preparation (formerly 3.12.30)

Ability to prepare a comprehensive program for an architectural project, including assessment of client and user needs, a critical review of appropriate precedents, an inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and assessment of their implication for the project, and a definition of site selection and design assessment criteria.

1. The core curriculum has adjusted the nature, scale, and sequence of design exercises. Architectural Design 2 includes a research project that includes case studies of houses and housing as well as housing typologies and precedents. As part of the major project for this studio, in teams, students develop a program for a small community oriented facility that will be included with the design of a housing block. Students are expected to develop appropriate size, scale and relationship of space, and understand how these may change given immediate context and site constraints. A lecture addressing the basic aims and purposes of programming is given to all students.
2. As part of their work on the major design project in Architectural Design 3, students must develop an extensive program for a moderately large urban infrastructural facility. They must research, analyze, and draw conclusions regarding spatial components, relationships, and size, environmental response and potential structural implications, case studies, cultural milieu, user groups, scenarios, site and contextual parameters, occupancy and life safety issues, etc. A series of lectures on the purpose, aims, approach, strategies, and specifics of programming is given to all students.
3. "The relevant laws and standards and an assessment of their implications for the project" are continued to be critical component of the Design Development and Professional Practice co-requisite. The students must develop a comprehensive code analysis that deals with life safety and issues of zoning, air rights etc.

CAUSES OF CONCERN

[NAAB Criterion 4] SOCIAL EQUITY

1. Diversity is a top priority in all faculty searches and has been for several years. Three new female faculty members were hired in Fall 2005, two of Hispanic descent and one African American, one of whom left in December 2007 for family reasons. In a subsequent search to replace this person, we selected a woman to fill the position and she was intent on joining our faculty. However, personal difficulties ultimately dictated that she could not move from where she was located. The position was ultimately filled by a male candidate. In a recent search to fill two other vacant positions, one of the positions was filled with a male of Hispanic descent. The other position was first offered to a female who turned it down due to a prior commitment and the position was filled with a male candidate.

All faculty searches are advertised in the following journals to encourage minority applicants:

Higher Ed Jobs
Inside Higher Ed
Hispanic Outlook
Diverse Issues in Higher Education

Chronicle of Higher Education

ACSA News

Women in Higher Education

2. The School of Architecture currently has two additional vacant faculty positions which were advertised in the above mentioned journals, however, the searches are frozen due to economic conditions. Minority candidates have been identified and we hope to resume the search in the coming months. The primary responsibility for both positions will be teaching in the BArch and MArch programs in the coming year 2009 – 2010 which we hope to fill with female and/or minority applicants. It is our desire to keep with the Institute initiatives in diversity.
3. Over 50% of the current student body of the School of Architecture is female, a figure that is far above the male/female ratio in the rest of the Institute. Approximately 5% of the architecture student body is African American and approximately 10% are Hispanic.

[NAAB Criterion 9] FINANCIAL RESOURCES

1. Funding continues to be sufficient to support the accredited programs of the school. The Education & General budget remains under stress with allocations flat or declining, although all teaching requests have been funded, without question, from faculty salary breakage, which is centralized in the office of the Provost. Additional funds were provided in both the 2008 and 2009 fiscal years for support of the Roman Studies program to help balance the negative currency exchange of the dollar and euro. These were one time additions as we continue to look for ways to decrease the costs for this critical program. Faculty salaries are reviewed annually and equity adjustments are funded to maintain appropriate compensation levels.

Enrollment in years 2006, 2007 and 2008 had increased but has contracted slightly in 2009. All resource requests to meet the demands for these larger classes were accommodated. Strategic planning is currently underway for the possibility of significant future growth.

2. Funding opportunities within the School of Architecture that would have tremendous positive impact on the program including the following which have been discussed with development and are included in future strategic planning as campaign initiatives:
 - a. 5th Year Competition Studio – Engagement of a person(s) from best practice to lead a six-week competition studio as entry into the final thesis year. Estimated cost including travel and honoraria: \$7500 – 1 x per year.
 - b. Annual Student Design/Build Competition – the creation of an annual event to design and construct a temporary pavilion or other structure exploring the potential of space, material, technology and new techniques of design and/or construction. \$50,000
 - c. Named Lecture Series: and/or Individual Lectures: A named series would cover 8 – 10 lectures in year at a cost of about \$20,000 to \$25,000. Lectures would be from best practice and include honoraria and travel and meal expenses. Naming the series is not required if it came from multiple sources. Sponsoring Individual lectures at a cost of approximately \$2500 is also a possibility. Note that an ideal lecture distribution is 6 per semester, or 12 annually. A named lecture series could cover a semester only, and / or individual named lectures could be nested within a named lecture series.
 - d. Annual 2-day symposium with several panel invitees, an interdisciplinary, participatory audience and an expectation to publish the proceedings of the meetings addressing contemporary disciplinary and practice issues: \$25,000 - \$50,000.
 - e. International Studies Programs: Several opportunities will exist:

RENSSELAER SCHOOL OF ARCHITECTURE

2 Progress Since the Previous Site Visit

- i. To fund the extra cost burden of the program as incurred to the school
 - 1. Italian Studies Program: \$5000 / student x 20 = \$100,000
 - 2. India Studies Program: \$2500 / student x 12 = \$30,000
 - 3. China Studies Program: \$2000 / student x 18 = \$36,000
 - ii. Student scholarships / sponsorships to defray individual student fees that assist in defraying additional cost to the School. \$2500 - \$6500 / student
 - iii. New International / Travel opportunities (international workshops) - South America or Africa, etc...
- f. Faculty Travel Funds: to promote research / the School by attending national / international meetings / conferences and symposia to present Rensselaer work.
 - i. Student Travel Support – to represent the school as an elected representative at a regional or National Event or to present an accepted paper, project or research: \$1500/student
 - ii. Faculty Travel Support – to represent the School and present an accepted paper, project or research: \$1500/faculty trip, national, \$2500 international
- g. Publications: To publish materials presenting work executed by students and faculty in the School
 - a. Futures: \$20,000 annually
 - b. Case Studies: \$5000 annually
 - c. Lectures and Symposia Publications: \$5000 annually
 - d. Special Event Publications: \$5000 annually

2.2 Summary of Responses to Changes in the NAAB Conditions

If applicable, summarize the school's response to changes in the *NAAB Conditions for Accreditation* adopted since the previous visit.

Rensselaer's last APR was governed by the 1998 NAAB Conditions and Procedures and the current APR is governed by the 2004 Conditions and Procedures. The majority of the information requested is the same there are additions and the organization of the report is different. Follow are the comments from people who contributed to our submission.

1. I appreciate that they reduced the number of criteria to 34 from 37. I would like to see more consolidation of some of these criteria
2. Although we should have been more vigilant about the inclusion of Studio Culture, i.e., 3.5 and 4.2. NAAB should have asked us to respond to this specifically in the annual reports. There is a lot of stuff to digest in preparing the APR and including new requirements without NAAB providing some mechanism for follow-up is a necessity.
3. The 2004 conditions don't make it very clear as to which part of Studio Culture goes into 3.5 and 4.2.
4. Although the matrix is a good idea at a large scale, when a program has many courses, the matrix can be quite cumbersome and difficult to read. In the interest of comprehensiveness, we have chosen to represent every course in the matrix. Perhaps the NAAB should define precisely what goes in the matrix and what should be excluded.

2 Progress Since the Previous Site Visit

5. The original (1998) organization of the APR i.e. 13 separate conditions seemed like it was easier to keep track of
6. The addition of "Self Identification" of problems is useful.
7. There still remain significant areas of redundancy.

NAAB Perspectives (3.1)

3.1 *The Thirteen Conditions of Accreditation*

The Thirteen Conditions of Accreditation

3.1 Program Response to the NAAB Perspectives

Schools must respond to the interests of the collateral organization that make up the NAAB as set forth by this edition of the NAAB Conditions for Accreditation. Each school is expected to address these interests consistent with its scholastic identity and mission.

The following subsections address what the APR must include.

3.1.1 Architectural Education and the Academic Context

The accredited degree program must demonstrate that it benefits from and contributes to its institution. In the APR, the accredited degree program may explain its academic and professional standards for faculty and students; its interaction with other programs in the institution; the contribution of the students, faculty, and administrators to the governance and the intellectual and social lives of the institution; and the contribution of the institution to the accredited degree program in terms of intellectual resources and personnel.

Over the past 10 years Architecture has embraced its position within a top-tier technological research university, by creating advanced degree graduate programs and initiatives that draw from and contribute to its rich technological and intellectual context, expanding research and scholarship in architecture related disciplines that strengthen its core enterprise, undergraduate and graduate professional education.

Institute Academic and professional standards for students

Bachelors

At Rensselaer Bachelors degrees are awarded to students who have pursued successfully a plan of study that includes general and professional education requirements in several disciplines, as evaluated by the faculty. Each undergraduate program of study has at least two objectives: first, to reach a pre-professional standing or fundamental mastery in a selected discipline; second, to develop some grounding in knowledge found in a liberal education, an appreciation of technology and science, and openness to ongoing learning. The 5-year professional NAAB accredited Bachelor's Degree in Architecture (B.Arch) meets or exceeds all Institute requirements for bachelors degrees offered at Rensselaer.

Masters

Masters degrees at Rensselaer are for students to do advanced work in a particular discipline, require a minimum of 30 credit hours and that a student doing work in a field different from their undergraduate degree may be required to establish additional background. This is the case for the 3-½ year, 112 credit, NAAB accredited M.Arch1 degree, which accepts students from unrelated fields of study.

Requirements and Standards

The requirements of each baccalaureate program are outlined as follows:

- The number of courses and credit hours is prescribed by each curriculum. Minimum requirements are 124 credit hours for science and for humanities and social sciences majors, 124 in management, 128 in engineering, 126 for the Bachelor of Science (Building Sciences) degree in the School of Architecture, and 168 for the professional (Bachelor of Architecture) degree in the School of Architecture.
- The minimum grade point average (GPA) is 1.80. On route to a bachelor's degree students must maintain minimum semester and cumulative grade point averages. Students falling short of set benchmarks are placed on probation and advised regarding what needs to be accomplished to succeed. Students on probation for multiple semesters are reviewed by an Institute Academic

3.1 *The Thirteen Conditions of Accreditation*

Standing Committee which determines whether a student is dismissed or may stay under a specified plan of action.

- B.Arch may not receive two D's (two C's for M.Arch 1 students) in the studio sequence without remedial action recommended by the collective faculty.
- Rensselaer has migrated to a grading system which employs (+) and (-) modifiers to the A(4.0), B(3.0), C(2.0), etc., assessment system, providing a more accurate measure of performance. The School of Architecture has also shifted its evaluation of the undergraduate Final Project from Satisfactory (S), Unsatisfactory (U), and In-Progress (IP) to a graded system with modifiers.
- To receive a baccalaureate degree, a student must have been admitted to the curriculum corresponding to the degree, must have satisfied the curriculum requirements, and must be enrolled in that curriculum at the time the degree is granted.
- The course content in physical, life, and engineering sciences (for bachelors' degrees) must total a minimum of 24 credit hours, including at least eight credit hours of mathematics. Four of the twenty credits for Architecture students are met within the structures sequence.
- The course content in humanities and social sciences (for all bachelors' degrees) must total a minimum of 24 credit hours, including at least eight credit hours in the humanities and eight credit hours in the social sciences. Four of the twenty credits for Architecture students are met within the Building and Thinking Architecture course sequence.
- Freshman students who entered prior to fall 2006 are required to successfully complete a writing course or a writing intensive course. For the B.Arch degree, students must successfully complete Design, History and Society (IHSS-1970). Students can also satisfy this requirement with an AP English score of at least four, an SAT verbal score of at least 670, or a transfer course meeting Institute requirements for a writing intensive course. Students with an SAT score less than 610 are strongly advised to satisfy this requirement by taking a writing course. Every undergraduate student who entered as a freshman in Fall 2006 or later, or transfer student who entered Fall 2008 and later, is required to successfully complete at least 2 communication intensive courses (chosen from the approved list) as part of the requirements for a Bachelor's Degree.
 - At least one of the courses must be writing intensive and taught in the School of Humanities, Arts, and Social Sciences. (Courses taught by the School of Humanities, Arts, and Social Sciences are IHSS 1970 Design, History and Theory) and,
 - At least one of these must be in the student's major. For architecture, ARCH 4980 Final Project 1 and ARCH 4990 Final Project 2, meet this requirement.
- The minimum course concentration in the area of the selected discipline is prescribed by each curriculum but cannot be less than 30 credit hours. The Bachelor of Architecture has 104 credit hours of required professional content. The professional Master of Architecture degree has 96 credit hours of required professional content.
- In undergraduate programs at least 24 credit hours are elective, of which no less than 12 credit hours are unrestricted electives. The Bachelor of Architecture has 12 professional elective credits, 24 restricted general education elective credits and 12 unrestricted elective credits. The Master of Architecture 1 has a total of 16 elective credit hours, 12 of which are unrestricted.
- Each Undergraduate's plan of study must include at least 16 credits of courses above the 1000 level in the major field, or in an approved concentration. In the Bachelor of Architecture, 120 required credit hours are above the 1000 level.

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 *The Thirteen Conditions of Accreditation*

- Each Masters Students plan of study must include 30 credit hours associated with the graduate degree at least half of which must be at the 6000 level.

For admission Masters of Architecture students must have successfully completed a Baccalaureate degree and general education requirements equal to or greater than those of a Rensselaer graduate including eight courses in humanities and social sciences, one year of mathematics with a course in calculus, a course in physics and additional science courses. Coursework in the arts and art history is desirable. A portfolio of creative works that includes a critical commentary on the works is required. Admitted students must meet Institute Graduate school standards on the GRE, and TOEFL exams and have a GPA of 3.0.

High Quality Students

The School of Architecture enjoys an ability to attract high quality students as measured by standardized test scores, and a portfolio / interview requirement. In the past 6 years Bachelor of Architecture applications have jumped 300% and selectivity has increased from 77% to 42%. Average combined SAT scores are steady at 1285 with approximately 50% from the top 10% of their graduating class.

The Master of Architecture program has consistently attracted high-caliber students as well. Students enrolled in the program since 2001 have had an undergraduate GPA of 3.24 and GRE scores of 554 on the verbal component and 657 on the quantitative. The School closely considers its applicants portfolio in its recommendations for admission.

Institute Academic and professional standards for faculty

Rensselaer's faculty is accomplished, being vetted at each advancement level by significant competition for open positions, and rigorous promotion standards. Tenure, tenure track and clinical faculty positions are approved and filled through the office of the Provost with approval of the President and Board of Trustees, as governed by a Faculty Handbook. Tenure and promotion policies, standards and procedures are Institute wide, set out in the Faculty Handbook and managed by the office of the Provost. Visiting professors are also approved through the office of the Provost at the appropriate rank and provide opportunity for the fixed term engagement of accomplished persons, whether from academia or practice / industry. Adjunct faculty positions are seen as strategic opportunities to employ personnel who have an immediate and synchronous engagement in practice and / or the content covered in the course or studio. Given our geographic proximity to New York City and Boston, adjunct positions enable the School to both benefit from both established and emerging professional talent.

Interaction with other programs in the Institution

Interaction with other programs has in recent years become more than good intention. Individual architecture students draw on course work and minor programs from across the schools, with particular interest in programs in philosophy, electronic arts, music and the cognitive sciences in Humanities, structural engineering in the School of Engineering, Computer Science in the School of Science, and in Management coursework. The Bedford Visiting Professorship and its related international workshop has become the basis for a strong exchange between Civil Engineering and Architecture. The Bedford Chair is designed to bring the construction industries' most gifted architects and engineers, drawn from practices around the world, to Rensselaer. As a visiting professorship, the position affords an individual from industry the opportunity to hold the appointment while continuing in their industrial practice, and to bring their field experience into the classroom.

Bedford Initiatives

3.1 *The Thirteen Conditions of Accreditation*

In January 2001, the Visiting Bedford Professorship was created to establish a direct link between the Academy and Practice as well as between architecture and engineering. It was designed to facilitate the interaction between the School of Architecture and the Department of Civil Engineering at Rensselaer. The position was first held by Professor Craig Schwitter one of the youngest engineers in practice to have been made a partner at Buro Happold and who maintains the leadership position of Buro Happold North America. In 2006 Professor Bruce Danzinger, an Associate Principal and structural engineer at ARUP, LA, was appointed to the position. In addition to the visiting position, Bedford initiatives include interdisciplinary seminars, an interdisciplinary studio joining structural engineering students with Architecture students and an annual traveling workshop to best international practices.

Interdisciplinary Research

Faculty driven inter-disciplinary research is crucial to developing work across disciplinary boundaries. Research collaborations between faculty of different departments and disciplines have emerged as a principle generator of both intellectual and social exchange – whether in the development of new building related materials and product systems, or in the creation of synthetic environments, such initiatives have brought exposure and a larger respect for architecture's contribution to the academy. Examples include Professor Saunders work in computation, Professor Dyson's work in building-integrated photovoltaics, building-integrated wind energy harvesting, and building-integrated bio-wall systems, and Dr. Braasch, and Professors Krueger's interdisciplinary work with Arts and the Experimental Media Performing Arts Center (EMPAC).

EMPAC

In 2007 EMPAC Director Johannes Goebel invited artists and professors Larry Kagan (Arts) and Michael Oatman to lead a class making EMPAC's first student commission. Oatman's Extreme Drawing class and Kagan's Sculpture 2 class combined forces to produce 'Grasslands', a swarm of 350 bi-color, 6-foot tall cloth structures that overtook the hillside between EMPAC and West Hall, RPI's art building. The installation was on view for four months. In that time wild grasses grew up in between the artificial blades and animals made their home in this urban veldt.

Michael Oatman, Jonas Braasch, and Pauline Oliveros (Arts Department) are currently working on another EMPAC sponsored project with the working title 'Hydra'. The project, funded by the New York State Council on the Arts (NYSCA), incorporates collage animation and video footage for the 360-degree screen. This video environment will be a 'visual score' for live improvisations by "Tintinnabulate", Rensselaer's resident telepresence music ensemble. In 2006, Jonas Braasch received a Rensselaer seed-grant from EMPAC to develop a 32-channel sound projection system and acoustic localization system for the video installation, "There is still time ... Brother." by the New-York-City based Wooster Theatre Group. The installation was shown during the opening of EMPAC in Oct. 2008.

Jonas Braasch and Pauline Oliveros have been named the first two EMPAC affiliated faculty for their research work in telematic music. In Oct. 2009, they will be joined by Doug van Nort and Chris Jaffe (CCRMA, Stanford University) for a telematic concert between EMPAC and CCRMA. Concerts with the Rensselaer student ensemble Tintinnabulate under the supervision of Oliveros and Braasch are also hosted at EMPAC as well (Nov 2008, April 2008).

Lighting Research Center

The research program of the Lighting Research Center (LRC) has longstanding relationships with both science and engineering. The research and educational efforts of the LRC have had major impacts on the lighting industry and lighting practice, due largely to its multidisciplinary expertise in light and transportation, solid state lighting and light and health as well as for its international reputation for excellence. LRC faculty and research staff members are drawn from the fields of experimental psychology, vision, photobiology,

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 The Thirteen Conditions of Accreditation

engineering, physics, architecture, photometry, optics, communications, and design. This expertise ensures that research studies and educational programs are well designed and well respected. The LRC has recently become one of Rensselaer's partners in an NSF Engineering Research Center in Smart Lighting.

For more than two decades the Lighting Research Center has transformed science into real-world applications, while always remaining true to its mission—'*advancing the effective use of light for society and the environment*'. The LRC has more than a dozen research program areas, each with its own scope and leader, and yet all share a commitment to the LRC's mission and influencing lighting practice through multidisciplinary research, demonstrations, and education. These common goals bring together the best of several disciplines to serve a greater purpose wherein economic gains are balanced with environmental sustainability.

Center for Architecture Science and Ecology

There is perhaps no program that more directly leverages interdisciplinary work and interaction with other departments and faculty than the Built Ecologies Program and the Center for Architecture Science and Ecology (CASE) initiated in 2007. Not only is the program based on the premise that interdisciplinary work is necessary for the expansion of imagination and development of next generation sustainable systems, but lives it out through:

- A partnership with SOM in New York City
- The development of multidisciplinary projects which draw from Science, Economics, Biology and Engineering
- The linkage of education, practice and industry
- The linkage of professional undergraduate students with graduate and faculty researchers.

Digital Fabrications Lab (described in section 3.8 of this report).

Interaction between programs is not always formal. The creation of the Digital Fabrications Lab (DFL) has assisted in generating a flow of students and faculty between this Architecture resource and complementary infrastructure in the Schools of Engineering and Science. In 2008-09 the DFL was relocated to the basement of Greene, expanded and renovated. It has all the traditional tools found in a woodshop; band saws, radial arm saws, panel saws, drill presses, and planers. In addition it contains computer-controlled accessories including two laser cutters, a CNC 3-axis, 4x8 foot bed milling machine and a Z-Corp rapid prototyping 3D printer. Architecture students have priority use of the fabrication lab, however students from across campus also have access, just as our students have access to many of the engineering and science labs. In addition to architectural models and prototypes, students on campus have built many non-architectural items in the fabrication lab, from guitars to furniture.

Contribution of the students, faculty and administrators to the governance and the intellectual and social lives of the Institution:

Faculty, Students and Administrators

Architecture faculty play an important role in governance and the intellectual life of the Institution. Each year faculty are elected to represent the School and serve on the major committees of the university – Promotion and Tenure, Institute Wide Curriculum Committee, Honors, Judicial and Faculty Handbook, as well as on search committees, Middle States Accreditation, and other ad-hoc institute committees. In addition the Dean is part of the Provost's Dean's Council which is active in addressing academic matters at the highest level. A performance planning process, the responsibility of each portfolio owner (Dean), focuses initiatives and investments on highest strategic priorities. The Dean regularly meets with and makes presentations to the President and her cabinet, attends and presents key initiatives and performance plans at a Board of Trustee meeting annually and is part of an annual Presidential Leadership Retreat to address matters strategic to

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 *The Thirteen Conditions of Accreditation*

the Institute. A Student Senate is comprised of representatives who are elected annually by the student body to serve on Institute committees and represent the student body in matters concerning governance.

Student Organizations

The American Institute of Architecture Student chapter (AIAS) and National Organization of Minority Architecture Students (NOMAS) are increasingly proactive student led organizations, offering intellectual, vocational and social events including the Beaux Arts Ball, a mentoring and student meetings, seminars and workshops. Though their primary target audience is the School of Architecture community, their initiatives reach others as well.

Collaborative Initiatives

Architecture is often called upon to lead charrettes charged with developing ideas or designs for the campus and community. In 2009 the Architecture administrators, faculty and students were instrumental, together with the Student Sustainability Task Force (SSTF), for leading a Presidentially initiated and sponsored campus-wide charrette to explore campus and institute sustainability. Architecture representatives continue to assume a significant role alongside the SSTF in developing the best ideas that emerged. In Fall 2009 an '86 *Field re-purposing charrette*, led by architecture faculty and students will explore design possibilities the historic and symbolic center of campus.

Architecture Library

One of the most public contributions Architecture makes to the Institute in terms of intellectual resources is the Architecture Library (described in section 3.9 of this report) The Folsom Library serves as Rensselaer's central library, but also staffs and supports the Architecture Library, the only school-based library at Rensselaer. The collection serves both the needs of the school and the Institute, but is also the architectural library for the Capital District, for which it receives additional public funding. It is much used by area visitors and has the largest circulating slide collection in the region.

Contribution of the Institution to the Accredited degree programs – intellectual resources and personnel.

Faculty

The intellectual resources and personnel that contribute to Architecture's accredited degree programs are many, from the exceptional faculty who teach general studies courses in their fields of expertise, to the graduate research faculty and scientists who continually develop fundamental knowledge and new technologies and collaborate on research in a variety of initiatives at CASE, the LRC, and Architectural Acoustics, as well as in the arts and computation – initiatives which expose and involve many professional students, whether at CASE, in minor programs, or research based studios and interdisciplinary elective courses.

Symposia, Colloquia, Panel Sessions and Performances

Presidential, School-sponsored and departmental seminars are many, and provide a rich intellectual context for learners, to gain exposure to and investigate topics related and unrelated to their own professional education.

EMPAC

The Experimental Media Performing Arts Center is Rensselaer's most recent and ambitious and visionary undertaking – created as a research platform to broaden research, intellectual diversity and to stimulate cross- and trans-disciplinary research between artists and scientists – where architects reside. It offers the community access to extraordinary events, artists and venues that stir the imagination and challenges

3.1 The Thirteen Conditions of Accreditation

boundaries that stimulate intellectual growth and initiative. More than a building it is a platform and an agenda that relies upon vision and a staff to carry out its mission.

Library Information System

There is perhaps no greater resource than the Library and information system operated under the DotCiO of the University, an enterprise which has taken great efforts to provide access to print materials, online sources of information, and more. Librarians and staff have assumed an ever greater role in teaching faculty and students how to access and manage the vast resources the Institute has made available, through stand-alone and in-class seminars associated with required courses.

Computation and Information Technology Infrastructure

The computational infrastructure spans from the CCNI supercomputer, to ubiquitous computing realized through the Mobile Computing initiative, which ensures each student have a high powered laptop computer and the required applications; that many classrooms are laptop ready, that licensed software is available and secure, that its applications, information, printing and peripheral device network is robust, well functioning and accessible, and that technical help is available.

Research Facilities

Education and research platforms and laboratories ranging from wind tunnels and structural and material testing labs, to aerosol labs, machine shops and a rapid prototyping center provide significant resources for both teaching and research.

3.1.2 Architectural Education and the Students

The accredited degree program must demonstrate that it provides support and encouragement for students to assume leadership roles in school and later in the profession and that it provides an environment that embraces cultural differences. Given the program's mission, the APR may explain how students participate in setting their individual and collective learning agendas; how they are encouraged to cooperate with, assist, share decision making with, and respect students who may be different from themselves; their access to the information needed to shape their future; their exposure to the national and international context of practice and the work of the allied design disciplines; and how students' diversity, distinctiveness, self-worth, and dignity are nurtured.

Student-Centered Community

The School is a student-centered community that is responsive to individual needs and ambitions with a strong academic program that emphasizes technological knowledge, critical thinking skills, and the ability to conceptualize problems. We view this preparation as giving the student confidence and the capacity to act and respond effectively.

The School's pedagogy promotes the general and professional education of the individual. Skills such as critical judgment, value formation, and intellectual rigor are viewed as formative, both for professional practice and for life-long learning. The goal is to develop creative, capable, and confident graduates who have the capacity and outlook to advance the discipline and the profession. An important aspect of developing the individual and collective learning agenda in architecture at Rensselaer is the mutually supportive nature of a community which enables the student.

Participatory Role in Leadership

At Rensselaer, students in Architecture play a uniquely participatory role in the leadership of the School and creation of its intellectual and creative environment. The School's committees, including; professional programs, curriculum, infrastructure and computing, lectures and exhibits and faculty search committees each include student representatives who participate alongside the faculty. Each student class also elects

3.1 *The Thirteen Conditions of Accreditation*

two representatives who, together with the officers of AIAS, NOMAS and student committee members, participate on a Dean's Student Advisory Council – to provide insights and suggest initiatives at the highest level.

Student Run Organizations

The School supports and encourages the efforts and initiatives of the AIAS which in recent years has grown in strength and influence. The AIAS regularly offer seminars and events that speak to student concerns and needs, both at school and in anticipation of entering the profession, including a self-organized development of a student mentor program which places upper-class students with first year students each year, managing a student supply store, planning and hosting an annual Beaux Arts Ball, planning trips to buildings and architectural offices, and sponsoring evening seminars and discussion groups. The AIAS has been central to, and partner with the School in setting up an annual resume workshop and portfolio reviews from visiting professionals, and is co-sponsor with the School of an award to successful recent graduates who are invited back to lecture. Each year the School supports the travel of AIAS chapter officers to the National meeting. In recent years students have started a chapter of NOMAS and like the AIAS elect their own officers and offer seminars and discussion groups.

Engagement with Course Delivery

Many of the studio and seminar courses have 'grader' positions which support the involvement of undergraduates as course assistants. Graders are selected by the faculty teaching the course and give students opportunity to participate in the enterprise of course delivery alongside the instructor.

How students participate in setting their individual and collective learning agendas

Curriculum

The curriculum exposes and introduces students to skills, techniques, knowledge and possibility in and related to the architecture discipline. Constellations of courses give knowledge and skills that are synthesized in the studio – the core of the architecture education at Rensselaer – where students and faculty creatively engage problems designed to provoke understanding and develop skill sets. The studios are sometimes linked to coursework. The curriculum is designed to progressively increase choice and the development of individual interests as one advances, culminating in defining, developing and completing an independent undergraduate Final Project (B.Arch) or Masters Thesis (M.Arch 1).

Broadening Experiences

On route to that end, the School provides exceptional numbers of broadening experience opportunities, both in and outside the School - from international programs, to a New York program embedded in a research and practice context, to lectures, seminars, site visits and field trips; but exposure is only part of the equation. Students need to learn to think critically, make judgments, explore and experiment in order to make informed decisions, and that task falls largely on studio teaching and the studio environment. Design faculty are expected to set out their studios as research investigations which challenge students to develop their own critical view and objectives in the context of those set out by the instructor.

Faculty Modeling

Faculty modeling is key. Faculty are each expected to pursue scholarship and research which may range from highly academic work to sponsored research or research practice. Formal and informal undergraduate research opportunities afford students opportunity to work in an assistant capacity with faculty, and to experience and discover their own learning agenda. Several strands of research have collectively emerged – ranging from computational design, to built ecologies, performance based design, architectural acoustics, lighting and interdisciplinary architecture and engineering work. Faculty may also engage students on research under Rensselaer's Undergraduate Research Program (URP).

3.1 *The Thirteen Conditions of Accreditation*

Teaching for Leadership

Teaching for leadership is present in much of the curriculum and most fully cultivated in the defining and development of the final year B.Arch project or M.Arch 1 masters thesis. After the design development studio each student's yearlong self-directed study (Final Project / Masters Thesis) the achievement of an appropriate level of design ability and the development of a detailed topic proposal. Faculty support for the proposal and agreement to advise creates an association in which individual strengths and ambitions are recognized and developed.

To help strengthen this process the faculty initiated a pilot not for credit Methods Seminar in the semester preceding the formal start of Final Project. The objective of the seminar and associated assignments is to assist students in identifying topics that have a reasonable probability of success given the student's abilities that are within the abilities of the faculty to support, and that it will constitute a fertile learning experience which allows each student to expand and develop their abilities as a designer. For this reason, and to assist students in thinking broadly, speculatively, and comparatively, we ask students to prepare multiple propositions for feedback from the faculty.

How students are encouraged to cooperate with, assist, share decision making with - and respect students who may be different from them

Structured Teamwork and Collaboration

In addition to having membership on committees responsible for policy, curriculum, facilities, initiatives and events at the school, opportunities to assist in courses as graders, work alongside faculty and staff in the Digital Fabrication Lab, develop graphics and publications for the School – all of which place students on a platform that requires a collective perspective, the curriculum has integrated a number of team experiences starting in the first year. In the international program context students are teamed with international students. Design work is no longer seen as an exclusively individual enterprise semester after semester. Structured, critical engagement of teamwork is leveraged as a means to assist students in the development of communication and collaboration skills that will be (are) invaluable in practice. Outside of the studio and classroom opportunities to engage in research and participate on charrettes further extends the number of collaboration opportunities available to students, many with partners unlike themselves.

Student access to the information needed to shape their future

Research University Context

The most significant part of having access to information is knowing that there is important information to access. Being at a leading research university provides exposure to many disciplines and fields of inquiry that are increasingly complicit in the environments we create. Being close to New York City, Boston and Montreal facilitates an equally powerful exposure to leading progressive professionals, artists, and industries. The rich exposure to faculty, external critics, reviewers, lecturers, practitioners, and experts in allied fields both from the Rensselaer engineering and science communities as well as from the arts community builds an awareness and confidence that is the first step in shaping a confident future. EMPAC promises to expand our community's exposure to a rich array of progressive artists and creative minds interested at the intersection of the arts and sciences by bringing them to our campus, but we also value going out. Students are provided many opportunities to participate in regional and international trips, to engage world projects and initiatives and to think large, through the Bedford initiatives and many travel-study opportunities.

Core Curriculum

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 The Thirteen Conditions of Accreditation

Within the core curriculum all students gain direct exposure (in-office seminars) to a variety of practice types through the Design Development Studio as well as through regular travel to cities associated with required studios and field trips associated with courses. In Case Studies library staff provide students up to date seminars on accessing and managing information, seminars which are similar to those given to PhD students and researchers. Architecture also provides first hand access to information on career paths through an annual career fair attended by as many as 35 firms, through annual IDP presentations, portfolio reviews and resume workshops, lectures and presentations from both traditional and nontraditional practitioners.

Students' exposure to the national and international context of practice and the work of the allied design disciplines

International Programs and Workshops

Students who participate in Rensselaer's vast array of international workshops and semester-long programs regularly extol the power of learning through displacement to unfamiliar circumstances. Access and exposure to out-of classroom opportunities is held in highest regard by the faculty, whether visiting a construction site, a manufacturing plant, or a regional or international city. Where possible, international programs are designed to directly engage other cultures and programs, in order to discover and learn from difference between people as well as between places. The Italian Studies program incorporates a collaborative workshop with Italian architecture students at the Politecnico of Torino, and the India and China Studies Abroad programs continue to associate our students with theirs in collaborative projects and learning situations. Together these contribute to a larger perspective, and nurture an appreciation for diversity, distinctiveness and confidence to operate in the larger world of practice.

Exposure to Allied Design Disciplines

The Bedford initiatives were created in their three parts to create linkages between architecture and engineering, as well as between the academy and best practice. Joint seminars taught by the Bedford Visiting Professor (a practicing Engineer) include by mandate an equal number of architecture and engineering students. Each spring 4th year structural engineering students complete their capstone project by taking Architecture's 4th year DD studio where they are teamed with architecture students on the development of a project – designed to raise an appreciation for each others concerns and agendas, and to promote early and effective collaboration. Architecture and engineering faculty (including the Bedford Professor) are responsible for the course. And finally, an annual travelling workshop takes an equal number of architecture and engineering students on international travel to best architecture and engineering practices worldwide. These initiatives have been heavily sponsored and engaged by Buro Happold and ARUP which also host field trips each semester to their respective New York offices.

There are many other concrete ways that the School exposes our students to allied design practices – through our lighting and architectural acoustics programs to which every professional student is exposed in their core curriculum through minors or professional electives in those same disciplines, through the Built Ecologies Program and CASE located at SOM in New York city which is built on multidisciplinary premise and includes rich associations with engineers and artists as well as scientists and humanists, and through our own faculty and staff which are intellectually and professionally diverse, engaged in different types of practice. Following a long tradition at the School, one of our tenured faculty members is himself an actively engaged artist who regularly exhibits both regionally and nationally – often with the assistance of our students. Another artist in his own right manages our Fabrications Lab, and further expands our network into other disciplines. These linkages, exposures, and opportunities in and outside the classroom are key to the development of leading 21st century professionals.

How students' diversity, distinctiveness, self-worth, and dignity are nurtured.

3.1 The Thirteen Conditions of Accreditation

Involvement in School leadership, support of student leadership organizations, increasing pedagogical choice as one moves through the curriculum, integrating arts and engineering practices, much regional and international travel opportunities, structured exposure to different practice types in and outside of architecture are all important ways the School nurtures students' awareness, self-worth confidence and dignity. In addition, Rensselaer provides a multi-layered advising and assistance systems to provide each student with the guidance they need to succeed. The advising system assigns each student a faculty advisor and ensures access through a required annual Student Advisor Meeting (SAM), to discuss progress, address any concerns, strategize for participation in international and other opportunities offered by the school, and to assist in planning for entry into practice or graduate programs. The system is also designed to assist in identifying and helping students who are struggling. An Early Warning System (EWS), mid-term identification of low performing students, and end of semester Academic Review meeting in Architecture provide the first step of identifying potential problems at the earliest stage possible and incorporate mechanisms through the advisor, (or other means) to recommend courses of action. An Advising and Learning Assistance Center (ALAC) is staffed with professionals who are also available to assist and guide as well as to direct students to many other available services. These are covered in detail later in the APR.

3.1.3 Architectural Education and Registration

The accredited degree program must demonstrate that it provides students with a sound preparation for the transition to internship and licensure. The school may choose to explain in the APR the accredited degree program's relationship with the state registration boards, the exposure of students to internship requirements including knowledge of the national Intern Development Program (IDP) and continuing education beyond graduation, the students' understanding of their responsibility for professional conduct, and the proportion of graduates who have sought and achieved licensure since the previous visit.

Preparation for transition to internship and licensure

The School's curriculum effectively covers each topic area of the Architecture Registration Exam (ARE) and evidence of our graduate's success rates tell the story best – Rensselaer graduates are taking the ARE exam at higher than the average national rates¹, and their aggregate pass rate (85%) **ranks sixth among the 117 NAAB accredited schools as reported by NCARB (see rankings at the end of the section).**

Exposure of students to internship requirements including knowledge of the national Intern Development Program (IDP) and continuing education

IDP Awareness

Issues of transition to internship and licensure are addressed within the Design Development Studio, the Professional Practice Course and in an independent introduction to the Intern Development Program (IDP) presented annually by the School's IDP Education Coordinator. The presentation, to all students third year and above, (2nd year and above in M.Arch 1) covers the importance and value of IDP for the profession and intern, as well as the procedures and expectations an intern should have. The New York State Registration Board does not count IDP experience occurring prior to graduating from a NAAB accredited program however, not everyone will seek licensure in New York and the School encourages students to create an NCARB record and pursue their internship without presuming that they will or will not remain in New York State. Internships, some within the community, are available and encouraged, especially after completion of

¹ Latest NCARB data (2007 - similar in 2005 and 2006) shows that 18-24 Rensselaer grads are taking the exam annually. Assuming only one sitting per exam section annually this represents between 33% and 50% of the School's professional graduating class size, and exceeds the National norm for architecture grads seeking licensure

3.1 *The Thirteen Conditions of Accreditation*

the third year for undergraduate students and second year for graduate students. A majority of School of Architecture students gain practice experience in architecture before graduating.

Design Development Studio and Professional Practice

In the 4th year Design Development Studio students are asked to develop a design project in the context of architecture as a material project which is technologically integrated, constructible and using sound detailing principles - as if it were being prepared for construction. A multi-day field trip to New York structures exposure to a variety of diverse practice types through multiple in-office seminars at practices ranging from SHoP, Grimshaw Architects, Canon Design, FRONT, SOM, Davis Brodie Bond, etc. Within the DD studio context students are not only exposed to broad issues of practice and licensure, but are also presented with a descriptive briefing on the path to registration including the Intern Development Program (IDP) in Professional Practice, a co-requisite course. The work of the seminar on professional practice and the Design Development Studio are closely allied in delivering an understanding of codes, standards and project development in the context of design. Together they present the value and need for curiosity, understanding first principles behind regulations and technology and life-long learning in the ever changing regulatory, technological and legal context of practice. Continuing education is presented as a formal, ethical and practical necessity.

Rapidly developing technologies underscore the increasing complexity of practice and need for continuing education. Exposure to post-professional graduate programs offered at Rensselaer in lighting, acoustics, and built ecologies creates in the culture of the School, an awareness of associated disciplines, specialized and growing knowledge bases, and how they can and should be integrated. These provide opportunity to bring practicing architects and other professionals, back to school to develop advanced and specialized knowledge. In addition to its formal degree program offerings, the LRC is a continuing education provider and offers several course seminars each year.

The students' understanding of their responsibility for professional conduct, and the proportion of graduates who have sought and achieved licensure since the previous visit.

Professional conduct is addressed in studios and courses, but especially in Professional Practice and Design Development where the differentiation between the 'professional' and 'service-provider' is considered covered with respect to professional ethics, responsibility to the public, the environment and in view of the schools mission.

Proportion of graduates who have achieved licensure since last visit

In 2008 an electronic survey was sent to 296 (72%) of the 409 professional program alumni since 1998. Of the 296 polled 85 (25%) responded to questions regarding licensure: 21% of respondents indicated they have obtained their license, 12% indicated they were not planning to get their license and the remaining 67% indicated they planned to get their license in the near future. Sixty eight percent of respondents had participated as an intern and indicated that the internship counted toward IDP.

3.1.4 Architectural Education and the Profession

The accredited degree program must demonstrate how it prepares students to practice and assume new roles and responsibilities in a context of increasing cultural diversity, changing client and regulatory demands, and an expanding knowledge base. Given the program's particular mission, the APR may include an explanation of how the accredited degree program is engaged with the professional community in the life of the school; how students gain an awareness of the need to advance their knowledge of architecture through a lifetime of practice and research; how they develop an appreciation of the diverse and collaborative roles assumed by architects in practice; how they develop an understanding of and respect for

3.1 *The Thirteen Conditions of Accreditation*

the roles and responsibilities of the associated disciplines; how they learn to reconcile the conflicts between architects' obligations to their clients and the public and the demands of the creative enterprise; and how students acquire the ethics for upholding the integrity of the profession.

Preparation for practice must include preparation for a changing future, particularly if we wish our graduates to lead in defining new and best practices, to be productive in them and to maintain the role and ethics of a professional in society. Critical inquiry and design research, performance based design, parametric / associative design techniques, ecologically based design, etc... are threads of research investigations to which our students are exposed – revealing the increasing complexity of the profession. At the same time students are exposed to a growing network and appreciation for engineers who value the skills of an architect, scientists who understand first principles, and consultants who can assist with specific expertise and complexity; and they learn to work in teams in the development of collaborative and leadership skills required of an architect.

The required core course in Professional Practice was developed by Prof. David Haviland (editor of the *AIA Handbook, 1994*) as a co requisite to, and integrated with the 4th year Design Development studio. Professional Practice is taught by adjunct faculty and practicing architect Steven Reilly and provides a complete introduction to the subject, including the diversity of practice, its relation to associated disciplines, conflict resolution and ethical principles of practice, codes, contracts, and project delivery. The studio simultaneously engages design in relation to increasing regulatory and performance demands. Client issues are discussed and dealt with in construction site and firm visits, case studies of practitioners from a wide range of backgrounds and with consultants to the profession. These present specific examples of what are viewed as formative components of successful practice.

How the accredited degree program is engaged with the professional community in the life of the school

The School's mission statement is explicit: *"seeking to prepare students for practice in the 21st century."* This increasingly guides the form and content of the program. As with any program, the student shapes a view of practice from the sum total of the experience.

Practicing Faculty

Adjunct and clinical professor appointments draw from New York and Boston (and occasionally Montreal and Philadelphia), practitioners and academics committed to developing critical research practices. The proximity of such major cities allows involvement with a wide range of practices, traditional and experimental, large and small, technological and artistic; and it is from this diverse pool of faculty and regular visits to these world cities that students form an understanding of different forms of practice. The Design Development studio structures an experience to do exactly this. Each semester a multi-day trip to New York visits three distinctly different practice types to receive a seminar presentation on the type of work, preoccupations and procedures pursued in each firm, allowing for a comparative view of different practice types in the context of the studio.

Competition Studio

The final year 6-week Competition Studio provides the opportunity for students to work under successful practitioners on a professional competition. This not only gives insight into well-developed creative and professional mind, but also lets the students match their ability with national and international practitioners. Their results have been surprisingly successful. Practitioners who have run this studio include Chris Sharples, SHoP, Sunil Bald, Studio Sumo, Nicolas Ryan, Grimshaw, Demetrious Comodromos, MethoDesign and Todd Rouhe, Common Room.

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 The Thirteen Conditions of Accreditation

Lectures

Apart from the intern experience and studio review process which draws heavily on practitioners, two aspects of the Rensselaer experience link and build knowledge of the professional community: the lectures and exhibits, and the international programs. Over the last five years the lecture series has been directed to both creative and contrasting modes and scales of practice. In 2006 it included an alumni series as part of the 75th anniversary celebration, and more recently a 10 @ <10 years out is in the process of identifying the School's most successful young graduates. A list of lecture events from the last three years is listed in section 3.7 Human Resources Development.

How students gain an awareness of the need to advance their knowledge of architecture through a lifetime of practice and research

Faculty Scholarship Research and Practice

An awareness of the context of change and progress is presented by a faculty who are committed to scholarship, research and practice, and who are themselves adept in taking up and developing new techniques and approaches without losing awareness of guiding principles. Design as research is taught and modeled, critical inquiry is nurtured and developed and studios are expected to have a research agenda and clear pedagogical objectives.

It is the view of the faculty that the cultivation of a commitment to lifelong learning is one of the main responsibilities of the School. It is achieved by a learning environment that encourages curiosity and a spirit of open mindedness and by being exposed and encouraged to work within areas of specialization that we believe will be important to the future of practice, such as lighting, acoustics, and built ecologies (the 'architectural sciences'). In the spirit of Rensselaer there is encouragement to marry architectural knowledge with complimentary work in other fields. This is particularly fertile in the convergence of computational tools dealing with visualization simulation and modeling.

How students develop an appreciation of the diverse and collaborative roles assumed by architects in practice and develop an understanding of and respect for the roles and responsibilities of the associated disciplines

Exposure to Various Practice Structures

Students develop an awareness and appreciation for difference through exposure to research and interdisciplinary work at the university and to various practice structures and types both domestic and international through field trips, visits to and seminars in architectural firms.

Exposure to Associated Disciplines

Exposure to the key role played by consultants and experts in associated fields is first demonstrated in the School, through graduate programs focused on specialized areas of light and acoustics and sustainability, through CASE which is premised on engaging multiple disciplines in each of its projects, the Bedford initiatives which join engineering students and faculty in interdisciplinary seminars and studios, and the further demonstrated at the Institute level by exposure to multiple disciplines and research with potential to transform and influence a next generation of buildings. The importance of an increasing number of consultants and experts in the design and development of buildings and environments (complex systems) is addressed in the DD studio and in professional practice and many of the options studios.

How students learn to reconcile the conflicts between architects' obligations to their clients and the public and the demands of the creative enterprise, and how students acquire the ethics for upholding the integrity of the profession.

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 The Thirteen Conditions of Accreditation

Developing an ethic and grounded sense of purpose and responsibility is introduced throughout the curriculum with an emphasis on optimization of multiple concerns and how the architect must address complex problems. Developing an awareness of the complicit role of architecture in social and environmental degradation is key to assisting students develop their own understanding of the consequences of their decisions and actions.

Out-of-Classroom Experiences

Consciousness of the changing world society is an implicit part of the school's mission and underlies the importance of international programs and out of classroom experiences. The exposure to international practice is developed both within the international programs (strongly so in the case of Bedford Initiatives which engage engineers from ARUP and Buro Happold and visit international practices annually and in the Italy program), and by inviting international practitioners to lecture and teach in the School. The Bedford Initiatives have been highly successful in creating an interdisciplinary discourse, exposing architecture and engineering students to each other in a studio setting, to faculty from other disciplines, to best practices internationally, and developing a global network and association with best practice engineers and architects. The plan to expand the initiative includes a second complementary part time visiting position from best practice to further engage and inform the interdisciplinary project. Funding of the position from additions to the endowed fund may be able to be realized in FY11.

Dean's Advisory Council

In addition, the Deans Advisory Council provides an important link to the professional community. This is made up of alumni(ea) from distinguished practices across the nation the majority are

The council members are:

Peter Bohlin '58

Bohlin Cywinski & Jackson

James Bradburn FAIA '66

*Fentress Bradburn Architects, Ltd.,
Retired*

James Henry Collins '77

Payette & Associates

Steven Ehrlich '68

Steven Ehrlich Architects

Steve Fabrikant '75

Steve Fabrikant & Co., Inc.

Peter Gorman '67

Brennan Beer Gorman Architects

Alan Greenberger '73

MGA Partners

Edward Jakmauh '64

Ballinger Architects

Edward Jeter '60

Jeter Cook & Jepson Architects, Retired

Ted Mallin '73

Envision Architects

Robert Nilsson '63

Whatsreallyhappening.com

Frank Pitts '75

Architecture +

Lee Pomeroy '54

Lee Harris Pomeroy Associates

Andrew Prescott, AIA '73

*Eihorn, Yaffee, Prescott Architecture and
Engineering*

Kathryn Prigmore, FAIA '78

HDR, Inc.

Richard Rittelmann '60

Burt Hill Kosar Rittelmann Inc.

Paul Scarbrough '83

Akustiks

James Straw '68

Kise Straw & Kolodner

Annual meetings with the council and the dean's involvement in national professional meetings, assists in maintaining school's understanding of and responsiveness to change in practice.

3.1.5 Architectural Education and Society

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 The Thirteen Conditions of Accreditation

The program must demonstrate that it equips students with an informed understanding of social and environmental problems and develops their capacity to address these problems with sound architecture and urban design decisions. In the APR, the accredited degree program may cover such issues as how students gain an understanding of architecture as a social art, including the complex processes carried out by the multiple stakeholders who shape built environments; the emphasis given to generating the knowledge that can mitigate social and environmental problems; how students gain an understanding of the ethical implications of decisions involving the built environment; and how a climate of civic engagement is nurtured, including a commitment to professional and public services.

An essential aspect of the professional program pedagogy at Rensselaer is the cultivation of reflective judgment applied to the practice of design; in which design is viewed primarily as inquiry.

Awareness of the complicity of architecture in social and environmental realities is paramount and addressed in courses such as Design History and Society, Building and Thinking of Architecture, and Cities Lands. Capacity to respond to those realities is developed in courses and studios including but not limited to Environmental and Ecological Systems and Buildings Systems and the Environment. The second year second semester studio, concurrent with EES, integrates environmental performance based problem sets with the design project – both to demonstrate its importance and enable each student. Options studios later take up many of these concerns.

How students gain an understanding of architecture as a social art, including the complex processes carried out by the multiple stakeholders who shape built environments; the emphasis given to generating the knowledge that can mitigate social and environmental problems

The School values exposure of its students to situations that have developed over time – to World cities and contexts, to different practice models, to multiple disciplines with different concerns and to unfamiliar situations which serve to broaden awareness and understanding of the complex processes at work in built environments and in association with their multiple constituents and stakeholders.

The School is committed to the view that architecture is, above all, a social art. It interprets this proposition in three significant ways:

- In the need to educate students in a progressive view of architecture in society, able to give form to the emerging realities of the culture, and resilient in the face of change.
- That the future American architect must have a global perspective.
- That strong technical competence is an essential complement to the wish to serve.

The School is invested in research and believes that following procedures and formulas is not sufficient. Research is investigation into possibility. It is modeled by the faculty in their own work, and in their elective course and option studio offerings. Architects must ask the right questions and innovate appropriate solutions to challenges. Residing within a research university whose mantra is: “*Why not change the world?*” is not insignificant. It reaches not only those researchers who are developing new ways to harvest energy and cure disease, but also presents an ethic that affects and influences the Architecture community – one that sets the underlying premise – that architecture matters and has consequence.

How students gain an understanding of the ethical implications of decisions involving the built environment; how a climate of civic engagement is nurtured, including a commitment to professional and public services.

RENSSELAER SCHOOL OF ARCHITECTURE

3.1 The Thirteen Conditions of Accreditation

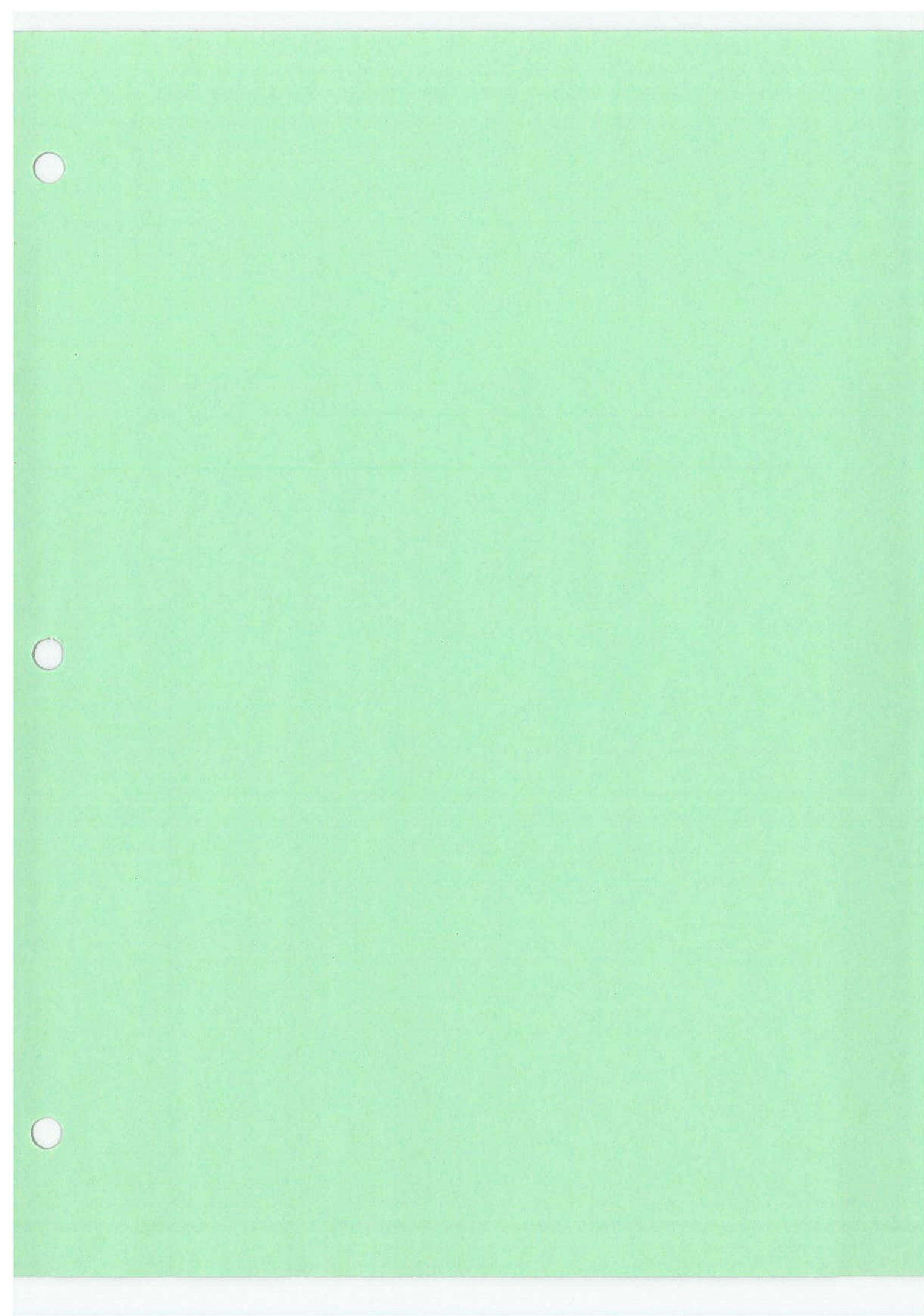
The School engages research with many other disciplines and faculty, CASE being the best example, where a model formalizing interdisciplinary teams to address complex problems has been implemented and reaches the professional students. Environmental and Ecological Systems and Building Systems and the Environment, pose these questions in the core curriculum, and elective courses in sustainability and a concentration in Built Ecologies further students' awareness of, and ability to address these concerns.

Knowledge and capacity are important, but the School also wishes to participate in civic engagement, which contributes to the problems before us. The School uses charrettes and workshops to address local and regional concerns and participates in research initiatives that address issues relating architecture and its associated disciplines with issues of health, energy and the environment.

The character of the School and its impact on society is ultimately measured by its graduates whose preparation is achieved in the composite experiences of courses and studios, programs and personal experiences and a progressive development of awareness and competency (both in practice skills and in life skills of critical judgment), in value testing, and in value formation. The curriculum highlights:

- *A pedagogy based upon critical inquiry in design* (expressed in the School's mission statement), begun in the first year and carried through to the final project, in which social, economic, technological, and environmental issues are addressed at every level;
- *A connective and inclusive approach* to history, theory, and technologies, which are viewed in combination as inseparable from the conception and making of architecture;
- *A balance between architecture and urban design* in which architecture is seen as an element within the continually changing urban fabric;
- *International programs* as essential educational experiences for the global architect and citizen;
- *Design Development studio* a recognition of both macro and micro issues in design producing (partial) construction drawings, with intensive, integrated professional practice instruction;
- *Practicum experiences* and other hands-on or direct immersions in experiential learning, e.g., charrettes, competitions and other community-involvement programs, research/design/build experiences within the curriculum, community service internships, and co-op semesters;
- *Final Project/Thesis year* as a capstone experience (for undergraduates and graduates) in which the Final Project/Thesis is defined as a set of issues and questions raised in a particular situation and/or context, revealed through design exploration.

The intentions and actions outlined above not only define education in architecture at Rensselaer but we believe are responsive to the five constituencies: the accrediting board (NAAB), the educators (ACSA), the members of the practicing profession (AIA), the registration board members (NCARB), and above all the students (AIAS), in a manner that not only offers a high level of competence and commitment but gives a resilient preparation for a future in the profession.



SCHOOL	ARE PASS RATES by school - 2007 (source NCARB)																
	PREDESIGN STRUCTURES		GENERAL STRUCTURES		LATERAL FORCES		MECH & ELEC SYSTEMS		MATERIALS & METHODS		CONST DOCS & SERVICES		SITE PLANNING		BUILDING TECHNOLOGY		
	#	PASS RATE	#	PASS RATE	#	PASS RATE	#	PASS RATE	#	PASS RATE	#	PASS RATE	#	PASS RATE	#	PASS RATE	
Princeton University	14	##	11	91%	10	##	16	81%	15	93%	11	##	14	79%	15	87%	
MANITOBA	13	##	13	92%	12	##	14	##	14	86%	16	94%	17	71%	16	87%	
Rice University	30	97%	30	77%	32	97%	33	94%	28	93%	32	97%	25	64%	30	83%	
Pennsylvania University of Texas, Austin	23	96%	23	87%	20	85%	25	88%	20	##	23	91%	23	65%	26	77%	
Rensselaer Polytechnic Institute	77	96%	71	90%	66	95%	76	83%	72	87%	69	86%	62	76%	61	74%	
Yale University	24	87%	21	95%	22	91%	21	81%	22	91%	23	##	15	73%	19	68%	
Connecticut	31	97%	20	93%	36	83%	35	82%	38	92%	52	87%	38	71%	43	79%	
University of Virginia	14	##	22	91%	21	90%	25	92%	21	87%	21	95%	15	60%	22	68%	
BRITISH COLUMBIA	30	93%	27	##	29	93%	31	87%	36	86%	36	83%	124	77%	121	73%	
University of Cincinnati	42	90%	49	90%	41	93%	44	89%	47	91%	44	98%	39	69%	35	69%	
Washington	34	94%	24	92%	25	96%	37	86%	40	95%	41	85%	36	67%	34	71%	
North Carolina State University	35	91%	29	76%	27	89%	37	78%	25	88%	33	94%	25	80%	31	74%	
Kent State University	33	88%	33	88%	34	88%	51	84%	33	97%	41	90%	29	76%	30	63%	
Roger Williams University	33	88%	31	84%	29	97%	35	83%	28	96%	33	85%	31	68%	36	75%	
South Carolina	35	94%	25	88%	27	85%	40	80%	32	91%	34	91%	30	73%	32	87%	
Montana	29	##	25	84%	28	96%	31	74%	32	97%	31	81%	20	70%	18	67%	
University of Utah	18	##	25	80%	24	79%	20	##	22	86%	14	93%	23	61%	22	73%	
Cornell University	31	94%	26	92%	29	83%	30	77%	25	72%	35	89%	27	78%	35	83%	
Washington University, St. Louis	39	85%	30	97%	34	94%	41	73%	28	89%	33	88%	29	69%	25	68%	
Tulane University	32	94%	34	68%	32	78%	29	86%	28	##	22	91%	30	67%	39	77%	
Indiana	45	93%	50	84%	48	85%	57	91%	45	96%	52	83%	154	74%	146	71%	
University of Illinois, Urbana-Champaign	72	86%	54	89%	63	83%	63	81%	54	85%	57	88%	60	73%	61	79%	
Pennsylvania State University	19	95%	17	88%	17	71%	18	89%	17	94%	20	90%	16	63%	16	75%	
University of Pennsylvania	53	89%	46	83%	40	92%	51	75%	53	91%	51	90%	57	63%	47	70%	
NOVA SCOTIA	14	##	18	89%	16	87%	16	81%	17	94%	15	87%	20	70%	15	53%	
Auburn University	50	96%	45	76%	35	83%	58	72%	58	93%	46	87%	163	77%	161	66%	
University of Oregon	70	89%	72	90%	70	91%	68	81%	75	92%	79	89%	75	63%	61	61%	
University of Maryland	19	95%	22	86%	24	87%	22	73%	26	88%	25	88%	18	61%	14	71%	
Cooper Union for the Advancement of Science & Art	7	86%	7	##	4	75%	9	67%	5	##	9	56%	6	83%	7	71%	
University at Buffalo, SUNY	32	69%	33	76%	36	83%	29	76%	34	79%	30	90%	14	79%	14	86%	
Harvard University	56	84%	52	90%	55	89%	62	81%	55	87%	60	90%	58	62%	55	62%	
Virginia Polytechnic Institute & State University	80	90%	84	92%	87	85%	98	78%	92	91%	97	84%	66	72%	78	72%	
Nebraska	23	87%	20	90%	19	79%	25	84%	32	94%	28	86%	10	90%	14	57%	
University of Nebraska, Lincoln	26	96%	29	72%	22	86%	34	76%	20	85%	27	78%	18	78%	16	62%	
Georgia Institute of Technology	37	84%	28	86%	30	87%	27	70%	34	82%	33	91%	28	68%	28	71%	
Syracuse University	58	91%	51	82%	59	83%	65	89%	67	85%	61	79%	50	68%	45	78%	
Rhode Island School of Design	26	88%	23	87%	24	79%	23	70%	33	71%	21	86%	26	88%	27	63%	
University of Calgary	7	71%	13	92%	12	75%	11	82%	8	87%	16	94%	133	73%	126	63%	
Drury University	9	89%	14	57%	14	71%	14	86%	19	89%	22	91%	9	67%	10	90%	
North Dakota State University	23	83%	32	84%	33	70%	30	97%	17	##	26	92%	31	55%	30	73%	
University of Minnesota	34	91%	32	87%	37	86%	40	82%	31	##	33	85%	41	56%	41	56%	
Missouri	15	##	13	##	17	##	18	89%	19	89%	23	96%	8	37%	10	60%	
University of Waterloo	33	88%	39	87%	32	84%	45	69%	37	84%	46	76%	174	74%	166	68%	
University of Arizona	19	79%	24	71%	20	##	22	77%	23	87%	25	88%	19	68%	14	71%	
Ohio State University	23	78%	21	86%	22	82%	22	82%	27	85%	34	82%	25	84%	22	73%	
University of Notre Dame	39	82%	32	69%	31	77%	38	79%	45	93%	39	90%	26	58%	22	77%	
Iowa	20	85%	22	73%	13	##	19	74%	18	84%	21	90%	18	56%	18	71%	
QUEBEC	46	85%	46	80%	41	73%	47	77%	39	97%	51	88%	28	68%	38	50%	
University of Kansas	72	85%	68	88%	64	92%	78	67%	92	78%	91	77%	56	61%	72	68%	
University of Michigan	42	88%	37	81%	40	77%	38	97%	38	97%	36	92%	37	76%	34	56%	
Tennessee	6	83%	7	86%	10	90%	9	89%	8	87%	12	67%	9	56%	6	67%	
Parsons School of Design	93	83%	78	85%	59	92%	92	71%	82	77%	92	72%	207	74%	162	69%	
University of California, Berkeley	77	77%	73	82%	69	31	77%	38	79%	45	93%	39	90%	26	58%	22	73%
University of Florida	33	91%	44	84%	38	87%	50	74%	40	87%	47	77%	44	53%	32	66%	
Massachusetts	33	88%	37	78%	39	72%	32	69%	30	83%	34	85%	198	69%	164	71%	
Boston Architectural College	41	85%	48	73%	40	70%	48	73%	51	82%	52	85%	37	70%	41	59%	
University of Kentucky	18	78%	19	95%	18	##	19	53%	16	81%	18	89%	13	62%	17	65%	
Washington State University	10	##	18	78%	13	77%	22	77%	24	83%	24	75%	18	55%	12	75%	
University of South Florida																	

Self-Assessment Procedures (3.2)

3.2 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.2 Program Self-Assessment Procedures

The accredited degree program must show how it is making progress in achieving the NAAB Perspectives and how it assesses the extent to which it is fulfilling its mission. The assessment procedures must include solicitation of the faculty's, students', and graduates' views on the program's curriculum and learning. Individual course evaluations are not sufficient to provide insight into the program's focus and pedagogy.

The APR must include the following:

- *A description of the school's self-assessment process, specifically with regard to ongoing evaluation of the program's mission statement and how it relates to the NAAB Perspectives*
- *Faculty, students', and graduates' assessments of the accredited degree program's curriculum and learning context as outlined in the NAAB Perspectives*
- *A description, if applicable, of institutional requirements for self-assessment*
- *Any other pertinent information.*

A description of the school's self-assessment process, specifically with regard to ongoing evaluation of the program's mission statement and how it relates to the NAAB Perspectives

The School of Architecture's self-assessment processes involve a diverse set of constituents and activities annually, both at the school and institute level. Faculty meetings, school committees and task groups are key to the continuous ongoing assessment of the School, its mission, programs and offerings. To expand a faculty-only perspective, students and staff are members of many of the internal committees that report to the Faculty and/or Dean and are tasked with the review and assessment and improvement of specific areas relating to the programs. Alumni and student advisory committees, who report to the Dean, are also engaged in the ongoing review and evaluation of the program.

At the school level self-assessment processes and activities include:

Faculty Retreats

Annual retreats provide opportunity to examine the direction, mission and vision of the School as well as the challenges and opportunities before it. Broad participation by all clinical, tenure track and tenured faculty is expected and participation by regular adjuncts is welcomed. Recent retreats have focused on new graduate programs; restructuring the final year; 'NAAB conditions not met'; and core curriculum revisions that resulted in the addition of Design History and Society, Case Studies, and Cities / Lands to the curriculum. The most recent multi-day faculty retreat was held in August 2008. The two-day event focused both on assessment and progress on NAAB perspectives and on mission/vision and strategic initiatives including the integration of performance based design and associative and parametric computational techniques and methodologies. A series of curriculum retreats are tentatively scheduled for Fall 2009 under the leadership of the new Dean.

Faculty Meetings

Faculty meetings, chaired by the Dean and staffed by his administrative assistant, are held bi-weekly with alternate weeks reserved for other committee and task group meetings. Meetings address contemporary issues and concerns, performance planning (see below), new initiatives and recommendations brought by committees and task groups. Tenure only faculty meetings are held to assess and make recommendations on new hires (at the clinical, and tenure track level), and faculty tenure and advancement cases.

Professional Programs Committee

A Professional Programs Committee, chaired by the Chair of Professional Programs also meets bi-weekly. Its membership includes all faculty teaching in the program and student representatives. It is staffed by the

RENSSELAER SCHOOL OF ARCHITECTURE

3.2 The Thirteen Conditions of Accreditation

Undergraduate Program Chair and served by standing sub-committees in specific areas such as technology and computational curriculum and task groups. The findings and recommendations of the Professional Programs committee are brought to the full faculty for review and ratification, and matters affecting required courses or curriculum as presented in the Institute catalog, once passed by the Architecture faculty must be presented to the Institute Wide Curriculum Committee (IWCC) for review and approval.

Graduate Programs Committee

A Graduate Programs Committee is chaired by the Chair of Graduate Programs with membership of each graduate program director and a student. It reviews matters pertaining to the administration of the graduate programs, graduate program curriculum and graduate student and School concerns.

Facilities and Infrastructure Committee

A Facilities and Infrastructure Committee includes student membership, the IT Director and Manager of the Digital Fabrications Lab and is charged with reviewing and recommending matters pertaining to the facilities and computational and lab infrastructures in support of the educational and research missions. This committee works with the Dean in recommending and capital improvements for Institute approval and funding.

Library Committee

A Library Committee which also includes a student member, is charged with addressing matters pertaining to Architecture Library hours, technology, access, and acquisitions.

Lectures, Exhibits and Publications Committee

A lectures, exhibits and publications committee coordinates nominations for lecture series, reviews proposals for exhibitions and advises on archiving. It also includes faculty and student members and reviews web presence and assists with publications and how media promotion of programs and events are handled.

Faculty Search Committees

Faculty Search Committees, though not directly linked to assessment, are created on an as needed basis when open tenure track positions are being pursued. One undergraduate and one graduate student participate as non-voting members.

Ad-Hoc Committee Task Groups

Ad-hoc committees, as distinct from committees are charged with a specific task. They report back to the dean and faculty with their assessment and recommendations. Examples of recent task group initiatives include the Co-terminal Degree, the 5-year M.Arch 1, Computational Curriculum, and the Brown Fellow Selection Committee.

Leadership Team

The Dean meets weekly with a leadership team comprised of the Associate Dean, Chair of Graduate Programs, Chair of Undergraduate Programs, Business Manager and Dean's Executive Assistant. A regular review of a cross section of matters is regularly assessed and addressed.

Dean's Student Advisory Committee

As part of the governance and Dean advisory system, students serving on School committees, elected student officers of the AIAS and National Organization on Minority Architecture Students (NOMAS), and two students elected from each undergraduate class and one from each graduate program comprise a Dean's Student Advisory Committee (DSAC). This group meets with the dean several times per year to assess "what works and what doesn't", actively involving students in the ongoing assessment and improvement of

3.2 The Thirteen Conditions of Accreditation

the school. DSAC members have access to the Dean and are encouraged to provide input at any time. Student input is highly valued. During the Dean search process the School created opportunity for each finalist candidate to meet separately with a group of student representatives including the Dean's Student Advisory Committee and a wide range of other students.

Dean's Advisory Council

A group of distinguished alumni(ae) serve on the Dean's Advisory Council. While its role has been to advise the dean in areas of development and fund raising, the council has increasingly provided an effective advisory and professional perspective on other issues. Council members have become active in the School by consultative visits, student mentoring, and guest lectures, and, in some cases, teaching assignments. The mission, vision and strategic plan of the School are reviewed by the council at every stage in its development. Council members are listed in Condition 3.1.4. In 2009 guests from recent graduating years were selected by the Acting Dean and invited to participate in advisory manner.

The School's self-assessment processes also include a number of annual activities including:

End-of-Semester Academic Review Meeting

An end of each semester an Academic Review meeting is attended by all student advisors and faculty who teach in the professional programs. The first agenda item is to collectively review the status of any student who performed low in one or more class, and/or students for whom a faculty member has concern. Cases are assessed collectively in the context of each student's performance across the architecture curriculum and recommendations are made in the student's best interest. This meeting also provides opportunity to share insights into the effectiveness of the curriculum and to raise questions concerning what is working and what is not. The semester and curricular issues are assessed and discussed at this time.

End-of-Semester Final Project Review

Following the final project presentations, a one to two day event involving external guest reviewers, all final project faculty and external guests meet to review and discuss what was seen and heard. The assessment is both of the student work and of the work and process in general. The meeting provides the opportunity to reflect on the effectiveness of the final project / thesis and to discuss progress and concerns in a collective setting together with external perspective.

Every program must be assessed against its mission and vision and in the context of the profession and constituents it serves, and it must also assess its various component parts and use that assessment in the evaluation of its tactics. To that end the course evaluation and faculty and staff evaluation processes are important tools in the construction and refinement of a relevant, vibrant and progressive School.

Course and Teaching Evaluation Process

Rensselaer employs the Individual Development and Educational Assessment (IDEA) Benchmarked Assessment Products for Higher Education, a nationally standardized method and service to evaluate its courses and teaching effectiveness. The IDEA Center is a nonprofit organization that has partnered with colleges and universities across the country since 1975 to reach the same goal — *"continuous individual and institutional improvement and achievement"*.

With a range of nationally normed, research-driven, flexible assessment services, The IDEA Center helps faculty members solicit feedback and evaluate teaching as it relates to curricular goals and the measurement of learning. This helps the faculty and dean, to assess how their own and the institution's objectives are realized. The IDEA provides both raw data and a comparison of an individual faculty member's performance against a national database and provides a criteria for annual evaluation and

RENSSELAER SCHOOL OF ARCHITECTURE

3.2 The Thirteen Conditions of Accreditation

baselines for improvement. These scores become a part of the faculty advancement, tenure and promotion process.

Individual teaching evaluation summary reports are distributed to the respective faculty upon request, and beginning in the Spring of 2009 all faculty receive a teaching evaluation summary report. A copy of the standard IDEA form follows this section.

Annual Faculty Reviews

Annual Faculty Reviews are performed by the Dean. The process requires each faculty member to submit an updated dossier in the institute template format and to write a self-evaluation including the past year's accomplishments and coming year's goals and objectives. Teaching evaluation summaries provided by the IDEA center are reviewed together with the accomplishment of the prior year's goals and objectives and new goals and objectives are established.

All School Meetings

On the first day of each new semester the dean invites all students, faculty, and staff to a general discussion of the school and its future. The dean's staff also hosts a welcome picnic on the first day of classes beginning the fall semester.

Faculty, students', and graduates' assessments of the accredited degree program's curriculum and learning context as outlined in the NAAB Perspectives

Approximately 250 respondents were surveyed in late spring of 2009 (225 students and 25 faculty). Of the 250 possible responses, 61 were received which is representative of approximately 24% of the group as a whole. The questions asked were in relation to the NAAB Perspectives, mission and vision at Rensselaer. The respondents received the following questions by email:

1. Comment on how you feel the overall curriculum and larger context, as it is today, is preparing future architects for the profession.
2. Comment on the program's strengths and future direction.
3. Additional pertinent information.

Responses were received anonymously and the overall consensus is that:

- The school is preparing students well for the profession
- Technology education is strong.
- Diversity of off campus programs and commitment of the faculty are underlying strengths.

A small thread of responses (10) felt there could be more 'real world' practice, education, and projects. All 61 responses can be found in their entirety following this section.

The school's mission, *"to prepare the most effective practitioners of architecture for international practice in the 21st century"*, anticipates an ever-changing context and profession that will demand leadership, and readiness to meet new challenges. It also demands knowledge of the architecture discipline and a strong awareness and appreciation for allied disciplines. The school takes the question of practice seriously – and provides access to the intellectual resources and tools to explore the topics and techniques that are now driving change, whether computational technique, architecture and engineering interface, performance based design, or sustainability etc., – to instill a life-long readiness to identify and act on matters of critical importance. We also take knowledge of practice and technology integration seriously both in the curriculum and through exposure to a variety of practice models. Exposure to practices and readiness for internship is through structured real-time visits to practices, visits to construction sites, collaborative work and study, case studies that look at the larger context of celebrated architecture, and world travel, but exposure is not all the school does. The curriculum is dedicated to enabling students on know how to realize their designs –

RENSSELAER SCHOOL OF ARCHITECTURE

3.2 The Thirteen Conditions of Accreditation

as material projects, integrated with multiple concerns and technologies. NCARB recognized this when Awarding an NCARB Prize in 2005 to the Bedford / DD studio, for the Creative Integration of Academy and Practice, nevertheless, and though they form a minority view among the responses received, we take this stream of comments seriously and plan to address the concern as part of our curriculum retreat and in discussion with student advisors.

Alumni(ae) Focus Groups and Surveys: The deans regularly undertake "focus group" discussions with alumni(ae) in New York, Boston, Portland Or, Los Angeles and San Francisco, at Build Boston, and National AIA meetings as well as with those who participated in international programs. These discussions have produced a representative profile of alumni(ae) views, which have in turn contributed to the school's consideration and actions.

A description, if applicable, of institutional requirements for self-assessment

Self-Assessment Requirements at the Institute Level

The primary self-assessment activity for all Rensselaer portfolio owners (Architecture being one) is an annual performance planning process which is driven by the Rensselaer Plan found Section 1.

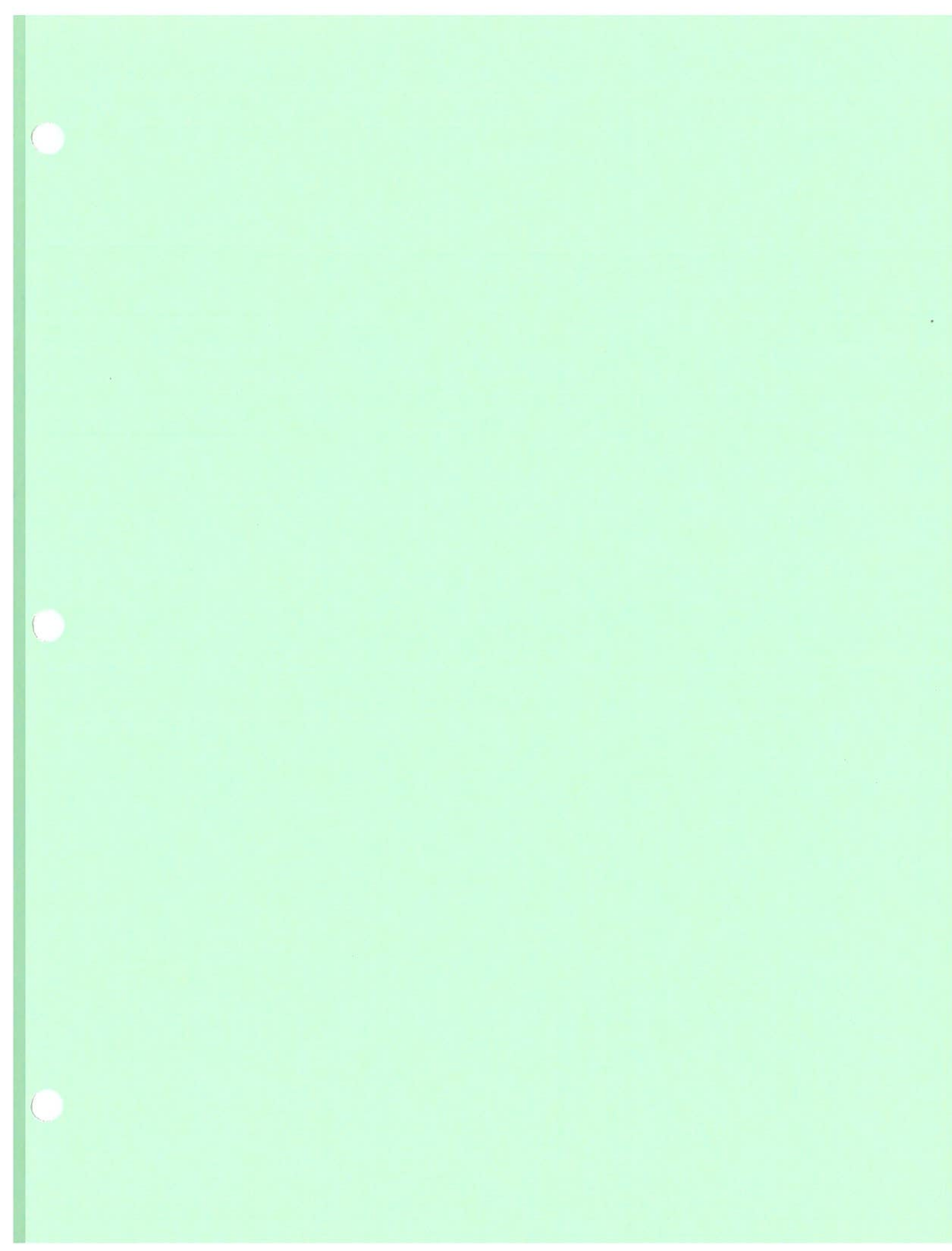
An "evergreen" plan designed to be revised on a regular basis, *"The Rensselaer Plan guides our decisions and provides the framework for school and divisional performance plans that serve as the basis for each year's operating plan and budget. Performance plans define the vision, mission, strategic initiatives, means and metrics; and when prioritized, create the case for major new resources."*

This process performed annually is initiated by developing a set of key initiatives with a 3-year view. The initiatives are vetted with the Architecture faculty, centers and directors, and finally at the highest levels of Institute's administration. Once the initiatives have been fully reviewed they are shaped into a strategic three-year plan, presented and submitted to the President and her cabinet. A copy of architecture's FY10 performance plan can be found following this section.

Self-assessment also results from Architecture's participation in Institute procedures and through participation on and interface with institute committees including, the Institute-Wide Curriculum Committee, Committee on Honors, Promotion and Tenure Committee, and Faculty Handbook and Grievance Committee.

The Institute Wide Curriculum Committee is diligent in assessing proposals from all Schools, both for merit and for their impact on other Institute programs and procedures. Promotion and Tenure is rigorous in its upholding of the standards of advancement to tenure, and ranks of associate and full professor, and provides a strong measure both for the candidates and the School's tenure committee (tenured faculty) and Dean. The tenure process requires blind confidential external referees of each candidate's dossier, which provides an excellent view of their individual and collective standing in the larger academic community. Architecture faculty also participate in the Institute's Middle States Accreditation process once each decade and the self-assessment it requires.

Self-initiated periodic review of non-accredited programs at Rensselaer is a common practice at Rensselaer and in 2008-09 a blue ribbon external review panel was assembled to visit and assess the M.S. and Ph.D. graduate programs within the School of Architecture.





Faculty and Student Response to NAAB Self Assessment

Preparation/Quality	Strengths And Direction	Additional Info
we're learning a lot about theory and self marketing, i.e. beautiful renderings, good presentations and not enough about the math and techniques. compared to the rest of the (architecture) world , i feel we are at a disadvantage.	i feel like rpi is moving too much into computing.	
I sincerely feel that Rensselaer's curriculum is one of the strongest of any professional school today in preparing students for the profession.	The Rensselaer SoA is exceptionally strong in computing and design, and with giving students some comfort in the areas of emerging technologies. It is getting better in the area of sustainability, and I expect that will be a major strength in the future.	Rensselaer needs to work on the History and Theory sequence, and on the development of the student's writing and critical skills.
The curriculum as it grows and changes to meet the needs of practice is very healthy. There are of course ongoing efforts to match change in practice as well as change in the modes with which we practice. The strength is the willingness (in most cases) of the faculty to acknowledge those changes and needs, and act responsibly to ensure that our curriculum remains relevant.	As stated above, i think the program is in very good hands and the new Dean will be a welcome addition to the many initiatives that have been underway for the past several years. The future seems very healthy led by young faculty who are just beginning to establish recognition within the discipline as innovators. We will continue to rely on these faculty to help shape the agenda of the school as it moves to prepare the best practitioners possible.	
Doing well.	Technological education. Lighting graduate program option.	
I think it is a well structured program and curriculum that does not just prepare students to be designers but also provides them with challenges that would occur in the real world	Future direction could be emphasized on more detailed approach and understanding of sustainable design. I think more research should take place in that field.	Faculty's dedication and interest in what they teach is vital.
The overall curriculum is preparing future architects for the profession by nurturing our creative minds while teaching us the necessary information to provide ourselves with a solid base to grow off of. The program is geared towards challenging students, and in doing so forces us to push ourselves beyond what we thought we were capable of.	A lot of the program's strengths come from the individuals teaching us. They are professionals in the field, and their passion is contagious. The program itself is strong in many ways, familiarizing students with vital software and multimedia ways of working, as well as providing a very thorough knowledge of materials and material properties, and architectural history.	
I think that our school does an excellent job in preparing us software-wise, but lacks in the realistic aspects often. We are very used to designing these incredibly outrageous buildings that lack little grounding to reality. There needs to be a more realistic course that we take that takes all of these factors into consideration.	The program is definitely making strides to improve the students technical understanding of architecture. Classes such as construction systems and materials & enclosure allows for a much more clear and indepth understanding of design.	
The overall curriculum, as it is today, prepares the students very well for the future	The strengths of the program lie in the broad, rounded education. I truly value the	

Faculty and Student Response to NAAB Self Assessment

of the profession of architecture. We are taught the most current and advanced softwares and techniques. The downside, however, is that many firms aren't up to RPI speed. It would be beneficial for students to become familiarized with programs such as AutoCAD, Publisher, Microstation, and other widely known and used programs that, while they may be somewhat dated, are still a standard within the field.	focus placed on history, analysis, engineering, structure, practicality, as well as a main focus on design. For future direction, a cheaper, required abroad program would be excellent and would really add to a fully rounded education. Other universities are completely capable of sending students abroad without additional "program fees" and it would be wise of RPI (especially the School of Architecture) to find a way to do the same.	
The program is really growing stonger with each year and quickly passing most other schools of architecture. Our school offers the most cutting edge tech. to us for nothing and has truely making strides in the studios and work done by the students on a global stance.	The strength are really coming from our abroad programs, such as in NYC and the new direction of the Roma Program. Along with that the fabrication side of architecture that our school as started to learn forwards is amazing.	Most students complain about the school itself, but when we are done doing that and step back and compare ourselves to other schools, international students, and so on I feel we are starting to become one of the top Architectural schools on the map.
I believe that the intense technological curriculum at the School of Architecture is preparing us for the digital realm of architectural design that is increasingly present in the professional world. The emphasis on teaching various modeling programs and software platforms increases our skill set and provides for many more opportunities of employment once our education has concluded.	I believe that one of the main strengths of the program, as stated before, is the emphasis on digital computation. Additionally, I believe that the variety of faculty present within the school is essential to the program's future direction. The mix of age, style, and technique from the variety of professors allows for a well-rounded education, but the most essential professors, in my opinion, are the young faculty members that have present-day knowledge and innovative ideas to teach to us to help us prepare for the professional world of architecture as it stands today.	The School of Architecture at RPI possesses an excellent curriculum, environment and faculty. The combination of these three things make for a promising education that will prepare any individual for their professional careers, with the skill sets to accomplish required tasks as well as the design techniques to be innovative thinkers.
I feel as though the program at RPI teaches us extremely relevant skills, grants a variety of architectural opportunities, along with asking each student to think abstractly throughout each project. After having just completed my second year, I feel pretty confident discussing design and will be working with extremely up to date software this fall in another country. I feel that RPI architects have a strong education.	A definite strength of the RPI program is that it does not give any specific "correct" way to design. All of the professors are open to tell you about many different great architects, different design philosophies, and they want for you to find one that really speaks to you. They are very open when it comes to good design, and us young architects are prompted to sit and discuss design and society to figure it all out.	
Attending school at Rensselaer has opened my eyes to the surrounding world of architecture, and the larger context of the world as a whole. Through the integration of technology, construction, theory, and history, I believe I have developed a level of thinking that has prepared me for the architectural profession. Not only does RPI provide us with a strong working skills set, it also offers	From what I have seen and experienced thus far in my architectural education, it seems to me that our school has the potential to go in many different directions, all which push the boundaries of innovation and design. Though I may not be personally interested in scripting or parametric modeling, we have many professors who are well-versed in this area	

Faculty and Student Response to NAAB Self Assessment

a different way to look at the world and profession. All of my architecture classes have brought a different perspective to my education, and I feel as though the integration of each element is pertinent to my future professional experience.	and are influencing students as the years go by. We have professors knowledgeable in the area of construction systems, and the way materials are actually put together. We have a very strong Built Ecologies program focused on the environment and ecological systems of design. There are professors who stress the theory and philosophical side of architecture, and the importance of writing. We as students are exposed to them all; and it is ultimately our decision which direction we would like to go in. The vertical studios offer us this opportunity to work in an area we are specifically interested in. For the most part, we form a connection to our professors, who we may even consider mentors. We also learn from our peers, bouncing ideas off of them and offering informal critiques. These are just a few of the program's strengths.	
I feel that the overall curriculum is very well-rounded, preparing future architects extremely well for the profession. I have met many RPI grads who have successful careers, using what they learned at RPI to set them apart from other recent grads.	I think the strength of RPI's architecture program lies in its cutting edge technologies and study abroad programs.	
The curriculum at RPI prepares students for taking an active part in the profession at an early point in their education. The construction sequence classes and Design Development have helped me immensely in the field. I was able to take part in internships after my second year and have felt more prepared than students coming from other well-known universities.	There seems to be a change in the faculty in the architecture program with the older professors retiring and the change in Dean. I think that the newer faculty provides insight to working in more modern firm with new technologies, while we still receive important historical context of architecture. In addition, more opportunities to study sustainable design have become available and is definitely a great thing to have.	Although RPI is very well known for its engineering program, I have felt that in the field, professionals have recognized RPI as producing very competent and capable architects and interns. Additionally, the fabrication shop has also been a great tool for students and the newer machines and technologies have been successful in student exploration.
Teachers tend to be very subjective, but the material we learn is very valuable and puts us ahead of where we need to be in order to enter the work force.	The program is very strong, we learn life skills that prepare us to handle most design situations.	
Rensselaer's School of architecture offers a well rounded education. Blending the technical and artistic and offering the skills needed to succeed in the profession. teaching students new technologies in an effective and useful manner as well and design skills.	The program's strength is really the studio environment managing to integrate all aspects into studio culture from structure and environmental concerns to software, art and history while maintaining a community that learns and grows together. The school seems to be heading down the same path and continuing to push us students to explore outside the school as	

Faculty and Student Response to NAAB Self Assessment

	well as inside giving us every opportunity to learn.	
The core of the architecture degree, the Design Studio classes are exceptional. The opportunities to learn, travel, and experience are outstanding. However, other classes taken within the B.Arch curriculum such as Physical Principles of Design and Contemporary Math Approaches leave something to be desired. These classes introduce concepts and lessons that are intriguing, but due to the pressures of our core classes such as Studio, Structures I and II and Environmental and Ecological Systems, we do not have the time to delve further into the topics that interest us.	I believe that the Department of Architecture at RPI is strong because of its international focus. We have a thriving study-abroad program, but more importantly, our regular assignments throughout our time at Rensselaer involve cultures, climates, and societies that go beyond the United States and Troy, NY.	
I feel that the overall curriculum prepares us well for a profession in architecture. It covers the necessary areas in this field of study and it prepares us for the degree of difficulty we may experience in the future. The criticism during reviews is helpful in improving our methods and work as well.	The program is strong in taking projects and gradually making them more architectural and realistic. The emphasis on computing and CAD is excellent. There is also great focus on planning a drawing. In the future I feel there should be more classes specifically focusing on just drawing.	I feel that the professors should give more constructive criticism. At times their criticism could be very harsh and not acceptable for the educational environment that we are in.
I believe that the current curriculum at the school of architecture at RPI is one that is preparing future architects very well. The classes are very challenging, and the concepts given to students are complex. The professors at the school are all very challenging to the students and encourage them to try their hardest. It is a school where the future architects are treated as though they are in the profession. When entered into the real world of architecture, the students are very well prepared and will succeed.	The strengths of the program are definitely the one on one basis in which the students are taken care of. The professors are always there for the students, no matter what they need. The future of the program will be full of success. I believe that the school will be further involved in its community of both the school and the surrounding area as well as the rest of the world. Its continued involvement in countries around the world and participation with other schools and such will prove to make a proud future for the school.	The school is to my belief one of the best in the country. The school is extremely hard work-wise, but it is definitely worth it in the end. The school will help me do what it is I want in the future with the rest of my life.
I feel that we are being exposed to many different computer programs that will give us a leg up when applying to firms when we graduate. All of these programs allow us to create more advanced projects.	The program offers many vertical studios that fit anyone's interests. The CASE programs allow us to experience an architecture firm atmosphere and expose us to the process of designing.	The professors truly care about their students, but they also push them to their limits, which is something that is needed in a design curriculum.
I believe it is preparing us well to think as designers, and to exploit the skills that we are gaining to influence the processes and services we provide. I feel that this program is lacking in practical real world architectural experience. There is little to no focus on things that the practice of architecture is concerned with, which is not as important in school since it's a time to think and explore design creativity, but it's almost like the	I believe the program is very strong overall. It is a little blurry in direction being we have a new dean who seems to have been the least favorite in the eyes of the students during the selection process. It would be nice to have someone who is very well known come to the school, but RPI just does not have that type of reputation to draw someone like that.	It would be nice to see the school pay a little more attention to the School of Architecture and the contribution we make to the community even though we are a small percentage of the overall campus.



Faculty and Student Response to NAAB Self Assessment

school does not even acknowledge its there since so little of the professors and faculty actually still practice...only a few of the younger members actually work in/ own firms.		
I think that the school of architecture prepares its students to enter the field mentally, but still lacking some of the more practical skills that are necessary at entry positions- like understanding the financial aspects of building design and using the programs that are industry standard.	I think that the strengths of the program are in the pursuit of new and innovative methods of design. Professors are attentive to what students are interested in learning. Students are exposed to ideas and methods that are unique to RPI.	I think that at times the professor's interests in different fields overwhelms the curriculum, and impairs the students ability to have a well rounded education.
I feel there is an excellent emphasis on the finer aspects of architectural design, those which separate it from real estate, such as form, function, space, experience, and so on. However, I am worried that I'm not learning quite enough about actual construction and how buildings are put together. Perhaps a stronger influence on Demetrios' classes would be helpful.		
Overall, I think the program is giving RPI students a serious advantage in the design aspect of architecture. We are always trying and using the latest 3D software with a focus on design.	The program pushes you very hard in terms of deadlines and carrying out clear concepts through architectural design (whether it be cultural, social, environmental etc.) By having a range in the age and background of professors I think students get both traditional and new viewpoints/strategies that balance each other.	I enjoy how the program isn't just technical but it forces you to consider real life issues and to challenge they way things are normally done through design solutions. Mediocrity is not accepted.
I think this program helps prepare for the future in architecture. It arms us with skills valued by firms important to international architecture. It prepares us for any time constraints or workload.	The program is very good at encouraging skills in computing, as well as molding us as well round architects with physical modeling, hand drawing, construction and material technique, and rendering.	Has a generally good, and helpful staff.
As an upcoming thrid year student, I have felt that we have learned more about just designing in general rather than designing a viable building. We learn and read about environmental and aesthetics, but we as students do not really know how to integrate them other than the building just having them. We do not know all of the consequences and the structural nature of what we design. I would like to learn more about the construction and structural aspect of design. There has always been a gap between architecture and engineering. I feel that if the architects learn structure properly than the gap could be somewhat bridged, making our lives when we become architects easier and more enjoyable.	The architecture program is strong in many ways and has its downfalls. Most of the professors are very strong teachers, but others are not. I will list names so that this becomes useful. When I took Structure I, I felt Ivan Markov did a very poor job teaching us in class. We as a class studied and learned as a group outside of class because the office hours were poorly scheduled and the TA's were useless. I would like to have maybe a second professor teach along side Ivan. Ivan is a smart guy but he is not very good at getting his teachings to us. Pravin was a good teacher, at times it is hard to understand. We had a hard time in EES this year. I feel that Pravin will be a better teacher in the upcoming year(s),	I think I covered most of what I wanted to say Christopher Kouttron

Faculty and Student Response to NAAB Self Assessment

	after teaching at RPI for the first time. Better TA's would have been better for EES DHS was a nightmare. I do not think that Bedford really taught us much of anything. He didnt care that 90% of the class was sleeping. Even though I was awake and present at all classes, not alot of anything was covered. It would have been nice to learn more about designs changes and impacts on society. Otherwise I must say that most of the studio professors are great. Some can be annoying at times but they get the message across and we work and learn. Construction systems with Demetrios and Reese was a great learning experience. I feel that I have learned substantially more in their class than in EES, DHS and structure. BTA was a great learning experience. Professor Bell really knows what he is talking about, which makes the learning process that much better. There is a lot which is taught, but its an enjoyable learning experience.	
I believe the program and it's faculty are positioning us (the students) to be incredibly successful in the profession and international community. I personally am working with second and third year graduate students and I am on par with their level of experience and exposure after 3 years in RPI's School of Architecture undergraduate program.	The greatest strength is the personal interest the professors have in our growth as designers. They dedicate nights and weekends to pushing us and our projects. The exposure that our study abroad programs capture is invaluable to our experience a architects in this global age. The emphasis on multiple platforms and software interfaces brings us to the crisis and arguments that are currently present in the architecture community. I feel that learning a breadth of different programs efficiently is absolutely necessary.	One of my favorite aspects of my education at RPI is the fact that it is conflicting in a way. The diversity of opinion in the teachers and the various experiences they bring from multiple backgrounds gives our program a true richness. The field of thought offers us the opportunity to sift through the differing methods and techniques to discover what we believe applies to us and our situation as designers in the current age.
It helps prepare one for their future profession, by immediatley placing them into a competitive environment in which learning is encoraged by knowledgable professionals	As the program grows and begins to be better known in the world or architecture, it's graduates will prosper more and more widley	
Overall, while I feel the content of the program is strong the only weakness in the program is organization.	Programming is a major strength with this school in comparison to others, with the strength students are better prepared for when they graduate in relation the direction the field is going.	
I feel the school of architecture at rpi prepares students and informs professors of what the future of architecture is shaped to	The future direction for architecture at rpi is very promising. New and improved classes bring something unique and enhancing for	Studio work has been and will be the densest area for students' learning experiences

Faculty and Student Response to NAAB Self Assessment

be well beyond how other schools attack their learning curriculum. The students and professors work hand in hand through at least 90% of the process of what is and what ought to be learned around and in classes.	the university every year they arrive. Some offer more challenges to be brought upon them while others venture into untouched realms, but either way, the whole of RPI's school of architecture benefits.	in architecture.
RPI Architecture teaches you to teach yourself. Though the school may not teach us every computer program or go into depth for staff architect tasks, it does give us the confidence to accomplish anything because of the depth and breadth of classes, and also the know-how to figure out whatever is put before us.	Computer modeling, imagination and design concept are what sets RPI apart from other schools. They prepare their students for the top-of-the-line architecture that's happening now and becoming the future and how to adapt to that.	It is also important to look back before stepping forward. We are taught architectural history and theory along with what's happening today which makes a huge difference. Also we are one of the only schools with the DD studio program and employers are impressed and find this helps a lot with internships. I believe coordination with IDP and NCARB may be more beneficial to preparing students for what immediately happens after graduation.
I feel that the curriculum as a whole is very adequate for preparing future architects for the profession. The only thing that I would comment on is that none of the classes really prepare you or let you know about any of the paper work that goes along with the design and drawing work that you will be doing.	The program's strength lies in the studios. I think the organization of them is well done with the core studios the first two years and then verticals the third and fourth years. I think by bringing in more guest professors for the verticals would be a good thing because they tend to have different teaching styles than the core professors and it allows for a wide range of exposure for the students.	
I feel that the Architecture program at Rensselaer is very well designed. Architecture students studying here learn more and develop their skills better than in most other architecture programs around the country. Potential and current employers are impressed by the amount of knowledge students have and how well they can adapt to the working environment from the school environment.	The program is a vigorous one in which students are always kept extremely busy. The projects are realistic and provide a lot of work for the students to learn from but also can be enjoyable. The program is moving in an excellent direction for both the students and the faculty; keeping everyone busy and working hard.	An amazing program and I couldn't imagine being anywhere else.
I believe the approach is pretty good, but I would like to actually see real architects at work. Or even have a mandatory internship to better prepare me for the real world.	We are always using the latest technology and pushing ourselves until the latest hour to create the best work. Also, the faculty is very driven.	I would really like a mandatory internship. RPI is very resourceful, we have the best of the best, but it's like this school is idle in helping its students really succeed and use the talents of the faculty and students to their fullest. Also, I think studio should be closed at some point in the night because it gives the over-competitive students a reason to stay up all-

Faculty and Student Response to NAAB Self Assessment

		night making crappy decision after crappy decision and makes all the other students worry that they aren't up to par. Then everyone stays awake and a vicious cycle occurs where no one is awake for class and not making good design decisions.
I think that the current program and curriculum do well in combining traditional methods of design with contemporary technology; as such, I believe students come away with a comprehensive understanding of the field they are entering as well as the necessary skill set to survive in the field as it exists today.	The insistence on hand-drafting before computer-drafting is certainly a strength, as is the fact that the first semester is designed to encourage the ability to work with space before ever designing a building. The encouragement to use a combination of traditional and innovative techniques is also a boon to the architecture program. I think that in some ways there is an unnecessary rush towards new, technological means which may eliminate the grounding in tradition that currently exists, but if the balance between the two can be maintained the program and those it teaches will be well off.	
I feel that the subject matter taught and the process that each student must submit to prepares them for a great future in architecture, if the student is willing to put forth effort themselves. Design and development is not the only thing that students learn from their studio and non-studio courses, as theory and philosophy is also taught. By the end of the second year, students have a strong base in design, and are mostly aware of the many factors that can push a design or that must be considered when creating architecture. With the various study abroad programs, studios, additional classes, and finally the fifth year thesis, graduates of the program seem to be well prepared to be architects in the international community.	The strengths of RPI's program lie in the studio. The faculty has some very good professors, who help push students their boundaries (and sometimes to their limits). The work can be exhausting, but it allows students to develop a strong relationship with their work and their subject, so that each student is very passionate about their field of study. I would say that the future direction of the program is going to involve a heavier focus on study abroad, environmental and ecological applications in architecture, as well as getting students to learn some of the newest software programs. All of this will help students be relevant in today's workplace and even push architectural design to new places.	
Although I have only been through one year of schooling at RPI, I feel that the general knowledge on the relationships between spaces, the effects of light, and programmatic relationships that I have gained have been very helpful and continue to be helpful as I move forward.	I enjoyed the forum-style critiques with faculty and students. It is beneficial to get a wide range of opinions on what I tried to put together in terms of architectural merit.	
I feel that the architectural and design (materials) classes are very adequate at providing future architects with the right information and knowledge that they need to	The design and hands on activities which are required are a great way to show students the real-life aspects of the architectural field. The courses are helpful	The lack of internship opportunities throughout the past couple years has hindered many students who have tried to

Faculty and Student Response to NAAB Self Assessment

become successful in the profession, but I do feel that some other courses required are much less necessary for architecture as a whole but completely understand why it is a must in the curriculum.	at getting students on their feet to know how to solve problems and make their own decisions to overcome said problems and tasks that need to be dealt with.	experience a firm or real architectural job from actually doing so and getting the experience which could really help them to understand their role in the future with architecture.
The Architecture School at RPI is particularly good at preparing students to handle any form of design they may be faced with in the future. Rather than teaching students how to design a "house" or an "office" RPI focuses on teaching students how to assess qualities of space, present and future programmatic requirements, and the greater context in the design process. In this way students are well prepared to take on any design challenge they encounter. I only foresee the strength of this program improving as RPI seeks to maintain these standards of teaching while increasing the school's interaction with programs on the national and international scene.	A key strength of the program can be found in variety of experiences that ever student encounters at RPI. RPI is home to both a core faculty group as well as an ever changing group of guest faculty members. With a fresh faculty year after year, new ideas and perspectives are allowed into school. In particular, professors that hold positions in firms bring knowledge of the most current practices and needs in the professional world. In this way the school remains on top of the latest technologies and practices, which is extremely important at this time when the global architecture scene is evolving more rapidly than ever.	
The curriculum is well thought out and diverse enough to prepare students for many different aspects of the professional world.	The strengths are definitely in the studio atmosphere and the productivity in design that is encouraged. In addition, the ability to interact and learn from the impressive engineering school is very helpful.	N/A
i think the program well enough prepares students to become innovative and creative professionals in the field of architecture.	it encourages the use of technology but also reminds us to look back at our numerous non-technological resources such as hand drawing, sketching and massive sketch model making to express our ideas.	
While the feedback from the profession has been very strong, and student success in the professional exams has been high, I believe that we need to completely rethink the curriculum. Contemporary tools require a different conceptual grounding, while fundamental skills like sketching and writing with grace and clarity need to be reinforced. Critical and creative thought should be approached directly as learning outcomes rather than by a wishful osmotic pedagogy.	Grounded creativity and design skill should continue to be our objective. We should directly teach how to develop creative responses to the program by carefully considered critical reflection. The goal should be an effective innovative response to any problem. Architects design buildings but they also manage people, develop businesses, participate in politics and policy, and branch out into other design fields. Our education should encourage them to take design skills to what ever issue that they confront.	There is no reason that we can not conceive of and implement a design curriculum for the present and future rather than patching up they one that we have now. This is not to suggest that we do not do many things well, nor does it suggest that we should abandon our successes, but rather that we should seek to exceed those things that we are good at while confronting those things that are not as satisfying.
well, seeing as I've just been in the school of architecture I really cant say that much but I can see why we do the projects that we get assigned.		

Faculty and Student Response to NAAB Self Assessment

I currently feel unprepared for a future in the profession. There are some classes that have no apparent pertinence beyond giving our GPAs a letter grade boost - I would rather learn something important than get a good grade.	There must be a better way than learning by iteration. It begins to seem redundant after a time, and I lose interest - progressively, it becomes less of "my" work and more of "suck up and agree with whatever the teacher says" work. While I realize that it is important to comply with the client when practicing, this "suck up" work just seems completely pointless. Why have professors be so controlling and discouraging towards many personal methods, when the whole POINT of school is to experiment and find one's strengths and weakness, likes/dislikes, etc. in designing architecture?	Get some better assignments too - some of those are just plain retarded. Over all, fail.
The School of Architecture at RPI goes beyond what architecture is thought to be. Yes, the professors teach how to draw plans and sections, present your projects, and how to design. However, they also teach you how to think beyond the limits set on us by society. Architecture at RPI is a world where anything is possible.	The school of architecture and RPI as a whole, are destined for success. The school of architecture pushes students to exceed their natural abilities, and learn to design their own futures.	
The way in which we learn is much more important than the content that is covered. The discipline that I have developed while progressing through the program is readily applicable to the work I have completed in the professional sector. Unfortunately at times, I do feel that the content lacks relevance and work is grossly disproportional to the time provided. Quality is sacrificed in order to complete the assignment and very little is learned.	The program encourages us to expand our way of thinking and attacks design, as well as other aspects of architecture, from several perspectives in order to develop a greater understanding.	
They seem to be doing a good job in terms of just regular preparedness. I feel able to do any task that is given to me in my internship, whether CAD drawings, 3-d modeling, etc. I feel the only thing that could be helpful is an early start in help with understanding IDP.	I feel the program is strong, and seems to be going in the right direction. Maybe a class or classes where a full scale project is built, such as Auburn's Rural Studio, could help us understand the complexities that go into designing and constructing a building, as compared to just doing drawings and models.	None
The curriculum, perhaps more than the larger context, instills in the graduates a capacity to work in terms of relationships rather than only discrete units of knowledge and skills. I believe this enables a practitioner to engage with the rapidly accelerating flow of information and new tools that characterized our profession's today.	As noted above, design in terms of relationships among influences not only offers opportunities for more fully integrated work, but places the knowledge utilized in context relative to other concerns. I believe this is healthy. The future direction, I would hope, is in keeping some healthy tension among competing perspectives, and at the same time, a balance among ways of working, where capacities and limits of each are realized and taken advantage of.	In recent years there has been a tendency to slight consideration of the direct experiential potentials of design in favor of architecture's more easily described characteristics. Students would benefit from more direct challenges as to how their design proposals engage with human aspirations and problematics.

Faculty and Student Response to NAAB Self Assessment

I feel that the technical abilities though classes such as Design Development are very helpful for future architects. There is an increasing emphasis on parametric modeling that should be supplemented with other approaches to get a stronger feel for how these projects would actually function rather than solely on their form.	A strong program that could use some diversification in its professors	
Seeing how I only completed one year of the architecture curriculum, I'm not fully sure about answering this with all honesty, but from the experience I have had so far, I do believe that this curriculum is leading me towards the right direction. I already know that I have a further understanding of architecture as a whole more than some of my friends who are attending different architecture accredited schools.	The program does seem to be getting stronger each year. This year the school as a whole accomplished a lot more work and grew as whole than previous years. My class is the largest class so far and are learning more sooner than the previous years due to new and harder curriculums where we were introduced to techniques a lot sooner than the upperclassmen were.	This program is exceptionally strong and as I enter my second year, I am confident that I will learn that much more about the school and architecture coherently.
Well	Experience	Oh Yeah
I strongly believe that RPI is one of the strongest in terms of preparation for future design. This primarily comes from the strong influence of software on the profession and RPI's desire to stay current with the technologies. While there is some dispute about what software should be taught, the freedom we have to explore with generative technologies and other softwares while still having access to more traditional design exercises is an essential piece of the architectural education at RPI.	I believe that the strength really lies with the mixture of faculty. Many of the younger faculty are software driven and having the older faculty present helps combine older styles of design with new. It gives a broad spectrum of design styles to the students. Also all of the programs we have available to study away from campus are truly becoming amazing opportunities.	The major problem is the cramped space and lack of tools. While much of the program has switched over to the digital realm the model building practices have taken second priority. There has been an increase in demand for digital fabrication tools but not much increase in their existence.
I believe that the curriculum is well designed to help future architects understand the meaning behind this position before the responsibilities. Further enabling them to proceed with a better comprehension of what the client's needs and wants are as well as the ability to be flexible.	The progression of projects throughout the year is one of the stronger parts, because it leads to better appreciation of the complexity of each area of architecture as well as the process in which each design is completed.	The computer programs tend to give many laptops problems and these set back can not be afforded in a rigorous program such as this.
The students are given tasks that vary in nature designed to get them to think critically at their own work while designing structures increasing in difficulty. These tasks are formed so that the students are able to learn and evolve with each successive assignment.	The students are led in such a way that each one is able to come up with his or her own idea and are directed to improve without the direct use of other's ideas.	This school prepares its students in a very efficient manner.
I feel that the RPI curriculum is very challenging and more importantly, pertinent to the current and future directions of the profession. RPI does a good job of preparing its students for the profession through the Design Development studio and Professional Practice class. The education		

Faculty and Student Response to NAAB Self Assessment

has a wide base of study and encourages inspiration from the past to look to the future. It also encourages students to push the status quo of architecture to constantly create new designs on every scale.		
Overall I feel that the curriculum is excellent in providing students with very basic knowledge of computer programs after which it is then the student's responsibility to learn enough to make it useful in the real world. As far as classes aimed at teaching the practice of the profession they exist, but I feel there should be more of them. This school prepares its students to discover how they design by showing them many different ways to do it. This I feel will ultimately be the most important to graduates, not immediately in the profession, but once these students have become licensed at can then contribute more to the architectural world.	The opportunities provided within this program's study abroad programs, such as: the Torino/Rome, China, India, and NYC are unprecedented in quality. I was a part of the first Torino/Rome program and although it had scheduling conflicts the fact that we were given the chance to exhibit our work internationally out weighs the overly condensed class scheduling of the semester. The future direction of increasing collaboration of students internationally will effectively teach students how to work better in non perfect real world like conditions.	The lecture series that occurs on wednesdays at 6pm is a great idea and interesting. The problem I see with it is that it should be moved to 6:30 or 7pm, that way students that have been in classes all day including studio from 2pm to 6pm time to eat something and go to the lectures more refreshed and more interested.
I think that the overall curriculum is very good and that the concepts learned and taught are well developed however the way that they are critiqued and given out could be better suited for the class that is being dealt with like adjusting time lines or guidelines to suit the progression of the class rather than the professors plowing ahead with the curriculum.	The program is very hands on allowing for great creativity to be achieved. The program is also very interactive between the professors and the students and the students and other students allowing a great group and team work environment to develop which prepares the students for their future careers in firms. In addition the program guides students in a certain direction but also lets them to form their own opinions and ideas so that their creativity is not diminished.	The program is very strong but it needs to allow for the freedom of the students to experience college life and other interests as well.
Architecture education and the curriculum at RPI prepares future architects for little of the delicate balance and nuance necessary to complete actual built work in the modern world. The curriculum focuses on steering students to fashionable design methods using subtle coercion rather than genuinely exploring fundamentally different design philosophies and methods in an intellectual environment. While this is certainly true at other top institutions, I have no particular knowledge of the methods used elsewhere. As a graduate student with nearly ten years of professional experience dealing with both practical and philosophical issues in design and construction, I'm appalled at the pseudo-science which stultifies the intellectual portion of the profession. Methods and ideologies are embraced purely for their novelty- a poor way to	RPI is exceptionally weak in exploiting the resources of other departments and disciplines outside the school of architecture. Despite the presence of RPI is exceptionally weak in actually teaching the software it pushes. Students are asked to follow along in massive sessions rather than given proper tutorials where questions and missteps might be corrected. The program seems based largely upon the talent of the admitted students rather than the quality of the instruction being given to them.	

Faculty and Student Response to NAAB Self Assessment

impress upon future architects the full import and responsibility for what they will do in their professional lives.		
We are subject to a extensive variety of teaching styles and information. If we were to be taught more programs more intensively we would be better prepared.	The study abroad programs helps to bring other cultures into our perspectives.	
The program opens the minds of the students to various new and different methods as opposed to the traditional.	The program concentrates on pertinent design experience and structural aspects.	The program is heavily designed for large public structures in abstract fashions and stays away from residential.
While I have not yet had enough experience with the curriculum to comment with much definity, from what I have learned and what I know the upcoming years will teach me, I feel that RPI is extremely successful in preparing future architects for the professions.	RPI combines many sources of information and experience as teaching tools, exposes the students to the world of architecture that exists beyond a narrow definition of architecture, and challenges students from the very beginning of their education to think methodically and creatively about the consequences that can come from architectural design.	

RENSSELAER SCHOOL of ARCHITECTURE
Performance Plan FY2010

Mark Mistur, Acting Dean
December 10, 2008

School of Architecture – 2010 Performance Plan

Section I. Executive Summary

The School of Architecture has continued to focus its vision and commitment on advancing and growing its educational and research enterprises in strategic areas that leverage Rensselaer assets and strengths, bring distinction to the Institution and demonstrate leadership among peer and aspirant Institutions and programs.

Over the past decade Architecture has developed distinction in programs and initiatives tied to its Rensselaer roots and context as a research university. It has demonstrated leadership in architectural education, and innovation in its research initiatives and development of advanced degree programs that draw from and contribute to existing Institutional strengths, and has built significant potential for increased interdisciplinary collaboration across portfolios and platforms. The vision is to be recognized as an Architecture School of International distinction and reputation for professional education, transformational leadership, production of new paradigms, technologies, techniques and knowledge; a School which contributes to disciplinary knowledge and produces highly capable and sought after architects, designers, innovators and researchers. Its focus is on positively impacting (and preparing graduates to positively impact), the direction, development and future of the architecture profession and the built environment. The School has been substantially influenced by and benefitted from focusing its enterprises and initiatives on Rensselaer Plan Goals, and there is no reason to deviate from this trajectory.

Architecture's overarching multi-year priorities for FY2010 through 2012 are to:

- 1) Continue to **build and strengthen the quality and reputation** of the undergraduate and graduate professional programs which are regarded as having exception and strength,
- 2) Continue to **build and strengthen the set of advanced degrees programs and research** unique to Rensselaer in the Architectural Sciences: in Lighting and Architectural Acoustics, and
- 3) Continue to **develop the Built Ecologies** advanced degree program and research enterprise at the recently launched Center for Architecture Science and Ecology [CASE] co-located at Rensselaer's Troy campus and in New York City.

The Economic Context

This plan acknowledges the current economic environment and how Architecture plans to economize without putting the core programs or persons at risk with respect to accreditation, quality or reputation. Particular difficulties of this challenge for Architecture are a result of the size of the program, its lack of redundancies, and that the portfolio has increased in the number of students and program offerings at a rate greater than the expansion of its faculty and staff or budget.

The considerable task for FY10 (year 1 of this 3 year plan) is to meet the challenges of the economic downturn without doing harm to core programs or initiatives, i.e.,

1. Without compromise to the delivery of the curriculum
2. Without compromise to the student experience
3. While successfully preparing for / completing NAAB professional programs accreditation, and
4. Recruiting and transitioning to new leadership.

In this period of restraint it will be critical to maintain the positive trajectory and momentum created through performance planning in recent years. Though ranked first in highest priorities, 'building and strengthening the faculty' will necessarily be limited to those fundamental needs in support of items 1) through 3), together with the administration of steps that support faculty advancement and promotion. This plan anticipates an increased ability to invest in the portfolio's highest priorities, particularly in FY11, 12 (years 2 and 3 of this plan) including but not limited to:

1. Building and strengthening the faculty and,
2. Developing and growing highest priority strategic programs and initiatives

Architectures Additional Highest Priorities in the years ahead include:

- 1) **Build and strengthen the faculty**¹
 - a. To migrate from heavy dependence on contingent faculty to T/TT faculty
 - b. To increase scholarship, research and advancement and reputation
- 2) **Recruit and transition leadership**¹
- 3) **Prepare for and complete NAAB accreditation**¹
- 4) **Re-establish the MArch1 professional masters program** with a Rensselaer concentration / distinction.¹
- 5) **Examine the potential and implications of a professional BS/MArch1 Co-Terminal track** as the core SoA degree(s).
- 6) **Examine the implications of, and develop a response to the 40/30/10/10/10 presidential challenge**
- 7) **Engage EMPAC as a facility for research at the nexus of arts and science**
 - a. Human Scale experimentations in visualization and in perception
 - b. Engaging the CCNI and EMPAC in real time visualization and design of complex systems though development of parametric interfaces between architectural form and performance
- 8) **Expand the Interdisciplinary A/E Bedford Initiative**
 - a. Add a second visiting position
 - b. Develop an annual interdisciplinary symposium and lecture series
- 9) **Develop and strengthen the International Studies Programs**
- 10) **Strengthen and build the graduate / research programs in Architectural Sciences**
 - a. Lighting, Architectural Acoustics and Built Ecologies
 - b. Create a program area in Parametric/Computational Design - Center for Predictive Modeling
- 11) **Add staff to support education, research enterprise**
 - a. Exhibits / graphics / publications and web support
 - b. Lab Assistant – digital fabrication shop / lab assistant
- 12) **Upgrade and expand facilities and equipment infrastructure**
 - a. Architecture Library acquisitions and staff support
 - b. Greene Building Labs and Studios

The 40/30/10/10/10 challenge

This plan addresses the presidential challenge to diversify the University by shifting the distribution and size of its various component parts. It identifies the potential benefits of this plan to Architecture, outlines the manner in which it could be achieved, presents a two-part plan describing how it can be accomplished and begins to lay out the need for resource investments, human and otherwise, that will be required to realize the 40/30/10/10/10 vision.

A Three-Year Plan: Keeping the Vision

Performance planning is multi-year enterprise and as such, Architecture has laid out a plan based on a vision for leadership, quality, reputation and growth. This plan is designed to enhance the enterprise in close synchronicity with and to the benefit of the Institute by means of its relationships to the overarching goals of the Rensselaer Plan, its six platforms and signature thrusts. The pace at which we can expect to achieve the objectives in each of the areas will be necessarily limited by our ability to invest in these economic times.

Accreditation (NAAB) - FY10

Most important in FY10 is to do no harm and to ensure that we are successful in re-accreditation.

¹ *Architecture's highest immediate priorities for FY2010*

Section I.a. Architecture Portfolio Component Parts

The following section presents the component offerings and enterprises of the portfolio, their strengths and any challenges they may be currently facing.

1. Professional Degree Program

- **5-Year B.Arch** Undergraduate Professional Program (NAAB accredited) - 300 students
- **3-½ Year M.Arch1** Professional Program (NAAB accredited) - 6 students²

2. Graduate Degree/Research Programs

- **MS in Lighting** (48 cr. 2 year)
- **MS & PhD in Architectural Sciences**, concentration areas in:
 - Lighting
 - Architectural Acoustics
 - Built Ecologies

1. Professional Degree Programs

The NAAB accredited professional programs are the historic and current core enterprise of the School of Architecture, with over 300 students engaged in a program designed to equip graduates with leadership and critical thinking skills that will enable them to excel in the inevitable transformation of their profession.

The 3-1/2 year M.Arch 1 program is depopulated as a result of a lack of financial aid. A key initiative for FY10-11 is to repopulate the M.Arch 1 program with Rensselaer distinction by 1) creating an option to participate in International or NYC program, and 2) creating opportunity to concentrate in a particular area of expertise: computational design, Built Ecologies, Lighting, or Architectural Acoustics. There is support of the Vice President of Enrollment to implement a discount rate financial aid strategy for FY10.

Strengths: Quality of students, quality of faculty, excellence of program, progressive agenda, International programs, access to graduate areas of expertise.

Challenges: Faculty loading and advancement, low number of M.Arch1 students.

2. The Graduate Degree / Research Programs

The graduate and research initiative, following on the success of Lighting and the Lighting Research Center (now in its 20th year), is in its third full year of having an approved PhD degree program. It follows largely on the direction and overarching goal of the Rensselaer plan to grow research and expand research programs, and has influenced Architecture's growth in the development of graduate research programs. Strategic focus areas in Lighting, Architectural Acoustics and Built Ecologies take advantage of Rensselaer assets and strengths, are tied to and support the Rensselaer Plan and link to Institute wide key initiatives.

Lighting has two MS programs including a 2 year, 48 credit MS Lighting and a one-year 30 credit MS in Architectural Sciences with a concentration in Lighting. The two-year program serves primarily as a terminal professional preparation degree while the one-year program serves as both a professional program and as the feeder to a PhD. The program enjoys a mature research platform within the center with substantial industry partner support, state support and an average of 40-60 concurrent research projects. Students gain exposure to both applied research and fundamental research.

Strengths: Reputation, Research enterprise.

Challenges: Integration of program with core architecture programs, funding anomaly

² effectively dormant as a result of GFA model

Architectural Acoustics attracts a diverse range of highly qualified students with engineering, science and music / performance backgrounds. It is one of a select few architectural acoustics programs nationally, and its students have enjoyed repeated success in receiving best paper awards and in competitions. Acoustics faculty have had recent success in an NSF research award in engaging EMPAC in interdisciplinary research enterprise: *“A Robust Distributed Intelligent System for Telematic Applications”*.

Strengths: Quality of students and scholarship

Challenges: Developing sustainable level of sponsored research

Built Ecologies has enjoyed early success in attracting students and funding prior to announcing or marketing the program demonstrates excellent positioning and potential. A strategic partnership with Skidmore Owings and Merrill [SOM] includes an equipped New York City location and significant discretionary financial support of the downstate initiative, providing Rensselaer with a New York City location. The recent launch of the Center for Architecture Science and Ecology [CASE] provides the platform for interdisciplinary research on radically new sustainable built environments and has to date engaged faculty from Engineering, Science, and HASS, partner Institutions and Industry. As a design based program faculty expertise is highly relevant to the core professional programs and enterprise of the School. To leverage the dynamic, increase undergraduate research exposure and provide undergraduates access to the many resources of NYC an undergraduate semester-long (fall or spring) downstate program is now in its third semester (12 students / semester). The School anticipates significant growth in student applications and in sponsored research.

Strengths: early success in attracting students and research, strategic partnerships with industry, early success of interdisciplinary enterprise. New York City location.

Challenges: Start-up mode complexities, Intellectual Property management

The PhD in Architectural Sciences is now in its third full year with 23 PhD students distributed across the programs (Lighting, 5; Architectural Acoustics, 8; Built Ecologies, 10; Other, 1). The program is tracking toward a steady state of 32 students in residence, with 8 graduating annually. Currently the majority of the PhD students are funded through fellowships or IRA's. The target is to reach a level of sponsored research that will support 50% of students.

Current enrollments:

MS Lighting (7)

MS / AS – Lighting (5); Architectural Acoustics (8); Built Ecologies (1)

PhD / AS – Lighting (5); Architectural Acoustics (8), Built Ecologies (10)

In F'2008 the graduate programs underwent an external panel review as planned in Architecture's FY09 performance plan and administered by Vice Provost for Graduate Education. The programs each, and in aggregate received strong marks for 'technical rigor', 'well-rounded research' and 'motivated and enthusiastic students', and were strongly endorsed by the report. The team indicated that *“These three programs are each different but very strong in their own right. They are unusually strong in relation to comparable programs within most schools of architecture, incorporating technically rigorous research programs, attracting students from multiple fields ranging from the arts to basic sciences.”* Comments received are under review and will assist in further improving and focusing of each of the programs on its own merit and relative to each other, the Architecture portfolio as a whole and the Institute.

School of Architecture Centers

Lighting Research Center [LRC]

Now in its 20th year the LRC averages approximately \$5million dollars in research awards and in FY08 \$3.5m in expenditures. Considered the pre-eminent lighting research center in North America, the LRC is located at a satellite downtown Troy location with approximately 38 FTE faculty, research and support staff. It is funded by combination of an Industry Partners Fund and between 40 and 60 open sponsored research grants at a given time. Areas of research are wide ranging – from the development of lighting industry and product standards, to product testing and analysis, to transportation applications, to the development of new lighting technologies and pioneer work in Light and Health; lights impact on circadian rhythms and how to influence them. According to the external review committee, *“The Lighting Research Center was viewed by committee members as an impressive organization that holds a nationally recognized and pre-eminent position in the field of lighting, and one that brings great value to both the School of Architecture and the larger institution of RPI.”*

Center for Architecture Science and Ecology [CASE]

Launched in November 2008, CASE is the result of a pioneering collaboration between Rensselaer and SOM. Headquartered at SOM’s offices on Wall Street in lower Manhattan, CASE is an innovative collaboration that engages scientists, engineers, and architects from the professional and academic worlds toward a common goal of redefining how we build sustainable cities and environments. The idea is to tap and cultivate the talents of a new generation of architects, thinkers, and planners and turn out sustainable and energy-efficient solutions to today’s environmental challenges in the global building sector, which accounts for more than one third of energy consumption and nearly 40 percent of carbon production.

Rensselaer’s School of Architecture has framed its advanced degree program in Built Ecologies, focused on the development of new building strategies with an emphasis on energy-efficiency and sustainability. Master’s and doctoral degree candidates share residency between the Rensselaer campus and the CASE offices in New York City, working alongside building professionals and post-doctoral researchers as they develop projects and thesis topics tied to specific building challenges.

Research

Lighting

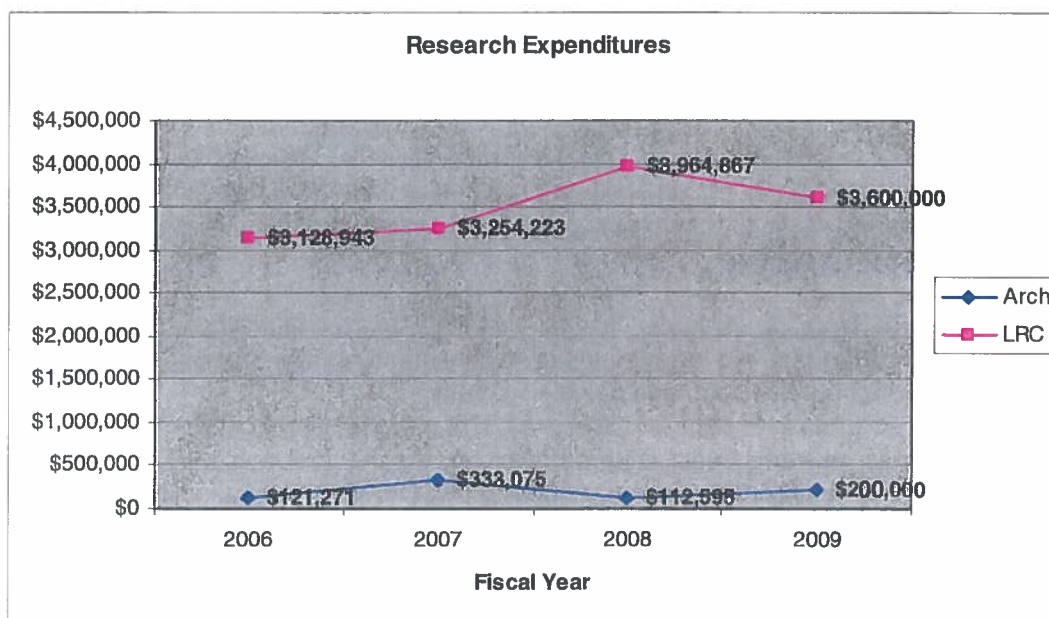
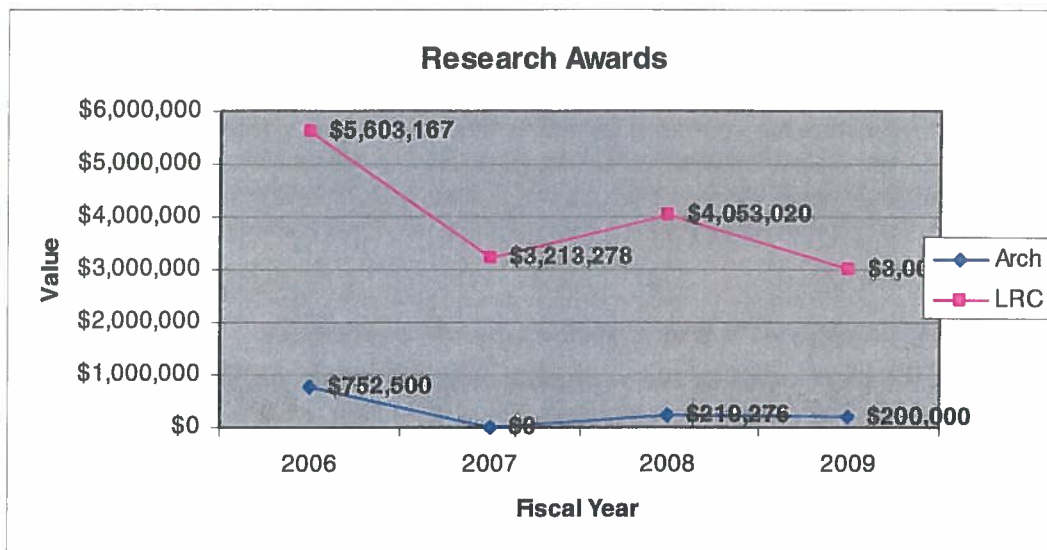
- 40-60 research contracts and
- Staff of 38 FTE (including 4 faculty)
- Research Awards: \$4m
- Research Expenditures: \$3.5m

Architectural Acoustics

- Recent success with an interdisciplinary NSF grant,
- Successful early interface / research with Arts at EMPAC
 - Research Awards: \$200k
 - Research Expenditures: \$66k

Built Ecologies

- Well positioned in area of National and Global importance
- Much of the research is interdisciplinary and
- Industry and Agency pilot core funding
 - Research Awards: \$1.8m
 - Research Expenditures: \$365k



International Programs

The School of Architecture enjoys a long history of engaging International locations to enhance the undergraduate, professional education experience. These highly popular programs, which now include the Built Ecologies New York City program, realize a participation rate of 70- 75% of SoA professional students. Semester-long programs take a cohort of 12-22 students and one SoA faculty to places of significant learning potential, designed to increase cultural exposure and position students as global citizens. Programs include the Roman Studies Program now in its 28th year. In 2008 the program joined with the Politecnico of Torino in a joint workshop, the China Studies Program based at and engaged with Tongji University's Architecture program in Shanghai, and the India Studies program based at, and engaged with students and faculty at the College of Environmental Planning and Technology [CEPT] in Ahmedabad (scheduled to restart in the spring of 2009).

International short programs include the annual interdisciplinary A/E Bedford Traveling Workshop which joins architecture and engineering students and faculty in study travel trips to best A/E practices internationally³, and miscellaneous studio related study travel opportunities to locations such as Argentina and Portugal (last two years).

Growth of Architecture Programs

In recent years Architecture has continued growth in areas of strategic importance including those graduate programs and research initiatives that are positioned to enhance the portfolio and Institute reputation, and advance the Rensselaer Plan. Strategic areas include enterprises having strong research and potential to stimulate and participate in cross cutting enterprises between the arts, sciences and engineering.

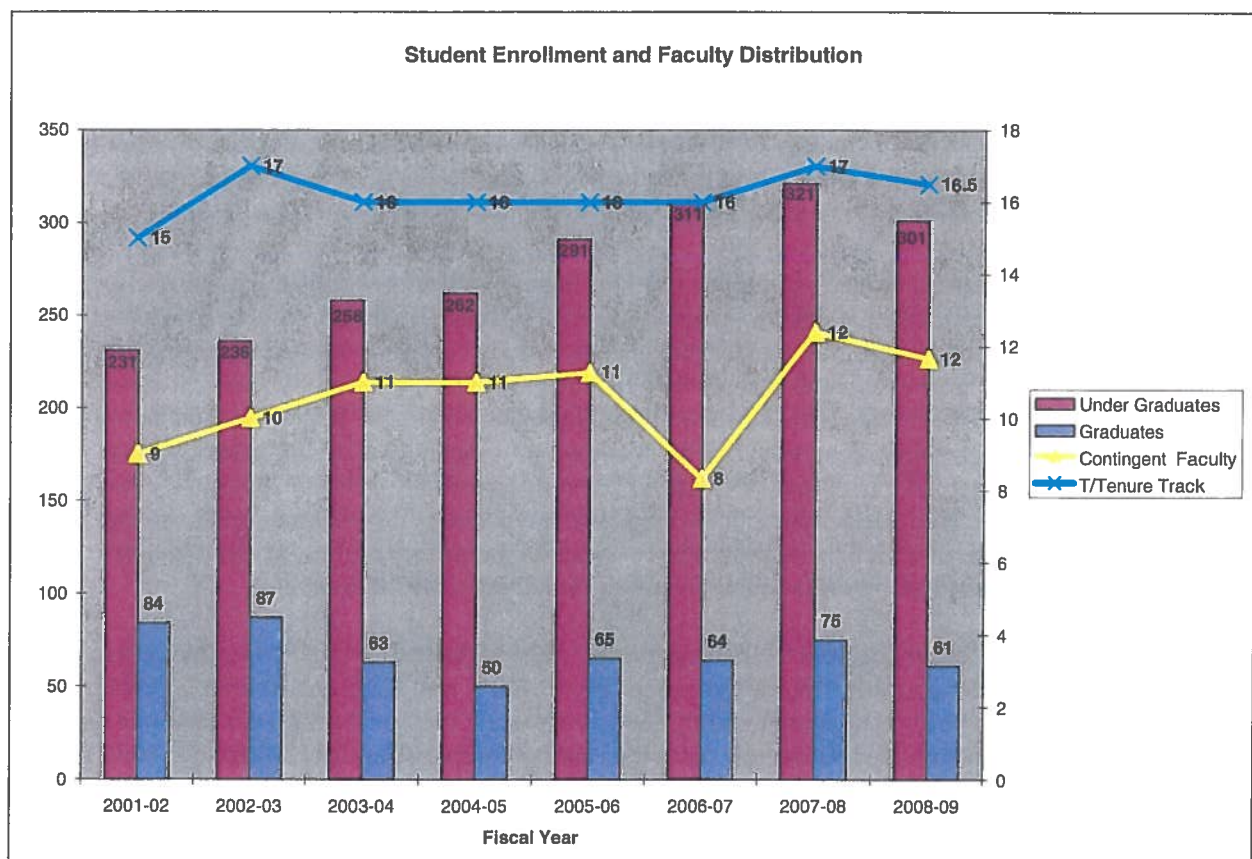
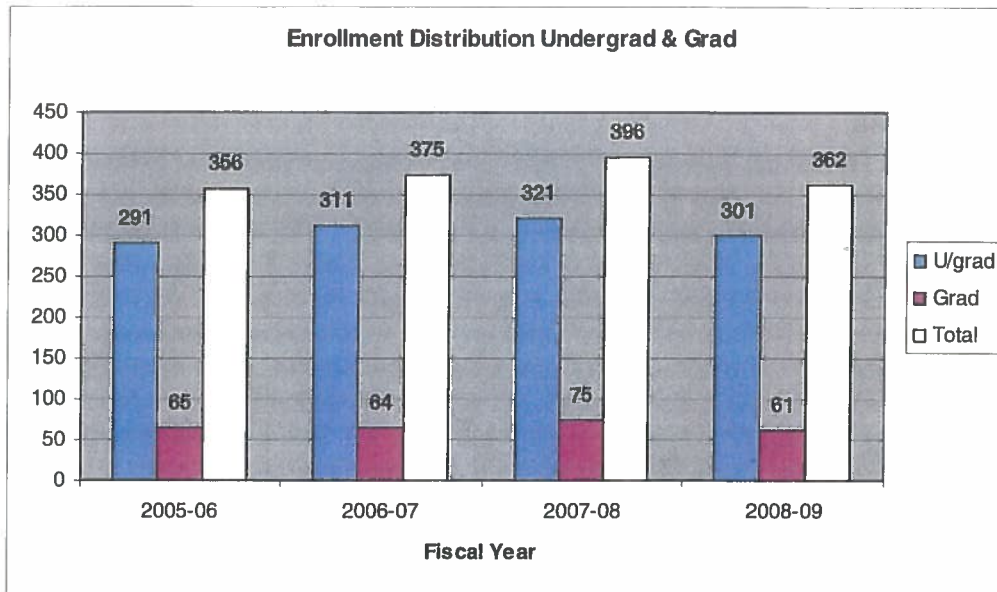
There was a modest contraction in student numbers in FY09 attributed to:

- **Holding the FY09 entering undergraduate class size.** While the School has fewer than the optimal number of faculty needed to deliver the curriculum, accomplish this plan, and meet the expectations of a productive faculty member, changing the number of entering students has less faculty impact in years one and two as it does in the aggregate, and especially in the latter two years. In this economic climate it makes sense to optimize the program to capacity knowing that the revenues of 15 additional students per year far outweighs the anticipated costs of two studio adjuncts to meet the immediate need. It is expected that the need for those two additional adjuncts be acknowledged in the budgeting process.
- **Loss of students entering the M.Arch 1 degree program.** Due to a lack of financial-aid the program has depopulated however, a new initiative to offer discount tuition rates on the undergraduate model provide reason to have confidence that repopulating the program will be possible. The addition of a 12 students per year cohort over three years will add a significant revenue stream even at discount pricing. Reinvestment in needed faculty to deliver the curriculum will be needed.
- **Reduction in Transfer students.** It is not clear why transfer applications were down, especially from other Institutions. We have found that the quality of transfer students varies significantly and need to monitor the admission process carefully.
- **Closing of the Building Conservation Program.** Having determined that the program was not central to the Rensselaer core mission and in response to the question; what would you sunset, Building Conservation was terminated in FY08.

Future trajectories demonstrate a capacity to grow within the confines of the Greene building and our current satellite operations (New York, Rome, Shanghai and Ahmedabad) with modest investment in faculty to bring it into line with current loads and expectations with additional faculty to accommodate anticipated growth and the alignment of the School's mission.

For FY10 and over the next several years the School will embark on strategies and initiatives to populate the core professional and graduate programs to optimal size and projects the potential to realize significant growth in student numbers and revenues with relatively modest reinvestments in faculty staff and infrastructure above the baseline requirements presented in this document. (see 40/30/10/10/10 highest planning priority)

³ Travel locations have included London, Paris, Berlin, Stuttgart, Bath, Cornwall, Tokyo, Osaka



1. Contingent Faculty equals the number of Clinical and adjunct faculty in FTE's.

Section II. Institute-wide Highest Priority Initiatives **Institute-Wide Highest Priorities**

University Positioning

Under the leadership of Dean Alan Balfour (1997-2008) the Architecture portfolio / School moved into greater alignment with the Institute and its Rensselaer plan priorities. It recognized the potential of creating distinction around Rensselaer strengths, assets and initiatives. This shift was balanced with a commitment not to shrink from the core mission of an architecture school. Rensselaer Plan strategic re-positioning as a Research University was embraced as a way to give the School of Architecture particular Rensselaer strength, and to expand upon the core architecture mission with respect to what it can give to society. Architecture determined to assume a leadership position in its discipline, and operates on the presumption that the School's mission is not to train students for an existent and static profession, but that it is providing an education of graduates who will lead in the meaningful transformation of the profession and the built environment. It is an education that prepares students to become leaders, cognizant of emerging global paradigms, available and emerging technologies and core issues of our time that are affected by, or affect architecture.

Recent portfolio initiatives demonstrate a commitment to the mandate that the School advance knowledge and scholarship in the field. It must offer more than excellent teaching and dissemination of what we already know and the accepted ways of working. At a research university it is incumbent on academic portfolios to advance knowledge, inform the discipline, and positively affect and change their industry by contributing to emerging understandings and changing realities. It is incumbent on the portfolio and its faculty to advance and to grow in a Research University. In Schools and programs of architecture, design is understood as research, and in many ways it is – each project an exploration of the optimization of a number of technical, programmatic, climatic and economic criteria, etc... but this kind of research is not necessarily (or even usually) dedicated to the discovery of knowledge that is generalizable, and contributes to a broad (rather than a personal / local) knowledge base.

For an architecture school to reach its highest level of impact it must accomplish two things: 1) it must produce well-equipped critical-thinking, imaginative and confident graduates who are ready to question, learn and solve creatively for a lifetime of practice, and 2) it must, within its own walls, contribute to disciplinary knowledge that expands and strengthens the disciplinary project relative to societal needs and technological opportunities. This is where the strength and context of Rensselaer and its initiatives provide the impetus, resources and stage for an uncommon (to Schools of Architecture) engagement with scientific, engineering and technological enterprises and discoveries; to advance possibility and improve the human condition. And what profession or discipline has a more direct bearing on the human condition that the one that shelters it, structures its everyday being, operations, perceptions and interactions – between and amongst people, institutions and the world about them?

It is not uncommon for architecture to spawn activities outside the realm of the discipline: urban-landscape, product-design, industrial-design; even 'Media Labs' and 'Lighting Research Centers'. The intelligence of an architect is not uncommonly found wandering into, or leading new ventures that require the management of several sectors, activities and/or complexities. It is inherently broad, and inherently interdisciplinary in its need to collaborate with diverse expertise to design, develop and manage complex systems that operate within complex flows of information and limits: economic, social, climatic, etc... The school's portfolio has focused on activities that closely relate to the core architecture enterprise in two ways with respect to the Rensselaer context, 1) by creating advance degree programs and research in the 'sub-disciplines' of lighting and architectural acoustics, and 2) by creating an advanced degree and research program in Built Ecologies that specializes not in a particular discipline, but in the integration of a variety of disciplines needed for the creation of a next generation of building systems that emerge from a collective response to the most pressing environmental challenges.

Signature Thrusts

The Institute-wide signature thrust areas perform a key role in expanding the horizon of architectural education at Rensselaer. They have been instrumental in stimulating and informing research focus areas that provide for distinctive graduate education and have been structured to have significant impact on the undergraduate professional education enterprise. The expansion of architecture's research endeavors, most recently with The Center for Architecture Science and Ecology [CASE], is designed to:

- Address areas of major impact in society
- Enhance the professional education and,
- Enhance the reputation of the School and Rensselaer

It involves the interdisciplinary engagement of scientific first principles and engineering expertise on contemporary problems facing the building industry, and has determined to become a leader in the development of a next-generation buildings and building systems; an undertaking that together with other disciplines at Rensselaer, and in collaboration with best practice (SOM), is inherently entrepreneurial in its approach, and adds to the portfolio the great vitality of intellectual diversity that is inherent in interdisciplinary enterprises.

Each of Rensselaer's five signature thrusts has already impacted, or has significant potential to impact, the architecture portfolio. As a consequence of accepting the contemporary challenges of building performance with a research interest in contributing to next-generation design techniques and building systems, the first three Rensselaer Plan signature thrusts; (nanotechnology, computation and information technology, and biotechnology) each have significant applications to architecture, with potential to impact and be impacted by its various research programs in Lighting, Architectural Acoustics and Built Ecologies. Together these form a triplet of like terms focused on the study of very small (nano-), virtual (information-), and living (bio-) technologies that relate to architecture's focus areas in:

- Developing new building materials and material systems in relation to performance,
- Designing building systems that operate like biological systems and/or include biomaterials and bio-systems, and
- Leveraging computational techniques to manage information and predict performance in relation to complex building systems and system design.

The last two signature thrusts, 'Media and the Arts' and 'Energy and the Environment', have an even more direct relationship to the core and traditional Architecture education and research. Together with 'computation and information technology' they share an even greater potential to affect and be affected by architecture through 1) interdisciplinary collaborations that address the contemporary, and now acknowledged mandate to create a next-generation of buildings and building systems that minimize, eliminate or reverse the energy profile of buildings and their impact on the environment, and 2) collaborations that engage media and the arts in the development of virtual- and mixed-reality environments, visualization and auralization tools.

Rensselaer Signature Thrusts represent critical research frontiers that build on our strengths in fundamental science, engineering, and technology disciplines. Advancements in many of these areas has direct impact on business and social enterprises, and are part of a global landscape that encompasses and impacts multiple economic and social science sectors. Architecture and the environments we create are complicit in many of these areas and has potential to have significant impact, particularly when it engages, as CASE has framed, the signature thrusts, platforms, research areas and disciplines to develop next-generation approaches to the built environment that have high impact.

Areas such as sustainability, human advancement, entrepreneurship and innovation, public policy technology commercialization and transfer, design and planning, and security are areas that need progress and are directly or indirectly affected by architecture enterprise, particularly when it claims its Rensselaer roots and engages interdisciplinary teams to approach today's complex issues and is influencing research and scholarship. CASE and the LRC are both enterprises that have expanded the architecture discourse into an interdisciplinary one concerned with these driving issues in society.

2. Graduate Education Initiatives

Recruitment of M.Arch 1 students is a highest priority and a difficult task as the clientele by definition comes from unrelated fields and schools.

Lack of financial aid support of the professional M.Arch students has been a problem resulting in the depopulation of the program. 2009 commitment to provide a discount pricing strategy should help significantly and we are working to determine whether we can rebuild quickly to create full cohorts of students that is best for the cohort and school.

3. Undergraduate Education Initiatives

Architecture enjoys strong gender diversity in its student population with over 50% women. Intellectual diversity will be even better achieved by continuing to increase geographic and ethnic diversity, which has progressed albeit at a slower pace. The strong international offerings provide excellent exposure to multicultural situations and opportunities.

4. Experimental Media and Performing Arts Center & Program

EMPAC provides the campus with an extraordinary research and cultural platform that will expose our community to thoughts, creations and intelligences that it may not otherwise experience. Commitment to excellence, and to the experimental is a strong Rensselaer tradition and Architecture supports the venue and its many offerings for their potential to stir the imagination and make the University a more vibrant place. The school is engaging in discussions about how to directly engage it and seeks to connect our students and faculty to its enterprise in all ways possible.

Major Rensselaer Platforms

Fiscal year 2010 will continue to look for opportunities to leverage the research integration of all three new major Rensselaer platforms:

- Experimental Media Performing Arts Center
- Computational Center for Nanotechnology Innovation
- Center for Biotechnology and Interdisciplinary Studies

1. Experimental Media Performing Arts Center

To date, professor Oatman and Braasch have engaged EMPAC in their research and work. Professor Braasch was named one of EMPAC's first two Affiliated Faculty members in recognition of his contribution to the 360° panorama screen featured at the opening event, and the recently awarded NSF CreativeIT pilot grant entitled "*A Robust Distributed Intelligent System for Telematic Applications*", \$199,000 with Professor Pauline Oliveros.

The architecture faculty has been actively meeting to consider how we can engage and utilize this platform in teaching and research. We will be continuing with a series of lunchtime sessions dedicated to expanding on current ideas and developing new ones. Possibilities discussed to date include the:

- Full-scale manipulation of space to create, analyze and test the sensory and perception implications of spatial-physical and mixed-reality manipulations of environments
- Engagement and integration of mediated and physical space
- Advanced visualization and auralization applications and testing
- Development of human-scale immersive environments to explore sensory perception and human response in real, virtual and mixed-reality environments.
- Development of parametric, data-driven design techniques with integrated real-time, large-scale visualization of integrated geometric and information feedback mechanisms.
- Development of immersive environments with intelligent, responsive characteristics

Computational Center for Nanotechnology Innovation

Architecture faculty is exploring opportunities to engage in interdisciplinary initiatives that employ predictive parametric modeling and simulation of complex systems with real-time feedback mechanisms that enable trade-off optimization analysis. Engaging the computational capacity of the CCNI to develop predictive system response simulations with integrated feedback mechanisms is particularly relevant to the development of complex, multi-scalar, intelligent material systems that are at the frontier of building research initiatives, i.e. 'built ecologies'.

The development of acoustic modeling and simulation tools and techniques that provide real-time auralization-feedback to inform and control design, and for modeling and analyzing acoustic phenomena with respect to the multi-scalar impact of spatial and material / surface properties on sound also has potential to be developed through interface with CCNI capabilities.

Center for Biotechnology and Interdisciplinary Studies

Built Ecologies faculty have embarked on research areas that will (and have) benefit from collaboration with biotech researchers, where the intersection of specific expertise informs and potentializes projects conceived from a 'built ecologies paradigm'; one that conceives buildings as complex systems, and is engaged in performance-based system design. Projects to date include building integrated vegetative walls that phytoremediate and respire to clean and replenish the air, and the integration of nanogel dessicants to provide a material based low-energy dehumidification and water recapture system.

The development and integration of bio- and nano- materials and technologies into buildings and building systems to achieve higher performance, operational intelligence, enhanced sustainability and energy independence is central to CASE. Through its growing research areas and test-bed projects emanating from partner firm SOM, an increased number of interdisciplinary proposals and productive collaborations with between CASE and CBIS is anticipated.

Major New Institute Initiatives

Fiscal year 2010 will include the implementation of two major initiatives related to Student Life and the academic experience. Architecture supports both initiatives and will contribute in a variety of ways.

- Clustered Learning Advocacy and Student Support (CLASS)
- International Experience

1. Clustered Learning Advocacy and Student Support (CLASS)

The School of Architecture supports the concept of closer integration of life and learning and those initiatives which promote and support it. Architectural and spatial organization has social consequences which can enable or suppress potential and will play a significant role in the success of initiative. The School stands ready and interested in engaging in, and contributing to the designs for transformation of existing and new space to support this initiative, and to support any other campus and facilities planning and design initiatives and efforts.

2. International Experience

The School of Architecture continues its commitment to International experience as pivotal to education in the 21st century, and strongly supports the Institute-wide initiative. Multiple semester-long and short programs allow participation of over 75% of Architecture students. The school would like to work toward 100% participation and is ready to endorse and support an Institute requirement that would create Rensselaer distinction consistent with the Rensselaer Plan objective of helping our community and graduates understand their position and role as global citizen and leaders with reach and impact beyond personal borders.

- **Semester-long programs:** With some restructuring, Architecture remains committed to the Roman (Italian) Studies program now enjoying a multi-institutional collaboration with the Politecnico of Torino that engages faculty and students together in workshops that engage contemporary urban and architectural problems using newest parametric design tools. (22 student per year) The School remains committed to the semester long China Studies Program in Shanghai where Tongji and Rensselaer faculty collaborate in teaching students from both universities (18 students alternate spring semesters), and with the newly reconstituted India Studies program at the College of Environmental Planning and Technology [CEPT] in Amedabad, India which joins Rensselaer and CEPT faculty and students in academic collaboration (12 students alternate spring semesters). Efforts to make these programs accessible to the Masters students is part of the FY10 plan.
- **Short-programs:** The interdisciplinary Architecture / Engineering [A/E] Bedford Travelling workshop takes an interdisciplinary groups of faculty and students to best practices and projects annually. Other short-term, content-based domestic and international travel opportunities are created on an annual basis in relation to studio offerings, summer opportunities. These are signature opportunities for undergraduates which have exceptional educational and alumni relations value.

Process And Management

1. Revised Budget Process

The current economic context and contingency budgeting significantly impacts performance planning. Three things that must not be compromised include:

- Delivery of the curriculum
- Meeting the accreditation criteria in FY10, and
- Maintaining the vision and momentum of the Rensselaer Plan and School's performance plan – acknowledging that the rate of implementation will be affected.

It is also critical to maintain a healthy and positive environment for faculty, students and staff, and for the recruitment and transition of new leadership. Contingency budgeting presents significant challenges to the maintenance and management of portfolio objectives. In FY09 contingency budgeting has provisionally resulted in:

- 13% (2 of 16) reduction of tenure / tenure track positions
(open positions that were frozen)
- 23% reduction of non-salary E&G operations budget
 - directly impacts faculty travel
 - indirectly impacts scholarship, visibility, and reputation
- 10-15% reduced E&G salary adjustment
 - 81% of E&G salary is not available for reductions (T/TT faculty salary line)
 - Overall line reduction objective cannot realistically be realized from the remaining 19% (non tenure/tenure track E&G salary line)
 - Propose achieving the reduction objective through
 - Contingent faculty reductions and
 - Redirections from non E&G funds

Over the past several years Architecture's highest performance plan priority has been to strengthen and build (i.e. grow) the faculty. It remains a highest priority in order to:

- **Acknowledge actual teaching load** – undergraduate final project (thesis) does not appear in teaching loading
- **Reduce Architecture's teaching load formula from 4 courses to 3 per year [18 – 14 credits per year]** in order to
 - Normalize with peer and aspirant schools
 - Normalize within Rensselaer academic units
 - Stimulate and expect increased scholarship, research and reputation
 - Halt and reverse advancement / promotion stagnation that has occurred
- **Migrate away from heavy dependence on contingent faculty**

Having added several significant and successful enterprises, increased student numbers, and research in concert with the Rensselaer Plan on a relatively flat or declining budget⁴ over the past 7 years places the School in a better, yet vulnerable position.

This performance plan demonstrates a need to move to a higher baseline of budgetary support that enables faculty to be productive in teaching, scholarship and research, AND to advance to Associate and Full Professor in a reasonable timeframe. Having shifted the culture from professional education only, to professional AND graduate education, AND research, creates additional new faculty expectations, warranting a shift in both the faculty distribution profile (contingent /non-contingent) and faculty loading

⁴ relatively flat in real dollars, declining in adjusted dollars using CPI indexing

expectations. In this economic climate FY10 may not be the year, however; the development of an academically and financially sustainable model is critical to the realization of the portfolios highest potential. To the credit of the direction provided in the Rensselaer Plan, much has been accomplished through performance planning. It has benefitted the reputation of the school, its status and the significance of its degrees, nevertheless; concern regarding our ability to maintain programs and reputation at the current level of tenure and tenure track faculty remains.

	Fiscal Year 2003	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009
Faculty Salary	1,052,869	1,240,249	1,296,292	1,267,782	1,263,079	1,464,037	1,498,212
Contingent Faculty	318,366	205,151	167,641	188,055	128,000	155,300	150,000
Faculty Supplemental	66,000	66,600	66,640	76,891	44,000	40,000	30,880
Staff Salary	384,216	388,595	329,510	399,883	407,889	331,943	347,908
Fringe Benefits	550,078	573,980	561,745	583,649	556,576	601,367	674,064
GFA/Other	180,000	163,000	152,000	163,000	121,000	91,000	-
NonSalary	383,500	334,000	334,500	296,885	301,665	378,554	276,625
	2,935,029	2,971,575	2,908,328	2,976,145	2,822,209	3,062,201	2,977,689
Nominal Change		1%	-2%	2%	-5%	8%	-3%
CPI Inflation Rate		2.28%	2.66%	3.39%	3.23%	2.85%	5.53%
Real Change from FY03		-1.28%	-5.94%	-7.33%	-15.56%	-10.41%	-18.94%
Notes							
1) FY2008 Reduced for one time adjustment of \$50,000 to support Roman Studies Program							
2) FY09 Reduced \$295,000 for one time adjustments							
3) Information source Data Warehouse							

2. Faculty and Staff Recruitment and Development

Faculty and staff recruitment is critical to maintaining and advancing core programs, delivering the curriculum and fully realizing the School's plan according to the vision, principles, and objectives of the Rensselaer Plan.

Recent advancements in architecture can be characterized as transformational, from a single enterprise professional program to a progressive professional degree program complemented by a set of advanced degree offerings and research initiatives which have changed the portfolio and culture of the school. While intellectual and academic diversity has increased, there has been a shift of resources once committed to the primary core professional programs to new initiatives. The overall growth in budget and human resources has not kept pace with student population and program growth.

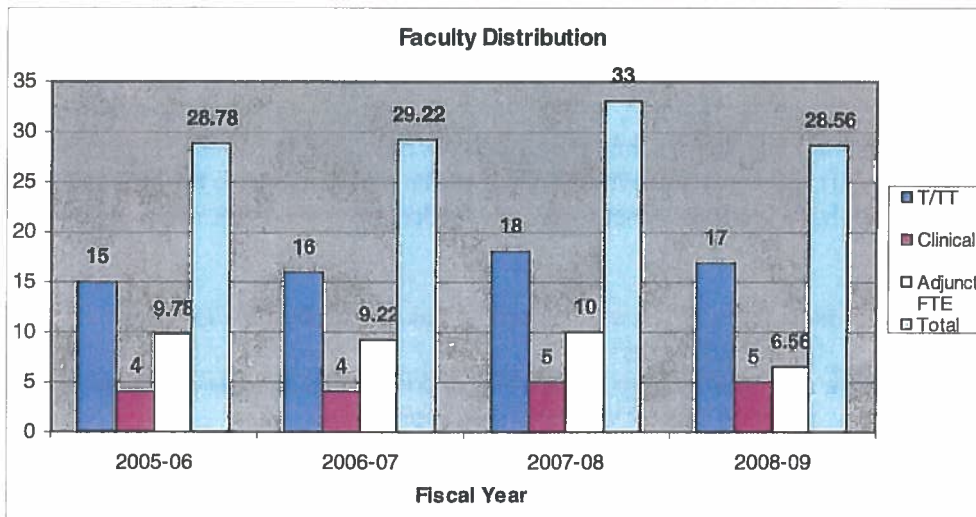
Recent hires have been well supported with start-up funds adequate to enable our newest faculty and to position them for success. This also improves our ability to recruit and retain faculty. A mentoring program and mentoring initiatives are being developed. Nevertheless, advancement to full professor has been lacking, and strategies to halt and reverse that trend must be implemented.

In the past two years several tenure / tenure track positions were open including three replacement positions (due to departures), and three clinical conversion positions. Applicants and candidates in searches for all positions have been high quality. Two clinical conversions were completed, and the other

is pending / immanent. One new hire was completed for FY09, leaving one of the remaining positions (Innovation Design - which is advertised and which has quality applicants and candidates) open and frozen. An additional position (Design, History, Theory) opened in FY09 due to a retirement. It too is advertised and has received quality applicants, but it is frozen. The 3-year Bedford Visiting Professorship is also up for replacement in FY10. (not on E&G funds)

Though the School of Architecture surpassed 50% women contingent in its student body, it has not been successful in recruiting and retaining women and ethnically diverse faculty.

ACTION: Develop and implement a series of mentoring initiatives for both assistant and associate professors.



1. Adjuncts are in FTE

Faculty Hiring, Tenure and Promotion (see Architecture's additional highest priorities)

- To meet current and anticipated faculty needs
 - To rebalance the distribution of Contingent to Tenure and Tenure Track faculty
 - To achieve greater gender and ethnic diversity
- 1) In the core professional BArch / MArch 1 programs
 - A. Fill two open positions (currently frozen)
 1. Innovation Design
 2. Design, History, Theory
 - B. Additional new positions required to address overloading resulting from:
 1. Not accounting for approximately 600 -700 credits per year of final project coursework.
 2. An excessive teaching load expectation
 3. The migration to research culture expectations
 - C. Migrate from a heavy dependence on contingent faculty to tenure / tenure track.
 - 2) To address faculty development (advancement stagnation) in Architecture
 - A. By changing the loading structure (4 courses [18 cr] per year to 3 courses per year)
 - B. Establishing and increasing faculty scholarship and research expectations
 - 3) To address gender and underrepresented minority diversity on the faculty
 - A. Architecture enjoys a gender diverse student body
 - B. Architecture has been less successful at recruiting and retaining women faculty

Recent conversion of several clinical professors who have determined to pursue academic careers is significant. As clinicals those faculty were engaged in a research practice / consulting and have been effective in linking the School to progressive practice. As conversions however, they did not provide the School with any additional human resources to deliver the curriculum (they were conversions of clinical faculty already carrying full time teaching loads).

Given their conversion, a significant portfolio of work already exists and opens the question and opportunity for early tenure, both in their best interest, and in view of the fact that they may be pursued by other Institutions. Stewardship of their careers needs to be supported with a mentorship initiative and clear standards and expectations for and support of advancement and promotion in Architecture at Rensselaer. In the case of clinical faculty who come from research practice backgrounds, a balancing of their dossier with scholarship may be warranted.

Tenured architecture faculty have not sufficiently advanced or been promoted to Full Professor. Currently only two of 16 tenured faculty are full, both are in Lighting, and only one of the two is an Architect by background and education. This may be attributed to many factors including over-loading, lack of quality mentoring, lack of clear metrics, and perception (of one's ability to succeed against Institute metrics unrelated to Architecture) however, efforts must be made to reverse this trend. In recent years two Architecture faculty have left Rensselaer to assume leadership positions at major Schools / Institutions.

GOAL: Promote three TT faculty to tenure associate professorships in the next several years.

GOAL: Hire one full professor (Dean) and to convert one associate professor to full in each of the next three years.

ACTION: Develop and implement mentorship initiatives

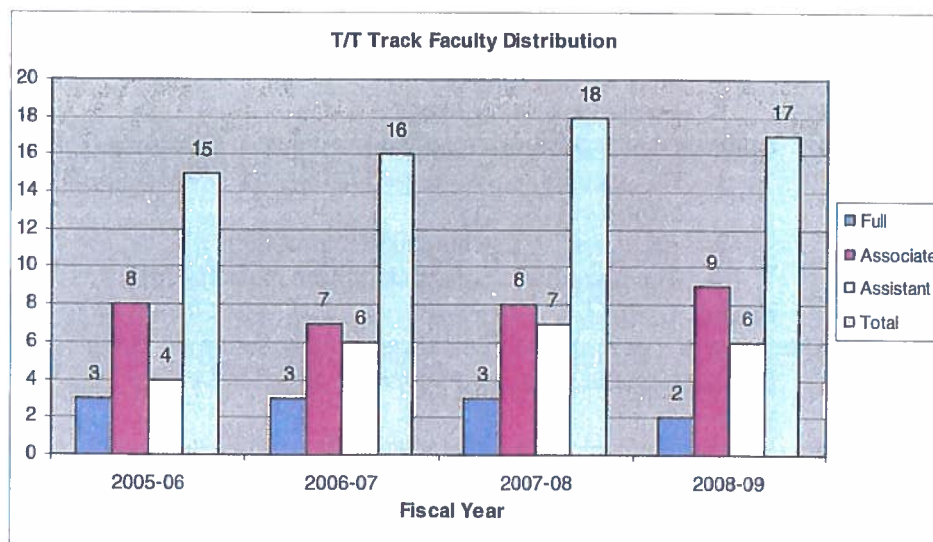
ACTION: Develop initiatives to promote scholarship, research and to enhance visibility and reputation.

ACTION: Develop advancement and promotion criteria, guidelines, and expectations that are specific to architecture.

ACTION: Thaw the two open positions critical to the core curricular offerings

ACTION: Advertise and recruit the next Bedford Visiting Professor – (non-E&G funds)

ACTION: Develop a plan / timeline and commitment to add faculty lines



Recruitment

Recent recruitment efforts have been successful in yielding high quality candidates for tenure track and clinical positions. Upstate New York continues to have certain assets relating to access to rural landscape, low property values, and accessibility; however, the lack of progressive Architecture and Art culture can be difficult to overcome.

The school's lack of success in attracting, recruiting, hiring and retaining women faculty is a significant concern, one which we raise, and which was pointed out in the 2004 NAAB Accrediation report. In the interest of intellectual diversity which is strengthened by geographic, gender, and ethnic diversity, architecture must intensify its efforts to realize that objective among qualified candidates for positions.

ACTION: Develop a strategy and intensify efforts to attract, recruit and retain an intellectually and ethnically diverse faculty including women and underrepresented minorities. Engage RAMPUP and other campus programs to assist in the development and retention of gender and minority faculty.

Compensation

Indicators, including reports from members of the external contingent faculty assessment team and recent hires show that Architecture faculty compensation is below regionally adjusted averages amongst peer Institutions. The contingent faculty assessment team indicated that Architecture was approximately 6% below national / regional averages in this group. It is important to note that without a tradition of sponsored research in Schools of Architecture, it is the exception that architecture faculty have summer support.

Architecture relies heavily on contingent faculty:

- To replace faculty on sabbatical or leave
- To replace open faculty positions during searches
- To link the academic community to progressive / best practices

Contingent (clinical and adjunct faculty) are a less expensive alternative, and reliance on their use results in a dependence on low-cost faculty for the delivery of the curriculum. Conversion of these positions to non-contingent faculty will result in higher compensation and personnel costs. At the adjunct (and clinical) faculty level these positions often link to faculty from the vibrant and progressive professional culture of New York City. While adjunct salary compensation levels have maintained pace (or only slightly lagged) against competing architecture schools, traveling to Rensselaer carries significant additional time commitments, travel and lodging costs which make our competitiveness marginal. The School of Architecture provides a travel allowance, but it has not kept pace with the real cost to the adjunct faculty.

ACTION: Study actual compensation levels of peer schools / positions and adjust salary and travel costs accordingly.

Recognition

The School of Architecture enjoys strong students, exceptional programs that are known for excellence and strength, a progressive faculty with strong research initiatives, advanced degree and research programs that build on Rensselaer strengths, and graduates who are well prepared to engage and contribute to practice, yet our visibility and recognition is not as high as its potential. Recent initiatives and hires in Architecture have begun to increase the School's recognition and profile, but it is important to develop a specific strategy for increasing visibility of the strengths, assets and accomplishments of the School, among peer and aspirant schools and in the profession (particularly among best practices).

Recent and ongoing public initiatives include:

- Launch of Center for Architecture Science and Ecology [CASE]
- Bedford Traveling Workshop Initiative
- 'Re-Inventing the Baroque' - Traveling Exhibit: New York, Rome, Philadelphia
- 'Bridge Station: Torino Italy' - Traveling Exhibit: Torino, Japan, Rome
- Best Paper Awards and competition success – Architectural Acoustics

ACTION: Continue the Visibility Initiative including efforts to:

- Increase and disseminate scholarship
- Increase and disseminate Research success
- Leverage student societies
- Increase and leverage undergraduate research opportunities
- Publish and publicize joint efforts and events
- Leverage EMPAC initiatives
- Expand the and publicize the results of the Bedford Initiatives– annual symposium
- Expand and market interdisciplinary offerings
- Develop a Newsletter
- Create greater links to Architecture press

2. Staff Development

Several title changes have recently been implemented to match positions and associated PMT's with activities that staff positions had matured into and to accurately reflect activity.

Section III. Architecture Portfolio Additional Highest Priorities

Level One Highest Priorities:

Build and strengthen the faculty⁵

- To migrate from heavy dependence on contingent faculty to T/TT faculty
- To increase scholarship, research and advancement and reputation

1) New Faculty Needs and Conversions

- A. Fill open faculty positions (2)
 - 1. Design / History / Theory – advertised with applicants - frozen
 - 2. Innovation and Design – advertised with applicants - frozen
 - B. Two new tenure track faculty positions to
 - 1. Address fifth year final project / thesis load
 - 2. Adjust teaching loading expectation to allow for scholarship/research and advancement
 - 3. Support growing PhD Program, PhD / Masters advising
 - C. One new Built Ecologies faculty position
 - D. One new senior level faculty position (Associate with Tenure)
 - 1. Consolidate existing faculty strengths in the creation of a graduate concentration in computational / parametric design.
 - 2. Establish national leadership in the area.
 - 3. Support interdisciplinary initiatives within and between current graduate concentrations in Lighting, Architectural Acoustics and Built Ecologies.
 - E. Convert 2 clinical positions to Tenure/ Tenure track positions
 - F. Replace 3-Year Visiting Bedford Professor (endowed chair)
- 2) Re-establish the MARCH1 professional masters program with a Rensselaer concentration / distinction.⁵**
- 3) Prepare for and complete NAAB accreditation⁵**
- 4) Recruit and transition leadership⁵**

Level Two Highest Priorities:

- 5) Strengthen and build the graduate / research programs in Architectural Sciences**
- A. Harden the faculty lines in the Lighting graduate/research Program
 - B. Create a new line in Built Ecologies (see 1.C)
 - C. New Faculty Lines to support PhD advising and sponsored research (see 1.B.3)
 - D. Create a program area in Parametric/Computational Design (see 1.D)
 - 1. Create a new senior level faculty position
 - 2. Create a Center for Predictive Modeling
- 6) Develop and strengthen the International Studies Programs**
- A. Develop a sustainable structural / budgetary fix of the Roman Studies Program
 - B. Expand collaborative international programs and workshops with strategic alliances
 - C. Seek opportunities to engage in South American and African contexts
- 7) Expand the interdisciplinary A/E Bedford Initiatives.**
- A. Add a second part time visiting position from best practice
 - B. Develop an annual interdisciplinary symposium and lecture series
- 8) Engage EMPAC as a facility for research at the nexus of arts and science**
- A. Human Scale experimentations in visualization and in perception.
 - B. Engaging the CCNI and EMPAC in real time visualization and design of complex systems through development of parametric interfaces between architectural form and performance.

⁵ Architecture's highest immediate priorities for FY2010:

Planning Highest Priorities:

- 9) **Examine the potential and implications of a professional BS/MArch1 Co-Terminal track** as the core SoA degree(s).
- 10) **Develop a response to the 40/30/10/10/10 presidential challenge**
 - A. Tactic 1: Incremental growth – optimizing existing programs
 - B. Tactic 2: New Revenue Positive Programs

Supporting Highest Priorities:

- 11) **Develop staff positions in support of the education, research enterprise**
 - A. Exhibits / graphics / publications and web support position
 - B. Lab Assistant position to support the digital fabrication shop
- 12) **Upgrade and expand facilities and equipment infrastructure**
 - A. Greene Building infrastructure improvements
 1. Add Air Conditioning to Academic, administrative and research spaces
 2. Faculty office furnishing upgrades
 - B. Architecture library acquisitions and staff support
 - C. Greene Building Labs and Studios
 1. Studio and public space furnishings
 2. Create an Environment and Energy Lab
 3. Create a computation lab
 4. Continued equipping and support of the Fabrication Lab

Overview:

Architecture's additional highest priorities are ranked in two ways:

1. As a ranking by importance and,
2. In categories
 - Level one highest – immediate highest priority
 - Level two highest – highest priority
 - Planning and,
 - Supporting

In several cases one category necessarily supports another, i.e. nos.11&12 'Supporting Priorities' support no.5 'graduate / research programs', and no. 1 'building and strengthening the faculty' supports no. 3 'accreditation' and no. 5 'graduate research programs', etc., In these and other cases priorities cannot be strictly ranked as stand-alone items.

Portfolio Highest Priorities:

Level One Highest Priorities (1-4)

Build and Strengthen the Faculty³

- To migrate from heavy dependence on contingent faculty to T/TT faculty
- To increase scholarship, research and advancement and reputation

1. New Faculty Needs and Conversions

A. Fill Open Faculty Positions (2)

1. Design / History / Theory

The position open as a result of a recent retirement of a senior heavily engaged and productive teacher responsible for a significant portion of the History and Design Curriculum. Lacking the position raises concern for the FY10 Accreditation report and visit for two reasons: 1) it covers a key curricular area required of accreditation. This area (History) that was of some concern to the visiting team two visits ago, and 2) that this position represents 1 of only 16 tenure / tenure track positions in the school, and more significantly to accreditation that it represents 1 of 10 tenure / tenure track positions who are teaching in the core professional programs that are up for accreditation. Status: Position advertised, search started, good quality applicants – position on hold.

ACTION: Seek determination that this position is strategic through the Vacancy Management process and continue the search for F'09 start date.

2. Innovation and Design

Another core position that is central to the teaching of professional program courses. Lacking the position during an accreditation year raises concern that this position represents 1 of only 16 tenure / tenure track positions in the school, and more significantly to accreditation, that it represents 1 of 10 tenure / tenure track positions who are teaching in the core professional programs that are up for accreditation. Status: Position advertised, search started, good quality applicants – position on hold.

ACTION: Seek determination that this position is strategic through the Vacancy Management process and continue the search for F'09 start date.

B. Two New Tenure Track Faculty Positions to

Build and Strengthen the Faculty calls for an increase of 2 T/TT faculty lines to assist in meeting three current needs. In aggregate the existing faculty positions needed to accomplish these three items exceeds the performance plan recommendation of 2 positions.

1. Address the Current Fifth Year Final Project 'course-load' (which is not currently attributed to individual faculty on loading worksheets), represents 12 credit hours per fifth year student per year. With 50-60 B.Arch students, the unaccounted for credit-hour production is between 600 and 700 annually. With thesis studio sections of 12 students each, 5 sections per semester at 6 credits over two semesters will require 10 studio sections per year. At 1/3 FTE load per 6 credit studio section an equivalent of 3.33 FTE faculty per year are required. The current mode of teaching minimizes faculty contact and input and has resulted in a situation that is less than satisfactory both for students who need additional input and for faculty. Unfortunately this occurs at the end of an otherwise excellent educational experience and can leave graduating students with a disappointing final project / thesis experience and results.

2. Adjust the teaching load expectation to allow for scholarship / research and faculty development. Architecture needs to normalize teaching expectation with peer and aspirant Institutions, and to normalize teaching expectations internally at the Institute. It is in the arena of our peers that faculty must develop a reputation and scholarship is constrained by teaching load expectations that outweigh our peers. Furthermore, within the Institution that faculty advance and are promoted from associate and to full professor. Teaching loads should not burden one discipline over another. In Architecture standard teaching loads have been at 2 – 6 credit studios and a 4 credit and a 2 credit course annually [18 credits]. In practice, depending on the source of numbers, Architecture faculty are teaching between 1.8 and 2.1 courses per semester, well above the other schools. Exacerbating the matter are the contact hours. Studio courses have 12 contact hours per week, triple the number of an equivalent lecture or seminar course per credit hour. The impact is clear. Among the Architecture faculty, and specifically among those who teach design studios, none have full professorships and several are well beyond the typical time to acquire a promotion. It is of equal concern for Assistant professors who do not typically have time-out at the start of their career or during their dossier prep years. To enhance scholarship, research, reputation and faculty advancement and promotion, a revision to the standard loading formula is overdue. The implication of shifting the base loading formula is not insignificant. To require three courses per year instead of four is a 25% reduction and would require an additional 9 FTE faculty.

3. To support the growing MS and PhD programs and their associated research and advising loads architecture needs to recognize the real time and load requirements of adequately fulfilling that role. With 38 MS and 23 PhD students now in stream a total of 84 hours of faculty time per week⁶ should be scheduled with these students and on related work. This is the equivalent of 1–2 FTE faculty in FY09 if the faculty did nothing else, and 3-4 FTE at program build-out of 88 MS students and 36 PhD students.

C. One New Built Ecologies Faculty Position (see 5.B)

D. One New Computation and Design Senior Level Faculty Position (see 5.D)

1. Consolidate existing faculty strengths in the creation of a graduate concentration in computational / parametric design.
2. Establish national leadership in the area.
3. Support interdisciplinary initiatives within and between current graduate concentrations in Lighting, Architectural Acoustics and Built Ecologies.

E. Convert 2 Clinical Positions to Tenure/Tenure Track Positions

The School of Architecture relies on contingent faculty to deliver as much as 45% of its curriculum. In the interest of shifting the distribution of faculty toward non-contingent faculty, convert two clinical positions to Tenure Track positions.

ACTION: FY11 Create new lines, advertise, search and hire for a F'10 start

F. Replace 3-Year Visiting Bedford Professor (endowed chair)

The Bedford Visiting Chairs three-year term is up in FY10. Consolidate the relationship with the existing and prior chair as 'Bedford Fellows' with a commitment to return for an annual interdisciplinary symposium.

ACTION: FY09 Advertise and search for a F'09 Start

⁶ Based on 1 hr per week per MS student and 2 hrs per week per PhD student

2. Re-establish the MArch1 Professional Masters Program with Rensselaer distinction.³

The School of Architecture has two NAAB accredited professional degrees; the 5-year B.Arch and the 3-½ year M.Arch1. In recent years enrollment in the M.Arch 1 degree program has diminished as a result of having no graduate financial aid available to its applicants / students. IRA lines are not appropriate to an accredited professional M.Arch1, as students in the 3-½ year, 18 credit per semester program do not have the time or capacity to fulfill either a teaching or research assistantship. Not having a populated program at the time of filing an accreditation report (F'09) and being visited by a NAAB team (S'10) raises concern / questions.

In the architecture profession a Masters is considered the terminal degree under most circumstances, and can be obtained in one or two years after receiving an accredited bachelors in architecture, or in 3-½ years as a first professional degree following an unrelated B.S. or B.A. degree. Having a viable, accredited and populated M.Arch1 is important to the School's reputation. It also has significant positive impact on the diversity of students in the School. The 112 credit M.Arch1 first professional degree program has a curriculum that is closely intertwined with the B.Arch. The M.Arch 1 cohort of students contributes significant intellectual diversity to the program as each entering student comes from a different undergraduate culture and degree program, often unrelated to architecture. The added maturity and experience of these students adds vitality to the core B.Arch cohort and culture of the school.

As a curriculum nested together with the B.Arch, it is highly efficient to offer while providing additional revenues and significant benefits to the undergraduate students however, a critical mass of M.Arch1 students is required to produce cohort identity for these more experienced and mature students. A cohort of one studio section (12 students per year, or 36 in residence at the School at a given time) is optimal. To attract excellent students the school is examining ways to make its semester-long international programs and New York City Built Ecologies program available to the M.Arch students. In addition we are examining how relatively minor shifts in the curriculum could position the Rensselaer M.Arch1 as one having the distinction of particular concentrations or tracks in areas such as Built Ecologies, Computational Design, Lighting, Architectural acoustics etc., but without a financial aid offering Rensselaer cannot compete with peer Institutions.

To enhance the reputation of the School and Institute, having a viable, accredited professional Masters degree is important. Offering a financial aid model that is competitive with peer Institutions and working to realize cohorts of 12 students per year is a highest priority. The discount pricing model being instituted for 2009 is similar to undergraduate financial aid and should:

- Enable the school to attract and enroll qualified students
- Make the program vibrant and viable to enrolled students
- Minimize the risk of accreditation of that program
- Provide significant positive revenues – with the applied average discount rate.

At a full build out of 36 students and an average discount rate of 40%, approximately \$24k per student will generate a tuition income stream of \$720k annually (above the number generated by students currently in the program). Additional costs to deliver the curriculum to this number of students will not be zero, however they are minimal in comparison, requiring little more reinvestment than an additional studio section per semester and adequate faculty to meet thesis advising needs.

ACTION: Make curricular adjustments to open the International programs to the cohort and to offer particular concentrations / tracks.

ACTION: Aggressively market the program to realize a qualified cohort of 12 students as soon as possible.

3. Prepare for and complete NAAB accreditation³

Prepare and submit the report on the Undergraduate Program to the National Architectural Accreditation Board (NAAB) in Fall 2009, in advance of the site visit scheduled for Spring 2010: The School was last accredited in 2004. The report that will be prepared next year covers all aspects of program from the qualifications of the faculty and student faculty ratios, to detailed examination of the curriculum, resources and facilities, (including such issues as compliance with building codes). The preparation offers a valuable opportunity to strengthen all aspects of the program. Areas of concern: open positions, faculty diversity, budget /resources.

4. Recruit and transition leadership⁷

Recruit and hire a Dean. The next-generation of leadership at the School of Architecture will need to be prepared to represent the School nationally and internationally, to build its programs in relation to the Rensselaer Plan, to enhance its reputation and standing as having excellent professional programs with unique advanced degree programs and research initiatives that leverage Rensselaer assets and strengths; in Lighting, Architectural Acoustics and Built Ecologies. New leadership will need to reach professional, academic and research constituents, have capacity to manage the portfolio and provide avenues and opportunities for growth in each of the nascent and mature education and research areas. Building the faculty and other highest priorities of this plan will be key to the success of the next Dean and School.

ACTION: Complete Search – Chair, Dean Harrington

ACTION: Create a positive environment for the next leadership

Level Two Highest Priorities:

Priorities that have transferred from earlier plans and remain strategic to the portfolio.

5. Strengthen and build the graduate / research programs in Architectural Sciences

- A. Harden the faculty lines in the Lighting graduate/research program
- B. Create a new line in Built Ecologies (see 1.C)
- C. New Faculty Lines to support PhD advising and sponsored research (see 1.B.3)
- D. Create a program area in Parametric/Computational Design (see 1.D)
 - 1. Create a new senior level faculty position
 - 2. Create a Center for Predictive Modeling

A. Harden faculty lines in the Lighting graduate/research program

Of the four faculty lines in Lighting, one is on 100% E&G budget, and three are on 35% E&G budget. This dependence on soft monies (research dollars to support faculty lines) creates conflicting allegiances and has the effect of undermining best efforts to coordinate the education programs and initiatives. The LRC is required to operate on a business model to earn its own faculty salary dollars as well as the salaries of research specialists and staff. As part of hardening the lines over a three-year period (FY10-12) the School will develop and implement strategic educational initiatives that integrates the talents of the Lighting faculty into the core Architecture programs and increases interdisciplinary work. Having the preeminent Lighting Research Center within the portfolio, it is the School's objective to ensure that Rensselaer professional program graduates receive the preeminent lighting education relative to peer and aspirant architecture programs. The school will continue to work with the LRC to make additional courses and minor offerings available to its professional program students. A co-terminal degree program is being implemented and additional collaboration between the LRC and sister graduate programs in Built Ecologies and Architectural Acoustics will be strengthened through the development of the interdisciplinary graduate and doctoral seminars and research collaborations.

⁷ Architecture's highest immediate priorities for FY2010:

To realize this objective a shift from soft research dollars to budgeted E&G dollars will require a shift of funds into the Architecture portfolio in order to facilitate a more integrated and strategic engagement of faculty in the teaching enterprise of the school, and lessen the burden on research grants to provide large % of salaried faculty lines.

ACTION:

FY10: Maintain each of the three positions at 33% - \$0

FY11: Raise E&G support each position to 66%

FY12: Raise E&G support of each position to 100%

B. Create a new tenure track line in Built Ecologies (see 1.4)

In support of the newly established and rapidly growing Center for Architecture Science and Ecology [CASE] and the Built Ecologies graduate (and undergraduate) program in New York City, a new faculty line is needed to support the education and research program. The Center and Built Ecologies program is currently staffed by a Director (tenured) and one tenure track faculty with an additional 1.75 FTE clinical faculty. Each carries a full teaching load to cover both graduate and undergraduate courses on top of administrative, research and advising commitments. The director and other faculty at CASE have been successful in receiving research and Center funding, but to effectively deliver on those commitments and administer the program, a reduction to less than full-time teaching and advising loads is required.

ACTION:

FY10: Renew both f/t clinical positions

FY11: Create new tenure track faculty line: advertised and hire for F'10 start

FY11: Open a search to convert one of two existing clinical positions to tenure track – some additional funds required to convert from clinical to assistant tenure track line.

C. New Faculty Lines to support PhD advising and sponsored research (see 1.3)

To support the growing MS and PhD programs and their associated research and advising loads architecture needs to recognize the real time and load requirements of adequately fulfilling that role. With 38 MS and 23 PhD students now in stream a total of 84 hours of faculty time per week⁸ should be scheduled with these students and on related work. This is the equivalent of 1-2 FTE faculty in FY09, and 3-4 FTE at program build out of 88 MS students and 36 PhD students.

D. Create a program area in Parametric/Computational Design

1. Create and fill a new senior level faculty line (Associate with Tenure)

2. Create a Center for Predictive Modeling

1. Create and fill a new senior level faculty line (Associate with Tenure): Leveraging the strengths of current junior faculty, Rensselaer is well positioned to consolidate a leadership position in the area of parametric computational design techniques. With the opportunity to operate under the current MS and PhD in Architectural Sciences, this area has the potential to generate significant international visibility and enhance the reputation of the School and Institute with relatively modest investment while creating significant revenue stream. It will also assist in the retention and development of excellent junior faculty.

The senior level (Associate with tenure) faculty will be expected to focus on teaching, research and recruitment. The position will be tasked with building a program to 12 MS students per year with a PhD conversion rate of 2 annually for a program area build-out

⁸ Based on 1 hr per week per MS student and 2 hrs per week per PhD student

resident population of 20 MS and PhD students. Like in Built Ecologies, the faculty member, in addition to having a specific research focus area, must be a versatile teacher, familiar with, and able to teach in at least one additional core area of Architecture.

Parametric / Computational Design has the capacity and potential to engage and interact with each of the other areas; Lighting, Architectural Acoustics and Built Ecologies and provides a complementary asset to the progressive agenda of the School. It leverages Rensselaer Strengths including but not limited to Computer Science, IT, EMPAC and the CCNI.

2. Create a Center for Predictive Modeling: Pursuant to the successful development of a program and core faculty who teach both in the professional programs and at the graduate level, the school will create a Center for Predictive Modeling, to expand the capacity to simulate, model and predict the behavior of complex building systems. The Center, like CASE, will serve as a location for the development of interdisciplinary research that brings multiple expertise together around the visualization of parametrically generated and controlled phenomena and feedback mechanisms.

Potential Revenue Estimate:

12 MS students per year @ \$24k (discount tuition rate) = \$288k

ACTION

FY10 Create faculty line, initiate search, fill position F'10

FY11 Create Center for Predictive Modeling – Little start-up cost

6. Develop and strengthen the International Studies Programs

- A. Develop a sustainable structural / budgetary fix of the Roman Studies Program
- B. Expand collaborative international programs and workshops with strategic alliances
- C. Seek opportunities to engage in South American and African contexts

The school's long-term objective is to lead in the creation and offering of vibrant International programs. Architecture supports the concept of an International Experience Requirement as part of the 'Rensselaer distinction'. The faculty remains committed to offering semester-long and short programs that expand the students' world-view, have strong academic content value and which are safe and sustainable. The School seeks to develop and offer programs which actively engage students with other cultures, and where possible on projects and in learning situations with students and faculty of peer institutions. We aim to keep the programs affordable and accessible to as many students as possible and will pursue the development of scholarships that offset individual student program fees and travel costs.

A. Develop a sustainable structural / budgetary fix of the Roman Studies Program: The Roman Studies Program budget has continued to grow as a result of currency changes, inflation and a program structure that has not been revisited for many years. The number of student participants has been increased to help offset fixed costs, and the program fee charged to students has risen significantly to the point of making the program unaffordable for many. The program structure, put in place at the advent of a Italian government's requirement to register and manage foreign programs, has not changed, but communications technologies have, and it does not necessarily hold true that all aspects of the program are best managed in Italy. The current structure includes a Program Director with the equivalent of a F/T clinical salary and adjuncts as required to deliver the curriculum. It is one of the School's most popular programs, however the budget shortfall to run it in its current form is significant.

ACTION: Coordinate with the Politecnico of Torino to operate a portion of the program (4 of 15 weeks) including a no cost exchange of an Italian faculty led short course and studio space in Torino for a 4 week Rensselaer faculty led studio workshop in Torino and annual hosting of 2 Torino students annually (one semester) at Rensselaer. The balance of the semester program will be engaged in 2 Italy travel trips and 8 weeks in Rome. Savings estimate [\$10k]

ACTION: Convert the Director of Roman Studies Position to a Site Coordinator Position Savings Estimate [\$35k]

ACTION: Structural Budget Fix: Add to architecture budget [\$45k]

ACTION: Change student housing in Rome to lower the cost per student.

B. Expand collaborative international programs and workshops with strategic alliances: Expand collaborative international programs and workshops with strategic alliances. Build on the 2008 Torino Workshop model and continue to strengthen the Shanghai [Tongji] and Ahmedabad [CEPT] joint studio models and relationships

C. Seek opportunities to engage in South American and African continents: Seek opportunities to engage in South American and African contexts. Offer a summer 2009 Argentina Workshop with and at Cordova University and seek opportunity to build expanded student opportunities in the Americas and on the continent of Africa.

7. Expand the interdisciplinary A/E Bedford Initiatives.

- A. Add a second part time visiting position from best practice
- B. Develop an annual interdisciplinary symposium and lecture series

The Bedford Initiatives have been highly successful in creating an interdisciplinary discourse, exposing architecture and engineering students to best practices internationally, and developing a global network and association with best practice engineers and architects.

The plan to expand the initiative includes a second complementary part time visiting position from best practice to further engage and inform the interdisciplinary project. Funding of the position from additions to the endowed fund may be able to be realized in FY11. This initiative is particularly important in the 40/30/10/10/10 tactic two scenario which calls for the development of an interdisciplinary Architecture / Engineering degree program.

ACTION: FY10 Develop an annual symposium to include the current visiting Bedford Professor, former Bedford Professors, and invited guests, to engage a contemporary issue affecting architecture and engineering. The initiative is designed to enrich the academic enterprise and culture across two portfolios, build a network of leaders in practice and academics, create visibility, and enhance reputation will be funded by endowed funds and Provost budget to support lectures. Publish proceedings annually.

ACTION: FY 10 Develop an annual Bedford lectures series (1 per semester) to further enrich the academic enterprise, build a network of leaders in practice and academics, create visibility, and enhance reputation. Funded by endowed funds and Provost Budget to support lectures.

ACTION: FY11 Create a second A/E Visiting Bedford Position, advertise and hire F'11. Funded by ability to develop matching and additional endowed program funds.

8. Engage EMPAC as a facility for research at the nexus of arts and science

- A. Human Scale experimentations in visualization and in perception.
- B. Engaging the CCNI and EMPAC in real time visualization and design of complex systems through development of parametric interfaces between architectural form and performance.

ACTION: Create a series of lunchtime talks to discuss possible applications and engagements of EMPAC and the CCNI – when possible relate to performances or behind the scenes looks at ongoing work.

Planning Priorities:

Items and opportunities that bear careful scrutiny and planning to determine their potential, risks and cost.

9. Examine the potential and implications of a professional BS/MArch1

Co-Terminal track as the core SoA degree(s).

Rensselaer has created an exceptional opportunity for students to obtain a co-terminal BS / MS degree which includes the possibility for an architecture student to obtain a B.Arch (5yr) and an MS degree however, the load and expectations of the 5 year professional program are significant and it is in many cases likely to take more than 5 years. Nevertheless the option raises an interesting possibility when considered alongside the national debate about professional architecture degree programs and whether to migrate to a 5-year M.Arch1 degree. If implemented, the migration could include a BS/MArch 1 co-terminal option as the core degree program of the School of Architecture.

Historically the education of an architect – leading to licensure has involve several paths including a:

- 5-year B.Arch
- 4-year Baccalaureate (in anything) followed by a 3 ½ year M.Arch1
- 4 + 2 program which begins with a BS or BA architecture degree (non-accredited), followed by a 2 year M.Arch1 (accredited degree)

Rensselaer offers a 5 year B.Arch and a 3-½ year M.Arch1. We also have a 4 year BS / Building Science degree which is not currently in significant use.

Nationally there has been a protracted debate regarding B.Arch / M.Arch1 first professional degree and whether a School is allowed to offer a 5-year M.Arch 1. It has been argued that the profession has demeaned its constituents by granting only Bachelor status to what is worthy of Masters status. In 2007 the debate resulted in an open-ended decision allowing schools to accredit 5-year masters programs should their state permit, and should the National Architecture Accreditation Board (NAAB) review and approve the program for accreditation based on content, resources etc., without respect to duration. Several schools have flipped, though it is of note that none save Tulane are of significant reputation equal to Rensselaer, nor are any in the northeast where there exists a heavy concentration of Ivy Schools which do not have B.Arch programs and offer only graduate architecture education. In addition, those which have converted to 5-year M.Arch1 programs have mostly done so with additional semesters, quarters (summer) or internship requirements, effectively extending the academic time of stay and requirements beyond a traditional 5-year program (Tulane is again the exception with a straight 5 years).

The architecture faculty considers a variant of this option worth examining, especially considering its potentially comfortable link to the co-terminal degree option allowed by the State of New York and adopted at Rensselaer. If implemented this action will require the redevelopment and reconstitution of the BS / Building Science (or renamed) 4 year degree; conceived BOTH as a stand-

alone degree of reputation and value on its own merits, AND as a feeder degree. With the current BS/MS co-terminal option, it could be a feeder to several programs within and outside of the School of Architecture. Given the multiple advanced degree options available to students will lessen susceptibility to the perception of the degree as merely a stepping stone degree, and by corollary, inferior. Secondly, it will be critical to determine whether the School of Architecture will, under this scenario maintain, increase or decrease the number of professional program (M.Arch1) graduates (currently B.Arch).

Maintaining the 3-1/2 year accredited M.Arch1, which serves a different clientele of graduates from other Institutions and provides the community with greater geographic and intellectual diversity, is anticipated in each scenario.

ACTION: Develop a proposed plan and associated curricula, for a BS / M.Arch 1 co-terminal option. Consider and analyze possibilities for BS/MS options in Lighting, Architectural Acoustics, Built Ecologies, Computational Design (proposed), as well as to other Rensselaer programs in Management, Engineering, Science and HASS. Consider and analyze the impact on reputation, marketing, and retention; review with IWCC / administration, and determine by April 2009 whether to advance it to the accreditation report and team or to hold for a special accreditation review / visit.

Consideration of its impact on reputation, marketing, retention (i.e. potential loss of best students to Ivies in their 4th year for terminal degree) is critical.

10. Develop a response to the 40/30/10/10/10 presidential challenge

- A. Tactic 1: Incremental Growth – Optimize existing programs
- B. Tactic 2: New Revenue Positive Programs

The 40/30/10/10/10 challenge is designed to diversify the University by shifting the distribution and size of its various component parts. It identifies the potential benefits of this plan to Architecture, outlines the manner in which it could be achieved, presents a two-part plan describing how it can be accomplished and begins to lay out the need for resource investments, human and otherwise, that will be required to realize the 40/30/10/10/10 vision.

To better diversify the intellectual capital and programmatic enterprise of the University, the initiative has significant implications for the School of Architecture. It calls for a move from a 5% to a 10% position within the Institution with the objective of increasing intellectual and academic diversity and rebalancing the culture of the University. This section of the SoA's Performance plan assumes that the balancing is best measured as a percent of total student population.

ACTION: Architecture will determine:

- Whether the implied target size would be effective, efficient and to the benefit of the intellectual, academic and research portfolio of the school.
- How to best optimize the size and the nature, constitution and composition of its component and proposed parts,
- Whether it would have a positive impact on program quality, visibility and reputation
- Whether it would compromise or strengthen existing programs.

General awareness of peer programs leads to the intuitive conclusion that specific degree programs (i.e. B.Arch) have optimal / maximum scales of operation, and that any growth model proposed should not merely presume an incremental expansion of existing programs (though this is easiest to accomplish over time), but by adding key, mutually supportive degree programs that leverage existing Institutional and portfolio assets with potential to achieve, and add to national and international reputation and ranking.

ACTION: The School will determine:

1. What those degree programs would be
2. What their optimal size would be, and
3. How to build to that level over time;
 - a. With what investments in faculty, staff,
 - b. Facilities and infrastructure.

It is critical that the plan to expand be both **strategic** and **efficient**.

Strategic in its:

- 1) Relevance to the Rensselaer Plan
- 2) Ability to enhance reputation
- 3) Ability to increase intellectual and academic diversity within the School and in the Institute.

Efficient in its capacity to leverage existing assets to greater and best use.

These questions and metrics will provide the framework of a study to determine whether, how, and with what investments the Institute and Architecture can / should embark on this expansion objective.

Initial Projections: In advance of having executed that study, we can propose that there are two basic approaches which should be used in combination to accomplish this end; Tactic 1 and Tactic 2. **The first tactic** is to build out / maximize all existing programs to their optimal (full) population potential. (see below). These additions will be incremental and have least impact on the need for additional faculty, staff, facilities, infrastructure, investment and phasing. **The second tactic**, of adding new degree programs, while leveraging existing resources, calls for more substantial investments and a longer-term commitment to the start-up of new programs. The second tactic is a step function in comparison to the incremental growth model of the first tactic. Either option or combination of options considered must be revenue positive (at least after an initial start up period and preferably from the start). An associated financial model will be developed.

Initial School of Architecture response:

A larger size School would provide the benefit of greater representation and capacity for participation in institute and interdisciplinary initiatives. It would, assuming some combination of the second tactic (adding new areas / initiatives), create more diverse offerings, greater potential to leverage Rensselaer strengths and increased scholarship and research (assuming a balanced addition of tenure and tenure track faculty).

A. Tactic One: Optimizing Population of Existing Programs

Assuming 100% capacity in each program (typically unrealistic) there is evidence of potential to substantially increase numbers of students with minimal impact on faculty count. Existing graduate program counts are based on previous projections, but should not be counted in potential revenue generation with the exception of the M.Arch1 which will be based on a discount tuition model similar to the undergraduate financial model. Under this tactic significant numbers of new undergraduates and M.Arch1 students will create substantial tuition revenues that can be reinvested into program delivery needs generated by the increase. Studio section numbers will increase with a modest need to increase faculty. No associated staff increases would be anticipated. Once phase two studio furnishings are funded and implemented, studio capacity in Greene will exist.

40/30/10/10/10: Tactic 1:

Increase Architecture Student Population x 25%

SoA Program	Current	Maximize	Net
B.Arch	301	330	29
M.Arch1	6	36	30
MS Light	7	10	3
MS/AS - Light	6	10	4
MS/AS - A. Acoustic	12	12	0
MS/AS Built Ecol	2	12	10
PhD/AS Light	7	12	5
PhD/AS A. Acoust	7	12	5
PhD/AS Built Ecol.	9	12	3
PhD/AS Other	1	6	5
Total	362	452	94

B. Tactic Two: Identify and Implement New Program Areas that:

- Leverage Rensselaer assets in Engineering, Science and Management
- Provide alternative directions for architecture students
- Increase interdisciplinary
 - Strengthen academic / intellectual enterprise
 - Provide viable co-Terminal options
 - Empower graduates for changing and diverse discipline

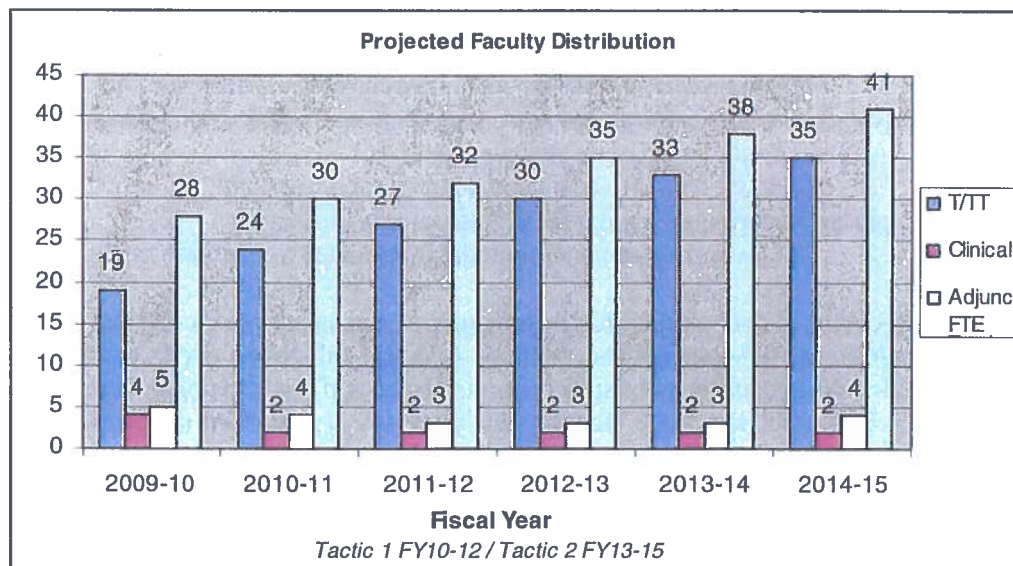
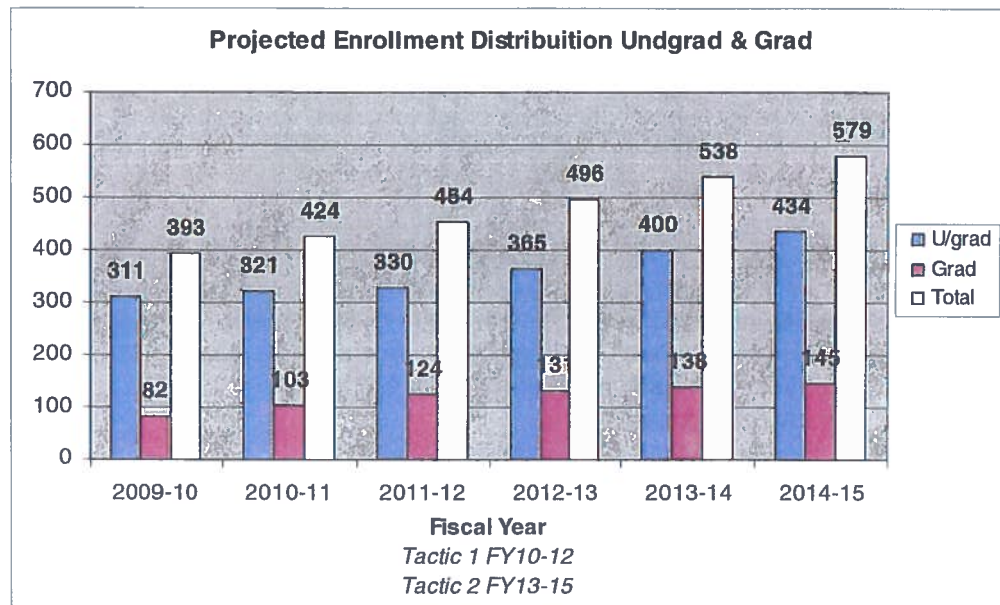
Potential programs under a reconstituted and strengthened Building Science Degree include:

- 4 year Bachelor in Landscape Urbanism
- 4 year Bachelor in Architectural Engineering [A/E] program
 - Building Science with Civil [EES] or Mechanical [MANE]
 - Potential feeder to MS degrees in Architecture or Engineering
- 4 year Bachelor of Building Science with concentration in Management
 - Building Science with Management
 - Potential feeder to advanced degree in management
- 1 year MS or MArch2, and PhD in Computational Design
 - Fed by Rensselaer and other undergraduate Architecture or design programs

Building a full cohort of one section (12-14 students per year) in each of the above programs 1 and 2 will yield an additional 104 students in residence. Adding a full cohort of MS computational design students would yield an additional 12 students in residence and if two per year is converted to PhD, an additional 4 students in residence. In total, this tactic two scenario has the potential to add 124 students generating significant tuition revenues. Together with tactic one as many as 217 students could be added. Reinvestment of a portion of revenues would be required to support additional faculty and to maintain standard teaching loads and credit production hours (see Projected Faculty Distribution). While this scenario does not require the same ratio of architecture studios per student per semester, it does press beyond the limit of the Greene building to accommodate all the students.⁹ Additional studio, instruction and office spaces outside of Greene would be required.

⁹ Phase-one studio furnishings replacements implemented under the FY2006 capital budget initiatives achieved better than anticipated efficiencies. After a phase-two conversion of remaining studio furnishings to achieve greater space efficiency (FY10 Capital budget request) Greene will have realized a capacity of 378 design students. In addition to Greene's capacity, the New York Built Ecologies has added 12 off-site design seats per semester, and

Well conceived, these programs would be effective in catalyzing interdisciplinary initiatives, creating multiple academic and career options for students, and positioning graduates for a variety of leadership positions in a variety of industries while generating revenues exceeding costs. To realize this tactic however, Architecture and its potential partners in Engineering, Science, and Management would need to be committed to creating these programs with no lesser objective than developing top ranking leadership programs that enhance the reputation of the Institute. Support of the initiatives would need to be sufficient to ensure achieving highest quality while advancing scholarship and research opportunities.



SoA International programs maintain an average of 18 off-site seats per semester. Together these provide a total studio seating capacity of 398, sufficient to accommodate the above scenario.

SoA 40/30/10/10/10 Showing Tactic one and Tactic Two Increases to reach a 10 %**40/30/10/10/10**

						Program	Current	Aggreg	Aggregate	T/TT	Tenure/TT	Contingent	Contingent
	Y1	Y2	Y3	Y4	Y5	Population	Population	Faculty	F/S Ratio	Faculty	F/S Ratio	Faculty	Faculty %
								(FTE)		(FTE)		(FTE)	
B.Arch	75	70	65	60	60	330	300						
M.Arch	12	12	12			36	6						
MS Light	6	6				12	6						
MS AS / Light	8					8	6						
MS AS / BE	10					10	5						
MS AS / AA	10					10	10						
PhD AS / Light	4	4	2	2		12	2						
PhD AS / BE	4	4	2	2		12	5						
PhD AS / AA	4	4	2	2		12	4						
MS AS / CD	12					12	0						
PhD AS / CD	0	2	2	2		6	0						
BS BSC / A/E	14	13	13	12		52	0						
BS BSC / M	14	13	13	12		52	0						
Total													
Projected	173	128	111	92	60	564		40.3	14	28	20	12	30.0%
Current Agreg.						344	344	28	12.3	14	24.6	14	50.0%
Increase						220		12.3		14.2		-1.9	
% Increase						64.0%		43.9%		101.4%		-13.7%	
Institute UG.													
Pop.						4500							
Institute G													
Pop.						1500							
Institute Pop.						6000							
Proj. Arch UG						434							
% of Inst.						9.6%							
Proj Arch G						130							
% of Inst						8.7%							
Proj. Arch													
Total						564							
% of Inst						9.4%							

Faculty increases represented in chart Projected Faculty Distribution represent the base Architecture performance plan (without integration of a significant expansion to fully meet the 40/30/10/10/10 challenge), and are projected as required to:

- Deliver the curriculum
- Enhance quality, reputation, ranking, and leadership
- Ensure adequate capacity for scholarship and research
- Expand the T/TT faculty while decreasing the dependence on contingent faculty
- Optimize the size and efficiency of each of the existent programs
- Add, with minimal investment, a fourth MS program area in Computational Design

In three years, with said investments, Architecture could grow from 361 to 454 students (tactic 1 optimization of current programs and space), (330 UG, 124 Grad) with 32 FTE faculty at a F/S ratio of 1:14 (measured against a composite of all faculty) broken down as 27 T/TT faculty (84% of aggregate FTE faculty) and 5 Clinical and Adjunct Faculty (16% of aggregate FTE faculty).

The Projected Faculty Chart 2 goes further in projecting the 40/30/10/10/10 objective by including three new programs (suggested topics – actual areas to be developed)¹⁰, 124 additional students and a faculty FTE of 41.

- BS in Architecture with a concentration in Computational / Parametric Design
- BS in Architectural Engineering
- BS in Building Science and Management

By another method, to accommodate the additional 124 students at a target faculty/student ratio of 1:14 demonstrates a need to add 9 faculty. If 124 students are generating tuition income of \$24k each¹¹, or \$2.6m in aggregate, the net revenue, assuming a \$1.3 m faculty salary and fringe reinvestment, is substantial.

ACTION: Develop and determine the cost / benefits of proposed programs to each of the portfolios involved and to the reputation of the Institute. Include financial model and phasing proposal.

Supporting Priorities:

Those priorities that are linked to ongoing initiatives and to initiatives proposed in this plan.

11. Develop Staff Positions in support of the education, research enterprise

Two staff positions have been identified as strategic support positions that will assist in the visibility initiative and enhancing reputation, and in building and maintaining a robust digital fabrication infrastructure that supports of the School's core programs.

A. Exhibits/ Graphics / Publications and web support position becomes increasingly important as Architecture recognizes that many talents and accomplishments of the faculty and the program initiatives do not reach a wider audience. With this position the School will be able to enhance its reputation through publications and communications efforts at a level of quality and frequency that it has not been able to accomplish in the past. It is anticipated that the returns in exposure, reputation, applications, recruitment etc., will be many.

ACTION: FY10 Work with News and Communications and Strategic Communications to increase exposure and visibility and determine whether to maintain this position proposal for FY11 or FY12, or to continue through central offices and resources.

B. Fabrications Lab Assistant becomes increasingly important as the numbers of users and types of equipment in the fabrications lab increases. The lab, now completing its outfitting, enables Rensselaer students access to leading technologies and techniques of design and production. There is already significant pressure on the lab for extended hours and access.

ACTION: FY10 Employ work study and student assistants to staff the lab. Develop an analysis of the potential for the lab to become a recharge center for the larger community – without penalty to the primary student user community either in terms of access time or cost. Determine whether the costs charged to outside communities could recoup current costs to staff and operate the lab, and whether they could support an assistant

ACTION: FY11 Convert the lab to a recharge center and employ an assistant on funds generated.

¹⁰ Examination of interest from Engineering (CEE and MANE) and Management is critical as is the analysis of impact to their programs.

¹¹ Assuming \$40k less 40% discount rate

12. Upgrade and Expand Facilities and equipment infrastructure

A. Greene Building Infrastructure improvements

1. Add air conditioning to academic, administrative and research spaces to create spaces conducive to learning and studio work both during the academic year and to make Greene a 12 month facility; for teaching, administration and research. Pipes were placed into the elevator shaft enclosure when it was constructed in 1998. Extending the chilled water line to Greene and vertically through the building will facilitate floor-by-floor installation of AC. A well designed but economical open system is preferred over the addition of dropped ceilings. Centralized chilled water system will be significantly less expensive per unit volume of cooling than inefficient window units. Provide window treatments including solar shades and black out shades. (where required).
2. Faculty office furnishing upgrades
Provide faculty office furnishings through out Greene. Over several decades there has been virtually no investment in furnishing. Where space allows provide furnishing to allow sharing of offices.

B. Greene Building Labs and Studios

1. Studio and public space furnishings – complete the phase two studio-furnishing project to enhance space efficiency and maximum population. Add 200 stackable auditorium chairs for the Greene gallery public space.
2. Create an Environment and Energy Lab – convert GR304 into an energy and the environment lab to support undergraduate teaching and graduate built ecologies research.
3. Create an advanced computation lab – Convert GR12 to an advanced computation lab with built in projection and the addition of 4 high end desktop computers per year for three years complete with advanced parametric design applications
4. Continued equipping and support of the Fabrication Lab – Add a robotic arm and Universal laser machine.

Strategic Goals, Strategies, and Action Plans: How do we get there?

Strategic goals are integrated into the plan, both in the narrative and particularly in the in Section III, 'Portfolio Additional Highest Priorities', which list specific action plans, dates and rationale. Since its inception the Rensselaer Plan has been complicit in shaping Architecture's Key Initiatives, influenced the School's planning and brought new distinction in what it has accomplished. We will continue on that track and seek nothing less than being the best architecture program in the nation, for its progressive outlook, preparation of critical thinkers and capable doers, and for its distinction in leveraging the various assets and strengths of Rensselaer; to engage and address significant technological and social and environmental issues that have high global and societal impact. The integration of research culture is not common in schools of architecture. We embrace it, and will continue to build the research enterprise and interdisciplinary collaborations, and we remain committed to the core curriculum and education of an architect.

As the plan describes, there are human and financial resource needs, and the rationale is described together with proposed steps to accomplish the School's vision in step with, and support of the Rensselaer Plan.

We are at a juncture at this point with respect to whether and how we grow the program, 1) to consolidate and complete what has already been initiated, or to go further to, 2) to realize the 40/30/10/10/10 challenge which implies a near-doubling of Architecture's student population. Models proposed herein demonstrate that there is revenue potential that exceeds the reinvestment required, and that it would be beneficial both to the School and to the University.

Building on the Portfolio's Performance Plan and Accomplishments: New Initiatives

Computational Design

The majority of this plan focuses on the reinforcement and building of initiatives already underway however, the initiative to create a program / research area for 12 MS students and as many as 8 PhD students in the area of computational design:

- Builds on existing resources and talents
- Benefits those talents (faculty) by providing a research platform and graduate students
- Is synergistic with CASE and the Architectural Acoustics graduate/research initiatives and
- Demonstrates potential for a positive cash flow even with a senior hire

Most of the resources are in place. The topic area aligns with Rensselaer strengths and it has the potential to complete Architecture's suite of graduate offerings in a way that will encourage cross-disciplinary work by creating the tools that allow multiple intelligences to interact and discover the implications of their own work in collaboration with the work of others in the development of complex operational systems.

The Visibility Initiative

The visibility initiative is also new – based on the premise that Architecture needs a concerted effort to make what we do and who we are visible. Architecture does not enjoy (or suffer) rankings because they do not exist. The discipline has resisted them with the exception of a couple of non-scientific rankings. We need to extend what we already do into the public realm, leverage that exposure to multiply scholarship and research opportunities and more effectively disseminate information about the excellent scholarship at the School. The visibility initiative seeks ways to complement initiatives that will increase our faculty's success, advancement and retention.

Ongoing Initiatives

Graduate Research Platforms: Ongoing Initiatives focus on principally building the graduate research platforms. Chief among them in this coming year is the School's most recent initiative, CASE and the Built Ecologies Program. We need to ensure that its footings are secure, and that it is successful in attracting excellent students and developing sufficient sponsored research and that it has the resources to fulfill its teaching and research obligations with capacity to plan for future years. The Architectural Acoustics program is well situated with respect to students and scholarship; however, the need to develop higher levels of sponsored research is important. In Lighting we will be looking for ways to better support and integrate the educational resources and enterprise with the other graduate and professional education programs.

Digital Fabrication Laboratory: We have committed to the development of a digital fabrication lab that provides a robust platform that provides students access to the most progressive design and fabrication tools and will continue to support that initiative with an equipment purchase each year, and to staff the lab appropriate to demand and activity.

Strategies to mitigate Risks

Creating a strong and positive environment, one which will welcome and be welcomed by the new leadership is important both in ensuring that the School is attractive to Dean Candidates and that we are able to retain the talent we have. Recent startup packages have been welcomed, and crucial in securing and keeping excellent new faculty.

There are risks associated with understaffed enterprises (overloaded personnel) and two kinds of efforts are being made to mitigate them: 1) efforts to streamline the activities of the faculty and support staff without loss of services to the students or core curriculum, and 2) adding new resources to meet the demands.

CASE is in a start up mode, moving very rapidly with great success, with a large cohort of students and early success in research awards. It is also at a satellite location and it is critical to see that communications and coordination is effective that the initiative has the necessary support and guidance.

Student Safety: Architecture has taken steps to mitigate risks associated with international programs and is pleased to have an increased level of centralized Institute support. Most recently, based on intelligence from a network of alumni, consultations between the office of the Vice Provost and Dean of Undergraduate Education and the Counsel of the Institute and the School we have determined to postpone our India Program due to recent events on the ground and the potential for regional conflict. In each international program we begin with cultural training and monitor events as they progress.

Explicit linkages and integrations with other portfolios

Interdisciplinary programs are central to some of Architecture's Highest Additional Priorities. Recent successful interdisciplinary initiatives include the Bedford Initiatives, a joint Architecture Engineering educational program between Architecture and CEE that has potential to expand to MANE and CASE which joins faculty from Engineering, Science, and HASS with Architecture in the development of research on topics relating to energy and the environment in the building industry. Architecture is moving forward with the proposal to make affiliated joint appointments of faculty from other schools who are already engaged in the initiative.

New Initiatives that should involve other departments include Computational design and its need to work with CS, The proposed Architecture / Engineering degree program in the 40/30/10/10/10 plan and the Architecture / Management or IT program described for the same.

Architecture is preparing to work with Office of the President and Facilities Planning to engage in campus planning and design issues including a campus planning charrette and planning for the CLASS initiative.

Sun setting Programs

In FY08 Architecture sunsetted the Building Conservation Program to free up modest resources for reinvestment into the core enterprise and graduate research platform initiatives. The balance of programs are either core or relating to these graduate initiatives that are central to the Plan. The School is examining the need to restructure the Roman Studies Program including the conversion of a position in order to streamline costs and keep the program.

To maintain existing and core programs on contingency budget the School has (in FY09) consolidated and eliminated adjunct positions by reducing the number of elective courses, increasing the faculty student ratio, and adding teaching load to faculty.

Changes in organizational structure or reporting relationships

No changes to organizational structure are proposed however the plan to shift from a heavy dependence on contingent to non-contingent faculty is represented in the plan with the caveat that the shift will require resources and that target goal for Architecture is not the 80% tenure / tenure track faculty percentage proposed by the Institute. Contingent faculty in Architecture are strategically integrated into the program, not only to fill-in for faculty on leave and open positions etc., but to provide access to best-practice. Architecture is at approximately 50% and is targeting 70% tenure / tenure track.

How the initiatives and strategies address strengths and weaknesses is addressed in the body of this plan in relationship to each initiative. Within the portfolio areas of responsibility are as follows:

Architecture Portfolio Owner:	Mark Mistur, Acting Dean
Graduate Programs:	Ted Krueger, Associate Dean, Director of Graduate Programs
Professional Programs:	David Bell, Director of Professional Programs
Lighting Research Center:	Mark Rea, Director
CASE:	Anna Dyson, Director
Built Ecologies Program:	Anna Dyson, Director
Architectural Acoustics:	Ning Xiang, Director

Section IV. Performance Measures

Performance measures applied to Architecture's programs and initiatives include both internal and external standards and metrics. Performance metrics are quantitative, qualitative, formal and informal. In addition to accreditations, external reviews, annual evaluations, self-reflecting / reporting, studio reviews, studio documentation and archiving, and course evaluations; the School regularly seeks external data and review

Accreditation

The National Architecture Accrediting Board [NAAB] Accreditation provides a series of standards and metrics by which core professional programs are measured. FY10 is an accrediting year, and while reporting occurs annually, every sixth year includes a comprehensive self-study and accreditation report followed by an accreditation visit. The visiting team is comprised of a nationally selected member of each of the five collateral organizations in Architecture, ACSA, NCARB, AIA, NAAB, AIAS. Preparation includes an analysis of the curriculum, courses, standards, examples of high and low passing student work, faculty work and scholarship and how we address the Boards 5 Standards and 34 student learning criteria. Facilities, resources, faculty, budget and support are also examined and reviewed. This process creates the expectation that self monitoring is an ongoing process and provides opportunity to reflect on and receive meaningful feedback. The process and expectations are rigorous and provide baseline expectations for professional architecture programs. It does not address other significant programs, issues, enterprises or key initiatives in the School such as international programs, graduate programs, research initiatives, or even some of the advanced research areas within the professional programs.

External Graduate Review Team and Report

Much like an accreditation an External Graduate Review Team was brought in to examine the three graduate research programs and the School. The report is very positive in each case and the program Directors and Director of Graduate Programs is processing the findings and self-reflecting to determine what actions and next steps should be taken.

Internal Benchmarking

Architecture will look to other schools of architecture and other units at the Institute to determine an appropriate course loading expectation. Concern that faculty advancement has lagged may be in part due to loading standards that have not been addressed in some time.

Dean's Advisory Council

Bi-Annual meeting to present the state of the school and to discuss successes and strategies.

McGuire Study

The school participated in a McGuire study comparing schools of architecture with respect to student faculty ratios, budgets and resources and is processing information to determine where we stand with respect to other schools of architecture. A snapshot seems to show that Rensselaer is very efficient in what it accomplishes per faculty and budget dollar.

Metrics used

PhD and research production expectations will be benchmarked against other schools to develop architecture specific expectations. These expectations will factor the disciplines access to agencies, foundations and other funding sources in and outside the industry.

Scholarship and research activity expectations are likewise being developed in FY09/10 to establish guidelines and expectations that assist in faculty development and advancement. These will include invited lectures, conferences, symposia, reviews, publications, exhibits, projects, citations, etc...Once established (FY09) they will provide both a guideline and as a metric for use in annual evaluations of faculty. A self reporting process will be included for all faculty and studio documentation of work produces is being implemented as a means of creating an archive of work that can easily be reviewed and or disseminated (Visibility Initiative).

Performance Evaluations include annual review of individual faculty and staff performance, For faculty this includes the updating of the dossier, a self-report and teaching evaluations. Success in receiving fellowships, grants, and sponsored research etc., is a measure as is the number of lectures, exhibits, projects, awards and the number of proposals and papers submitted.

Each program director is also required to submit an annual review of the area they direct.

Metrics of students include the quality of applicants, accepts, admits, and matriculated students as well as their performance. We will also be issuing a survey of alumni and will seek information relating to our graduate's success in getting jobs, their success in the workplace, and the quality of the target firms. We will be looking at the number of students who go on to graduate education and where and how they value their education at Rensselaer.

Aligning Objectives of Individuals and the Organization

The objectives of individual faculty need to align with and influence the overall strategy and objectives of the portfolio. Architecture has initiated a series of 'Conversations' which join faculty in discussions to consider larger School objectives. It is designed to be instrumental in developing common goals and increase involvement and commitment to them in a way that benefits the organization and the individual. Conversations have included or may include:

- A profile of leadership – Who should the next Dean be?
- What can EMPAC do for us, and what can we do at EMPAC?
- Intellectual property in interdisciplinary and intersector initiatives
- 40/30/10/10/10 presidential challenge
- Design Research – what does it mean?
- Parametric Computational Design
- I am Your Brother – 360 Screen Event

Section V. Resource Plan

Resource Planning to realize Architecture's plan over the next three years include several strategies:

- **Internal portfolio reallocation**
Redesign of the Roman Studies Program is being examined as a way of achieving greater efficiency and financial sustainability as well as increased strategic relevance. In S'09 architecture has reduced the number of elective offerings and adjuncts.
- **Increases from potential new revenues (tuition revenues)**
Architecture is looking at revenue stream initiatives that will support additional faculty lines and needed reinvestments.
- **Increases from general operating dollars**
Are needed to achieve a sustainable faculty loading that will assist in scholarship and research production ultimately leading to enhanced reputation. Increases are also needed to support faculty and PhD student travel in support of scholarship and reputation enhancing activities that lead to advancement and retention and reputation. Investment in facilities is also required – see Highest Priority 12.
- **Increases in extramural grant and contract funding**
The School is establishing target goals for sponsored research in Architectural Acoustics and Built Ecologies, including goals for graduate student support.
- **Revenues from endowment or new capital campaign funds**
Expanding the Bedford Initiatives to include an annual symposium that will consolidate a network of best practices and through publication of proceedings enhance reputation.

Increases from potential new revenues (tuition revenues)

Revenue Generation: 40/30/10/10/10 - Tactic 1			
	FY10	FY11	FY12
New Ugrad Students	10	10	9
New MArch	12	12	12
New Recurring Revenue	\$528,000	\$528,000	\$504,000
Aggregate Revenue above FY09 Budget	\$528,000	\$1,056,000	\$1,560,000
Assumptions			
1) All projections use FY09 discounted tuition rate of \$24,000			

Revenue Generation: 40/30/10/10/10 - Tactic 2				
	FY11	FY12	FY13	FY14
New U/grad Students	40	28	28	26
New Recurring Revenue	\$960,000	\$672,000	\$672,000	\$624,000
Revenue above FY09 Budget	\$960,000	\$1,632,000	\$2,304,000	\$2,928,000
Assumptions				
1) All projections use FY09 discounted tuition rate of \$24,000				

Increases in extramural grant and contract funding

Sponsored Research Award Growth Projection						
	FY10	FY11	FY12	FY13	FY14	FY15
CASE	\$750k	\$1m	\$1.5m	\$2m	\$2m	\$2m
Accoustics	\$250k	\$500k	\$500k	\$500k	\$750k	\$750k
LRC	\$4m	\$4m	\$4m	\$4m	\$4m	\$4m
Other	\$50k	\$50k	\$50k	\$50k	\$50k	\$50k
Total	4m	\$5.5m	\$6m	\$6.5m	\$6.7m	\$6.8m

Resource Needs Above FY09 Budget			
	FY10	FY11	FY12
2 Current Open Positions	\$170,000		
2 New T/TT		\$85,000	\$85,000
1 BE		\$85,000	
1 Comp Design		\$85,000	
2 Clinical Conversion to TT		\$25,000	\$25,000
LRC to 66%		\$116,430	
LRC to 100%			\$133,156
Staff	\$-	\$50,000	\$50,000
Sub Total Salary	\$170,000	\$446,430	\$293,156
Fringe	\$51,340	\$134,822	\$88,533
Total	\$221,340	\$581,252	\$381,689
Assumptions			
1. TT Starting faculty salary \$85,000			
2. All new faculty will receive estimated \$50k cost share package			

New Faculty Start-up Needs			
	FY10	FY11	FY12
2 Frozen	\$100,000		
2 New T/TT		\$50,000	\$50,000
1 BE		\$50,000	
1 Comp Design		\$50,000	
2 Clinical Conversion to TT		\$50,000	\$50,000
	\$100,000	\$200,000	\$100,000

Capital Budget Needs Assessment FY10/11/12	
Air Conditioning	\$ 750,000
Faculty Office Furnishings	\$ 65,000
Library	\$ 25,000
Studio and Public Space Environment & Energy	\$ 306,000
Lab	\$ 85,000
Computation Lab	\$ 100,000
Support Fabrication Lab	\$ 75,000
Total	\$1,406,000

See Highest Priorities no. 12 for Capital Budget investment needs.

Section VI. Fundamental Undergirding Requirements

Capital Campaign

- Support new faculty positions
- Provide GFA – Masters level and PhD fellowships
- Provide international program scholarships
- Sponsor lectures and intellectual activity, to sponsor an annual symposium and resulting publication
- Support faculty and PhD travel

Space Utilization

- Tactic 1: incremental growth to optimize Greene Building use
 - Phase 2 Studio furnishing capital budget investment to increase space efficiency / use
- Tactic 2: add programs – expand Architecture requires a modest amount of studio space, faculty office spaces. As part of the 40/30/10/10/10 redistribution this assumes that the demand on Institute classrooms is not increased.

(See Highest Priorities no. 12 for Capital Budget investment needs)

Information Technology and Information Management Infrastructure

- Robust link to CASE in NYC including video conferencing – teaching capacity.





SURVEY FORM - STUDENT REACTIONS TO INSTRUCTION AND COURSES

IMPORTANT!



Institution:

Instructor:

Course Number:

Time and Days Class Meets:

Your thoughtful answers to these questions will provide helpful information to your instructor.

Describe the frequency of your instructor's teaching procedures, using the following code:

1=Hardly Ever

2=Occasionally

3=Sometimes

4=Frequently

5=Almost Always

The Instructor:

1.	①	②	③	④	⑤	Displayed a personal interest in students and their learning
2.	①	②	③	④	⑤	Found ways to help students answer their own questions
3.	①	②	③	④	⑤	Scheduled course work (class activities, tests, projects) in ways which encouraged students to stay up-to-date in their work
4.	①	②	③	④	⑤	Demonstrated the importance and significance of the subject matter
5.	①	②	③	④	⑤	Formed "teams" or "discussion groups" to facilitate learning
6.	①	②	③	④	⑤	Made it clear how each topic fit into the course
7.	①	②	③	④	⑤	Explained the reasons for criticisms of students' academic performance
8.	①	②	③	④	⑤	Stimulated students to intellectual effort beyond that required by most courses
9.	①	②	③	④	⑤	Encouraged students to use multiple resources (e.g. data banks, library holdings, outside experts) to improve understanding
10.	①	②	③	④	⑤	Explained course material clearly and concisely
11.	①	②	③	④	⑤	Related course material to real life situations
12.	①	②	③	④	⑤	Gave tests, projects, etc. that covered the most important points of the course
13.	①	②	③	④	⑤	Introduced stimulating ideas about the subject
14.	①	②	③	④	⑤	Involved students in "hands on" projects such as research, case studies, or "real life" activities
15.	①	②	③	④	⑤	Inspired students to set and achieve goals which really challenged them
16.	①	②	③	④	⑤	Asked students to share ideas and experiences with others whose backgrounds and viewpoints differ from their own
17.	①	②	③	④	⑤	Provided timely and frequent feedback on tests, reports, projects, etc. to help students improve
18.	①	②	③	④	⑤	Asked students to help each other understand ideas or concepts
19.	①	②	③	④	⑤	Gave projects, tests, or assignments that required original or creative thinking
20.	①	②	③	④	⑤	Encouraged student-faculty interaction outside of class (office visits, phone calls, e-mail, etc.)

Twelve possible learning objectives are listed below, not all of which will be relevant in this class. Describe the amount of progress you made on each (even those not pursued in this class) by using the following scale:

1-No apparent progress

2-Slight progress; I made small gains on this objective.

3-Moderate progress; I made some gains on this objective.

4-Substantial progress; I made large gains on this objective.

5-Exceptional progress; I made outstanding gains on this objective.

Progress on:

21.	①	②	③	④	⑤	Gaining factual knowledge (terminology, classifications, methods, trends)
22.	①	②	③	④	⑤	Learning fundamental principles, generalizations, or theories
23.	①	②	③	④	⑤	Learning to <i>apply</i> course material (to improve thinking, problem solving, and decisions)
24.	①	②	③	④	⑤	Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course
25.	①	②	③	④	⑤	Acquiring skills in working with others as a member of a team
26.	①	②	③	④	⑤	Developing creative capacities (writing, inventing, designing, performing in art, music, drama, etc.)
27.	①	②	③	④	⑤	Gaining a broader understanding and appreciation of intellectual/cultural activity (music, science, literature, etc.)
28.	①	②	③	④	⑤	Developing skill in expressing myself orally or in writing
29.	①	②	③	④	⑤	Learning how to find and use resources for answering questions or solving problems
30.	①	②	③	④	⑤	Developing a clearer understanding of, and commitment to, personal values
31.	①	②	③	④	⑤	Learning to <i>analyze</i> and <i>critically evaluate</i> ideas, arguments, and points of view
32.	①	②	③	④	⑤	Acquiring an interest in learning more by asking my own questions and seeking answers

**5=Much More
than Most Courses**

33. ① ② ③ ④ ⑤ Amount of reading

34. ① ② ③ ④ ⑤ Amount of work in other (non-reading) assignments

35. ① ② ③ ④ ⑤ Difficulty of subject matter

5 = Definitely True

36. ① ② ③ ④ ⑤ I had a strong desire to take this course.
37. ① ② ③ ④ ⑤ I worked harder on this course than on most courses I have taken.
38. ① ② ③ ④ ⑤ I really wanted to take a course from this instructor.
39. ① ② ③ ④ ⑤ I really wanted to take this course regardless of who taught it.
40. ① ② ③ ④ ⑤ As a result of taking this course, I have more positive feelings toward this field of study.
41. ① ② ③ ④ ⑤ Overall, I rate this instructor an excellent teacher.
42. ① ② ③ ④ ⑤ Overall, I rate this course as excellent.

5 = Definitely True

43.	1	2	3	4	5	As a rule, I put forth more effort than other students on academic work.
44.	1	2	3	4	5	The instructor used a variety of methods--not only tests--to evaluate student progress on course objectives.
45.	1	2	3	4	5	The instructor expected students to take their share of responsibility for learning.
46.	1	2	3	4	5	The instructor had high achievement standards in this class.
47.	1	2	3	4	5	The instructor used educational technology (e.g., Internet, e-mail, computer exercises, multi-media presentations, etc.) to promote learning.

If your instructor has extra questions, answer them in the space designated below (questions 48-66):

48. Ⓐ ① ② ③ ④ ⑤

49. Ⓐ ① ② ③ ④ ⑤

50. Ⓐ ① ② ③ ④ ⑤

51. Ⓐ ① ② ③ ④ ⑤

52. Ⓐ ① ② ③ ④ ⑤

53. Ⓐ ① ② ③ ④ ⑤

54. Ⓐ ① ② ③ ④ ⑤

55. Ⓐ ① ② ③ ④ ⑤

56. Ⓐ ① ② ③ ④ ⑤

57. Ⓐ ① ② ③ ④ ⑤

58. Ⓐ ① ② ③ ④ ⑤

59. Ⓐ ① ② ③ ④ ⑤

60. Ⓐ ① ② ③ ④ ⑤

61. Ⓐ ① ② ③ ④ ⑤

62. Ⓐ ① ② ③ ④ ⑤

63. Ⓐ ① ② ③ ④ ⑤

64. Ⓐ ① ② ③ ④ ⑤

65. Ⓐ ① ② ③ ④ ⑤

66. Ⓐ ① ② ③ ④ ⑤

Use the space below for comments
(unless otherwise directed).
*Note: Your written comments may be
returned to the instructor. You may want
to PRINT to protect your anonymity.*

Comments:

[illegible]

Public Information (3.3)

3.3 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.3 Public Information

To ensure an understanding of the accredited professional degree by the public, all schools offering an accredited degree program or any candidacy program must include in their catalogs and promotional media the exact language found in the NAAB Conditions for Accreditation, Appendix A. To ensure an understanding of the body of knowledge and skills that constitute a professional education in architecture, the school must inform faculty and incoming students of how to access the NAAB Conditions for Accreditation.

The APR must include both of the following:

- *A description of the degree program as it appears in university catalogs and other institutionally authorized material*
- *Evidence that faculty members and incoming students have been informed of how to access the NAAB Conditions for Accreditation (including the Student Performance Criteria) on the NAAB Web site.*

A description of the degree program as it appears in university catalogs and other institutionally authorized material

Bachelor of Architecture (catalog description)

The five-year Bachelor of Architecture (B.Arch.) curriculum centers on the design studio and culminates in a yearlong research and design project. Computing, theoretical, technological, and historical issues are progressively integrated into the design projects beginning in the first year. Projects range in scale and form, but relate to issues in contemporary culture with a focus on globalization and urban contexts.

Students in both School of Architecture undergraduate programs are required to complete courses in the arts, sciences, humanities, and social sciences as part of the Institute core requirements. The core courses are structured to provide exposure and breadth to each of these areas.

In addition to Institute-wide academic regulations outlined earlier in this catalog, the following pertain to the bachelor's program in architecture:

- *Advancement in Design—Students not passing a required design course may not advance to the next course in the design sequence. The architecture faculty will review students earning grades of D or lower in required design courses. A student earning a D or lower in any subsequent required design course must either repeat the course or take another course specified by the faculty before advancing to the next course in the design sequence. Students who fail to earn a grade of C or better in the repeated or specified course, or who earn a third grade of D or lower in design, may not continue in the design sequence. A student earning an F in any course must repeat the course.*
- *Retention of Student Design Work—All drawings and models done by students as part of the instructional program are the property of the Institute until they have been released by the instructor. The School of Architecture at its option, may retain certain works for academic purposes.*

This five-year undergraduate professional program is a first professional degree accredited by the National Architectural Accreditation Board. The program is for a limited number of qualified students committed to the study of architecture. These students are admitted directly to the professional degree program and begin studies in architecture in the first year.

RENSSELAER SCHOOL OF ARCHITECTURE

3.3 The Thirteen Conditions of Accreditation

The National Architectural Accreditation Board (NAAB) accredits the Rensselaer School of Architecture's Bachelor of Architecture program and its Master of Architecture program. The following statement is included in the catalog, pursuant to the requirement of the NAAB:

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accreditation Board, which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees; the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards. Master's degree programs may consist of preprofessional and undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

Rensselaer's B.Arch. program incorporates and interconnects the following important elements:

- *Design—Design and the design studio form the core of all architecture degree programs. The design studio brings together the many aspects of architecture and presents a wide range of design issues, beginning with the development of the tools, skills, and judgments that underlie the production of architecture.*

The skills area emphasizes that the hand is as important as the computer in the representation of ideas. The ability to freely manipulate space, surface, structure, and texture is central to the reformation of architecture. The tools component develops confidence in the technologies that form architecture and are essential support to creativity. Finally, the judgments aspect is developed through projects premised on the continual evolution of architecture as a manifestation of the social, economic, political, and technological forces within the culture. All design studios draw broadly on the exceptional range of urban and architectural contexts near the campus; from the historic towns in upstate New York to great cities of the region such as New York, Boston, Montreal, and Philadelphia.

In the design studio there are no singular, provable, or perfect answers to any of the problems presented. Students explore and develop their design proposals based on their growing knowledge of architecture and their emerging ability. The early semester-long studios introduce students to the full range of issues, skills, and judgments encountered in design and initiate and reinforce design as critical inquiry. The remaining studios focus on significant concerns in architecture. They are "vertical" in that they include students in different class years, and they present choices of project and faculty. Among these is the design development studio, in which a prior project is subjected to detailed structural, mechanical, construction materials, and professional practice considerations.

- *History and Theory—A required five-course sequence presents the diversity of architectural works and ideas relative to the contexts within which architecture emerges and to key historical and theoretical issues in the field. Following this sequence, students may take additional advanced architectural history/theory electives as a part of their professional or free elective.*
- *Technology and Building Science—Technological issues are introduced from the beginning as essential to the conception and creation of architecture. New technologies can be the generative of form and inhabitable space. A series of six required technology courses consider both qualitative and quantitative views of building technologies. These include statics and strength of materials; basic structures and framing; design of wood, steel, and concrete structures; criteria for selecting*

3.3 The Thirteen Conditions of Accreditation

building materials and systems; environmental systems, including heating, ventilation, air conditioning, plumbing, and electrical systems; sensory environment, including the luminous, acoustical, and tactile environments; codes and contract documents. Following this sequence, students may take additional advanced technology and building science electives as a part of their professional or free elective selections. Integration of technological considerations is central to many of the studios with a focused emphasis on integrating building technologies and the act of creating in the required upper level design development studio.

- *Computing—Computer proficiency is central to the future of architecture. From the first year, students are able to expand their knowledge and skill through course work with key computing concepts and applications—in some cases integrated within the design studios—and through independent experimentation in the many computer labs at the School and Institute. In addition to the general computation labs, the School offers high-end multimedia environments within the many design studios. These labs are also complimented with a commitment to equipping the fabrication center with the latest and most sophisticated tools for fabrication and physical prototyping of design work. We currently have a range of equipment varying from a 3axis CNC mill, two laser cutters, a 3D Z Corp Printer, as well as access to water and plasma cutters. Students have access to the latest in three-dimensional design software, critical visualization tools, and more specific evaluation based software.*

These elements are provided through these required courses as well as many professional electives and topics in such areas as architectural and urban history and theory, technology, computing, building economics, community design, practice and management, architectural lighting, and acoustics in architecture. Professional degree students must complete at least 12 credits from these offerings by either building on a specific interest or by sampling the breadth and diversity inherent in the field. In addition to regularly offered electives (described in the back of this catalog), the faculty offers a number of topics or experimental courses as professional electives. Sample courses include, but are not limited to:

Advanced Structures Technology	Furniture Exploration
Advanced Technologies Seminar	Human Environment
Architectural Acoustics 1 and 2	Human Factors in Lighting
Architectural Aesthetics	Landscape Patterns: From Region to Site
Architecture and Urban Design in the Italian Renaissance	Lighting Design
Bedford Technology Seminar	Lighting Technology
Build inVention	Public Art Seminar
Electronic Media: Critical Visualization	Seeing Digital
Electronic Media: Physical Design Processes	Surface as Structure as Form
Emergent Design Philosophies and Techniques	Sustainable Building Design Materials
Emerging Materials and Material Development	
Extreme Drawing	

The five-year B.Arch. program concludes with an individually initiated, planned, and developed comprehensive project. Planning begins in the fourth year through an exchange of ideas with and a critique by a faculty adviser and review committee. The resulting proposals form published faculty statements of interest combined with the students' experiences and areas of special concern. These may emerge from a synthesis of previous work that applied gained knowledge to advanced issues or, alternatively, experiences to date may be used as a base from which to explore and to innovate. This final year begins with a short competition project in which all participate. An integrated design research phase then lasts the remainder of the first and throughout the second semester.

RENSSELAER SCHOOL OF ARCHITECTURE

3.3 The Thirteen Conditions of Accreditation

The final project is an opportunity to develop a point of view about architecture and its place in the world; to question conventions, habitual responses, and routine approaches to architectural design; and to investigate issues that the student sees as significant to architecture.

Master of Architecture 1 (catalog description)

The curriculum for this professional degree program largely overlaps the B.Arch. program, albeit in an accelerated manner. It features a distinct individualized pedagogical core through an advanced history and theory course sequence. On average, this degree is completed in three and a half years (one summer plus three academic years).

This degree provides a balanced education in architectural design, history, theory, and technology. As with the undergraduate program, it centers on the design studio where projects address a multitude of design issues through multiple strategies ranging from the design of carefully crafted objects to architecture, landscape architecture, and urban design.

The National Architectural Accreditation Board (NAAB) accredits the Rensselaer School of Architecture's Master of Architecture three and a half-year program. The following statement is included in the catalog, pursuant to NAAB requirements:

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board, which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees; the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master's degree programs may consist of preprofessional and undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

Applicants to this program must have a bachelor's degree, have earned a 3.0 cumulative average (on a 4.0 scale) and have within their undergraduate studies a course in free hand or life-study drawing. They should also have eight to 10 courses in humanities and social sciences, one year of mathematics with a course in calculus, a course in physics, and additional courses in the sciences. Course work in the arts and art history is also desirable. A portfolio of creative works and critical commentary on those works is required for admission. Application is made to the Office of Admissions. Students with previous architecture courses will be considered for advanced standing in this program. Enrollment in the initial summer studio is usually necessary to determine placement in the design sequence. For information regarding program tuition and financial aid, please refer to the Tuition and Financial Aid section of this catalog.

Like the B.Arch. program, the M.Arch.I program incorporates and interconnects the important elements of design, history and theory, technology and building science, and computing. For a detailed description of Rensselaer's approach to these elements, please refer to the Bachelor of Architecture (B.Arch.) Curriculum section. Also noted within the Bachelor of Architecture Curriculum description are the School's many professional electives and topic offerings in such areas as architectural and urban history and theory, technology, computing, building economics, community design, practice and management, architectural lighting, and acoustics in architecture. In addition to regularly offered electives (described in the back of this catalog), the faculty offers a number of topics or experimental courses as professional electives. A sample of these courses can be found in the details of the Architecture program.

RENSSELAER SCHOOL OF ARCHITECTURE

3.3 The Thirteen Conditions of Accreditation

The M.Arch. I program culminates with an individually initiated, planned, and developed thesis. Planning begins in the third year and involves an exchange of ideas with and a critique by a faculty adviser and review committee. The resulting proposals are published statements of interest from the faculty combined with the students' experiences and areas of special concern. These may emerge from a synthesis of previous work applying gained knowledge to advanced issues, or alternatively, make use of experiences to date as a base from which to explore and to innovate. This final year begins with a short competition project in which all participate. An integrated design research phase then lasts the remainder of the first and throughout the second semester.

The thesis is an opportunity to develop a point of view about architecture and its place in the world, to question conventions, habitual responses, and routine approaches to architectural design, and to investigate issues that the student sees as significant to architecture.

The Rensselaer catalog, distributed to all incoming students contains the specific language required in the NAAB Conditions for Accreditation (see catalog description above). The catalog can be found at www.rpi.edu/academics/catalog

Statement regarding accreditation as it appears in the catalog in print and online is as follows:

http://catalog.rpi.edu/preview_program.php?catoid=5&poid=890&bc=1

The National Architectural Accreditation Board (NAAB) accredits the Rensselaer School of Architecture's Bachelor of Architecture program and its Master of Architecture program. The following statement is included in the catalog, pursuant to the requirement of the NAAB:

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accreditation Board, which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees; the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards. Master's degree programs may consist of preprofessional and undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

The same language pertaining to NAAB accreditation can also be found on the school's web site located at www.arch.rpi.edu/accreditation, which also provides a link to the NAAB site and student performance criteria. <http://www.arch.rpi.edu/accreditation.htm>

Descriptions of the degree programs can also be found on the School's web site located at www.arch.rpi.edu as follows:

Bachelor of Architecture (web description)

The undergraduate professional program is five years in length and leads to the Bachelor of Architecture, a first professional degree accredited by the National Architectural Accrediting Board (NAAB). The students are highly qualified and undertake their architectural studies from the very beginning of their first year. Situated within the broader context of Rensselaer, the School of Architecture also draws widely upon other professional programs to build a collaborative interdisciplinary approach to design. Upon admission there are no further junctures in the program that require additional admission decisions.

RENSSELAER SCHOOL OF ARCHITECTURE

3.3 The Thirteen Conditions of Accreditation

Master of Architecture 1 (webpage description)

The M.Arch.I Professional Program is 3 ½ years long, leads to a first professional Master of Architecture degree, and is accredited by the National Architectural Accreditation Board (NAAB). It is open to students who come from different academic disciplines or who have been enrolled in pre-architecture programs. Most students begin in May with a twelve-week design studio, but admission with advanced placement is also possible.

Evidence that faculty members and incoming students have been informed of how to access the NAAB Conditions for Accreditation (including the Student Performance Criteria) on the NAAB Web site.

The School's web site provides a link to the NAAB site and student performance criteria. The School of Architecture also distributes a printed version of the NAAB Conditions to all students and faculty at the all school meetings held on the first day of classes for both the fall and spring semester. This practice has been in place for nearly the last 10 years.

Social Equity (3.4)

3.4 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.4 Social Equity

The accredited degree program must provide faculty, students, and staff—irrespective of race, ethnicity, creed, national origin, gender, age, physical ability, or sexual orientation—with an educational environment in which each person is equitably able to learn, teach, and work. The school must have a clear policy on diversity that is communicated to current and prospective faculty, students, and staff and that is reflected in the distribution of the program's human, physical, and financial resources. Faculty, staff, and students must also have equitable opportunities to participate in program governance.

The APR must include the following:

- *The criteria and procedures used to achieve equity and diversity in faculty appointments, reappointments, compensation, and promotions*
- *The criteria and procedures used to achieve equity and diversity in student admissions, advancement, retention, and graduation*
- *A description of the means by which faculty, students, and staff are given access to the formulation of policies and procedures, including curriculum review and program development*
- *Identification of any significant problem, with recommendations for improvement.*

"The essence of The Rensselaer Plan, the vision of the future of Rensselaer Polytechnic Institute, is summarized in one phrase: "To be a top-tier world-class technological research university with global reach and global impact."

"For any institution to reflect an entire world of intelligence and perspectives — to achieve global reach and global impact — it must, by its very nature, reflect, represent and respect people and viewpoints from every walk of life. Rensselaer, as part of its official mission, aspires to such diversity — not just of cultures, races and genders, but of thoughts, disciplines and ideas. Nothing less."

— Shirley Ann Jackson, Ph.D. Rensselaer President

Rensselaer has made significant commitment to and advances in prioritizing, promoting and tracking performance measures designed to realize diversity and social equity among faculty, staff and students. The Rensselaer Plan (Follows Section 1) states *"A university community comprises a collection of communities: the campus community of students, faculty, staff, administration, and trustees lives in a series of larger neighborhood, city, and regional communities, and is supported by a broad national and international community of alumni, friends, business, and professional partners. Rensselaer draws its vitality from, and adds vitality to, each of these communities. As a citizen of the world, Rensselaer must extend its reach and impact beyond present borders. Teaching and research are the starting points."*

The University's commitment to achieving greater diversity is clearly stated in the Rensselaer Plan, addressed in the performance planning process and communicated through Town meetings and annual reports. It has been pursued through hiring procedures, incentive initiatives, new enterprise areas and a research grant focused on mentoring and the advancement of women faculty [NSF Advance grant – see below]. Diversity and social equity have been upheld as necessary and strategic means to becoming a more vibrant University in keeping with its own global perspective and plan. Over the past 10 years, Rensselaer has realized significant advances in the diversity of its student body, faculty and staff at all levels of the Institution.

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

"Rensselaer must and will achieve true intellectual, geographic, gender and ethnic diversity in our students, faculty and staff, in order to draw upon the best talent available, and to prepare our students to work and lead in a global economy."

— Shirley Ann Jackson, Ph.D. Rensselaer President

The criteria and procedures used to achieve equity and diversity in faculty appointments, re-appointments, compensation and promotions.

The Rensselaer Plan places priority on enhancing the recruitment and retention of tenure-track, under represented minority and women faculty and to build a diverse faculty and staff of women and men drawn from all ethnic groups. For over 10 years innovative and sustained efforts to expand the pool of under represented minority and women faculty candidates have been developed and employed by the University. We have recruited aggressively and continuously with incentive packages to attract women and minority scholars. The provost and several women faculty received a NSF Advance grant to advocate for and create greater awareness of the need for mentoring of women faculty on their path to reappointment, tenure and advancement. We have instituted annual equity compensation reviews and salary adjustments in addition to merit pay increases to ensure that compensation is commensurate with level and performance and not biased with respect to gender, minority status or for any other reason. Achieving greater faculty diversity is an objective that has become engrained in the Rensselaer culture, and while progress has recently flattened with the slowing of overall recruitment and incentive packages as a result of the economic downturn, the commitment remains, and efforts continue.

"We have chosen to illustrate this point with a kaleidoscopic view of the world, because the kaleidoscope demonstrates rather beautifully how colorful, multi-dimensional, and ever-changing the world is today. To be at the cutting edge the education we offer our students must reflect this kaleidoscope, and must develop in them the ability to interweave rather than separate, disciplines, pursuits and individuals."

— Shirley Ann Jackson, Ph.D. Rensselaer President

"Rensselaer Polytechnic Institute has a strong institutional commitment to diversity and is an Equal Opportunity/Affirmative Action employer, and it is the policy of the Institute that all persons be provided equal employment opportunities regardless of race, color, sex, sexual orientation, age, religion, creed, national origin, marital status, Vietnam Era Veteran status, disabled Veteran status, or disability. There will be no discrimination against any employee or applicant for employment to any position for which she/he is qualified. We encourage applications from candidates who will bring diverse cultural, ethnic, and national and international perspectives to Rensselaer's work and campus communities."

Architecture has not only encouraged, but has sought to expand the pool of women and minority applicants – by advertising positions in select journals and by personally identifying and inviting potential women and minority candidates who are qualified for open positions.

To realize Rensselaer's diversity and social equity objectives, the following procedures are employed:

1. Annual Performance Planning requires each portfolio to address the priorities of the Rensselaer Plan, including diversity and social equity.
2. Financial incentives to hire women and minority faculty were created. Since the last NAAB accreditation visit the office of the provost provided matching funding (33% of salary) to Schools hiring women and/or under represented minorities. These incentives have since expired.

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

3. Hiring procedures to ensure broad reaching recruitment practices which identify and reach under-represented minority and women faculty candidates are employed in faculty searches according to HR policy and oversight. Searches follow practices established to ensure openness and fairness in recruiting and hiring through procedures and reporting mechanisms (see below).
4. Annual equity compensation reviews provide opportunity for each portfolio head to review and recommend salary compensation adjustments to individuals who fall outside of defined parameters and norms, especially where such inequities may be associated with gender, or minority status.

Faculty and staff position searches and hiring procedures are set out and rigorously overseen by Human Resources to ensure that searches are broad, inclusive and that they do not discriminate. Advertising in national venues is required, search committees are used, and an administrative assistant works with the office of the Dean to ensure that procedures are followed, that the search resulted in an adequate number and breadth of applicants, and that candidates short-listed by the search committees receive equal opportunity. The best candidate for the position should be the successful candidate however, in cases where qualified women and/or underrepresented minority candidates are not successful, accountability is required. Search committee reporting must include rationale for the decision from the chair of the search committee (via an Affirmative Action Form). In recent years search committees have been briefed by the Dean on the importance of intellectual diversity and how achieving a greater balance of women and underrepresented minorities on the Architecture faculty is a priority. Open architecture positions have been advertised in Hispanic Outlook in Higher Education, Latinos in Higher Education, Women in Higher Ed, Diverse Issues in Higher Education and The Academic Database in order to enhance visibility and outreach to diverse constituents. In addition, efforts to identify qualified women and minority candidates has been proactive, through faculty contacts and invitations to apply.

Human Resources 16-Step Recruitment Plan (Procedure)

1. Development and Approval of Performance Management Tool (PMT)
2. Salary Range Determination for Position (Internal & External Equity) and Verification of Position Authorization and Funding
3. Generate Position Approval Form and Submit to Finance for Budget Review and Approval
4. Discuss and Approve Recruitment Strategy:
 - Search Committee(s) – (for all faculty – clinical and tenure track)
 - No Search Committee
 - National, Regional, Local, or Internal Search – (National for all faculty)
 - Executive Search Consultant – (for Dean's and Vice Presidents)
5. Develop Ad and Advertising Sources
 - Print Media
 - Non-Print Media
 - Web Sources
6. Develop Communication Plan for Start and End of Search:
 - Department/Division
 - Campus Community
 - Community AT-Large
7. Select and Train Interview Committee Members
 - Diversity of the Committee Members
 - The Role of the Committee
 - Effective Interviewing

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

Format for Pre-Screening and Interviewing Candidates

8. Approve Ad and Submit for Placement in Selected Recruitment Sources
9. Resumes/Applicants are Pre-Screened and Ranked by Members of the Committee, Executive Search Firm, or Hiring Manager Based on Pre-established Criteria
10. Qualified Candidates are Invited to Campus for Personal Interview(s) with Committee Members and/or Hiring Manager. For faculty hires in Architecture there is also a presentation / interview with the faculty.
11. Committee Chair, HR and Committee Members Provide Written Summary Regarding the Profile of Finalist
12. Conduct Reference and Background Checks for Finalists
13. Vice President or Provost Schedule Finalist for Personal Interview with President and/or Make Hiring Recommendation to President for Final Approval.
14. Submit Affirmative Action Form and Employment Transaction Form - Transaction Form to HR for Creation of Offer Letter
15. HR and/or Provost Prepares Official Employment Offer Letter with start date, base compensation, start up funds, date of benefits briefing.
16. Schedule Finalist for New Employee Orientation

Rensselaer's academic appointments are governed by the Rensselaer Faculty Handbook. *The Rensselaer Faculty Handbook* presents faculty rights, privileges, responsibilities and related procedures including the rules and regulations that affect faculty appointment, reappointment, promotion and tenure status at Rensselaer. The Handbook applies to Rensselaer Faculty as defined in Section 1.4.1 at all Rensselaer locations, unless noted otherwise. While there are policies and procedures pertaining to the Faculty in their capacity as employees of Rensselaer, this Handbook addresses only those that pertain to the Faculty in their role as Faculty. Institute-wide academic policies are the responsibility of the Office of the Provost.

Other policy documents pertaining to criteria and procedures for faculty appointments, reappointments, tenure compensation and advancement are available from the Division of Human Resources (see below), and are referred to both by the academic deans and schools on matters and procedures pertaining to hiring, and by the Office of Research Administration on matters pertaining to research personnel and practices. To the extent that these affect faculty, it is the obligation of the Provost to maintain up to date copies of these documents or links to these copies on the official website of the Office of the Provost.

Once hired, tenure track faculty are mentored in a multi-tiered system which includes a mentor assigned by the School, a mentor(s) identified by the faculty member, the chair and Dean. The latter are responsible for the creation of a supportive environment for the faculty member, to provide strategic opportunities for, and honest reviews of their progress and potential problems on the path to tenure.

In 2007, through the NSF Advance grant of the Provost and several women faculty at Rensselaer, faculty coaches were created to support the advancement of women at Rensselaer. The initiative, called RAMP-UP, has sponsored a number of seminars on topics such as Self Promotion, Career Pathways, Research Productivity and Building Collaborative Work Groups, inviting women (and men) to participate and enhance their understanding and potential as tenure track or rising associate professors. This grant has had reach across the campus and into the School of Architecture which had significant participation in a mentoring

3.4 *The Thirteen Conditions of Accreditation*

seminar designed to inform and encourage advancement and promotion of faculty who are at the associate level.

Appointments and Reappointments

The tenure track faculty search and appointment policies and procedures are described above and in the faculty handbook. They also apply to the appointment of clinical¹ faculty on one to three year contracts. After completing a first contract term (after a National search), a clinical faculty member may be reappointed at the appropriate level by recommendation of the Dean and approval of the Provost and President.

Appointments of visiting faculty members (non tenure track) may be for one or multiple year terms and may be the result of a search, such as in the endowed Bedford Visiting Chair position, or by recommendation of the Dean and approval of the Provost and President. Adjunct faculty appointments are by semester and are appointed by the Dean.

Tenure-track faculty are appointed on a three-year renewable contract². Early in the third year a dossier is submitted and reviewed by the tenured faculty of the School for progress toward tenure in the areas of scholarship, teaching, research and service, and whether a three-year renewal is recommended. A recommendation is made to the Dean who makes a recommendation to the Provost.

Promotion and Tenure

For tenure and tenure track faculty the promotion and tenure process is one governed by the handbook, having a careful construct at the department, school, and institute level. It requires the formal assembly of a complete dossier in Rensselaer format, internal departmental³ and School review, confidential external referee reviews, and formal votes at the department³ and school level before the Dean advances a case to the Institute P&T committee for review and consideration. The Institute P&T committee is joint, comprised of one tenured full professor from each of the five schools, and the five academic Deans. Each group first considers the case separately, and then meets together to consider and vote jointly on whether to recommend tenure (or promotion to full professor). The Provost reviews the case and makes a recommendation to the President who makes the final recommendation to the Board of Trustees. This procedure is administered with a strong commitment to process and fairness. In unsuccessful cases a candidate has access to a formal appeal process and when initiated, the candidate is provided the assistance of a faculty liaison according to the process outlined in the handbook.

Compensation Equity

Faculty compensation is linked to an annual review by the Dean. Merit increases (within boundaries established each year by the Institute), are based on a performance review and recommendation of the Dean. In addition, and to ensure equity among professorial ranks and especially with respect to any potential inequities in relation to gender or minority status, a separate equity review is performed at the Dean level and presented to the Provost and Vice President of Human Resources. In addition to merit increases, several architecture faculty have received equity adjustments to prevent potential inequities and move toward aligning faculty salaries with other institutions of similar size and reputation. Human Resources has created a salary instrument which creates benchmarked salary ranges based on rank and performance as determined by the Dean.

¹ Clinical Faculty Status refers to full time non-tenure track faculty with multi-year appointments.

² In cases of faculty with prior experience and advanced standing, less time may be given. In no case (other than the granting of extensions for parental or health leaves) is more time given.

³ There are no Departments in Architecture

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

The criteria and procedures used to achieve equity and diversity in student admissions, advancement, retention and graduation

In pursuit of intellectual diversity having a diverse student body has long been sought at Rensselaer, a Polytechnic Institute best known widely for its Engineering programs. In 2000 Rensselaer attracted 22% female students as an Institution, a number that has now reached 30%. Architecture is the exception, with 57% female students and an underrepresented minority population at approximately 15% of its professional programs.

The Enrollment Management Office uses a web-based application system (submitted electronically), which is the common universal college, and candidate's choice for submission. For Architecture a portfolio and/or interview is included in the application submittal process and forms an important part of the evaluation. Students who are interviewed are evaluated on the basis of the interview as well as for their portfolio. Our website gives specific details on portfolio requirements and examples of work. If prospective students attend the open house they can receive a preliminary portfolio grade and will then have an opportunity to make improvements prior to the application submission within the appropriate deadlines. This practice encourages students who may not be well informed about the requirement or the nature of a studio based architecture education and helps candidates improve upon their application and preparedness for admission. The admissions committee reviews each application after the architecture faculty have reviewed and graded applicant portfolios. Applicants who are best suited for Rensselaer will have completed four years of english, mathematics through pre-calculus, three years of science, and three years of social studies and/or history. In addition, the admissions committee pays particular attention to candidates who demonstrate qualities and talents that will contribute to the rightness of the Rensselaer community.

Some of the Institute's specific strategies for developing equity and diversity throughout the undergraduate admissions process include:

Early Outreach

- Early identification of females and underrepresented minority students who have expressed interest in Rensselaer specific programs. This early identification includes work with an external search vendor for appropriate list purchases and electronic and paper outreach to prospective students.
- Early outreach also includes developing personal relationships with students; adult influencers (including families, guidance counselors, and teachers), staff of community, civic, and religious organizations.
- Development of pipeline programs and campus wide outreach to prospective students. The undergraduate admissions office hosts the STAR (Science, Technology, Arts, and Architecture at Rensselaer) program each fall. This program attracts female and underrepresented minority students from across the country who are interested in Rensselaer. The weekend long program immerses these students into the life of an undergraduate. Other pipeline programs include Preface, College Bound, work with NSBE and SHEP, Society of Women Engineers, NCSSMST (National Consortium for Specialized Secondary Schools in Math, Science, and Technology) etc...
- Development of an active alumni admissions program including an emphasis on well-trained minority alumni.

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

Admissions

- In order to continue to gain greater equity and diversity throughout the undergraduate admissions process, all applications are reviewed individually by the admissions committee. It is important to note that some differences in preparation and academic background may be considered. The admissions committee pays particular attention to candidates who demonstrate qualities and talents that will contribute to the richness of the Rensselaer community.
- The Enrollment portfolio works closely with an external vendor (Maguire Assoc.) to put the admissions and aiding strategies in place to reach our yearly goals as set forth by the Rensselaer Plan and the Cost of Attendance Committee and approved by the president.

Financial Aid

- Rensselaer continues to develop a financial aid strategy that is designed to achieve its diversity enrollment goals.
- Rensselaer is not yet positioned to fully meet the financial needs of all admitted students. We do, however, have some favorable policies in place that contribute to both the enrollment and retention of incoming students. For instance, we do not tie the renewal of either merit or need-based institutional scholarship to academic performance. This commitment sends a positive message about the confidence we have in their continued academic success.
- RPI maintains a very generous policy with regard to external scholarships that students bring to the Institute by allowing them to keep their Institutional scholarship in additions to the awards they have earned in recognition of individual accomplishments.

We seek a broad spectrum of highly qualified students and demographic analysis shows that Rensselaer, and in particular the School of Architecture, has expanded their historically heavy draw on male, suburban candidates from the northeast region. In a technological Institution that has been weighted toward a male population the School of Architecture has led in changing that profile with a female student population close to the national average among schools of architecture. Tracking the gender ratios for more than a decade demonstrates that the steep trend toward gender balanced diversity has plateaued at a level that meets that objective. Examining under-represented minorities over that same period shows distinct progress though not yet at the rate desired. Efforts to expand regionally and into urban areas remains strategic to the intellectual and cultural diversity we seek.

Recent strategic initiatives resulting in the creation of complementary graduate programs have proved successful in expanding the intellectual, international, and ethnic diversity of the School and have enriched and enhanced the learning environment for all, including those in the B.Arch and M.Arch1 programs.

Since the last NAAB accreditation retention rates within the School of Architecture (see Diversity Admissions chart below) have averaged 82% of males and 83% of females. Institute retention of those same cohorts (students who entered in architecture) shows that 91% of the males and 95% of the females remained at Rensselaer. Though the underrepresented minority population provides a small sample that is statistically less reliable in any given year, aggregate data also shows that retention of underrepresented minority students in architecture since 2004 is also at 82%, and of that same cohort, 93% remained at Rensselaer. Likewise, Architecture's 6-year graduation rates show equivalence between men, women and underrepresented minorities.

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

Diversity Admissions, Retention and Graduation Rates

Entering Year	Entering Students			School Based Retention			Institute Based Retention			School Graduation %			Institute Graduation %		
	M%	F%	UM%	M	F	UM	M	F	UM	M	F	UM	M	F	UM
1999	58%	42%	9%	90%	86%	100%	95%	100%	100%	56%	68%	67%	64%	79%	67%
2000	47%	53%	9%	91%	72%	75%	95%	96%	100%	77%	56%	75%	82%	88%	100%
2001	48%	52%	12%	70%	82%	100%	90%	86%	100%	55%	73%	80%	75%	82%	80%
2002	42%	58%	5%	76%	76%	67%	92%	91%	67%	56%	62%	33%	72%	79%	33%
2003	55%	45%	6%	94%	90%	100%	97%	97%	100%	58%	59%	50%	64%	76%	75%
2004	46%	54%	7%	80%	97%	100%	84%	100%	100%	80%	86%	75%	NA	NA	NA
2005	47%	53%	17%	83%	80%	77%	94%	98%	92%						
2006	37%	63%	12%	75%	74%	67%	93%	91%	89%						
2007	54%	46%	14%	83%	85%	100%	90%	100%	100%						
2008	33%	67%	20%	NA	NA	NA	NA	NA	NA						
2009	43%	57%	11%												

Procedures in place to enhance retention of students in an appropriate field of study are many at Rensselaer and in the School of Architecture. Redundant advising systems facilitate early recognition and transfer between schools and programs within the Institute. Academic advising engages faculty and students at an early stage and is reinforced by the Office of the First Year experience (FYE), an Institute Early Warning System (EWS), and Student Advisor Meeting (SAM) requiring advisees and advisors to meet on a regular basis. The Institute also provides a broad range of services including Advising Learning and Assistance Center (ALAC), a Counseling and Health Center, a Residence Life Program (Vasudha Living and Learning) and an Emerging Residential College program Clustered Learning Advocacy & Support for Students (CLASS), which has added class deans and resident assistants to radically integrate and transform living, learning and advising at Rensselaer.

In Architecture much attention is given to identifying and assisting struggling students including a mid-semester D/F warning system that notifies students and advisors of potential problems and includes a recommendation for students to see their instructor and advisor, and an end of semester Academic Review meeting which collectively addresses students who performed low in a class. This meeting of the entire faculty allows each academic advisor to hear constructive input on their advisees in the context of their performance in all their architecture courses.

A description of the means by which faculty, student and staff are given access to the formulation of policies and procedures, including curriculum review and program development.

The majority of institute policies and procedures can be found on Rensselaer's web site some of which are printed and distributed annually to incoming first year students. Following is a list of web sites for the faculty handbook, staff handbook and student rights and responsibilities.

Faculty, Staff and Student Handbooks

<http://www.rpi.edu/dept/provost/facultyhandbook1-06.pdf>

<http://www.rpi.edu/dept/hr/policy/TheRensselaerEmployeeHandbook.pdf>

<http://www.rpi.edu/dept/doso/2008-2010RPIStudentHandbook.pdf>

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

At the Institute level a student senate exists; "to serve and represent the interests of the student body, develop projects and pass legislation within the RPI Union involving academic affairs, facilities, student rights, and all other topics pertinent to the student body." Student senate members participate on the Community Relations Committee, Web Technologies Group, Academic Affairs Committee, Finance, Facilities and Advancement Committee, Student Life and rules and Elections Committee. There they are provided a forum, together with administration and Board of Trustees to review and approve new programs and infrastructure, curriculum proposals, policies and procedures, tuition, fees and financial investments that are proposed by each Portfolio owner.

Student initiatives are also welcomed and encouraged at the Institute and School level. One successful recent example is the Student Sustainability Task Force (SSTF) formed in 2007. Its initiatives, to transform and integrate sustainable ethic on campus and in its community have been supported by the office of the president who has appointed her chief of staff as liaison to the group, initiated and funded a campus-wide sustainability charrette involving the School of Architecture, and responded to recommendations.

The campus enjoys over 175 student clubs and organizations ranging from Dance Revolution to Ecologic., some relating to extracurricular activities, others more closely tied to disciplines, departments and activities, such as Engineers without Borders, Engineers for Sustainability, Habitat for Humanity, and the American Institute of Architects Student organization.

Within the School of Architecture, students' voice is highly valued and in recent years they have exercised exceptional leadership, forming a chapter of the National Organization of Minority Architecture Students (NOMAS) and reinvigorating the AIAS chapter with substantial energy and initiatives of significant relevance to the architecture student body including: the mentor-mentee program for first-year students, the "Homework Optional" series of seminars and tutorials and the annual one-on-one portfolio review with local professionals. These initiatives and the interests of these organizations are important to the school.

The School encourages the AIAS by promoting membership, working regularly with its officers, supporting travel to National meetings and providing support for the AIAS meetings. In 2008-09 the School worked together with the AIAS to cosponsor a 10@<10 years out initiative, to award and bring 10 of the School's most successful early career graduates back to Rensselaer to meet with students and give a public lecture.

In Architecture much happens at the committee level. Policies, procedures, programs and curriculum are formulated, developed, reviewed and recommended. School committees are comprised of faculty, staff and students (students do not participate on committees governing promotion and tenure) and are involved in curriculum review, new program development, infrastructure, software and equipment acquisition, and lectures and exhibits by participating on School committees.

School Committees (standing) and their memberships include:

- Professional Program (curriculum) – Faculty, Student, Staff
- Graduate Program – Faculty, Student, Staff
- Facilities and Infrastructure – Faculty, Student, Staff
- Library – Faculty, Student, Staff
- Lectures and Exhibits
- Ad-Hoc Committees and Task Groups (2008-09)
- M.Arch 1 – Faculty, Student
- Co-Terminal Degree – Faculty, Student
- Faculty Search – Faculty, Student (non-voting)
- 40/30/10/10/10 – Faculty, Student

RENSSELAER SCHOOL OF ARCHITECTURE

3.4 The Thirteen Conditions of Accreditation

In addition the Dean maintains a Student Advisory Council (DSAC) comprised of:

1. The Student members of the school committees,
2. The Officers of AIAS and NOMAS and
3. A student-elected representative from each class B.Arch (Yr 1-5), M.Arch1, and one from each graduate program.

This group meets regularly with the Dean regularly to make recommendations and to respond to issues and opportunities before the school.

Identification of and significant challenges problems, with recommendations for improvement

Significant progress in diversifying the student population has occurred since the last NAAB accreditation, particularly with respect to women representation which is now well over 50%. Our underrepresented minority student population has also increased since the last accreditation, however we seek still greater cultural, geographic and intellectual diversity in our student body. Pipeline programs and initiatives to create greater visibility and profile of the School including urban recruiting will be key tactics in generating increased applications from diverse cohorts. The increased development of student exchanges will also be used to increase international and intellectual diversity in the programs.

Faculty Diversity

Though we have made some progress in the diversification of our faculty, it is not adequate. The School's Performance Plan notes this and in recent searches significant progress in attracting women candidates has been accomplished however, the overall balance within the faculty has not sufficiently improved.

Since the last accreditation, hiring efforts to fill 14 tenure track positions have resulted in four tenure track women faculty hires and four underrepresented minority faculty hires. In that same period however, we have lost two women faculty and one underrepresented minority, one to a Deanship, and one to a west coast graduate program. Though our upstate location and the context of a technological university may be seen to pose significant obstacles we will not hide behind that reality and are determined to realize our objectives.

Proactive efforts to attract women and minority candidates to open positions will include commitment on the part of each search and of individual faculty to identify and reach out to well-qualified women and minorities.

Hiring:

Since the previous VTR there have been 14 tenure track hires. Of those hires:

- 4 were women
- 10 were male and
- 4 were underrepresented minorities

Strategies to affect the disproportionate ratio of women to men faculty and develop greater faculty diversity will include:

1. Proactively recruiting women and minority faculty
2. Improving our mentoring of all rising faculty, with a particular focus on women and minority faculty:
 - a. to identify opportunities and paths for the development of a successful dossier and career path at Rensselaer.
 - b. Taking greater advantage of the RAMP-UP program and faculty coach system
3. Invite lecturers that celebrate as role models the achievements of women and minorities within the profession.
4. Changing the loading expectations for all faculty, in a manner that supports advancement.

Studio Culture (3.5)

The Thirteen Conditions of Accreditation

3.5 Studio Culture

The school is expected to demonstrate a positive and respectful learning environment through the encouragement of the fundamental values of optimism, respect, sharing, engagement, and innovation between and among the members of its faculty, student body, administration, and staff. The school should encourage students and faculty to appreciate these values as guiding principles of professional conduct throughout their careers.

The APR must demonstrate that the school has adopted a written studio culture policy with a plan for its implementation and maintenance and provide evidence of abiding by that policy. The plan should specifically address issues of time management on the part of both the faculty and students. The document on studio culture policy should be incorporated in the APR as Section 4.2.

Studio Culture

Studio-based learning provides a unique academic setting and experience that is different from the lecture, seminar or laboratory. It joins technique and knowledge from other courses, life experience, reference materials, and research with iterative experimentation and synthesis in the process of design. It places students and teachers together in a setting structured for, and dedicated to learning through (problem) project-based scenarios. At Rensselaer, studio space and furnishings are assigned to design students at the beginning of each semester. The building and especially the studios are dedicated to the creative enterprise, and become the nexus for the synthesis of knowledge from courses taught in complementary formats; classroom, seminar, workshop, and laboratory.

The design studios are located in secure settings accessible 24/7 to the architecture students assigned to them. Design faculty generally expect students to do their work outside of regularly scheduled studio hours within the physical environment of the studio, where resources are available and peer-to-peer learning is enhanced. Though quite informal in terms of day-to-day operation, studios are both a place of learning and a place of work. They are also a place of socialization and interaction. They provide a loosely structured educational environment amenable to several forms of instruction, work and learning. In certain respects, the studio environment differs little between the times of official studio meeting hours and times outside those scheduled meetings. Much of the instruction is one-to-one and there is frequent back-and-forth discussion between individual students as well as between groups of students and faculty. During scheduled hours the studio environment is more structured, particularly during faculty presentations, organized discussion sessions, pin-ups, and reviews of student work. During one-on-one 'desk crit' times, it is generally required that students be engaged in productive activity directly related to the work of the studio.

Healthy studio culture promotes the sharing of ideas and techniques, the raising of questions, and the debating of issues relating to aspects of the design and making of buildings. Faculty teaching in the studio should cultivate and nourish a culture that encourages students to engage both the faculty and one another in a variety of constructive discussions about the science, art and craft of architecture. An important ideal of studio culture is that faculty presence is not always necessary to propel it. In the best scenarios, students take initiative to advance ideas and engage in intellectual and creative discourse. To realize these objectives, the school and faculty must provide an environment in which such student initiative will emerge and flourish and where students learn as much or more about architecture from each other than they do from the faculty. Studio culture should be something that students not only feel compelled to be part of, but want to become part of.

At Rensselaer, the following are considered essential to a positive studio culture.

Individually Assigned Studio Space, Furnishing, and Equipment

Each semester the School provides a studio workplace for the exclusive use of each student enrolled in a studio course. For upper-class students, this workplace typically includes a drafting/work desk, a cutting table, a computer table, and an adjustable chair or the equivalent combination thereof. In the first-year studio each student is assigned a large drafting table and drafting stool for his/her exclusive use. In addition, every two to three students share a cutting table in the first year. Throughout all the studios, there are a variety of other tables and work surfaces for the use of student groups. Each student at Rensselaer has their own laptop, either loaded with applications required for the studio, or provided access to the required software through school-provided network licensing¹. All studio locations are wired with high-speed access to Rensselaer's computing and information network, infrastructure and peripherals, to the Internet, and are also covered by wireless. Peripheral support includes 24/7 access to printing in all formats as well as to CNC fabrication and 3D printing devices. Students are encouraged to bring their own tools and materials and to equip their space in a manner conducive to creative and productive work.

The Use of the Studio as the Nexus of Work and Learning

It is important to encourage students to do the vast majority of their academic work, especially design work in the studio, where peers are working and where multi-modal ways of working; drawing, modeling, engaging computational techniques, etc., are employed. Faculty are expected to positively influence studio culture on a practical level by initiating periodic clean-ups of studio space, making sure there is an equitable distribution of studio space and resources to students, and seeing that the arrangement of furniture in the studio encourages a participatory environment for all students and observes appropriate life safety requirements. On an intellectual level, faculty can make a point of informally introducing ideas in the arts, sciences, and humanities that may not have direct or immediate architectural implications but that enrich a student's understanding of the world at large, the broader culture that the student inhabits, as well as cultural perspectives that differ from taken-for-granted norms. In the three day per week studio format it is generally agreed that one day per week includes the delivery and discussion of content. Faculty also impact learning by structuring exercises that require the critical engagement of tools, techniques and materials and often employ team projects that make the studio a more valued and meaningful resource.

Faculty Access

Studios are staffed at an average ratio of one faculty per 12-14 students. In core studios, a coordinator oversees the various sections and in upper level options studios are limited to 12-14 students. Faculty meet with students 12 hours per week on three afternoons (M,W,Th) and are required to post office hours or be available by appointment outside the assigned studio hours. During the semester, there are multiple pin-up sessions, and a mid term and final review at which internal faculty and external guests are invited.

Balanced Time Management

Time management is difficult matter to master, particularly in an education model which mixes studio based learning with lecture and seminar formatted courses. It requires attention and maturity to manage time effectively, and to balance it with extracurricular and other life activities. Academic guidelines estimate that a student should devote 2 hours outside of class to coursework time in order to gain mastery of the course material. Studios have 6 credits and meet 12 hours per week². Students generally take 10-12 additional non-

¹ Software applications required in class are provided by the School or Institute – either to be loaded on the student machine directly or provided access to through site licensing mechanisms.

² With the exception of Design Studio in the Fall semester of the first year which is 4 credits and meets 8 hours per week plus a Wednesday afternoon lab.

3.5 The Thirteen Conditions of Accreditation

studio credit hours per semester which commonly have one hour of class time per credit hour per week. In total architecture students spend between 22 and 24 hours per week in class. Applying the Institute guideline to credit hours results in a 54-60 hour workweek with a total of 24 hours related to studio. Applying the same to contact hours, results in a 66-72 hour workweek with a total of 36 hours related to studio. Given that the work of studio is largely creative where iteration and trial and error involving synthesis and physical making is essential to the exploration and advancement of ideas, it is difficult, in fact impossible, to give similar guidelines to students regarding how much time one must spend in order to gain mastery over the material. Not only do different students work and learn at different paces but because design is creative and students wish to exercise their creativity, they may not be satisfied intellectually, artistically, or otherwise with a design proposal that a faculty member may deem as entirely acceptable or even a good response to the project's criteria. Faculty must counsel students judiciously regarding their pursuit of alternative ideas or a tendency they sometimes exhibit of discarding seemingly acceptable work. Thus, time management can come into dramatic conflict with creativity, and/or with other courses, depending how a student divides their time. It is the responsibility of the studio faculty to establish a reasonable time frame in which work is to be completed, one that respects the workload associated with other courses. Studio faculty must also recognize and respect the fact that students have other academic responsibilities. They are required to give students a clear unequivocal schedule for each studio project with respect to critical submissions and completion of work and to respond to student identification of deadline conflicts with other courses. Core studio faculty pre-establish and coordinate deadlines with parallel courses to a practical extent and where there is significant enrollment overlap. To significant pedagogic benefit, some of the disparity in academic demand between studio and other architecture courses is also overcome institutionally by seeking to establish a degree of content coordination between contemporaneous courses in the architecture curriculum.

Open Communication

Communication is essential to the establishment of a positive studio atmosphere. In the studio, faculty are expected to create opportunities to communicate about topics relating to the work, in seminar settings, pin-ups, and through teamwork. Faculty also assist students in learning to resolve creative differences with respect to teamwork issues and/or intercede when such communication breaks down. Faculty must also make themselves available outside of regular studio meeting hours to answer questions or respond to student issues. All faculty must post office hours or be available by appointment within a reasonable period of time. Built into the architecture curriculum is the requirement of all faculty, especially studio faculty, to provide a mid-term warning letter to students whose work may be in danger of receiving a D or below for the semester (C or below for graduate students) with reasons for the low performance, recommending that they see their instructor to determine what should be done to correct the matter. The student's academic advisor receives a copy of this letter and the instructor is also expected to log the concern on Rensselaer's Early Warning System (EWS). Beginning in the Fall of 2009 faculty teaching studio are required to provide all students a mid-term projection of their likely grade in studio. In this regard, all studio syllabi, like the syllabi in other courses, are required to clearly define and communicate the criteria for assessment of student work.

Teamwork

Teamwork is the basis for much contemporary architectural practice and in recent years our program, has integrated team design projects in the first year, second-year and Design Development studios. This has several advantages. It gives students experience working in teams, learning how to negotiate with one another, and finding ways to deal with creative differences. It reinforces the notion of peer learning. As an unexpected consequence, teamwork has helped promote a higher level of respect for the studio community and assists in engendering a positive studio culture. When teamwork is not directly employed in project work or assignments, respect for diverse points of view, open communication and group ethic are nonetheless expected in conversation, critique and search for higher understanding of the studio topic and objectives.

3.5 *The Thirteen Conditions of Accreditation*

Out-of-Classroom Learning

Each design studio is encouraged to take a field trip(s). These field trips generally involve a site visit to New York, Boston, or Philadelphia, cities where many of the sites for studio projects are located and which provide our largely suburban student demographic with exposure to urban centers and concentrations of art, architecture and culture. The trips usually occur over a weekend and typically include visits to buildings and places of interest. Some upper level vertical studios offer trips of longer duration, taking advantage of the one-week spring break to travel in association with a studio project.³

Extracurricular Activity

Rensselaer's School of Architecture recommends that students be involved in extracurricular activity outside the classroom, as a healthy counterpoint to academic work. This may be in the form of participation in clubs, intramurals or intercollegiate team athletics. Our policy, worked out with coaches, addresses the time conflict between scheduled studio time and team practices by allowing student athletes to take responsibility for interacting with faculty early in the scheduled studio time on desk crit days before leaving for practice, and to miss practice on days of formal instruction or group reviews. Rensselaer's policy is 'academics first', and when performance in studio or other classes is lagging students should see their advisor for counseling on time and priority management.

Student Feedback Opportunities, Grievances, Appeals and Support Mechanisms

Given the high faculty to student ratio of 1:12-14, a large number of contact hours, and weekly one-on-one desk crits, much feedback and interaction between faculty and students occurs in the studio. Scheduled faculty office hours allow for additional interaction with faculty. Students have opportunity to provide feedback on each course (studio) and instructor through standardized evaluations which are distributed and collected each semester by the office staff, and subsequently analyzed and summarized by IDEA, Kansas processing center. The evaluations are important instruments in the evaluation of courses and faculty performance. A Dean's Student Advisory Council consists of an elected student representative from each class, in addition to student representatives from organizations and school committees meets with the Dean several times each year. Students may submit comments or concerns through that mechanism and are welcome to present concerns to their academic advisor, the Program Chair, Associate Dean or Dean. The School of Architecture also has an Ombudsperson, who is available to hear complaints and grievances between students and faculty. Should a student believe that a course or studio grade is unfair the School of Architecture has a formal appeal process.

Studio Policy

The School's Studio Policy, adopted in August 2009, is included in section 4.2 as distributed to the students and faculty.

Plan for adoption, implementation and policy maintenance

Adoption and Dissemination

1. Distributed draft to faculty August 15, 2009
2. Received comments, revised and voted to adopt @ faculty retreat meeting – August 26, 2009
3. Reviewed with Dean's Student Advisory committee and revised on September 1, 2009.

³ Because of the cost to the student these trips are offered as an option and opportunity but are not required, and should not advantage the student who participates over the student who does not.

RENSSELAER SCHOOL OF ARCHITECTURE

3.5 The Thirteen Conditions of Accreditation

4. Post on web and distribute to all faculty and students at the start of each semester – beginning Fall 2009.

Implementation

1. Program Chair oversees distribution and dissemination of policy to students at the beginning of each semester and to faculty preparing syllabi prior to the start of each semester.
2. Program Chair reviews syllabi and studio practice each semester for conformance.
3. Program Chair is responsible for the equitable assignment of studio space, and their adequate furnishing and equipment – to be approved by the Associate Dean and Dean.
4. Program Chair is responsible for receiving and responding to matters arriving from the ombudsperson
5. Program Chair is responsible to schedule and administer any grade appeals through the office of the Dean.

Policy Maintenance

1. Annual Review of conformance, and effectiveness and revision – by faculty and the Dean's Student Advisory Committee (DSAC)
2. Program Chair is responsible for an annual review of policy for revision / modification, integrating student (DSAC), and / or faculty input, and forwarding to the faculty for approval of recommended changes.
3. Associate Dean is responsible for an annual inventory of studio space, furnishing and equipment needs

Human Resources (3.6)

3.6 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.6 Human Resources

The accredited degree program must demonstrate that it provides adequate human resources for a professional degree program in architecture, including a sufficient faculty complement, an administrative head with enough time for effective administration, and adequate administrative, technical, and faculty support staff. Student enrollment in and scheduling of design studios must ensure adequate time for an effective tutorial exchange between the teacher and the student. The total teaching load should allow faculty members adequate time to pursue research, scholarship, and practice to enhance their professional development.

The APR must include these major elements:

- *Description of the students' educational backgrounds and the degree program's selectivity, retention, and time-to-graduation rates since the last accreditation sequence*
- *Description of the distribution of effort between teaching and other responsibilities of each faculty member and evidence that students evaluate individual courses for both teaching effectiveness and course content*
- *Faculty-student teacher ratios for studios for all design levels*
- *For each administrative position, a description of the distribution of effort between administrative and other responsibilities*
- *For each staff position, a description of the distribution of effort between administration and other responsibilities*
- *Identification of any significant problem, with recommendations for improvement.*

Description of the students' educational backgrounds and the degree program's selectivity, retention, and time-to-graduation rates since the last accreditation sequence

Educational Backgrounds

Students come to Rensselaer with a host of different educational backgrounds. Approximately 80% are from public school systems and 20% from private. Rensselaer's total student population is represented by 64 different countries and 42 states. The majority of enrollment however comes from the North Eastern United States (NY, NJ, PA and all six New England states) with 74% of entering undergraduate. All students entering Rensselaer must have three sciences and math (precalculus), a factor which can prove limiting for some wishing to enter architecture, in particular due to a lack of well informed guidance programs in our nation's secondary schools. Rensselaer is highly competitive with average combined quantitative and verbal SAT scores steady at approximately 1285. While standard test scores and the percentage of students who are in the top 10% of their class has maintained at a high level, so has the breadth of our incoming students with markedly more extensive co- and extra-curricular profiles. In addition, Architecture's portfolio / interview requirement continues to ensure that accepted students are qualified creatively and with respect to fundamental artistic and communication skills.

The Master of Architecture degree offers an avenue to professional credentials to applicants from a wide range of disciplines. Of the students enrolled in the program since 2001, one fourth have had a major in science, mathematics or engineering, two-thirds have a background in the humanities of which half have majored in art history or the studio arts. One fifth of the students enrolled have majored in a design discipline (including architecture). These numbers exceed 100% because about 10% of the students have been double majors. One third of the graduate professional students are drawn from undergraduate institutions outside of the Northeastern United States. Foreign countries are represented only occasionally.

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 The Thirteen Conditions of Accreditation

Selectivity

Taking a broad perspective, selectivity is in significant part a function of the applicant pool. As a function of Rensselaer's reputation as a competitive tier-one Research University, self-selection alone results in a pool of exceptional, well-qualified applicants. Even in that context, selectivity rates for Architecture have made steady and significant advances since the last accreditation site visit. As indicated in Admissions Chart below, from 2005 to 2008 the selectivity rate improved dramatically from 79% to 34% with an uptick to 43% in 2009 directly attributable to our strategic intent to increase the incoming class size. When admitting similar size classes in 2005 and 2006 the selectivity was 79% and 54% respectively. The School of architecture continues to enjoy increasing inquiries, applications, and quality of students enrolled.

Admissions Chart [B.Arch Program]

Fall	Inquiries	Applied	Conversion	Admitted	Selectivity	Enrolled	Yield	Avg SAT	% Top 10% Class
2001	1338	186	13.9%	117	62.9%	42	35.9	1248	47%
2002	1087	189	17.4%	138	73.0%	59	42.8	1264	54%
2003	1194	211	17.7%	146	69.2%	65	44.5	1254	46%
2004	1221	220	18.0%	170	77.3%	54	31.8	1294	54%
2005	1302	241	18.5%	191	79.3%	76	39.8	1274	44%
2006	1454	347	23.9%	186	53.6%	75	40.3	1289	72%
2007	2746	482	17.6%	183	38.0%	56	30.6	1287	75%
2008	4021	535	13.3%	183	34.2%	55	30.0	1284	70%
2009	4623	529	11.4%	227	42.9%	72	31.7	1282	47%

We are well aware that something very good is happening - Since 2004 – inquiries are up over 250% (from 1221 to 4263), applications are up 140% (from 220 to 529), and the selectivity rate has decreased from 77.3% to 42.9%. The quality of student as measured by high average SAT scores, approximately 50% of entering students from the top 10% of their high school graduating class, and other measures of breadth and life-experience have climbed.

Retention

Since the last accreditation retention rates within the School of Architecture (see chart) have averaged 82% of males and 83% of females. Institute retention of those same cohorts (students who entered in architecture) shows that 91% of the males and 95% of the females remained in a program at Rensselaer. ¹

It is not surprising that some entering architecture discover that it is not a program or profession they wish to pursue. While they may be capable and well qualified, some choose architecture less informed than they should be, from the limited vantage of a high school student and soon discover that this is not what they anticipated or desire. The goal is not to keep students in architecture as much as it is to keep them in an excellent and appropriate learning and education system that is best suited to their interests and aptitudes at Rensselaer. Most often students who struggle with or decide they are not interested in pursuing architecture find, and are able to succeed in an alternative discipline at Rensselaer. Our faculty and academic advisors are ready to advise students on their best options both within and outside of the Rensselaer.

¹ The difference indicating that students not finding architecture amenable, found, alternative degree programs at Rensselaer.

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 The Thirteen Conditions of Accreditation

Procedures in place to enhance retention of students in an appropriate field of study are many at Rensselaer and in the School of Architecture. Redundant advising systems facilitate early recognition and transfer between schools and programs within the Institute. Academic advising engages faculty and students at an early stage and is reinforced by the Office of the First Year experience (FYE), an Institute Early Warning System (EWS), and Student Advisor Meeting (SAM) requiring advisees and advisors to meet on a regular basis. The Institute also provides a broad range of services including Advising Learning and Assistance Center (ALAC), a Counseling and Health Center, a Residence Life Program (Vasudha Living and Learning) and an Emerging Residential College program Clustered Learning Advocacy & Support for Students (CLASS), which has added class deans and resident assistants to radically integrate and transform living, learning and advising at Rensselaer.

In Architecture much attention is given to identifying and assisting struggling students including a mid-semester D/F warning system that notifies students and advisors of potential problems with a recommendation for students to see their instructor and advisor, and an end of semester Academic Review meeting which collectively addresses students who performed low in a class. This meeting of the entire faculty allows each academic advisor to hear constructive input on their advisees in the context of their performance in all their architecture courses.

Retention and Graduation Chart [B.Arch Program]

Entering Year	Entering Students	Returning To Arch - Y2		Returning to Institute -Y2		School Graduation		Institute Graduation	
	No.	No.	%	No.	%	No.	%	No.	%
2000	47	38	81%	45	96%	31	66%	40	85%
2001	42	32	76%	37	88%	27	64%	33	79%
2002	59	45	76%	54	92%	35	59%	45	76%
2003	65	60	92%	63	97%	38	58%	45	69%
2004	54	48	89%	50	93%	46	85%	NA	NA
2005	76	62	82%	73	96%				
2006	75	56	75%	69	92%				
2007	56	47	84%	53	95%				
2008	55	NA	NA	NA	NA				
2009	70	NA	NA	NA	NA				

Time to Graduation

Graduation rates are measured 6 years from admission and like retention indicate that many students who do not graduate with an Architecture degree are completing their degree in another discipline at Rensselaer. The Retention and Graduation Chart provided above shows that of the cohorts of students beginning prior to the last accreditation, graduation rates range from the 60th to 70th percentile in architecture and from the 70th to 80th percentile for students entering architecture who graduate with a Rensselaer degree. Like the retention data there are roughly equivalent rates between men, women and underrepresented minorities.

Graduation data mostly refers to students in the program before the previous accreditation visit. Of significance to the time to graduation is the recent shift to a graded system in the Final Project / Thesis. The prior system, which assessed with an "S" (satisfactory), "U" (Unsatisfactory) or "IP" (In-Progress) status, tolerated (perhaps even inadvertently promoted) a slowness to complete the Final Project book and

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 The Thirteen Conditions of Accreditation

complete graduation in May of the fifth year. With the new evaluation system in place for just one year the completion rate jumped from significantly to well over 80%. More recent tracking indicates that a higher percentage of architecture students are now tracking toward graduation with 74% of students who entered in 2005 now in good standing in their 5th year.

Description of the distribution of effort between teaching and other responsibilities of each faculty member and evidence that students evaluate individual courses for both teaching effectiveness and course content

Architecture faculty are highly dedicated and committed to teaching and education activities and contribute a significant proportion of their time to the classroom, studio and related activities.

As stated in the Faculty Handbook adopted January 18, 2006 Section 3.2 Duties and Expectations: [of Faculty] *"Expectations of a Faculty member will vary as a function of his or her title, position and letter of appointment. In assigning workload, the Academic Dean and Department Chair will consider academic activities in all areas of scholarship, education and service"*.

In Architecture loading has been historically posed and communicated as a 40/40/20 construct (40% scholarship, 40% teaching, and 20% service) during the academic year. The Faculty Handbook makes it clear that the 'consulting privilege' may substitute for as much as 20% of a work week² or, more specifically, (1/2 of the 40% dedicated to 'scholarly activities'). In practical terms however, the practiced standard teaching load, at 1 studio and one seminar or lecture course per semester plus final project students requires significantly more than 2 equivalent days per week (40%) of teaching for studio faculty.

For those engaged in sponsored research, faculty can be provided release time from the practiced standard teaching load of 4 courses per year plus graduate student advising based on research volume and at the discretion of the Dean. To date, this applies almost exclusively to faculty in Lighting however, as Architecture increases its research initiatives teaching release time and faculty numbers will need to increase proportionately. For faculty having an administrative post, a model granting course release time has been proposed however, this has not yet been realized in architecture.

Standard Teaching Loads

Studio (Design) Faculty

- 2 - 6 credit studios / year; 12 contact hours per week
- 1 - 4 credit lecture / seminar course / year; 4 contact hours per week (1st semester)
- 1 - 2 credit lecture / seminar / course / year; 2 contact hours per week (2nd Semester)
- 2 - 6 credit Final Project cluster studios / year; 2 equivalent contact hours / week

Weekly Teaching Load

26-34 teaching related hours³ including:

- 16 -18 classroom contact hours
- 8 -12 hours class prep, grading, coordination
- 2 - 4 office hours / student meetings

² In the Faculty Handbook, Section 3.4 Consulting: outlines that "Faculty have the privilege to undertake consulting work of a type which will advance their professional standing, provided it does not interfere with their Institute duties, to this end, during the academic year, they may be released from their normal scholarly activities by not more than an average of one equivalent day per week."

³ Not including graduate student advising

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 The Thirteen Conditions of Accreditation

Non-Studio Faculty

- 4 – 4 credit lecture / seminar courses per year @ 4 contact hours per week
- Graduate Student Advising (varies)²

Weekly Teaching Load

18-20 weekly teaching related hours including:

- 8 classroom contact hours
- 8 hours of class prep, grading, coordination
- 2 – 4 office hours / student meetings

Service Loads

Faculty are expected to participate in service activities including SoA faculty meetings, Institute committees, school committees, and general participation in activities as required by the school. Most faculty are on at least one Institute committee and at least one School committee and are expected to participate as academic advisors for 20-30 architecture students, participate in pin-ups and studio reviews, participate in colloquia and lectures and to generally contribute to activities that promote the school and contribute to it as a learning environment.

Service is not only understood as service to the Institution, but also includes service to the Profession. Faculty are expected to participate as referees and reviewers at other Institutions, perform peer reviews of proposals, papers, conference submissions and book reviews, and to participate on juries.

Scholarship

Scholarship, as outlined in the Faculty Handbook and regarded in matters of tenure and advancement has great significance at Rensselaer. Scholarship may include peer reviewed journal papers, refereed conference submissions and presentations, book chapters and books authorships, architectural project work that is treated as research and of significant quality as measured by ones peers in exhibitions, citations, publications, or exhibitions of work. It may also include sponsored research grants and it is the responsibility of each full time faculty member to strategize and execute a body of scholarship that advances the discipline.

These are the loads attributed to tenure and tenure track full-time faculty. Visiting, clinical and adjunct faculty are loaded specific to their contract and do not have similar scholarship or service loading expectations.

Evidence that students evaluate individual courses for both teaching effectiveness and course content is kept on record in the Dean's office. The Institute employs the IDEA system protocol and collects evaluations for each course and faculty at the end of every semester. The standardized forms evaluate both teaching effectiveness and course content and delivery.

Recent changes in protocol have assisted in moving to a near 100% response rate. The IDEA forms are distributed and collected by office staff and sent for central processing to the processing center at IDEA Manhattan, Kansas. Returned evaluations summary sheets for each course and faculty are returned, distributed to the responsible faculty and placed on file. These are used in annual reviews, faculty evaluations, and for promotion and tenure. Sample (blank) student evaluation form can be found following section 3.2.

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 The Thirteen Conditions of Accreditation

Faculty- Student Ratios for Studios for all Design Levels

All design levels maintain an average faculty to student ratio of 1:12 – 1:14 (see chart below). In the Italian Studies and China programs only one Rensselaer faculty member is responsible for as many as 18 - 22 students however, that faculty is teamed with architecture faculty in Torino, Rome or Shanghai respectively.

Sem/yr	Studio	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
		Ratio	Ratio	Ratio	Ratio	Ratio	Ratio
Fall 1st	Des Studio	13.7	14.2	15.0	14.0	11.0	14.0
Spg 1st	Arch Des 1	10.4	13.2	12.4	11.0	13.3	
Fall 2nd	Arch Des 2	12.0	12.8	13.6	12.4	9.2	11.2
Spg 2nd	Arch Des 3	12.4	11.8	13.8	12.2	11.3	
Fall 3rd/4th	Arch Des 4,5,6 Fall	13.4	12.4	14.5	14.1	14.0	14.3
Spg 3rd/4th	Arch Des 4,5,6 Spg	14.5	11.2	12.3	11.4	14.4	
Fall 4th	Des Dev Fall	7.5	9.0	12.0	8.5	13.5	14.0
Spg 4th	Des Dev Spg	12.0	10.7	11.7	8.7	11.5	

* B.Arch Final Project and M.Arch Thesis are taught using clusters of three faculty per group of 12-14 students. Contact hours include four structured reviews per semester plus individual meetings with faculty as scheduled by the student. Additional contact time in a 1-credit equivalent methods seminar component meets 6-8 times for 2 hours with an additional faculty member not included above, and 6 day-long meetings on consecutive weeks in competition studio with additional faculty members also not included above.

For each administrative position, a description of the distribution of effort between administrative and other responsibilities

Dean

The Dean is the chief academic officer of the School. The Dean is responsible for the academic and research missions of the School including review and approval of all academic programs and policies, as well as the appointment, promotion, and development of a diverse faculty, staff and professional personnel. The Dean is responsible for the overall quality of the academic and research programs and faculty, as well as strategic planning, administrative planning and financial responsibilities. The Dean typically participates on a final project cluster, visits studios and attends studio reviews but does not substantially assume teaching responsibilities in the form of lecture courses, seminar courses or studios. The Dean's position is a full time 12 month appointment with a 5 year review and renewable contract.

Associate Dean

The Associate Dean is responsible for assisting the dean with driving the overall quality of the academic and research programs and faculty, as well as strategic planning, administrative planning, faculty loading, determining spatial, equipment, and computing needs. The Associate Dean simultaneously carries a full teaching load and as a faculty member is expected to continue in scholarship and research activities. Service responsibilities to the University and School are folded into and a part of the administrative role. The Associate Dean has a nine-month faculty appointment and two months of summer support.

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 *The Thirteen Conditions of Accreditation*

Graduate Program Chair

To provide leadership, to administer all aspects of the graduate academic programs and to work with the Dean and Associate Dean in the administration of the School. The Chair works with the graduate school and graduate program area heads on curriculum, marketing, recruiting, admissions and graduate financial aid. The Graduate Program Chair carries a full teaching load. Service responsibilities to the University and School are folded into and part of the administrative role. The Graduate Program Chair has a nine month faculty appointment and one month of summer support.

Undergraduate Program Chair

To provide leadership, to administer all aspects of the undergraduate academic program and to work with the Dean and Associate Dean in the administration of the School. The Chair manages the internal undergraduate admissions process, visiting days, portfolio reviews, adjunct hires, curriculum review and changes. The Undergraduate Program Chair carries a full teaching load. Service responsibilities to the University and School are folded into and part of the administrative role. The Undergraduate Program Chair has a nine month faculty appointment and one month of summer support.

Lighting Research Center Director

The Director is responsible for driving the Center's research goals, developing new collaborations, and fostering a creative and productive research environment. The Director is responsible for providing a collaborative working environment to faculty, staff and students. The position is governed by a Performance Management Tool (PMT) and receives an administrative supplement of 10% of base salary. The Center Director combines the administrative role with a teaching load and, M.S. and Ph.D. student advising and has oversight over and direct responsibility for a substantial number of sponsored research grants.

Lighting Research Center Associate Director

The Associate Director designs research programs and collaborations, leads design and research projects, and promotes the visibility of Center activities, strengthens relationships and establishes partnerships with constituencies. This position works with the School's Business Manager on matters relating to the financial management of the Center and is responsible for the management of technical and administrative staff. The position is governed by a Performance Management Tool (PMT) and receives an administrative supplement of 6% of base salary.

Center for Architecture Science and Ecology [CASE] Director

The Director is responsible for driving the Center's research goals, developing new collaborations, and fostering a creative and productive research environment. The Director is responsible for providing a collaborative working environment to faculty, staff and students. The position is governed by a Performance Management Tool (PMT) and receives an administrative supplement of 10% of base salary. The CASE Director combines this administrative role with directing the Built Ecologies program, teaching 4 courses annually, M.S. and Ph.D. student advising and has oversight of and is directly responsible for a substantial sponsored research grants.

Graduate Program Area Directors (Architectural Acoustics, Built Ecologies, Lighting)

The program directors are responsible for driving the educational and research mission of a graduate program area, strengthening relationships and establishing strategic partnerships with constituencies. Graduate Program Directors work with the Graduate Program Chair. This position is responsible for marketing, recruiting, admissions and graduate financial aid in their concentration. Graduate program directors, distribute their administrative role with teaching, graduate student advising and acquiring and executing sponsored research grants.

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 The Thirteen Conditions of Accreditation

In all cases, administrators have faculty appointments and are expected to continue their own research and scholarship. Service responsibilities to the University and School are largely folded into and part of the administrative role.

For each staff position, a description of the distribution of effort between administration and other responsibilities

The School of Architecture includes six administrative and clerical support staff, a Digital Fabrications Lab manager, a part-time Director for IT, for a total of 8.0 FTE. The Lighting Research Center also has an administrative and research staff of approximately 30 FTE which are supported on research funds (not listed below). The Architecture Library is part of the Rensselaer Libraries and has a staff of three which are supported centrally.

- **Manager, Architecture Library/Reference & Instructional Services** - manages the Architecture (branch) Library and the Reference and Instructional Services Department at Folsom Library; develops and oversees the collections and services for the School of Architecture and the areas of Experimental Media, Visual Resources and the Arts.
- **Library Specialist** - trains and supervises the Architecture Library's student assistants and manages the circulation, reserve, and stack operations.
- **Media & Digital Assets Librarian** - develops and maintains the Visual Resources Collection at the Architecture Library and coordinates the Libraries' Digital Projects Committee; orders materials and provides services supporting Rensselaer's Electronic Media, Arts and Communication (EMAC) programs and the Experimental Media and Performing Arts Center (EMPAC).

The architecture office staff positions are listed and described below; they are 100 percent administrative in their functions to support both instruction and research. The positions include:

- **Business Manager** – directs the administrative and financial function of the school – works with the Dean and reports to both the Dean and to the Director of Budget in the office of Finance. The Business Manager is part of the Leadership Team and is an ad-hoc member of all school committees
- **Program Coordinator** - provides staff coordination of academic advising programs, course scheduling, admissions and curriculum for the professional program – works with the Chair of Undergraduate programs and reports to the Business Manager.
- **Dean's Executive Assistant** – manages the day-to-day activities of the dean – reports to the Dean.
- **Business Coordinator** - provides a variety of financial, procurement and clerical support for the dean, business manager, students and faculty – works with and reports to the Business Manager.
- **Administrative Assistant** – provides front desk reception, general support for students and faculty – assists the Associate Dean and reports to the Business Manager
- **Manager of the Digital Fabrication Lab** - administers the functioning, structure, and use of the school's fabrication lab in support of education and research programs in compliance with School and Institute policy and safety regulations – is a member of the Technology and infrastructure committee and reports to the Business Manager.
- **Director of IT** – coordinates and manages School of Architecture's and LRC computing laboratories, printers, software, software licenses and provides faculty and staff hardware and software support, maintenance of school network(s) and servers – reports to the Business Manager and the Associate Director of the LRC.

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 The Thirteen Conditions of Accreditation

Center for Architecture Science and Ecology

- **Administrative Assistant** – provides front desk reception, general support for students and faculty – assists the Director and reports jointly to the Director and School Business Manager.

Identification of any significant problem, with recommendations for improvement.

Fifth Year Final Project and M.Arch 1 Thesis 'course-load'.

B.Arch Final Project and M.Arch 1 Thesis each represent 12 credit hours per student per year. With 50-70 B.Arch and M.Arch 1 students, the unaccounted for credit-hour production is between 600 and 800 annually. While these are covered by faculty under an overload, the current delivery mode minimizes faculty contact and input and has resulted in a situation that is less than satisfactory both for students who need additional input, and for faculty. This occurs at the end of an excellent educational experience and can leave graduating students with a disappointing final project / thesis experience and results.

Recommendations for Improvement:

- Formalize the 12-credit experience as a course and attribute it to faculty loads.
- Rebalance architecture teaching load expectations
- Hire additional faculty to alleviate overloading, including Final Project and M.Arch 1 Thesis

Faculty Loading

The Architecture faculty are dedicated teachers. As we have expanded to meet the vision of the Rensselaer Plan, to include graduate research programs and grow the School's professional programs, teaching loads have not been addressed. Architecture faculty teach between 1.8 and 2.1 courses per semester, not including Final Project / Master's Thesis. Exacerbating the matter are the contact hours. Studio courses have 12 contact hours per week, triple the number of an equivalent lecture or seminar course per credit hour. To achieve our vision, increase scholarship and research production Architecture needs to normalize teaching load expectations with the Institute, particularly as Architecture incorporates research, graduate (Ph.D) teaching and advising.

With the M.S. and Ph.D programs comes associated research and graduate student advising loads. Architecture needs to recognize the time and load requirements of fulfilling that role. With 38 MS and 23 PhD students now in stream, a total of 84 hours of faculty time per week⁴ should be advising these students and on related work - the equivalent of 1-2 FTE faculty in FY2009, and 3-4 FTE at program build-out of 88 MS students and 36 PhD students.

Recommendations for Improvement

- *Adjust the teaching load expectation to allow for scholarship / research and faculty development*
- *Require three courses per year instead of four. This is a 25% reduction and if implemented will require significant additional faculty hires.*

Digital Fabrication Lab Support

The Digital Fabrications Lab has grown in size and influence to the program. It has significant core costs which are difficult to distribute to users and requires a more substantial operating budget line. We have an exceptional manager who employs student shop assistants in a manner that is productive and which contributes to their education however the need for a staff assistant position is clear.

⁴ Based on 1 hr per week per MS student and 2 hrs per week per PhD student

RENSSELAER SCHOOL OF ARCHITECTURE

3.6 *The Thirteen Conditions of Accreditation*

Recommendations for Improvement

- *Add a Shop Assistant*
- *Create a operations and maintenance budget line*

Human Resource Development (3.7)

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.7 Human Resource Development

Schools must have a clear policy outlining both individual and collective opportunities for faculty and student growth inside and outside the program.

The APR must include the following major points:

- *The school's policy regarding human resource development opportunities*
- *A list of visiting lecturers and critics brought to the school since the previous site visit*
- *A list of public exhibitions brought to the school since the previous site visit*
- *A description of student support services, including academic and personal advising, career guidance, and internship placement where applicable*
- *Evidence of the school's facilitation of student opportunities to participate in field trips and other off-campus activities*
- *Evidence of opportunities for students to participate in professional societies and organizations, honor societies, and other campus-wide activities*
- *A description of the policies, procedures, and criteria for faculty appointment, promotion, and tenure and access to faculty development opportunities*
- *Evidence of the school's facilitation of faculty research, scholarship, and creative activities since the previous site visit, including the granting of sabbatical leaves and unpaid leaves of absence, opportunities for the acquisition of new skills and knowledge, and support of attendance at professional meetings*
- *Evidence of how faculty members remain current in their knowledge of the changing demands of practice and licensure.*

The school's policy regarding human resource development opportunities

At Rensselaer, professional development of faculty and staff is a priority, and for students, human resource development is our very business. The School's policy is to *"broadly educate men and women who will be able to exert constructive leadership in society and to contribute to human welfare. Both for the enrichment of Rensselaer and for the greatest contribution to society, Rensselaer seeks to nurture an environment for Faculty and students from a variety of geographical, intellectual, ethnic, economic, and cultural backgrounds.".... "Rensselaer strives continuously to attract and nurture a Faculty of outstanding scholarship and educative ability and will work to provide those material facilities and opportunities needed for optimal achievement and intellectual growth."*¹

Rensselaer has been consistently ranked highly as an employer, in no small part due to its benefits policy which can be reviewed at www.hr.rpi.edu. Key components of that policy include generous tuition benefits, a parental leave policy, and sabbatical leaves for faculty.

Tuition Benefits Policy

The tuition benefits policy allows employees to take up to 2 courses per semester, and if qualified and accepted into a specific academic program, may even lead to degree completion at any level; bachelor, master or Ph.D.. Rensselaer also provides up to 8 semesters of tuition to spouses and dependents at a 100%, 95%, or 90% discount rate, depending on the student start date, and up to \$1,500 per semester of tuition benefit is extended to dependents enrolling in other qualified degree granting institutions. In addition

¹ Faculty Handbook Section 1.2 - Institute Purposes and Objectives

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

to tuition waivers for faculty and staff, and with approval of the Dean and Provost the school provides additional release time and travel support for faculty and staff to obtain advanced degrees or to further their education.

Parental Leave Policy

A parental leave policy provides relief from teaching for one semester with full pay with the potential for a one-semester extension at half pay. (see Faculty handbook for details). In the case of tenure track faculty it also allows, with permission from the provost, an extension of the tenure clock, to further ensure that having a family and being a productive and successful member of the faculty with every opportunity to advance, are not in conflict.

Sabbatical Leave Policy

Rensselaer's sabbatical leave policy encourages faculty to take advantage of this plan once in every ten years, "*for the purposes of professional development through study, research, scholarly activity or service in government, industry, universities or consulting in the practice*"². Tenured faculty with 12 semesters of service, and upon request of the faculty and approval of the Dean and Provost, may be given leave of two semesters with half salary or leave of one semester with full salary.

Travel, Conference and Professional Meeting Attendance

In addition to faculty sabbatical leaves, release time and travel support to further education, the School supports travel for conference and professional meeting attendance. Conference participation and travel support for those tenure track faculty not having start-up packages (see below) is provided for up to one peer reviewed accepted paper per semester by permission of the Dean. It is also provided for up to one accepted peer reviewed paper per year by permission of the Dean for associate professors without research funds who are seeking advancement to full professor. (see list of supported travel below).

Start-up Funds

Since 2007 start-up funds have been instituted as a means to support the early career scholarship, research, and professional development of new faculty hires in architecture. Two-year start up packages have been granted to the last 7 hires (not including the Dean) and generally support summer supplemental pay, travel, conference participation, equipment and miscellaneous needs.

Annual Review Process

Whether faculty or staff, an annual review process is policy and regarded and practiced as both an evaluation and development tool, structured to provide constructive feedback and opportunity to strategize growth in specific areas. Mentoring is also employed to assist faculty on the path to tenure and promotion to full professor. Mentoring is a multi-tiered process which links junior and senior faculty formally and informally to strategize the development of a record and case for advancement. The provost's NSF Advance grant initiative, created together with several institute faculty, has extended the mentoring program through the creation of faculty coaches and seminars to disseminate best practices in the development of advancement cases particularly, though not exclusively for women faculty.

International Programs and Travel Opportunities

Beyond policies describing specific benefits, professional development programs and structures, Architecture offers faculty the opportunity to participate in a number of international programs and travel opportunities. Faculty led semester long international programs in Italy, China and India have been a stimulus to both junior and senior faculty' growth and development, providing broad opportunity to travel,

² Faculty Handbook Part 6, Faculty Benefits and leaves

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

conduct research, and take measure of the global state of architecture and culture. In addition to semester long programs, many short travel opportunities and workshops also exist. In the past five years and with financial support of the School, several vertical studio instructors have travelled with students to international project sites including Switzerland, Portugal and Argentina.

Bedford Travelling Workshop

The annual Bedford Travelling Workshop provides a significant link between the academy and international best practices, as well as between architecture and engineering in an initiative designed to challenge disciplinary boundaries and explore integrated approaches to design and practice. Faculty and students from both the Architecture and Engineering schools participate in fully funded international travel workshops which in recent years have included travel to architecture and engineering practices in Germany (2005), France (2007), the UK (2007), Japan (2008), and Spain (2009). The Bedford Initiatives involves a part-time visiting professor from best engineering practice and plans to expand the initiative with a second part time visiting position and a bi-annual interdisciplinary symposium and lecture series are nearing realization. The Bedford Initiatives stimulate cross-disciplinary discourse within the School, expose architecture students and faculty to best practices, and have catalyzed the development of a global network of engineers and architects that supports an integrated, interdisciplinary perspective and professional development of faculty and students.

Center for Architecture Science and Ecology [CASE]

The Center for Architecture Science and Ecology [CASE] provides both faculty and students with another important venue for professional development through interdisciplinary and cross-sector (academy and practice) research and teaching. It opens opportunity for a participation in a semester-long program at CASE, embedded within the practice of SOM in NYC, and exposes students and faculty both to a global leader in progressive international practice, and to the many professional, human and cultural resources available in New York City. Beyond the two permanent faculty members associated with the Built Ecologies education and research program at CASE, and in association with a group of approximately 12 professional program students per semester, the school sends an additional design faculty member. The rotation of professors provides opportunity for professional development in association with active research teams and personnel at the graduate level and in association with practice. One or two additional faculty per semester gain exposure to the initiative through teaching, advising and research involvement moving back and forth between upstate and downstate.

Semester-Long International Programs

The School is keenly interested in the development of our students and places great value on travel. Approximately 57% of our students participate on semester-long international programs, 33% spend a semester at CASE in NYC and 13% participate in one or more of our short travel program offerings. In addition the school supports travel of the AIAS officers to the AIAS Forum annually, and has been generous in supporting students having a paper accepted at conferences.

A list of visiting lecturers brought to the school since the previous site visit

Lecturers Fall 2005 through Spring 2009 – Greene Gallery

Semester	Date	Lecturer	Lecture Title
Fall 2005		No Lectures	
Spring 2006	2/1/06	James Bradburn '66	"Architecture and Technology - A Volatile Mix"
	2/1/06	Mark Mistur '03	"Teaching Practice(s)"
	2/8/06	James Collins '77	"Strategies for a Problem-Based Practice"

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

	2/8/06	Christopher Kabatsi '03	"Parametric Form"
	2/22/06	Scott Wyatt '72	"Change Design"
	2/22/06	Wei Wei Shannon '01	"People's Architecture: the power of the collective"
	3/1/06	Peter Gorman '67	"Designing Luxury Hotels and Urban Mixed use Complexes"
	3/1/06	Demetrios Comodromos '02	"FastForward/Pause/Play"
	3/8/06	Richard Rittelmann '60	"The Future of the Profession"
	3/8/06	Martha Merzig '02	"Machining"
	3/22/06	Peter Bohlin '58	"The Nature of Circumstance"
	3/22/06	Emily Grandstaff-Rice '99	"The Nature of Metaphor"
	4/12/06	Hugh Hochbert '68	"Where Architecture is Headed: The Direction and Future of Practice"
	4/12/06	Emily Eastman Kotsaftis '01	"Greene Pastures"
	4/19/06	Steven Ehrlich '68	"Multi-Cultural Modernism"
	4/19/06	Matthew Rice '99	"De-Common Practice"
Fall 2006	11/6/06	Gerry Kopelow	AIA Eastern New York Program Announcement, Architectural Photography the "Digital Way"
	11/8/06	Jeremy Voorhees & Barbara Nelson	"Lecture and workshop Series on Urban Development in Downtown Troy"
Spring 2007	2/28/07	Charles Rose, Principal-in-Charge/Lead Designer, Charles Rose Architects, Inc.	"Liberation and Deliberation: Recent Work of Charles Rose Architects"
	3/14/07	Scott Marble, Marle Fairbanks Architects	"Designing Design/Designing Assembly"
	3/22/07	Tintinnabulate Ensemble With jonas Braasch	Virtually from CCRMA at Stanford U
	3/28/07	Abba Tor, Columbia University	"Architect and Engineer: The Creative Collaboration"
	4/4/07	William Massie	"Ground Below Surface"
	4/11/07	Phillipe Rahm	"Indoor Weather: Architecture as Climate Construction"
	4/18/07	Michal Silver, Kathleen Forde, Helene Lesterlin	"From Concept to Production - EMPAC Curators Talk About Current and Future Directions"
	4/20/07	Eugene Kremer	"CITICORP TOWER: Structural Crisis, Ethical Failure"
	4/26/07	Chris Sharples, SHoP	"Re-tooling the Practice"
Fall 2007	11/19/07	Barry Blesser & Linda-Ruth Salter	"Spaces speak, are you listening"
Spring2008	1/23/08	Julie Perrin	"Le Corps a l'edifice From Body to building"
	1/30/08	Goncalo M. Furtado C. Lopes	"Architecture and Systems Research since WWII"
	2/20/08	Naji Moujaes	"L.E.F.T lecture"

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

	3/5/08	Pierre-Alexandre Cot	Could Gravity Be Light and Fun?
	3/26/08	Jan Wurm	Glass-Tectonics
	4/2/08	Marilyne Andersen	"Natural Light in Design: Research Perspectives and Technological Challenges."
	4/3/08	Luigi Centola Lecture	"New International Practices"
	4/9/08	John Storyk	"Architecture and Acoustics of Critical Listening and Audio Production Environments"
	4/21/08	Joeb Moore	"Recent Work or Breakdown of Syntax"
Fall 2008	9/17/08	Jim Richard	"Authenticity of Place + Purpose"
	9/24/08	Jonas Braasch	"Aural Architecture for Telematic Music"
	10/1/08	Marion Weiss & Michael Manfredi	"Surface/Subsurface"
	10/8/08	Victor Trahan	"Defining Local"
	10/22/08	Jason Vollen	"Perturbing the Surface"
	11/5/08	Thomas Phifer	"Recent Works"
Spring 2009	2/4/09	Peter Pfeiffer	Real and Relevant Green Building by Design - not by device
	2/18/09	Niels Jakubiak, Anderson, Kenneth Jensen, Klaus Dyhr and Hasse Sandell	Krydsrum Arkitekter
	3/4/09	Anna Dyson, Jason Vollen & Ted Ngai	Presentation of BUILT ECOLOGIES/CASE Research
	3/18/09	Ranulph Glanville	Designing and Researching
	4/16/09	Chi Shen	Design thru sampling and problem solving
	4/22/09	Joshua Emig	Design : Information : Integration

A list of visiting critics brought to the school

Semester	Name	Firm/University	Course
Fall 2007	Dana Cupkova	DCm-Studio	Final Reviews
	Kevin Pratt	Cornell University	Final Reviews
	Matt Burgermaster	New Jersey's Science & Technology University	Final Reviews
	Reese Campbell	METHODesign	Final Reviews
Spring 2008	Ali Soltani	soltani-leclercq	Final Reviews
	Ben Miyagi	Ben Design Corporation	Final Reviews
	Dick Rittelmann	Burt Hill	Design Research Project Review, Grad and UG
	Matt Burgermaster	New Jersey's Science & Technology University	Final Reviews
	Mikolaj Szoska	Cranbrook Academy of Art	Final Reviews
	Peter Stark	GAPP architects	Design Research Project Review, Grad and UG
	Thomas Mical	Carleton University	Final Reviews
	Todd Rouhe	Common room	Riebe Vertical Studio

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

	Vicky Lam	Daniel Libeskind Architects	Final Reviews
Fall 2008	Amanda Brookens	E/Ye design	Electronic Media
	Ashley Hanrahan	MTA	Electronic Media
	Bill Sharples	SHoP	Design Research Project Review, Grad and UG
	Bradley Horn	Berman Horn Studio	Materials Systems and Productions
	Brian Kane	The Kane Group	Design Studio
	Chi Shen	GRIMSHAW	Design Studio
	Chris Sharples	SHoP	Design Research Project Review, Grad and UG
	Konrad Glazer	SHoP	Design Research Project Review, Grad and UG
	Dixon Fogelman	SHoP	Design Research Project Review, Grad and UG
	Edmund Davis	Alumni to RPI	Campbell/Comodromos Vertical
	Federico Negro	Case Design, Inc	Campbell/Comodromos Vertical
	James Cornell	James Cornell Architect	Axel Häusler Vertical
	Jeremy Voorhees	Tyler School of Art Temple University	Ken Warriner's Vertical
	Jonathan Rushmore	Hydra Buildings	Design Studio
	Joshua Emig	SHoP	Design Research Project Review, Grad and UG
	Laura Briggs	Briggs Knowles Architecture + Design	Design Research Project Review, Grad and UG
	Marlon Blackwell	Marlon Blackwell architect	Andrews Saunders AD2
	Marlon Blackwell	Marlon Blackwell Architect	AD2 – Riebe
	Matt Burgermaster	New Jersey's Science & Technology University	Thesis/Final Project
	Peter Lynch	THEM	AD2 - Saunders
	Peter Lynch	THEM	AD2 - Riebe
	Ryoji Karube	Eight Inc.	Axel Häusler's Vertical
	Sandra Wheeler	Matter Architecture Practice	Materials Systems and Productions
	Saran Oki	American Architects	Thesis/Final Project
	Tobias Hegemann	diller scofidio + renfro	Thesis/Final Project
Spring 2009	Aaron Forrest	Advanced Architecture	Erik Carver's Vertical
	Ahmed Youssef	University of Waterloo	Fareh Garba's Vertical
	Austin Seid	DiGeronimo Architects	Fareh Garba's Vertical
	Axel Häusler	oficinaa	Thesis/Final Project
	Cory McCormack	Norman Foster Architects	Design Development
	Darris W. James	Gensler	Thomas Mical's Vertical
	David Griesinger	Harmon International	Acoustics (Ning)
	Janette Kim	Graduate School of Architecture, Planning and	Erik Carver's Vertical

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

		Preservation. Columbia University	
	Joe Ruster	Independent Architect	Thesis/Final Project
	Joeb Moore	Kaehler-Moore	Design Studio
	Josh Draper	Graduate School of Architecture, Planning and Preservation. Columbia University	Thesis/Final Project
	Josh Draper	Graduate School of Architecture, Planning and Preservation. Columbia University	Design Studio
	Manuel Baez	Carleton University	Thomas Mical's Vertical
	Matt Burgermaster	New Jersey's Science & Technology University	Thesis/Final Project
	Meredith Tenhoor	Princeton	Eric Carver's Vertical
	Nona Yehia	E/Ye design	Thesis/Final Project
	Peter Lynch	THEM	Thesis/Final Project
	Peter Olshavsky	Tyler School of Art, Temple University	Erik Carver's Vertical
	Peter Pfeifer	Barley & Pfeiffer Architects	Design Development
	Shaun Breslin	URS architects	Design Studio
	Thomas Eliasson	TriPyramid Structures	Built Ecologies Studio

A list of public exhibitions brought to the school since the previous site visit

Public Exhibitions Fall 2005 through Spring 2009 - Greene Gallery

Date	Faculty	Exhibit
2005	Anna Dyson	NEXT Exhibition: Center for Architecture, NY, NY
2006	Russ Leslie	"DisIllusion," Light Art Shows by the Lighting Workshop, Troy, NY
2006	Jefferson Ellinger	Rome Studies Program Exhibit
2007	Russ Leslie	"In the Mind's Eye," Light Art Shows by the Lighting Workshop, Troy, NY
2007	Fareh Garba	Curator, Rome Studies Program exhibit and auction
2007	EMPAC	EMPAC DANCE MOVIES – Greene Gallery, Troy, NY
2008	Russ Leslie	"Light Art," The Arts Center of the Capital Region, Light Art Shows by the Lighting Workshop, Troy, NY
2008	Andrew Saunders	Rome Studies Program Exhibit
2009	David Riebe	Roma Shanghai, International Studies Exhibition
2009	Neil Katz	"Explorations in Algorithmic Design"

A description of student support services, including academic and personal advising, career guidance, and internship placement where applicable

Academic Advising

Entering students are assigned an academic advisor who remains with that student throughout their academic career. In architecture academic advisors are members of the faculty. A structured meeting in the first week allows advisors and advisees to become introduced to one another, and thereafter at least one meeting is required annually.

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

As described in condition 3.1, there are four specific structured advising mechanisms which offer or lead to detailed personal guidance:

- Student Advisor Meeting (SAM)
- Institute Early Warning System (EWS)
- School mid-semester D/F warning notice procedure
- Semester-end Academic Review Meeting

Student Advisor Meetings

An online Student Information System (SIS) links course management, grading and advising. It provides students and advisors confidential access to their records and an updated Curriculum Advising & Program Planning (CAPP) report. SIS also provides a reporting structure that tracks student advisor meetings (SAM), and logs and notifies advisors and the Advising and Learning Assistance Center (ALAC) of any concerns identified by a student's instructor through an Early Warning System (EWS), which encourages faculty to note academic or other concerns. These notifications are designed to trigger the appropriate responses and responders.

Early Warning Systems

In addition to the Institute-wide EWS, Architecture faculty and notify students who may be at risk of receiving a D for F (C or F for graduate students) at mid-semester with a recommendation to see their instructor to develop a success strategy. Advisors are copied and determine whether additional intervention is warranted at that time.

Academic Review Meeting

At the end of each semester Architecture faculty and advisors participate in an Academic Review Meeting to identify and discuss students who received a low grade, or experienced difficulties that should be addressed. This context provides opportunity for faculty to make observations, identify patterns and construct recommendations that assist advisors in providing the appropriate guidance and support. At this meeting first and second D's in studio are discussed and followed with a letter to the student from the chair and advisor. Where remedial work is required (i.e. after a second D), the faculty determine the most constructive course of action for that student.

Advising and Learning Assistance Center (ALAC)

In addition to SAM and EWS the Advising & Learning Assistance Center (ALAC) provides support and training for students, faculty, and staff to promote personal and academic growth for Rensselaer's students. They seek to develop independent learners through education, academic intervention, tutoring and advising, in collaboration with the Rensselaer community.

ALAC offers English as a Second Language (ESL) services to Rensselaer's academic community, classes with a primary focus on presentations, group discussions, listening and note-taking, and writing skills needed for an American classroom, as well as for living in the United States. Classes are free, but students must receive permission from the instructor to participate. The Center also takes responsibility for screening international graduate teaching assistants in regard to their ability to understand and speak English, and provides classes for those who do not meet the Institute's requirements. The Conversation Partner Program, is for international students who may have an interest in American and / or other cultures. As part of this program, students are matched with American students, staff, or professors for informal weekly conversations.

Faculty Intervention Program

In the spring ALAC also administers a Faculty Intervention Program (FIP) to first year students who experienced academic difficulty during the fall semester. Each student is provided a personal faculty mentor

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

with whom they meet weekly. This successful early intervention program has helped many students overcome problems that might not have been on their own.

Individual guidance and advising is also offered by the ALAC. Members of the professional staff are available to consult with students individually or in groups on such topics as academic performance, exam anxieties, stress management, time management, note taking, and general improvement of learning skills. The professional staff also work with students previously diagnosed with learning disabilities, in order to improve their coping skills in a college environment.

Center for Communication Practices

Rensselaer also provides a Center for Communication Practices formerly known as the Writing Center, which offers free services to all members of the RPI community, including students, faculty, and staff. Consultants will work one-on-one with students seeking assistance with any type of communication project – written texts, oral presentations, visual elements in texts, with any course, from any discipline and at any stage of the process; from brainstorming and getting started to polishing a final product.

Rensselaer's Student Health Center

Rensselaer's Student Health Center is a comprehensive, nationally accredited physician directed program providing outpatient ambulatory health care. Services include medical, gynecology, and allergy clinics, a counseling center, and health education and wellness programs. The Health Center consists of three parts: the outpatient medical clinic, the Counseling Center, and health education. Working together, they are committed to helping Rensselaer's students take charge of their own health care and make positive, low-risk lifestyle decisions.

The Student Health Center believes that everyone could benefit from counseling from an objective, knowledgeable, and caring person at some time. For some of us, this time occurs during the college years. The Counseling Center's goal is to help students maximize their sense of well being as well as their academic, personal and social growth. The Counseling Center, which is part of the Student Health Center, is staffed by four licensed Ph.D. psychologists with specialized training in college health issues. The Counseling Center provides a variety of services to meet your needs, including (but not limited to) individual and couples therapy, faculty/staff consultation, and learning disability testing.

Rensselaer promotes, maintains and improves individual and community health by teaching students individually and collectively how to take an active role in their own health care.

Health education initiatives at Rensselaer are continuous, consistent and comprehensive efforts to improve health knowledge, attitudes, and skills of Rensselaer students. Through providing information and health services, we hope to lead students to positive change and/or reinforce existing knowledge, attitudes and behaviors regarding overall personal health.

Career Guidance and Internship Placement

Advising in architecture is not only academic. Personal, career and professional development are very much a part of discussions. Advisors assist students in selecting, applying and preparing for International Programs, a semester at CASE, submitting for fellowships and awards and by recommending types of firms and making recommendations for practice and/or graduate programs. Advisors often assist in the review of portfolios and resumes at the request of the student however, given the studio format and familiarity between students and studio faculty, it is not uncommon for students to rely on faculty who are not necessarily formally assigned as academic advisor – and this is welcomed. In many cases, practicing adjunct and clinical faculty engage students in their own work and provide them with, or point them to employment and internship opportunities. The School's collaboration with SOM has directly led to a number of internships.

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

Each year the school provides a seminar on the Intern Development Program (IDP), a seminar on resume development, and structured portfolio reviews offered by practicing architects. While these are in the best of times disguised interviews, they are structured to support students' development of their interview and presentation skills. An annual career fair sponsored by the School of Architecture has been highly attended by firms interested in the strengths and abilities of Rensselaer graduates.

In addition to these many services and procedures, the school of architecture staff is extremely supportive of our students and includes an ombudsman, to advocate for and help students work through an array of issues.

Evidence of the school's facilitation of student opportunities to participate in field trips and other off-campus activities

The School of Architecture provides a host of opportunities for students to participate in field trips, semester-long international programs and short trips as well as summer program opportunities. The school also provides a variety of financial resources to assist student participation in trips and International programs. Studio budgets are provided to faculty in order to compensate guest critics as well as to encourage and support field trip expenses.

Many of the Architecture courses and studios include local and regional trips within the curriculum. A (incomplete) list of the course field trips and destinations are provided at the end of this section.

Off-Campus Opportunities

- Semester-long International Programs – Italy, China, India
(need-based scholarship aid is available)
- Semester long program at CASE / SOM in NYC
- Bedford Traveling Workshop
(Travel and accommodations - fully funded)
- Short International / Domestic Travel Programs / Workshops
(Semester and summer opportunities – vary annually)
- Brown Fellow Travel Grants
(\$5000 Travelling Fellowship for 1-2 students / year)
- Studio and course field trips

Semester-Long International Programs

- Italian Studies Program – 22 students (Fall annually)
 - Torino (5 weeks), North Trip (5 days), Hilltown Trip (5 days),
 - South Trip (5 days), Rome (10 weeks)
- China Program – 15 students (alternate spring semesters)
 - Shanghai (13 weeks), Hong Kong Trip (8 days), Shanghai, Xiau, Beijing Trip (2 weeks) - Gustavo
- India Program – 12 students (alternate spring semesters)
 - Ahmedabad (13 weeks), North Trip (10 days), South Trip (10 Days)

Semester Long New York City Program at CASE / SOM

- Built Ecologies Program – 12 students (Fall and Spring annually)

Bedford Travelling Workshop – 12 Students (8-10 days annually)

- London, Cornwall (2003)
- Berlin, Stuttgart (2005)

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

London, Paris (2007)
Osaka, Kyoto and Tokyo (2008)
Seville, Madrid and Osaka (2009)

Short International / Domestic Travel Programs

Portugal (2008) – 14 students (10 days)
Argentina (2007) – 6 students (10 days)
Switzerland (2009) – 9 students (10 days)
Argentina, Uruguay, Brazil (2009) – 7 students (2 weeks)
Chicago (2007) – 8 students (1 week)

Brown Fellow Program

Travel fellowship awarded on the basis of competitive proposals. Now in its tenth year, the School of Architecture Brown Fellow provides a travel-study opportunity for students and faculty.

Two \$5,000 student fellowships are awarded in each even-numbered year (i.e., 2002, 2004, etc...) and one \$5,000 student fellowship plus one \$10,000 faculty fellowship in each odd-numbered year (i.e., 2007, 2009, etc...) Students in their final or penultimate year are eligible, and upon completion return to present their work in a public forum. Selections are competitive based on awards by a jury consisting of a former faculty Brown Fellow, an architecture faculty member, a faculty member from another RPI school; and a former student Brown Fellow.

Studio and Course Related Field Trips – Summer 2005 through Spring 2009

Date	Faculty	Course #	Course	Site Visited
Summer 2005	Mistur	ARCH4961	Bedford Seminar	Berlin, Stuttgart
Fall 2005	Oatman	ARCH2200	Design Studio	Dea Beacon
Spring 2006	Oatman	ARCH2200	Design Studio	New York City: Site Visit, MoMA, Guggenheim Museum
Spring 2006	Bell	ARCH4250/4260	Vertical	Portugal, Spain
Fall 2006	Crembil	ARCH 2230	Architectural Design 3	New York City area (train and subway stations)
Fall 2006	Crembil	ARCH2200	Architectural Design 2	Boston (site visit)
Fall 2006	Krueger	ARCH4250/4260	PneuStudio: Inflatable Architecture (vertical studio)	Workshop in collaboration with Univ, Manitoba to the Topological Media Lab, Concordia University Montreal, Qc
Fall 2006	Oatman	ARCH2200	Design Studio	MassMoCA, Arts Center of the Capital Region (Troy)
Spring 2007	Crembil	ARCH 4250/4260	Arch Design 5 & 6: Vertical Design Studio	Buenos Aires and Cordoba (Argentina)
Spring 2007	Krueger	ARCH4250/4260	Alzheimer's Studio (vertical studio)	The Gerald Levine Center for Memory Care, Loudonville, NY
Spring 2007	Oatman	ARCH2200	Design Studio	New York City: Site Visit (The Drawing Center), MoMA, Guggenheim & Brian Tolle's Irish

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

				Famine Memorial
Spring 2007	Xiang		For all Acoustics Programs	China
Spring 2007	Saunders	ARCH4250/4260	Vertical	Chicago
Spring 2007	Bell	ARCH4250/4260	Vertical	Spain
Summer 2007	Danziger/Mistur	ARCH4961	Bedford Seminar	London, Paris
Fall 2007	Oatman	ARCH2200	Design Studio	Dia Beacon
Spring 2008	Bell	ARCH4250/4260	Vertical	Spain/Portugal
Spring 2008	Saunders	ARCH4250/4260	Vertical Studio, Spring 2009	Yaddo, Saratoga
Spring 2008	Krueger	ARCH6864	Seminar in Sensory Culture	Grigley Lecture, Tang Gallery, Saratoga
Spring 2008	Krueger	ARCH6864	Seminar in Sensory Culture	Dia Museum Beacon, NY Dream House, NYC Exit Art, NYC
Spring 2008	Krueger	ARCH6864	Seminar in Sensory Culture	Troy Music Hall Concert
Spring 2008	Oatman	ARCH2200	Design Studio	New York City: Site Visit, MoMA, Guggenheim Museum, Brian tolle's Irish Famine Memorial
Spring 2008	Krueger	ARCH6864	Seminar in Sensory Culture	Workshop in Dance and Architecture Bennington College, Bennington, VT
Summer 2008	Danziger/Mistur	ARCH4961	Bedford Seminar	Osaka, Kyoto and Tokyo
Fall 2008	Häusler	ARCH4240/4250 /4260	Minimal Living Vertical	Manhattan, NYC - a visit at the Buckminster Fuller exhibition at the Whitney Museum and the prefab housing exhibition at the MOMA.
Fall 2008	Saunders	ARCH2220	AD2	SUNY Albany Campus
Fall 2008	Oatman	ARCH2200	Design 1	Beacon NY, Students went to Dia Beacon & Storm King
Spring 2008	Riebe	ARCH4240	Riebe Vertical Studio	New York City
Spring 2009	Krueger	ARCH6864	Seminar in Sensory Culture	Dia Museum Beacon, NY Dream House, NYC Exit Art, NYC
Spring 2009	Krueger	ARCH6864	Seminar in Sensory Culture	Workshop in Dance and Architecture Tere O'Connor with Bennington Dance Dept, EMPAC
Spring 2009	Carver	ARCH4250/4260	Vertical	Switzerland

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

Spring 2009	Campbell/Comodromos	ARCH4300	Design Development w/ Campbell/Comodromos/Markov/Riebe	New York City -Professor guided office tour. Campbell/ Comodromos brought students to Grimshaw, SHoP, + Snohetta offices to meet w/ staff and receive presentations on current projects + office practices. -Professor guided tour of new buildings Meat Packing District / Chelsea / Soho / East Village -Professor guided tour Midtown/Park Avenue-curtain walls
Spring 2009	Riebe	ARCH4300	Design Development	New York City
Spring 2009	Oatman	ARCH2200	Design Studio	New York City: Site Visit, MoMA, The Whitney Museum & Guggenheim Museum
Summer 2009	Crembil	ARCH4961 SA	Latin American Studio	Sao Paulo (Brazil), Montevideo and Atlantida (Uruguay), Buenos Aires and Cordoba (Argentina).
Summer 2009	Danziger/Mistur	Arch4961	Bedford Seminar	Madrid, Seville, Osaka
Summer 2009	Krueger	MARCH Program	Grad Student Social	MassMoCA , North Adams, MA Sol Lewitt Drawings Steve Reich Concert Michael Oatman Gallery Talk
Fall 2009	Campbell/Comodromos	ARCH-4240/4250/4260/4360	Vertical Studio-Hotel for the Global City	New York City -Professor guided tour of hotels and new buildings Meat Packing District + Chelsea -Professor guided tour of hotels and new buildings East Village, Lower East Side + Soho -Guided tour of Jean Nouvel Residential Tower -Chinatown site and research topic tour

Evidence of opportunities for students to participate in professional societies and organizations, honor societies, and other campus-wide activities

There are more than 175 different clubs and organizations on campus. They range from athletics and extracurricular activities, to service organizations, performing and visual arts, media organizations, multicultural organizations, and religious organizations. There is also an Institute newspaper, *The Polytechnic*, and a student-run radio station, *WRPI*.

The School encourages involvement in campus-wide activities. Faculty and advisors promote student participation in activities outside of Greene, whether in the Arts, clubs, community service, intramural or

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

intercollegiate athletics. Rensselaer's position on sports is that academics come first, however, we also value athletics and encourage participation.

The Rensselaer American Institute of Architecture Students (AIAS) chapter is a student-run organization that enhances the exposure of architecture students to the field on several levels. Interaction between school administration, the professional world, and other students cultivates the creativity and voice of involved students. In recent years AIAS membership, participation and activity has increased. Events that the AIAS hosts, in-house seminars on topics ranging from architectural software and portfolio and resume development, and field trips to places ranging from Falling Water to architectural firms, and hosting the annual Beaux Arts Ball, provides all students an opportunity for collaboration and creative input. The AIAS works to provide events that allow the architecture students' voices and interests to be heard and developed. In 2008 the AIAS joined with the School in sponsoring a Rensselaer Architecture award to be given to 10 recent graduates. "10 @ < 10 Years Out" identifies recent graduates who have had the greatest and most diverse early career success and brings them to the School to give a lecture. In 2007 students formed a Rensselaer chapter of National Organization of Minority Architecture Students (NOMAS) which provides programs, events and opportunities for minority and non-minority students alike.

A description of the policies, procedures, and criteria for faculty appointment, promotion, and tenure and access to faculty development opportunities

For all new and open faculty positions, clinical, tenure track and tenured, a national advertised search must occur to identify the best candidate. (see section 3.4: 16-Step HR Recruitment Plan) The policies, procedures and criteria for faculty appointment, promotion, and tenure as found in the Rensselaer Faculty Handbook are listed below as they appear.

The Rensselaer Faculty Handbook

<http://www.rpi.edu/dept/provost/facultyhandbook1-06.pdf>

APPOINTMENTS—PROCESS

2.2.1 Overview

The procedure for appointing Faculty and certain academic administrative appointees at Rensselaer varies among the titles and ranks of the individuals in accordance with specifics provided in Section 2.4 of this Policy. The appointment of Faculty begins with an evaluation leading to an appointment recommendation, which is typically, initiated at the department level. Each appointment recommendation must include an Appointment Proposal that defines the parameters of the proposed position. The recommendation is then evaluated using the review process defined below where it is either rejected or recommended to the final appointment authority. The particular review process and designated final authority for execution of an appointment varies by position. Section 2.4 describes the attributes of each category of Faculty and outlines the requirements and any exceptions in the appointment process. This Section provides a general overview of the process.

2.2.2 Appointment Recommendation

Typically, Faculty appointments are initiated at the department level, with the exception of Chaired Professorships and administrative appointments, which may be initiated by the Dean, Provost or President. The tenured Faculty of the department initiate the process on the basis of an evaluation and discussion, which may include input from other knowledgeable persons in its Faculty and at Rensselaer. The tenured Faculty recommend the appointment to the Department Chair. For those schools that do not have departments, the process may initiate at the school level.

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

2.2.3 Appointment Proposal

In concert with the tenured Faculty, the Department Chair creates an Appointment Proposal, which includes a criteria statement that specifies (1) the roles and responsibilities of the appointment, (2) the relative weights of the evaluation criteria categories for the appointment (see Section 2.4), including established department-specific criteria, and (3) the terms and conditions of the appointment, including tenure status, the possibility of reappointment, the term of notification of intent to reappoint, whether the appointment is full-time or part-time and to which campus the appointments applies. The resulting proposal is forwarded to the appropriate academic Dean for review and submission to the Provost for approval.

2.2.4 Appointment Type

Appointments fall into one of two categories, which are usually initiated on the following basis.

Initial Appointments. Initial appointments include external candidates who are new hires and internal candidates with a new appointment that does not constitute a reappointment or promotion. The initial appointment process may be initiated on the basis of a search for a candidate with credentials and expertise in line with the appointment criteria and the goals and needs of Rensselaer. All Faculty appointments of more than one year require an open and competitive search as defined in this Handbook.

Reappointments and Promotions. Reappointments and promotions are initiated on the basis of the quality of the annual Performance Evaluation of the candidate, as well as specified appointment criteria and the goals and needs of Rensselaer.

2.2.5 Appointment Review

Typically, all appointments undergo the three types of review, Committee Review, Peer Review and Public Review, which are defined below. The review standards for each category are specified in Section 2.4.

Committee Review. Certain appointments, as outlined below, require review by one or more of the following Rensselaer promotion and tenure review committees: at the department and school level review, are the Department Committee for Promotion and Tenure (DCPT) and the School Committee for Promotion and Tenure (SCPT); at the Institute-wide level review, are the Faculty Committee on Promotion and Tenure (FCPT), the Committee of Deans (CD) and the Joint Committee on Promotion and Tenure (JCPT). These committees are fully described in Section 2.11.

Peer Review. Certain appointments, as defined below, require peer review. For external peer review, reviews are solicited based on a list of potential reviewers selected by the Department Chair. The process for obtaining these reviews is described in Section 2.9.

Public Review. Certain appointments, as defined below, may require review by all or part of the Rensselaer community. Public Review typically occurs prior to the department recommendation. For example, in most cases a public presentation by the candidate and interviews with the Faculty, staff and students in a department should be part of the process.

2.2.6 Appointment Authority

The Provost has final appointment authority for all Faculty. Recommendation to the Provost for Faculty appointments should contain at a minimum, external references, a curriculum vitae, information concerning professional experience including scholarship and education, and confirmation that the Faculty of the department has reviewed and recommends the appointment.

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

2.2.7 Appointment Approval

The Provost will prepare a list of appointment recommendations to be forwarded to the President for final approval or as information items, as the case may require. This list forms the basis of the President's report on final appointments to the Board of Trustees. No officer of Rensselaer has authority to bind Rensselaer to an appointment without following the appointment process described above. Further, Faculty members do not have the authority to make academic appointments, even if the supporting funds come from research grants supervised by the Faculty members. Any such promises or assurances of appointment are unofficial until approved by the final appointment authority as described herein. Candidates should be fully and carefully informed of Rensselaer's procedures and schedule for consideration of appointment recommendations.

2.3 APPOINTMENTS—CRITERIA

The criteria for appointments are the same as those for promotion outlined in Section 2.10 and are applicable for all appointments.

Appointment Privileges. Full-time Faculty are expected to receive an office, computer, telephone, staff support, and access to other basic facilities and support that are necessary for them to carry out their work. The expectation is that full-time Faculty will have their own office or equivalent, except in cases of financial exigency or short-term space shortages. Faculty will receive a Rensselaer identity card and rights to access campus facilities, including but not limited to athletic facilities, the library, parking, dining halls, and computing facilities. Use of computing facilities will include a computer account that allows access to the Internet, electronic resources provided by the library, and electronic mail.

Term of Appointment. Terms of appointment for Faculty are of three types: an ongoing term, an open term which is extendable, or a fixed term which is renewable. (1) "Ongoing term" appointments apply to tenured Faculty; (2) "Open term" appointments apply to tenure-track Faculty. Such appointments are typically for three years and may be extended for a second term of up to 3 years, contingent upon the third-year review; (3) "Fixed term" appointments apply to the Non-Tenure Faculty. Such appointments are typically of one to three years duration and may be renewed with a new contract.

Notice of Extension. Extension of tenure-track Faculty appointments is as follows: (1) those in the first year of service receive 90 days notice, prior to the end of the first year; (2) those in the second year receive six months notice, prior to the end of the second year and; those in the third year or additional years of service receive a one-year terminal contract. Typically, three-year appointments will be reviewed in the third year. Unless specifically notified of extension, the termination date specified in the contract shall prevail.

Term of Service. Terms of service for Faculty are in two categories: (1) Academic Year Appointments of approximately thirty-six weeks apply largely to Tenure Faculty and to Clinical Faculty engaged principally in teaching; and (2) Unless otherwise specified in the appointment contract, Fiscal Year Appointments for the 12-month fiscal year apply largely to Research Faculty and certain administrative appointees.

Resignation or Retirement. Faculty should provide a minimum of one semester's notice prior to resignation or retirement. Only by approval of the Board of Trustees may a Faculty member, who has retired, be employed in any specified fiscal year.

3.7 The Thirteen Conditions of Accreditation

2.4 APPOINTMENTS—POSITIONS AND ATTRIBUTES

2.4.1 Tenure Faculty

All appointments to the Tenure Faculty are made by the Provost with the approval of the President and, in the case of tenure, by the Board of Trustees or its Executive Committee in accord with the appointment process outlined in this Part 2. All external candidates receiving a grant of tenure will be processed using the same tenure procedure as internal candidates. Appointments of external candidates to Chaired Professorships must be reviewed following the same procedures for Tenure Faculty appropriate to the process for their rank. This review includes review by the Joint Committee on Promotion and Tenure (JCPT) for purposes of granting tenure only and, in addition, review by the Chaired Professors Committee (CPC). In the case of tenure-track Faculty, reappointment usually occurs after the 'third-year review.' This process is based on a review of the curriculum vitae, scholarship record, and teaching evaluations by the tenured Faculty in the department. The term "scholarship" as used in this Handbook includes research ranging from that which is typically appropriate to the sciences, to creative endeavors typically appropriate to the fine and performing arts. After review, the tenured Faculty may recommend the appointment to the Department Chair, who may recommend the appointment to the Dean for further review. The Department Chair is responsible for documenting any recommendations for career development by the candidate. Members of the Tenure Faculty are expected to be actively involved in all aspects of the academic endeavor including scholarship, education and service. Members of the Tenure Faculty may acquire tenure, act as principal investigators, chair doctoral committees, advise master's students, participate in promotion and tenure decisions, vote on curricular matters and participate in Faculty Senate business.

Chaired Professor Positions. Chaired Professorships include Institute Chairs, Constellation Chairs, Career Development Chairs and Endowed Chairs. It is the responsibility and expectation that all Chair holders will maintain a level of academic excellence and performance consistent with the criteria for awarding the Chair. A component of this responsibility is a level of performance and stewardship to the Institute and, where appropriate, to the benefactor as outlined in the Policy on Chaired Professor Positions. Excellence in scholarship and accompanying strengths in all the professional performance dimensions of scholarship, education, and service is expected, in addition to any specific selection criteria associated with a particular endowed position. The accomplishment of excellence should be evidenced by a history and continued demonstration of outstanding scholarship and academic performance, based on national and international standards. Institute Chairs are characterized by an overarching responsibility to Institute wide initiatives and may carry some institutional responsibilities. Constellation Chairs are characterized by leadership in a broad area of research of strategic importance to the Institute. Endowed Chairs are characterized by leadership in a specific area of scholarship. Career Development Chairs are characterized by strong potential for the highest level of accomplishment. It is expected that most Chaired Professor appointments will be made to Tenure Faculty or to those who will become Tenure Faculty upon appointment. However, it is possible for a Chaired Professorship to be granted without tenure, for example when the appointee has not been previously tenured at Rensselaer or another university.

Professor. The rank of Professor is normally attained by promotion from Associate Professor, although a new appointment at the level of professor is also possible. An individual holding this rank should be an academic leader, possessing a nationally or internationally recognized record of excellence in scholarship, a sustained level of high quality in educational activities that go beyond teaching and advising, and a sustained level of service to the department, the Institute, and the profession. It is possible for an appointment at the rank of Professor to be granted without tenure, for example when the appointee has not been previously tenured at Rensselaer or another university.

3.7 The Thirteen Conditions of Accreditation

Associate Professor. The rank of Associate Professor is normally attained by promotion from Assistant Professor, although a new appointment at the level of Associate Professor is also possible. An individual holding this rank should possess a record of excellence in scholarship as demonstrated by an emerging national and/or international reputation, a level of high quality in educational activities including teaching and advising, and a significant level of service to the department, the Institute, and the profession. It is possible for an appointment at the rank of Associate Professor to be granted without tenure, for example when the appointee has not been previously tenured at Rensselaer or another university.

Assistant Professor. Appointments at this rank are usually made for individuals who have completed the Ph.D. or the appropriate advanced degree, or have equivalent experience in the creative arts or other professions. Holders of this rank should exhibit, through their accomplishments, promise of future distinction in scholarship and education. Appointments at the rank of Assistant Professor are granted without tenure.

2.4.2 Non-Tenure Faculty Appointments

Full-time, Tenure Faculty who are actively involved in scholarship, education and service will remain the dominant Faculty model at Rensselaer. The tenure process is a fundamental part of Rensselaer. However, Non-Tenure Faculty whose primary responsibilities are either on teaching or research and who bring specialized experience and expertise to Rensselaer, also fill important roles in both the educational and scholarly missions of Rensselaer.

All appointments to the Non-Tenure Faculty are made by the Provost in accord with the appointment process outlined in this Part 2. With the exception of appointments of one year or less, all appointments require peer review; however, review by the Institute-wide promotion and tenure committees is not required. Reappointment of Non-Tenure Faculty begins with an evaluation and recommendation by the tenured Faculty in the department and proceeds as described in Section 2.10. Members of the Non-Tenure Faculty do not acquire tenure, however, they may act as principal investigators, co-chair doctoral committees with a tenure-track Faculty member, and advise master's students. Additionally, Non-Tenure Faculty, do not participate in promotion and tenure decisions, but may participate in other department and Institute activities to an extent that will be determined by the department or Institute, respectively.

Research Faculty Appointments. The Research Faculty includes Research Professors, Research Associate Professors, and Research Assistant Professors. The purpose of Research Faculty appointments is to increase the quality and productivity of the research programs at Rensselaer by permitting the appointment of scholars on a non-tenure basis in order to participate in and cooperate with the research efforts of Faculty. The Research Faculty is composed of individuals who hold a terminal degree and who choose to concentrate on research. The qualifications for these titles are commensurate with the research qualifications and level of accomplishments of a tenured Faculty member of similar rank and as appropriate for the profession as a whole. These positions, however, will generally involve only limited teaching responsibilities. Support for these positions is typically derived from research grants or other external funds. An individual in the Research Faculty should not be supported for an extended period of time from funds derived from the unrestricted budget. Since Research Faculty appointments are typically contingent upon external funding, the appointment may be terminated when funding ceases. Indefinite continuity of appointment at any rank should not be assumed.

Clinical Faculty Appointments. The Clinical Faculty includes Clinical Professors, Clinical

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

Associate Professors, and Clinical Assistant Professors. Clinical Faculty will generally focus on teaching and education, but persons holding these titles are expected to participate in professional development activities sufficient to remain current in their field of expertise. The qualifications for these titles are commensurate with the qualifications and levels of accomplishment in the fields of teaching and education as those outlined for the Tenure Faculty of similar rank and as appropriate for the profession as a whole. Clinical Faculty will possess life experiences that make them well suited for the position and allow them to bring significant expertise in the appropriate field. In some cases, certain qualifications may be accepted in lieu of a terminal degree. Such qualifications should be consistent with a high level of attainment in the relevant field of expertise.

2.4.3 Special Faculty Categories

Individuals holding titles as Emeriti, Adjunct, Visiting or ROTC Faculty are described below. These Faculties are outside the scope of the Handbook, unless otherwise specified.

Emeriti Faculty. A member of the Faculty may receive emeritus rank upon retirement based upon the recommendation of the Faculty and approval by the Board of Trustees. The term of appointment for Emeriti is ongoing. This recommendation should be based upon the Faculty member's outstanding achievements and recognized leadership in the areas of scholarship, education and service.

Adjunct Faculty. The title of Adjunct Faculty is intended for situations in which the appointment is not the primary employment for an individual, or, if already employed by the Institute, is not the primary job responsibility for an individual. Persons holding this title are generally hired for a single semester to teach a specific program, course or lecture series for a fixed term appointment of usually one semester, which may be renewed. This title may be used to make a courtesy appointment for an individual when an affiliation between that individual and the Institute is mutually beneficial.

Visiting Faculty. Visiting Faculty appointments are designed for members of the Faculty that are on leave from their permanent place of employment usually for one academic year, but occasionally shorter, and are typically expected to return there after finishing their visit at Rensselaer.

Access to faculty development opportunities described in 3.7 "School's Policy regarding Human Resource Development" and as stated in the faculty handbook are as follows:

1. Tuition Benefits
 - a. Faculty who are eligible (Tenure and Tenure Track) under Rensselaer's Human Resources policies T&TT
 - b. Spouses and children of eligible faculty.
2. Parental Leave Policy (to care for a newborn or newly adopted child)
 - a. Tenure and tenure track faculty
 - b. Tenure track faculty members have the option of stopping the tenure clock for up to one year during a parental leave with the written approval of the Provost.
3. Faculty Sabbatical Policy
 - a. Non-Tenure Faculty: All individuals holding titles among the Non-Tenure Faculty are eligible for up to six months of unpaid sabbatical leave with continuing benefits, upon completion of twelve semesters of service.
 - b. Tenure Faculty: All individuals holding titles among the Tenure Faculty are eligible for the following:

3.7 The Thirteen Conditions of Accreditation

- Evidence of the school's facilitation of faculty research, scholarship, and creative activities since the previous site visit, including the granting of sabbatical leaves and unpaid leaves of absence, opportunities for the acquisition of new skills and knowledge, and support of attendance at professional meetings***

The School has invested in the development of graduate programs that build on the existing strengths of the Rensselaer context, enhance undergraduate and professional education and provide faculty and student research and scholarship outlets and opportunities. The Architectural Acoustics and Built Ecologies graduate education and research programs are building on the research success and strength of the Lighting Research Center [LRC], the preeminent center of its type in North America. In 2004 the School received Institute and State approved for new M.S. and Ph.D. degrees in Architectural Sciences which serve as the umbrella for each of these three area concentrations (Lighting, Architectural Acoustics and Built Ecologies).

20

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

Architecture has invested in space, facilities, equipment, graduate student and travel support for Architectural Acoustics faculty in anticipation of a mature, self-funded research program that supports both faculty research and students. The Architectural Acoustics program has achieved a high publication rate in high impact journals and has gained national reputation for scholarship, regularly winning best paper awards and competitions.

Since the last NAAB accreditation the School of Architecture has created the Built Ecologies program. Built Ecologies is fundamentally interdisciplinary, premised on developing design approaches to next generation sustainable buildings and building systems, and how what we do relates to, and can positively impact the environment. It is structured in a manner fully integrated into new graduate and existing undergraduate and professional programs and brings to the professional program students' access to best practice (SOM) and advanced level students and researchers in interdisciplinary settings. It has resulted in the development of a satellite location in NYC and the creation of the Center for Architecture Science and Ecology (CASE). Support for the Built Ecologies program and faculty has come in the form of investment in space, funded graduate students, faculty lines and the development and Launch of the Center for Architecture Science and Ecology (CASE) at SOM in New York City through a partnership agreement with, and financial support from SOM, support from the New York State Energy Research Development and Authority (NYSERDA), and sponsored research support. The development of these platforms and annually funded graduate students is key to the support of faculty research, scholarship and creative output. Built Ecologies and CASE, still in its early years is already demonstrating great capacity to succeed in research areas dealing with next generation sustainable building systems.

Rensselaer's investment in computational and other research infrastructure is key to the research of many of its faculty. In addition to providing laptops, software application packages, and applications training by sending faculty to SMART Geometries conferences and in-house applications training with Gehry Technologies (Digital Project) and Square One (Ecotect), start-up packages have enabled faculty to make more specific investments in equipment that supports their own research.

The Digital Fabrications Laboratory (DFL), our most recent version of the woodshop, is the result of a \$400k investment to fully realize the integration of digital fabrication and traditional tools in a safe environment. The Lab, three times the size of the prior shop is equipped with large-scale 3-axis CNC milling, laser cutting and 3D printing in addition to power and bench tools. It includes a separated assembly / classroom area with structural testing machine used in Structures 1 and 2, a traditional shop area, a CNC milling room, and a laser-cutting and 3D print room which are available to the faculty, education and research programs of the School.

The DFL is linked to the Ceramics Lab outfitted through the start up funds of Jason Vollen in support of his research and available through him to faculty and students undertaking related research. The Advanced Composite Ceramics Lab investigates texture, color, and surfacing, combining emerging digital processes and material science with a traditional architectural medium to create high performance masonry envelope systems.

The Perception Lab, developed by Ted Krueger supports his research in environment interaction, sensory perception and the perception of space. The lab is outfitted for prototyping electronic circuitry, embedded microprocessor control and actuation.

The "Communication Acoustics and Aural Architecture Research Laboratory", CA3RL, led by Jonas Braasch, focuses on Spatial Hearing, Virtual Acoustic Technology, Music Technology and related fields. The lab has received funding from NSF, NYSCA, and EMPAC. (URL: <http://symphony.arch.rpi.edu/~carl/>)

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

The Acoustics Labs and Lighting Research facilities are further examples of investment in enabling infrastructure to support faculty research and scholarship and are described in Condition 3.8, Physical Resources and Facilities. These are key, not only to graduate research, but also to teaching which impacts the professional programs through course and minor offerings, as well as through consulting and interface with design initiatives.

In addition to these labs there are many at Rensselaer which are either related to specific research and available for interdisciplinary projects, such as the Aerosols Lab and Wind Tunnel Testing facility, (to cite examples currently in use on CASE initiatives) or recharge centers such as the Manufacturing Design Lab (MDL), rapid prototyping facilities, and metal shops, etc... that complement Architecture's DFL.

Available to all is the newly created Experimental Media Performing Arts Center (EMPAC), a research platform linked to the CCNI supercomputer for the investigation of research at the nexus between the arts and the sciences. EMPAC does not belong to a particular school rather; it exists for all and is available to support interdisciplinary research and investigations as well as to assist in the broadening of the campus and institute. Assistant Professor Jonas Braasch became one of the first presidentially appointed EMPAC affiliated faculty for his interdisciplinary engagement of EMPAC with artist and professor Pauline Oliveros. Associate Professor Michael Oatman has also had early engagement with EMPAC as platform for an installation engaging art and architecture students, and Ted Krueger is currently engaged in planning a international conference on the meta-disciplinary issues uniting Art, Cybernetics, Design and Mathematics. The ACDM conference is a collaboration between the School of Architecture, EMPAC promises to be an investment which greatly expands our research ambitions and potential.

Specific evidence of faculty development facilitation include:

Tuition benefits, release time and travel support for further education has been extended to several faculty, staff and their family members. Recent education related support of faculty and staff members includes:

Paul Calamia, Assistant Professor, Ph.D. Computer Science, Princeton, provided release time to complete dissertation.

Ted Krueger, Associate Professor, Ph.D. Architectural Design, Royal Melbourne Institute of Technology, in progress, release time and travel support since last site visit \$5,000

Dale Masten, Business Manager, MBA, Rensselaer Polytechnic Institute, tuition \$15,000

Parental Leave

Parental leaves are key to facilitating the advancement of faculty. Since the last NAAB accreditation, parental leave has been taken by three faculty members and the tenure clock in one case was extended for the period of one year. In the first case that faculty member has since been appointed director of the Built Ecologies Program and CASE in NYC. In the second case, the faculty member was reappointed and is progressing toward tenure and in the third, the faculty member left for a research position.

Faculty Sabbaticals

Since the last accreditation visit three faculty applied for and were awarded one-semester full pay sabbaticals.

Peter Parsons (2007)

Ted Krueger (2007) to pursue his Ph.D.

David Bell (2008) applied for and was granted a sabbatical for the Fall of 2008 however, with the departure of the Dean, he elected to defer until the Fall of 2010.

RENSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

Travel, conference and professional meeting support have been provided to many faculty (and students) with over 45 trips supported on school funds and 24 more provided on start up or other research incentive funds since the last NAAB visit. (see below) Travel support includes attendance of professional meetings such as the annual AIA meeting, USGBC's Greenbuild, ACSA meetings and conferences, the annual IDP Coordinators conference, Cranbrook Teachers Seminar, AARC meetings, and various other conferences related to faculty areas of interest. The School has also supported the development of exhibits including Reinventing the Baroque featuring student works which showed at the Italian Cultural Institute in New York City and is scheduled to travel to Philadelphia and Japan, and "Bridge Station", an exhibit of student work in Turin Italy.

Supported Attendance of Conferences and Professional Meetings since the last site visit

Date	Faculty (F) Staff (S) Student (St)	Conference, Sabbatical, Other	Location	Support Provided
Jan 05	Ute Jekosch (F)	Conference	Germany	\$548.04
Feb 05	Mark Mistur (F)	IDP Conference	Washington, DC	\$551.07
Mar 05	Frances Bronet (F)	NSF Conference	Jackson, MS	\$963.00
Apr 05	Frances Bronet (F)	Conference	Orlando, FL	\$640.71
Jun 05	David Riebe (F)	Teacher's Workshop	Chicago, IL	\$1,335.84
Jun 05	Ning Xiang (F)	ASE Acoustics Conference	Barcelona, Spain	\$3,076.84
Aug 05	Paul Calamia (F)	Forum Acousticum Conference	Budapest	\$591.16
Aug 05	Ning Xiang (F)	ASE Acoustics Conference	Rio De Janeiro	\$1,829.58
Aug 05	Tomislav Jasa (S)	Acoustics Conference	San Jose, CA	\$928.79
Oct 05	Eduardo Duarte (S)	Conference	London England	\$500.00
Oct 05	Mark Cabrinha (S)	ACADIA 2005 Conference	Savannah, GA	\$500.00
Oct 05	Ning Xiang (F)	Acoustics Conference	New York, NY	\$1,960.15
Oct 05	Paul Calamia (F)	Acoustical Society of American Conference	Minneapolis, MN	\$817.77
Oct 05	Courtney McGinnes (S)	Acoustical Society of American Conference	Minneapolis, MN	\$610.05
Oct 05	Paul Calamia (F)	IEEE Workshop	New Paltz, NY	\$1,283.81
Nov 05	Mark Mistur (F)	GreenBuild Expo	Atlanta, GA	\$1,449.84
Nov 05	Andrew Saunders (F)	Conference	New Orleans, LA	\$126.00
Dec 05	Jenna Beltram (St)	AIAS Grassroots Conference	Cincinnati, OH	\$691.56
Mar 06	Jonas Braasch (F)	ACSA Acoustical Conference	Germany & The Netherlands	\$2,328.75
Apr 06	Mark Cabrinha (S)	Intersections: Design Education and Other Fields Conference	Des Moines, IA	\$513.70
Apr 06	Peter Parsons (F)	Society of Architectural Historians Conference	Philadelphia, PA	\$692.59
May 06	Mark Mistur (F)	ARCC/EAAE 2006 Conference	Philadelphia, PA	\$1,165.63
May 06	Steven VanDessel (F)	ARCC/EAAE 2006 Conference	Philadelphia, PA	\$260.00
Jun 06	Mark Mistur (F)	Conference	Philadelphia, PA	\$905.63
Jun 06	Alan Balfour (F)	ACSA Conference	Los Angeles, CA	\$2,648.14
Jun 06	Andrew Saunders (F)	Conference	Paris	\$2,610.08
Jun 06	Paul Calamia (F)	Acoustical Society of America Conference	Providence, RI	\$49.23
Jun 06	Maria Gutierrez (F)	Stuble Technologies Conference	Toronto, Canada	\$778.97

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

Sep 06	Mariana Figuero (F)	CIE Expert Symposium	Ottawa, Canada	\$138.77
Nov 06	Ning Xiang (F)	Acoustics Conference	Honolulu, HI	\$2,259.25
Nov 06	Paul Calamia (F)	NY Chapter of American Physical Society Meeting	Posdam, NY	\$250.50
Nov 06	Jonas Braasch (F)	Acoustics Conference	Honolulu, HI	\$1,927.68
Dec 06	Brian Tucker (S) Anthony Malacarne,(S) Allison Duncan(s) Emily Danziger-Willemson (S)	AIAS Forum	Boston, MA	\$935.24
Jan 07	Andrew Saunders (F)	Generative Components Conference	New York, NY	\$292.50
Jan 07	Mark Rea (F)	SRBR Conference	Tampa, FL	\$977.88
Jan 07	Mariana Figueiro (F)	IES Conference	Phoenix, FL	\$780.44
Mar 07	Mark Mistur (F)	IDP Conference	Chicago, IL	\$823.97
Apr 07	Andrew Saunders (F)	Conference	Jacksonville, FL	\$412.83
May 07	Alan Balfour (F)	AIA Conference	San Antonio, TX	\$2,642.54
Jun 07	Ning Xiang (F)	Acoustics Conference	Salt Lake City, UT	\$1,791.73
Aug 07	Jonas Braasch (F)	AES Conference	San Diego, CA	\$787.79
Sep 07	Alan Balfour (F)	Build Boston	Boston, MA	\$992.45
Sep 07	Mariana Figueiro (F)	26 th Annual Street and Area Lighting Conference	Seattle, WA	\$2,370.86
Sep 07	Jonas Braasch (F)	Acoustics Conference	Madrid, Spain	\$2,015.03
Sep 07	Ning Xiang (F)	Acoustics Conference	Madrid, Spain	\$2,259.39
Sep 07	Paul Calamia (F)	Acoustics Conference	Madrid, Spain	\$1,442.31
Oct 07	Ning Xiang (F)	AES Education Fair	New York, NY	\$214.90
Oct 07	Paul Calamia (F)	Acoustical Society of America Conference	New Orleans, LA	\$494.22
Oct 07	Oliver Holmes (F)	Solar Decathlon	Washington, DC	391.49
Oct 07	Ning Xiang (F)	AES Education Fair	New York, NY	\$214.90
Dec 07	Jonas Braasch (F)	ISIM Conference	Chicago, IL	\$912.79
Dec 07	Aubrey Finke	AIAS Forum	Milwaukee, WI	\$724.55
May 08	Alan Balfour (F)	AIA Convention	Boston, MA	\$529.56
Jun 08	Yun Jing (St)	Acoustics Conference	Paris	\$300.00
Oct 08	Ning Xiang (F)	Acoustics Conference	Shanghai, China	\$1,676.46
Nov 08	Mariana Figuero (F)	Gerontological Society Meeting	Washington, DC	\$421.62
Nov 08	Ning Xiang (F)	Miami Acoustics Conf	Miami, FL	\$305.00
Nov 08	Jonas Braasch (F)	Miami Acoustics Conference	Miami, FL	\$1,490.66
Nov 08	Mark Mistur (F)	Build Boston	Boston, MA	\$399.15
Dec 08	Danielle Norton(S) Aubrey Finke (S) Phil Vernon (S) Jay Zheng (S)	AIAS Forum	Denver, CO	\$692.64
Dec 08	Anna Dyson (F)	Photon Conference	San Francisco, CA	\$2,394.00
Mar 09	Jason Vollen (F)	ACSA Conference	Portland, OR	\$1,286.58
Mar 09	Mark Mistur (F)	ACSA 97 th Annual Meeting	Portland, OR	\$665.68
Apr 09	Ivan Markov (F)	Symposium in Canada	Canada	\$287.40
May 09	Mark Mistur (F)	AIA Conference	San Francisco, CA	\$2,692.35
May 09	Ning Xiang (F)	Acoustics Conference	Portland, OR	\$1,463.55

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

May 09	Jason Vollen (F)	New York Future Energy Symposium	Cornell, NY	\$293.70
May 09	Jonas Braasch (F)	ASA Conference	Portland, OR	\$884.16
Aug 09	Anna Dyson (F)	Assembling Architecture: BTES	Albuquerque, NM	\$1,145.00

Start-up funds have recently become standard practice for architecture. New faculty start-up packages for recent hires provide a line for equipment needed to support their research. They also explicitly include a line of funds to support travel and conference participation. This unequivocally supports the travel of faculty and frees funds previously distributed across the entire faculty to those not having start up funding packages. See below for a list of School supported travel and conferences since the last accreditation visit. Two-year start-up funds have been provided to the last 7 hires.

International and New York program leadership opportunities provides faculty with supported travel and the opportunity to develop their own research and scholarship integrated with teaching in a setting which supports the work. Since the last accreditation faculty who have led semester-long programs include:

Fall 2005	Italian Studies Program – Jefferson Ellinger
Spring 2006	China Program – Jeanette Kim
Fall 2006	Italian Studies Program – Fareh Garba
Fall 2007	Italian Studies Program – Andrew Saunders
Spring 2008	China Program – Gustavo Crembil
	New York Program – Jefferson Ellinger
Fall 2008	Italian Studies Program – David Riebe / David Bell
	New York Program – Ted Ngai
Spring 2009	New York Program – Ted Ngai
Fall 2009	Italian Studies Program – Jefferson Ellinger
	India Studies Program – Eric Carver
	New York Program – Ted Ngai
Spring 2010	China Program – Gustavo Crembil (planned)
	New York Program – Fare Garba (planned)

International Short Programs and Workshops opportunities provides faculty with supported travel and the opportunity to investigate sites and meet with persons and institutions relating to their area of investigation. Since the last NAAB accreditation faculty who have been supported to lead short travel programs include:

Short International Programs

Portugal (2008) – 14 students (10 days) bell
Argentina (2007) – 6 students (10 days) gustavo
Switzerland (2009) – 9 students (10 days) carver
Argentina Uruguay, Brazil (2009) – 7 students (2 weeks)
Carver

Brown Fellow Travel Fellowship awards are provided to faculty on a competitive basis every two years. Since the last accreditation 2 faculty have been awarded \$10k travel grants to pursue a defined area of investigation.

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

Faculty Recipients:

2005 Janette Kim
2009 Michael Oatman

Student Recipients:

2004 Gregory Getman, Laura Ella Hazzard
2005 Stephanie Cramer
2006 Meredith Marks, Mary Kate Cahill
2008 Benjamin Carr
2009 Andrew Chardain

A studio budget policy provides studio faculty coordinators with a budget to support guest reviewers and field trip expenses (see list of field trips above).

Research Incentive Funds consist of a percentage of research income that is returned to the principal investigator (originating faculty member) for discretionary use (see 3.10).

Graduate Research Assistanceships provided to the School are used to attract exceptional graduate students and to support the research enterprise of faculty (see 3.10).

Research cost sharing policy allows the School and Institute to cost share expenses and investment toward research to assist in facilitating success in proposal awards (see 3.10).

School of Architecture Centers

Lighting Research Center [LRC]

Now in its 20th year the LRC averages approximately \$5 million dollars in research awards and in FY08 \$3.5m in expenditures. Considered the pre-eminent lighting research center in North America, the LRC is located at a satellite downtown Troy location with approximately 34 FTE faculty, research and support staff. It is funded by combination of a Institutional support, an Industry Partners Fund and between 40 and 60 open sponsored research grants at a given time. Areas of research are wide ranging – from the development of lighting industry and product standards, to product testing and analysis, to transportation applications, to the development of new lighting technologies and pioneer work in Light and Health; lights impact on circadian rhythms and how to influence them. According to the external review committee, *“The Lighting Research Center was viewed by committee members as an impressive organization that holds a nationally recognized and pre-eminent position in the field of lighting, and one that brings great value to both the School of Architecture and the larger institution of RPI.”*

Center for Architecture Science and Ecology [CASE]

Launched in November 2008, CASE is the result of a pioneering collaboration between Rensselaer and SOM. Headquartered at SOM's offices on Wall Street in lower Manhattan, CASE is an innovative collaboration that engages scientists, engineers, and architects from the professional and academic worlds toward a common goal of redefining how we build sustainable cities and environments. The idea is to tap and cultivate the talents of a new generation of architects, thinkers, and planners and turn out sustainable and energy-efficient solutions to today's environmental challenges in the global building sector, which accounts for more than one third of energy consumption and nearly 40 percent of carbon production.

Rensselaer's School of Architecture has framed its advanced degree program in Built Ecologies, focused on the development of new building strategies with an emphasis on energy-efficiency and sustainability. Master's and doctoral degree candidates share residency between the Rensselaer campus and the CASE

RENSSELAER SCHOOL OF ARCHITECTURE

3.7 The Thirteen Conditions of Accreditation

offices in New York City, working alongside building professionals and post-doctoral researchers as they develop projects and thesis topics tied to specific building challenges.

Research

Lighting

- 40-60 research contracts and
- Staff of 34 FTE (including 4 T/TT faculty)
- Research Awards: +/- \$4m
- Research Expenditures: +/- \$3.5m annually

Architectural Acoustics

- Recent success with an interdisciplinary NSF grant
- Successful early interface / research with Arts at EMPAC
 - Research Awards: \$200k
 - Research Expenditures: \$66k

Built Ecologies

- Well positioned in area of National and Global importance
- Much of the research is interdisciplinary and
- Industry and Agency pilot core funding
 - Research Awards: \$1.8m
 - Annual Research Expenditures: \$365k

Evidence of how faculty members remain current in their knowledge of the changing demands of practice and licensure.

Of the 20 faculty regularly teaching in the core professional program, 7 hold professional licenses to practice architecture or engineering, 4 more are currently in the IDP working toward licensure and 2 have completed their IDP and are currently taking ARE's, 4 maintain their registration in at least one state or jurisdiction and 4 belong to the AIA. These keep current through their own practice and/or continuing education as required by their state and/or the AIA. In total, seven are regularly engaged in practice either on their own or in association with other architects.

Mark Mistur is the IDP Education Coordinator for the School and keeps himself and the students' current on IDP and matters pertaining to licensure. He presents annually to students and provides links to the required sites and information. He typically attends the annual IDP conference to stay up to date and to participate in recommendations regarding how IDP and NCARB can best interface with NAAB accredited Schools.

Many of the changing demands of practice have to do with emerging computational techniques. A significant number of our faculty are engaged in areas of research pertaining to computational development of form and performance and stay at the forefront of these enabling technologies. The School is supportive in providing funding for equipment, travel and participation in seminars, conferences and workshops and professional meetings.

Physical Resources (3.8)

3.8 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.8 Physical Resources

The accredited degree program must provide the physical resources appropriate for a professional degree program in architecture, including design studio space for the exclusive use of each student in a studio class; lecture and seminar space to accommodate both didactic and interactive learning; office space for the exclusive use of each full-time faculty member; and related instructional support space. The facilities must also be in compliance with the Americans with Disabilities Act (ADA) and applicable building codes.

The APR must include the following information:

- *A general description, together with labeled 8-1/2" x 11" plans of the physical plant, including seminar rooms, lecture halls, studios, offices, project review and exhibition areas, libraries, computer facilities, workshops, and research areas, with accessibility clearly indicated.*
- *A description of any changes to the physical facilities either under construction or proposed.*
- *A description of the hardware, software, networks, and other computer resources available to students and faculty.*
- *Identification of any significant problem that impacts the operation or services, with a recommendation for improvements.*

A general description, together with labeled 8-1/2" x 11" plans of the physical plant, including seminar rooms, lecture halls, studios, offices, project review and exhibition areas, libraries, computer facilities, workshops, and research areas, with accessibility clearly indicated.

The Greene Building, named after Rensselaer's 19th century advocate for North America's first School of Architecture, was constructed in 1930 for the purpose of housing an architecture department (later school). Architecture has since expanded to and beyond the confines of Greene's 43,400 sf (net assignable space) to include the scheduled use of classroom spaces on the core campus, a Center facility expansion in downtown Troy, a new education and research center facility embedded in the offices of SOM in New York City, and studio and classrooms spaces regularly used in Italy, India and China.

With the expansion of the professional programs, addition of graduate programs, research initiatives and centers, the Greene Building's five floors and mezzanine cannot alone meet the aggregate program needs. The School's strategic response has been to keep core facilities of administration, faculty offices, exhibition space, project review spaces, seminar rooms, studios and workshop(s) together. To do so, several Greene classrooms have been converted to studio spaces, with an increasing and effective reliance on scheduling Institute multimedia and laptop classrooms and lecture halls (out of Greene) scheduled according to the course delivery format. In addition, some (not all) research facilities have migrated away from Greene, most notably the LRC, which has its own 27,628 sf, and CASE, which is located at the offices of SOM in NYC.

The LRC is located on the 3rd and 4th floors of the historic Gurley building in downtown Troy, just a short walk from campus. In addition to housing the lighting education and research programs and its offices, classrooms and labs it is also location to the Telepresence and Virtual Acoustics Environmental Lab. Our most recent expansion is to the 24th floor of 14 Wall Street in NYC, at the location of Skidmore Owings Merrill (SOM) where 1,460 sf of space are dedicated to the Built Ecologies education and research program and Center for Architecture Science and Ecology (CASE) for as many as 22 students (including 12 B.Arch and or M.Arch 1 students) per semester.

In addition to these facilities, Architecture has arrangements to use studio and classroom space and infrastructure at each of its International Programs; in Italy at the Politecnico of Torino (5 weeks) and University of Arkansas Rome Center (12 weeks) each Fall semester, in India at the Center for

RENSSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

Environmental Planning and Design (CEPT) in Ahmadabad (alternate spring semesters), and Shanghai, China where Tongji University provides a studio, classroom space and infrastructure (alternate spring semesters).

In 1998-9 the Greene building was made accessible with the addition of an accessible connection to grade and an elevator linking the principal floors. A small mezzanine and area beneath it cannot practically be made accessible and are used for faculty offices. These are only a few of the overall inventory of offices in Greene, the majority of which are accessible. Faculty assigned to them can meet with students in other locations and should accessibility be an issue for a faculty member, office assignments can be managed.

The Greene Building and other dedicated facilities include (does not include LRC, or CASE):

5 Seminar rooms	2,694sf
2 Lecture Rooms ^{1, 2}	2,961sf
9 Studios ³	14,584sf
25 Offices ⁴	5,045sf (74 to 484sf each)
4 Project Review and Exhibition spaces	4,246sf
1 Architecture Library	4,166sf
1 Computer facility ⁵	493sf
1 Workshop	3,728sf
6 Research Areas	3,373sf

The Rome Center

The Rome Center is located at Corso Vittorio Emanuele II, 173 00186 Rome (Italy); Facilities are on the second floor of a controlled access historic building dating from the end of the XIX century. The facility is divided into 4 studio spaces, 1 large classroom for lectures, reviews and presentations, two offices (faculty + staff), 1 computer lab, two restrooms (male and female) and 1 storage room totaling 3260 sf. Each student has a studio desk (size 110x75 cm) with a desk-lamp and a swivel chair.

The Center for Architecture Science and Ecology

The Center for Architecture Science and Ecology is located at 14 Wall Street on the 24th floor. The center is accessed off the main lobby of Skidmore Owings and Merrill (SOM) and includes a secure office, conference / seminar room and studio for exclusive use of the center. The faculty share the office and also have an office upstate at the main campus in Troy. The conference room, used for meeting and classes is equipped for projection and pinup reviews. The studio space integrates 10-12 masters and Ph.D students with 10-12 professional program students each semester. Each student receives a Desk, Chair and Desktop computer with dual monitors.

¹ The Gallery is both as a lecture space and as a Project Review / Exhibition Space

² Additional Institute lecture rooms and multimedia equipped laptop classrooms are scheduled for architecture course delivery each semester

³ Spring semesters include a studio space in either China or India

⁴ An office space is assigned to each full-time faculty member.

⁵ Computer Labs are distributed as described below. One computer / teaching lab in Sage4510 has XX seats (desktop machines) loaded with architecture application software.

RENSSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

Index of floor plans that follow this section:

Greene Building (Troy Campus)

Basement
Mezzanine
Level One
Level Two
Level Three
Level Four

Gurley Building (LRC)

Level Two

14 Wall Street (CASE @ SOM)

Level 24

Rome Center (Rome)

Level 2

A description of any changes to the physical facilities either under construction or proposed.

Capital budget requests are developed, reviewed and awarded by the institute annually. In the last several years Architecture has had several projects approved, funded and completed. They include, but are not limited to: a second exit from the Greene Gallery, Main Entrance reconstruction, the creation of an entrance vestibule, new studio furnishings, networking to all the studios, addition of CNC equipment, and a relocated and expanded Digital Fabrications Laboratory. A complete listing of all projects can be found in section 3.10, but does not include ongoing and deferred maintenance work and upgrades to the facility. There are currently no changes to the physical facilities that are under construction.

Changes to the facilities that have been proposed include upgrades and expansion of facilities and equipment infrastructure proposals as listed in the FY2010 Performance Plan (which follows section 3.2) and as follows: (not in priority order)

Greene Building infrastructure and capital project improvement proposals:

1. Air-conditioning – add air conditioning to academic, administrative and research spaces to create spaces conducive to learning and studio work both during the academic year and to make Greene a 12-month facility; for teaching, administration and research.⁶ Provide window treatments including solar shades and black out shades (where required).
2. Faculty office furnishing upgrades - provide faculty office furnishings through out Greene. Where space allows provide furnishing to allow sharing of offices and increase space utilization efficiencies

⁶ Pipes were placed into the elevator shaft enclosure when it was constructed in 1998. Extending the chilled water line to Greene and vertically through the building will facilitate floor-by-floor installation of AC. A well designed but economical open system is preferred over the addition of dropped ceilings. Centralized chilled water system will be significantly less expensive per unit volume of cooling than inefficient window units.

RENSSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

3. Studio and public space furnishings – complete the phase two studio-furnishing project to enhance space efficiency and maximize population. Add 200 stackable auditorium chairs for the Greene gallery public space. Phase 1 – 2nd, 3rd 4th year studios were completed 2006, phase 2: first year and fifth year and gallery seating pending.
4. Create an Environment and Energy Lab – convert GR304 into an Energy and Environmental lab to support undergraduate teaching and graduate Built Ecologies Research.
5. Create an Advanced Computation Lab – Convert GR12 to an advanced computation lab with built in projection and the addition of 6 high-end desktop computers per year for three years complete with advanced parametric design applications.
6. Continued equipping and support of the Fabrication Lab – Add a robotic-arm and second Universal laser machine.

Institute space utilization studies indicate high and efficient use of space within Greene. In response to the 40/30/10/10/10⁷ plan proposed by the president (a plan that calls for the a strategic enlargement of the School of Architecture to as many as 600 students), Architecture's 2010 Performance Plan (Following section 3.2 Self Assessment)) agrees with the value of strategic growth – both to the Institute and to the School, and has proposed two tactics toward reaching this objective.

- Tactic 1: Incremental growth to maximize current program capacities and optimize Greene Building use, class and studio size. Tactic one can achieve a student population of 420 within existing program offerings. With respect to physical facilities, it is noted that phase 2 studio furnishing capital budget investment are required to increase space efficiency / use and to realize this objective.
- Tactic 2: Expanding Architecture beyond 420 students is best achieved through the addition of new programs and will require additional dedicated studio, seminar, research and faculty office spaces outside of Greene. The 40/30/10/10/10 redistribution reduces the size of engineering while increasing the population of other schools and should not impact the need for Institute classrooms.

A description of the hardware, software, networks, and other computer resources available to students and faculty.

Rensselaer is a leader in the use of computing to support education and research. The Division of the Chief Information Officer provides information services, technology, and support for this effort. DotCIO is committed to providing quality information solutions, bringing world-class services and support to the Rensselaer campus. The many accomplishments of the DotCIO staff include the laptop program (requiring all entering freshmen to have a laptop computer for use both in and out of the classroom), support for interactive learning (including Learning Management Systems (LMS) courses), state-of-the-art electronic information-retrieval services by the Libraries, and on-line student and administrative services.

⁷ Engineering currently makes up approximately 60% of the Institute student population and Architecture 6%. 40/30/10/10/10 refers to the proposed % size of Rensselaer's 5 Schools, Engineering (40), Science (30), Humanities and Social Sciences(10), Architecture(10) and Management(10). The plan to balance the size and influence of schools by decreasing the size of engineering and increasing the size of the other four schools will impact architecture.

RENSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

A leading edge integrated information environment is integral to teaching, learning, and research. Rensselaer employs a first-rate information culture and a robust information infrastructure. We must sustain this advantage, valuing information literacy at every level and implementing new methods for scholarly communication and electronic interactions.

Services of DotCIO include:

▪ A/V Media Services	▪ Machining / Manufacturing Services
▪ Accounts	▪ Mobile Computing (laptop program)
▪ Administrative Applications	▪ Networking
▪ Cable TV	▪ Printing
▪ Campus Computer Store	▪ Repair & Maintenance Services
▪ Data Warehouse	▪ RPILMS (WebCT)
▪ Email (including Webmail)	▪ Student Information System
▪ Help Desks, Consulting	▪ Telephones / Telecommunications
▪ Libraries, Research	▪ Web Publishing

All undergraduates are required to have a laptop computer which is their primary computer. For over ten years Rensselaer's Mobile Computing Program (MCP) has offered students a laptop package that includes a powerful laptop computer plus accessories at a competitive price. The laptop computer maximizes CPU power and discrete graphics capabilities in portable form factor. Students are not required to participate in the MCP, but historically over 90% of students do.

The fall 2009 laptop package is built around a 15in Lenovo ThinkPad W500. The main hardware features of the ThinkPad W500 are:

- Intel Core 2 Duo T9600 processor at 2.8 GHz
(6 MB L2 cache, 1066 MHz system bus, 64-bit CPU)
- 4 GB 1066 MHz DDR3 RAM (0 open slots)
- 15.4" WSXGA+ 1680 x 1050 display
- 320 GB 7200 RPM hard drive
- 512 MB ATI Mobility FireGL V5700 graphics card
(Switchable to Intel Graphics Media Accelerator 4500 MHD)

The software packages are preinstalled on the ThinkPad W500 include:

▪ Microsoft Windows Vista Ultimate (32-bit) (32-bit and 64-bit Windows 7 will be available at no charge for the spring semester)	▪ MathWorks MATLAB
▪ Bentley Microstation	▪ National Instruments LabVIEW
▪ Microsoft Office Pro 2007	▪ Siemens NX6 CAD package
▪ Maplesoft Maple symbolic algebra program	▪ MapInfo Professional
	▪ Adobe Premiere Elements
	▪ Adobe Photoshop Elements
	▪ Adobe Acrobat Pro
	▪ Symantec anti-virus software suite

In addition to the standard Rensselaer software suite architecture students have:

- Adobe Creative Suite 4 [2D Image and Graphic Design]
Students receive media and load it directly on their personal laptop

RENSSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

- Rhino 4.0 – Modeling - 11 Educational Lab Kits, for a total of 330 seats.
240 seats are in our floating license server (eight 30-seat Educational Lab Kits).
60 seats (two Lab Kits) are used for fixed-license installations in Rome and NYC.
30 seats (one Lab Kit) are used on 30 RPI lab PC's in Russell Sage and the VCC.
- Grasshopper [generative modeling plug-in for Rhino] - Unlimited licenses.
- V-Ray [photorealistic rendering plug-in for Rhino] - 90 licenses for V-Ray for Rhino v1.5.
Distributed through a license server, and can be used from off-campus via VPN.
- Bentley – Modeling, CAD and BIM applications (MicroStation V8i 08.11.05.17, Triforma 08.11 and Generative Components 08.11.05.36)
An unlimited number of floating licenses, administered by the campus.
Distributed through Bentley's license server; can be used from on or off campus.
- DOE 2.1E [building energy simulator] - Unlimited licenses.
- Ecotect 5.5.0 [environmental analysis tool] - 10 floating licenses.
Distributed through a license server, and can be used from off-campus via VPN.
- WeatherTool 2.0 [weather data tool] -10 floating licenses.
Distributed through a license server, and can be used from off-campus via VPN.
- RISA-3D 8.0 [Structural Analysis Tool] - 30 floating licenses.
Distributed through a license server, and can be used from off-campus via VPN.
- Digital Project V1-R4 [Gehry Technologies 3D, BIM Tool] - 25-seat fixed-key license.
- SolidWorks v9 - unlimited floating licenses
Administered by the campus.
Distributed through a license server, and can be used from off-campus via VPN.
- LightTools 6.3.0 [Light Analysis and Design Tool] - 10 floating licenses.
Distributed through a license server, and can only be used on-campus.
- Autocad Architecture 2010 [3D building design]
Educational licenses are available to students using their RPI student credentials.
- Cisco VPN Client 5.0 [remote connectivity] - Unlimited client licenses
Administered by campus.
- Adobe Connect Enterprise [video conferencing and remote collaboration]
Unlimited licenses - administered by campus.

The students use their laptops in laptop classrooms (over 25), the library, and other location across the campus. Each laptop classroom includes a power outlet and a network port for each seat. Laptop classrooms range in size from 25 seats to over 70 seats. The library and other locations have power outlets and network ports plus wireless networking to provide complete coverage.

Supplementing the students laptop are public and departmental desktop computing facilities. These facilities include computer classrooms and computers located in public areas. Over 400 desktop computers (80% Windows, 14% Linux/Unix, and 6% Mac) are available to students in over 25 locations. One PC classroom has been especially configured to support Architecture students and other power users. This classroom includes high-end desktops running 64-bit applications (as well as 32-bit) on PCs with 8 GB RAM and high-end graphics under 64-bit Windows Vista.

The campus network backbone is redundant 10G and 1G Ethernet running over fiber. The residence hall rooms have a network port for each resident. There are over 8,000 network ports on campus plus over 90% of campus buildings have wireless coverage including residence halls. The campus has a 200 Mbps connection to Internet 2 and a 300 Mbps connection to Internet 1 that be bumped up to 800 Mbps when needed. Rensselaer leases dark fiber to redundantly connect the main campus to the Computational Center for Nanotechnology Innovations as well as Internet 1 and Internet 2 facilities in Albany, New York. This dark

RENSSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

fiber is terminated on our DWDM gear which allows Rensselaer to scale to multiple 10G connections as needed.

Four architecture studios/classrooms are equipped with automatically retracting projection screens and dedicated PCs and video projectors. Two of the rooms are equipped with multiple screens and projectors. In addition, two portable setups are available:

- Lenovo G530 (Qty. 2) - Presentation Laptop
- Toshiba TDP-XP (Qty. 2) - Video Projectors

Computational Hardware

The following computational hardware and accessories are available in Greene for architecture student use:

- High End Dual Screen Parametric Design Desktops (Qty 6) GR12
- Dell Optiplex 760 (Qty. 4) - Acoustics Lab
- Dell Optiplex 240 (Qty. 4) - Fabrication Lab
- Dell Optiplex 270 (Qty. 2) - Studio and Gallery
- Lenovo G530 (Qty. 2) - Presentation Laptop
- Toshiba TDP-XP (Qty. 2) - Video Projectors
- 19" - 21" CRT Monitors (Qty. 50) - Secondary monitors for studio and DD students.
- HP DesignJet 750C Plotter - Studio 305
- Xerox C3545 Network Printer
- Library 11x17 Printer

Online Storage

In addition to 25MB of file storage in their RCS directories, students have FTP access to a file server with a total capacity of 750GB.

Networking

All classrooms and studios are equipped with 100-BaseT Ethernet connections. In addition, wireless internet connectivity is available throughout the entire Greene Building, using 802.1x GTC-PEAP security. Students can also use Cisco VPN Client software to remotely access campus computing resources from off-campus residences or anywhere with Internet access.

Printing

Students and faculty can also print and plot to over 75 public printers around campus, including three HP DesignJet 1055C high-resolution color plotters. In Greene architecture students and faculty also have access to the Digital Fabrications Lab's peripherals and tools including:

- 2 laser cutters – one small format Universal and one large format 48" x 48".
- 4 x 8 foot bed 3-axis milling machine
- Z-Corp - 3D Printing
- Structures Testing Machine

Technical Support

Technical support is available to all students at the RPI Helpdesk by phone or in-person 7 days per week.. Exclusive expert support for Architecture students and faculty is also available 4 hours per business day, to handle issues specifically related to Architecture hardware and software. Services include PC and Mac troubleshooting, virus removals, software update installation, software license management, hard drive data recovery, operating system upgrades and installations.

Computer hardware repairs can be performed on campus by RPI's computer repair center, certified for warranty repairs by Dell and Lenovo. Loaner computers are available during repairs.

Computing Resources for Faculty

Hardware

Each full-time faculty member is given a laptop for coursework and research. Depending on needs and user preference, laptops will currently either be a Lenovo T61 (or equivalent Windows-based laptop), or a MacBookPro (or equivalent Macintosh). Faculty have access to the Rensselaer network and infrastructure and peripheral devices including 2 and 3D printing.

Software

Faculty have access to the same software that is available to students (see above). The following software are also provided to faculty, on request:

- Microsoft Windows Professional SP3 or Microsoft Windows Vista Enterprise
- Microsoft Office Professional 2007 (for Windows)
- Microsoft Office Professional 2008 (for Macintosh)
- Adobe Creative Suite CS4 Design Premium

Technical Support

Faculty also have access to expert PC support 4 hours per business day. Services include software upgrades and installation, hardware upgrades, technology planning consulting, remote access setup.

Online Storage

In addition to 50MB of file storage in their RCS directories, faculty have private accounts on an FTP file server with a total capacity of 750GB.

Rome Center Computation and Infrastructure

In addition to bringing their laptops and having remote access to Rensselaer software as described above the center has a computer lab is equipped with 4 HP workstations (intel dual core - 2 gb ram - flat screen 17" monitor); the computers are connected 24h/7 to an ADSL Internet Connection 20 megabyte.

The center is covered by two WI-FI access-points for laptops and a networked printing / plotting system.

- HP Color Laser printer (size A4/A3)
- HP DesignJet 500 - large format inkjet plotter
- B/W laser printer (size A4/A3)
- Two HP inkjet color printers (A4/A3)
- Two A3 size flatbed scanners
- One A4 size flatbed scanner

The classroom has two video projectors for lectures/presentations plus two film-slide projectors and 1 Monitor screen with DVD/VCR player

Software: the four workstations have:

- Windows XP professional
- Microsoft Office (Word, Excel, Access, PowerPoint)
- Adobe creative suite (Photoshop, Illustrator, Indesign...)
- AutoCAD 2009 + 3DS Max 9.0
- Cinema 4D v.10
- Utilities (Pdf Creator, Winzip, Antivirus, Nero Burning ROM, ecc...)

RENSSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

Students have also access to an A3/A4 laser b/w copy-machine; they can buy a card that allows for 100 copies.

Center for Architecture Science and Ecology Computing Infrastructure

In addition to bringing their laptops and having remote access to Rensselaer software as described above each student is provided with a dual monitor desktop.

Each station is equipped with the following software

Rhino	MSC.Nastran
AutoCAD (SOM license)	MSC.Patran
Adobe CS3 (SOM license)	MasterCAM
Microsoft Office (SOM license)	MS Visual Basic Express Edition
Bentley XM	EcoTect,
Fluent	Weather Tool,
Solidworks	EcoTect
Abaqus	Revit MEP
LabView	Revit Structure
Matlab	Revit Architecture
Maple	Robot Structural Analysis
MapInfo	Inventor
MSC.Adams	

All stations are networked to printing including:

- 11 x 17 printers (2)
- Large scale plotter
- 3D Printer

Identification of any significant problem that impacts the operation or services, with a recommendation for improvements.

Computing Platforms

Laptops provide ubiquitous 24/7 access to computing and have been enormously enabling to students, the curriculum and program, however the increasing demands on processing and for larger and dual monitors to perform upper level integrated design work points to the need for increased student access to high end desktop labs and software as well as to the already robust computing infrastructure and peripherals.

Recommendations / Options:

- Incorporate a requirement for dual monitors in studio – either provided by the school or by the student.
- Create an architecture computing option which increases processing capacity and graphics capacity and screen size / resolution, considers requiring a second monitor, and/or includes a small network notebook computer and a more powerful desktop solution. Accommodate studios for implementation including necessary security
- Require architecture students to upgrade their computer before entering their 3rd year.
- Create dedicated architecture computing labs that are equipped with latest hardware and software and accessible to the upper level architecture student body.
- Employ distributed computing to a greater degree in association with laptops in the form of remote batch rendering to remote processors etc...

RENSSELAER SCHOOL OF ARCHITECTURE

3.8 The Thirteen Conditions of Accreditation

Air Conditioning

The lack of air conditioning in the academic and some research and administrative spaces of Greene limits the ability to effectively operate over 12 months and is less than ideal during parts of the academic calendar.

Recommendation:

- Extend the chilled water source or create an independent or shared (Greene and JEC) central cooling plant sized to handle the entire building need. Phase in distribution as follows:

Phase 1: Distribute cooling to:

- 2 Teaching Studios (GR118/119 and GR305)
- The Architecture Library
- 1 Classroom (GR120)
- The Administrative Suite
- Research areas (as practical)
- Offices (as practical)

Phase 2: Distribute cooling to:

- The Gallery, Studio 208 and Drawing Room
- Studio 402, 403, 401A and Project Review room 401
- Offices (as practical)
- Research spaces (as practical)

Studio and Gallery Furnishing

Phase one of refurnishing the studios is complete. It realized approximately 2/3 of the school's need to furnish in a manner appropriate to contemporary ways of working in studio with multiple tools including drawing, modeling and computation. It also enables the realization of greater space efficiencies. Gallery furnishing where exhibits, reviews and lectures are held currently lacks an appropriate seating solution.

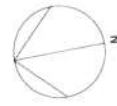
Recommendation

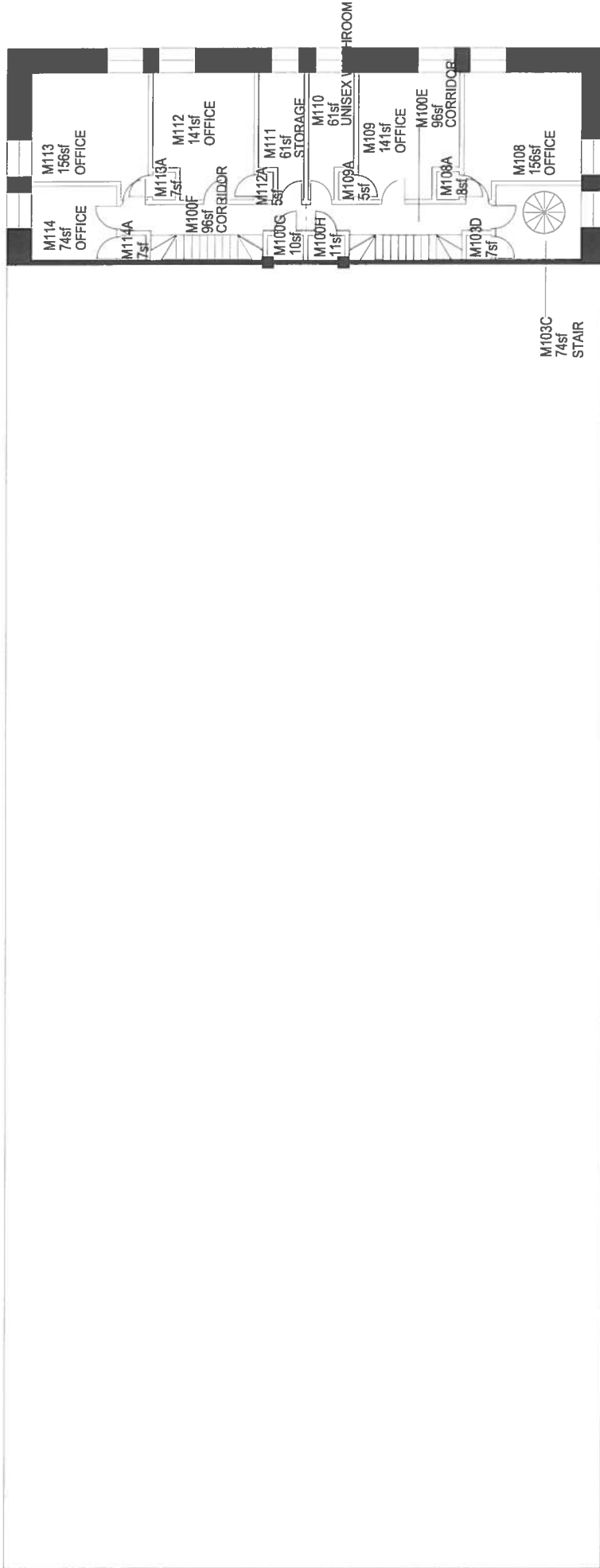
- Implement phase 2 to cover the first and fifth year cohorts
- Purchase stacking chairs for the School's Public Space

Need for Additional Space

Expand space in association with planned 40/30/10/10/10 growth including studio, office and seminar space.



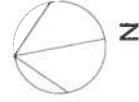




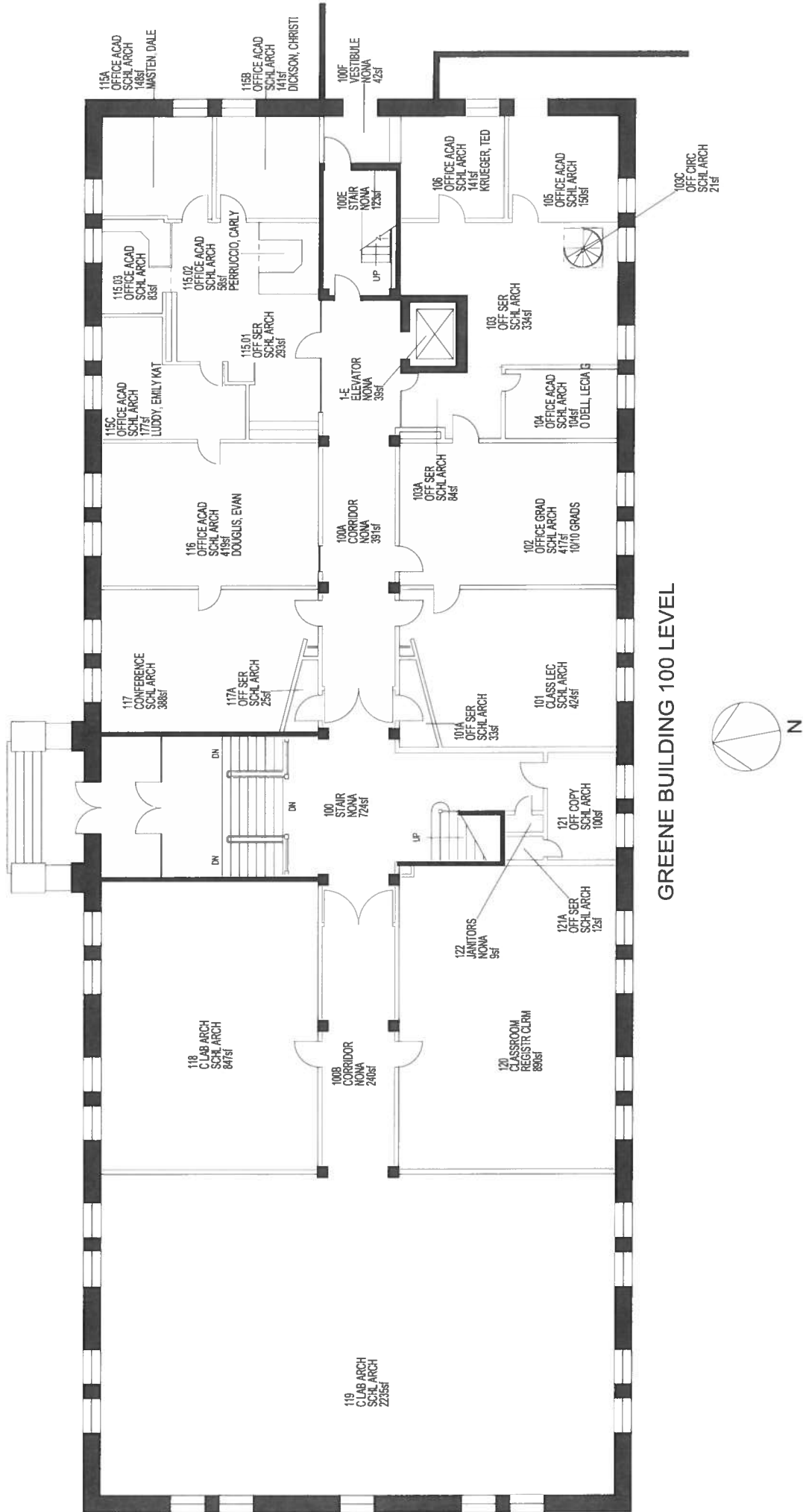
GREENE BUILDING MZ LEVEL

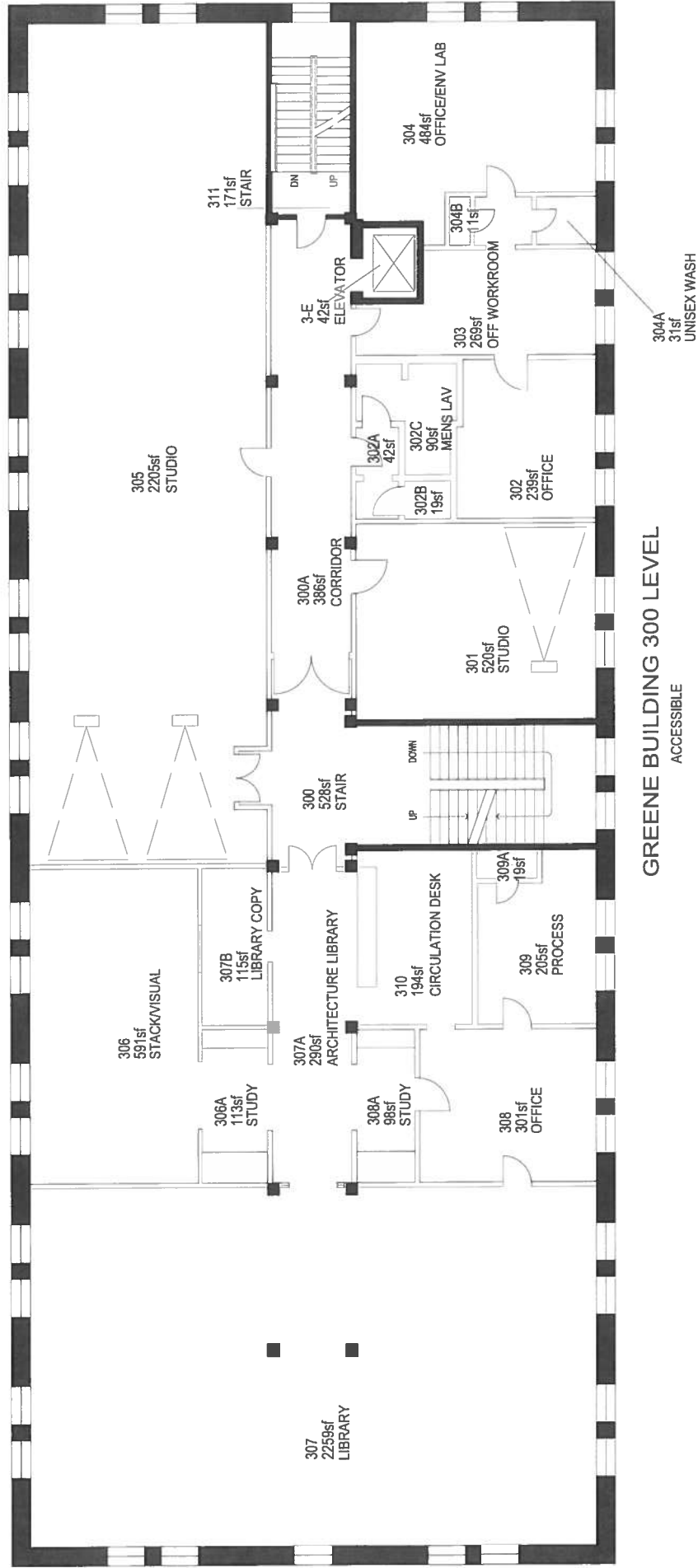
ACCESSIBLE

1 UNISEX WASHROOM
5 FACULTY OFFICES
MISCELLANEOUS STORAGE
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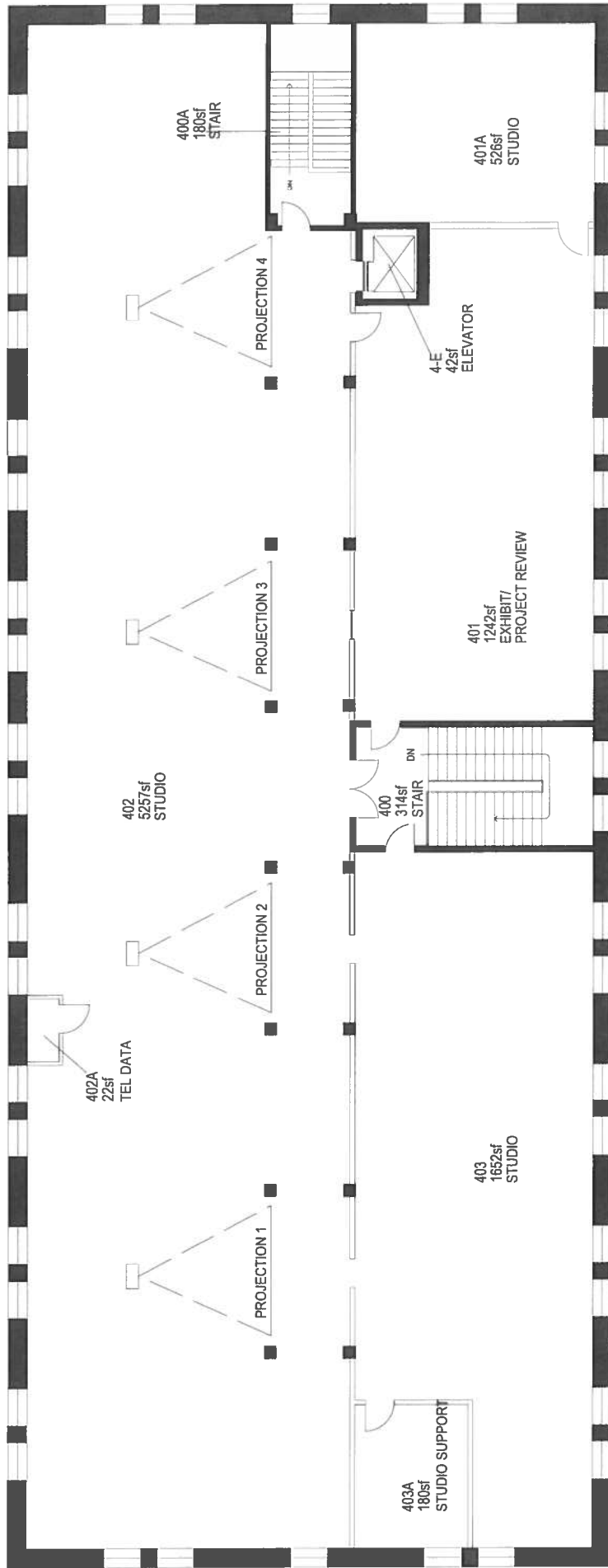


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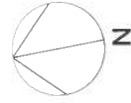


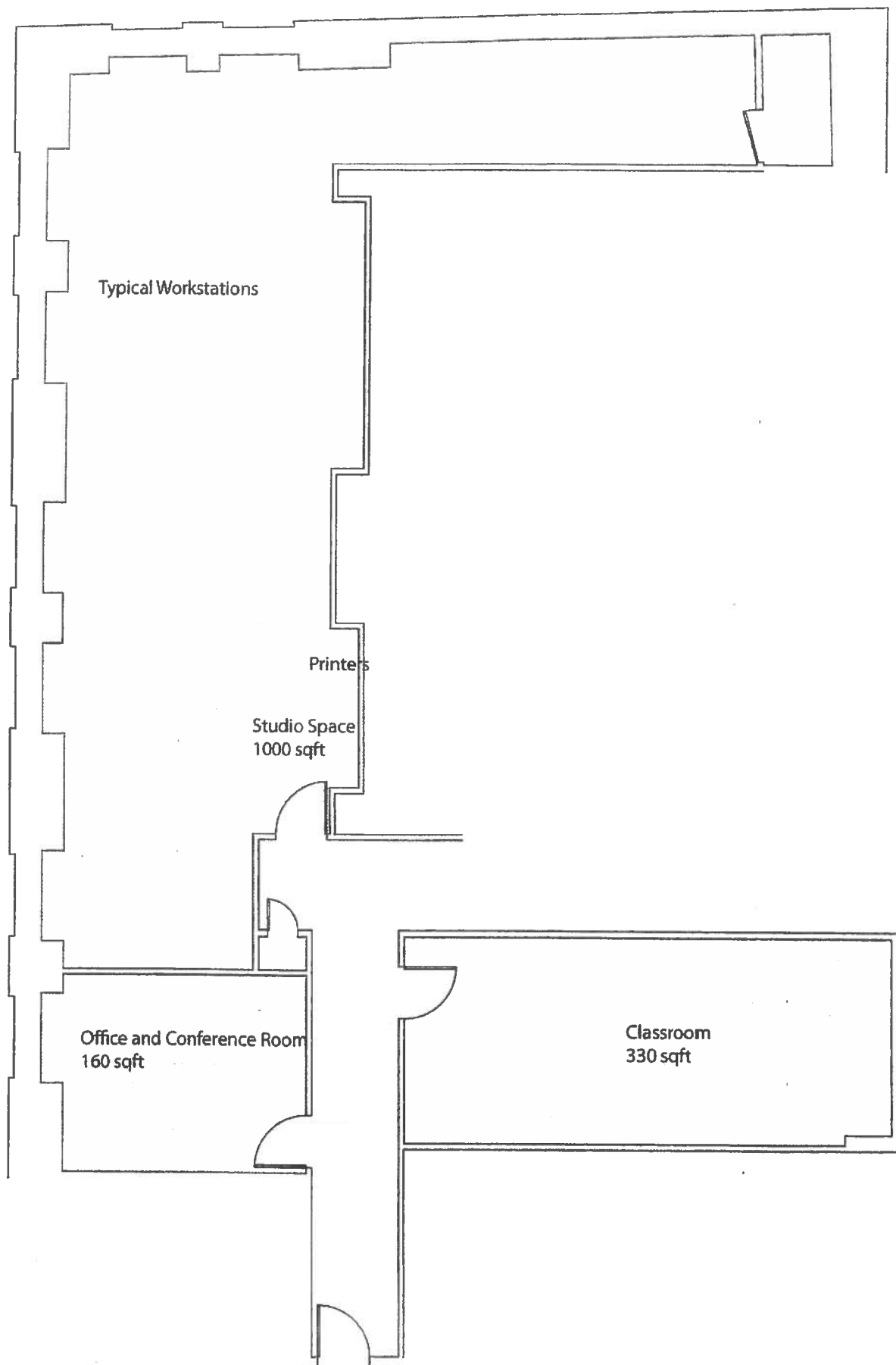


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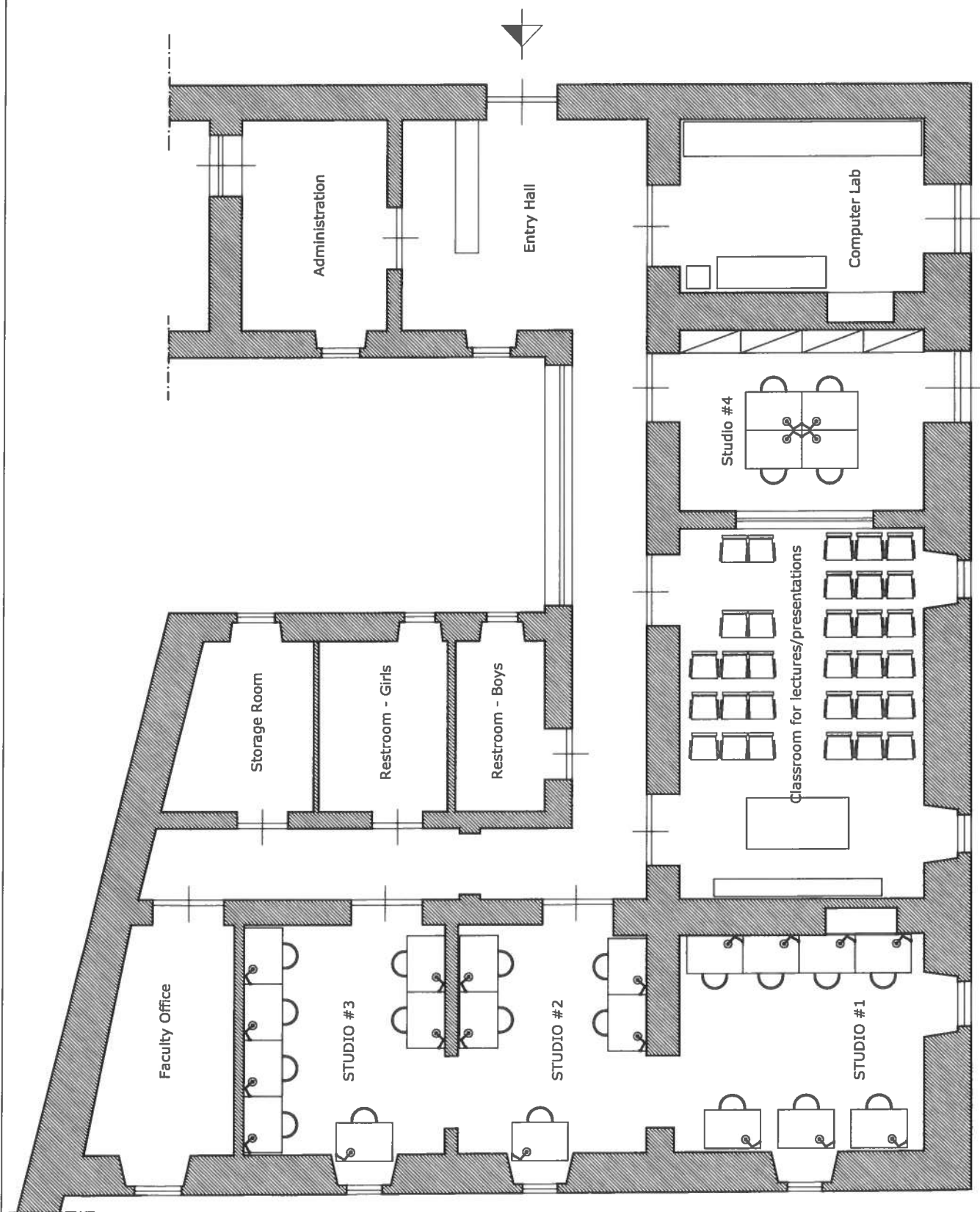
GREENE BUILDING 400 LEVEL
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Studio Plan: Center for Architecture, Science and Ecology

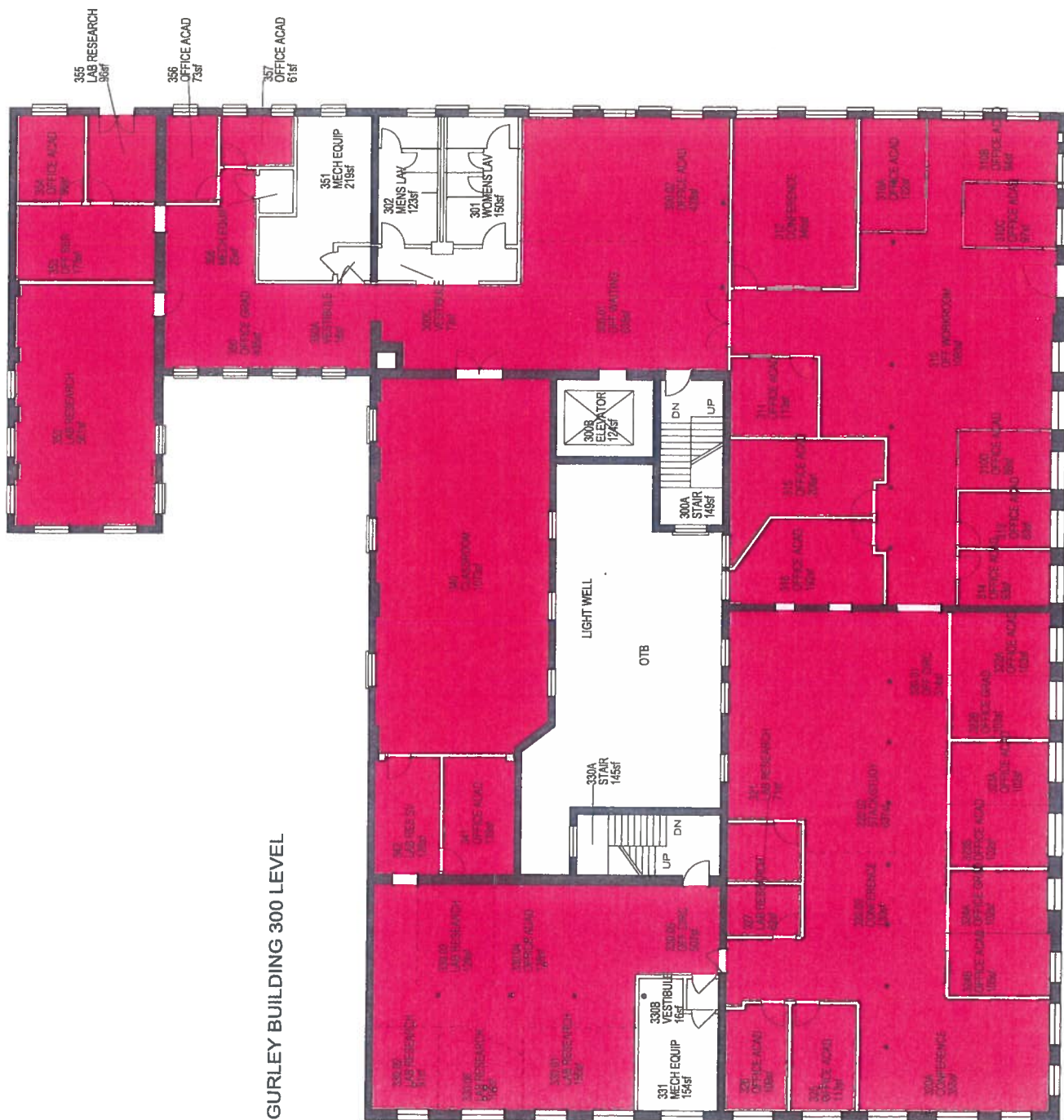
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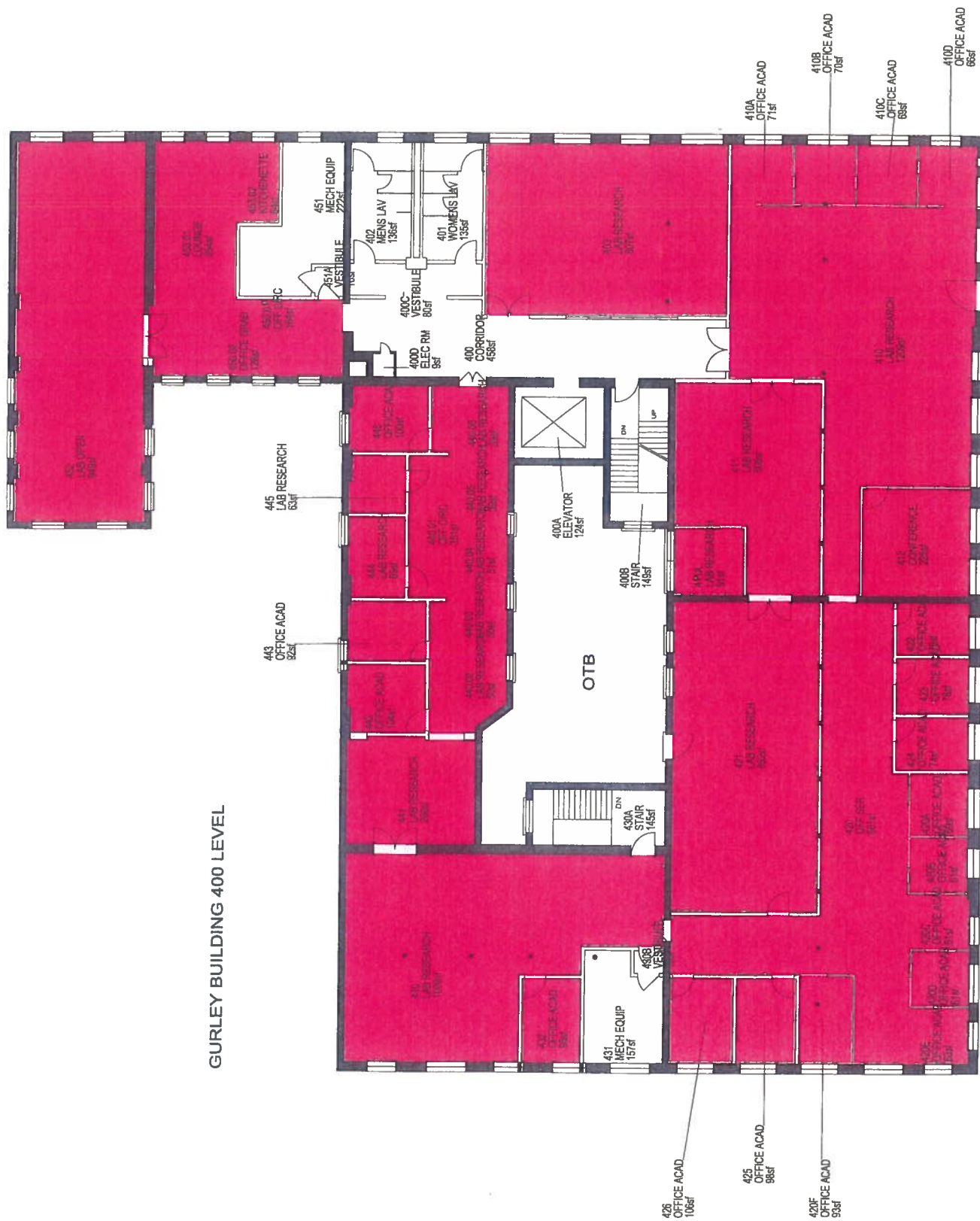
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GURLEY BUILDING 300 LEVEL



GURLEY BUILDING 400 LEVEL



Information Resources (3.9)

3.9 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.9 Information Resources

Readily accessible library and visual resources collections are essential for architectural study, teaching, and research. Library collections must include at least 5,000 different catalogued titles, with an appropriate mix of Library of Congress NA, Dewey 720-29, and other related call numbers to serve the needs of individual programs. There must be adequate visual resources as well. Access to other architectural collections may supplement, but not substitute for, adequate resources at the home institution. In addition to developing and managing collections, architectural librarians and visual resources professionals should provide information services that promote the research skills and critical thinking necessary for professional practice and lifelong learning.

The architectural librarian and, if appropriate, the professional in charge of visual resources collections, must include in the APR the following:

- *A description of the institutional context and administrative structure of the library and visual resources*
- *An assessment of the library and visual resource collections, services, staff, facilities, and equipment that does the following:*
- *Evaluates the degree to which information resources support the program's mission, planning, curriculum, and research specialties*
 - *Assesses the quality, currency, suitability, range, and quantity of resources in all formats, (traditional and electronic)*
 - *Demonstrates sufficient funding to enable continuous collection growth*
Identifies any significant problem that affects the operation or services and recommends improvement
- *An assessment of the budget and administration of the library and visual resource operations*
- *A statistics report*

Description of Institutional Context and Administrative Structure of Library and Visual Resources

The Architecture Library, a branch of Rensselaer Libraries, was established as a collection in 1929. While Folsom serves as the central library on the Troy campus, the Architecture Library supports the School of Architecture's academic program including the five year undergraduate first professional degree program and the graduate Masters and PhD programs. The Architecture Library is conveniently located within the School of Architecture in the Greene Building and provides materials in all appropriate formats to support the curriculum of the School of Architecture, and faculty and student research. This includes books, journals, electronic books and journals, electronic databases, videos, CD-ROMS, DVDs, architectural drawings, slides, digital images, microfiche, microforms, and maps. The collections and expenditures are numerated in Table A below.

In 1996, the library participated in a survey conducted by two architecture librarians and funded by ARLIS/NA (Art Libraries Society of North America). [Jeanne M. Brown and Judy Connorton, "Statistical Profile of Academic Architecture Libraries," *Art Documentation* 15:1 (1996), 44.] The data collected in the survey was useful in determining how this library compares with the operations, collections, and finances of other academic architecture libraries of variant sizes and disciplines. In this survey, 37 branch and independent architecture libraries were compared.

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 *The Thirteen Conditions of Accreditation*

At the time of the survey, the architecture holdings were near the survey's median number of 29,500 for libraries which included architecture and other disciplines. The collection now contains 32,000 volumes and 12,000 different Library of Congress classed "NA" titles. For libraries having only architecture holdings, the survey median then was 12,000. Rensselaer's total materials fund for monographs in architecture in 1998 was larger than the 1994-95 median amount of \$24,000 and the serial budget figure fell within the survey's \$10,000-\$19,000 level (not accounting for Rensselaer Libraries funds also spent on electronic research databases). However without having a more recent comprehensive survey with which to do a peer comparison it is hard to speculate on where the collection quality falls among other equivalent branch architecture libraries.

Another publication which contained peer comparisons is a paper authored by Jeanne M. Brown, Paul Glassman and Janine Henri, "The Library and the Accreditation Process in Design Disciplines: Best Practices: Occasional Paper No.14" Kanata, Ontario: Art Libraries Society of North America, 2003. Seven self studies submitted to the National Architectural Accrediting Board by academic libraries were included in this publication. These seven libraries include: Carnegie Mellon University, Drury University, Roger Williams University, University of Arizona, University of South Florida, University of Southern California, and University of Texas at Austin. Unfortunately the data in four of the samples was from 1998-9, two had sample data from 2000 and the last was from 2002, again making a more current analysis difficult. But based on these samples Rensselaer's Architecture Library compared well with five of the libraries based on comparable size (20K+ volumes) and amount of funds for book and serial subscriptions (Carnegie Mellon University, Drury University, Roger Williams University, University of Arizona and University of South Florida). University of Southern California is similar in collection size but has a much stronger budget for serials and visual materials. University of Texas/Austin has a much larger collection and a very robust budget compared to our library.

This year the Association of Architecture School Librarians (AASL) is conducting a statistical survey of academic architecture libraries which is not yet published. Statistics for Rensselaer's architecture collections will be submitted to the survey which currently involves four other institutions. These four collections vary greatly in size and content. Statistics cover either fiscal year 2007-08 or 2008 -09. The libraries currently participating are Norwich University, University of California at Berkeley (Environmental Design Library), University of Nevada at Las Vegas and University of Miami. But at this writing there doesn't seem to be enough content to make a substantial comparison. One comment which could be made is that Rensselaer compared fairly well with two of the institutions in terms of collections and budget (University of Las Vegas at Nevada and University of Miami) and stood in a better situation for collection size and budget than Norwich University. The University of California at Berkeley's Environmental Design Library, is not a comparable peer since its collections are much broader in scope (over 200,000 volumes) and has a very large budget to support it: over \$150,000 for books and serials. Rensselaer's current serial subscriptions were lower than three of the four. However, in terms of the size of the visual collection (slides/digital images) and staffing, Rensselaer had a stronger standing.

Assessment of Library and Information Resource Collections, services, staff, facilities, and equipment

The mission of the Rensselaer Libraries is to support Rensselaer's educational and research endeavors. As part of the Division of the Chief Information Officer, the Libraries actively cooperate with other Division units to provide enabling information strategies, resources, services, and technology to the diverse Rensselaer community.

The Libraries accomplish their mission by

- Managing access to essential information resources for academic programs and research centers;

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

- Selecting, organizing and preserving scholarly works and other materials of recognized long term value to the campus community;
- Participating in library consortia and organizations to influence the expansion of information resources available to Rensselaer;
- Providing facilities that are attractive and conducive to individual and collaborative study and research;
- Offering personal consultation and group instruction about information resources; and
- Sponsoring programs and events celebrating intellectual achievement and creativity.

Architecture Library Collection Expenditures (Table A)

Types of Collections	Number of Volumes	Expenditures 06/07	Expenditures 07/08	Expenditures 08/09
Books (Total in Branch Library)	32,000*	\$23,238**	\$23,560**	\$25,552**
Book Titles Classed in LC-NA & theses	12,000	\$3,051**	\$10,192**	\$2,952**
Periodical Subscriptions	86	\$9,518	\$10,025	\$10,237
Other Ejournals through packages***	182			
Other Serial Subscriptions	3	\$334.75	\$64.60	\$1223.30
Microfilm Reels	22	\$0	\$0	\$0
Microfiche	124,166	\$0	\$0	\$0
Slides	117,000	N.A.	N.A.	N.A.
Digital Images	50,000	\$0	\$0	\$0
Videos/CD-ROMs, DVDs	585	From book funds	From book funds	From book funds
Maps/Drawings	1000	From book funds	From book funds	From book funds
Other Electronic Publications (Ebooks, EReference)	130	From book funds	From book funds	From book funds
Photographs	1340	\$0	\$0	\$0
Historic Urban Plans	110	Gifts or book funds	Gifts or book funds	Gifts or book funds

* Includes bound journals, student theses, reference items, and non-print materials (other than slides)

** Amounts include Institute funds (listed first) and grant/gift funds (listed second)

*** Electronic journals and electronic database subscriptions are bundled into Rensselaer Libraries' electronic products budget

Books

The Manager of the Architecture Library and Reference and Instructional Services has primary input and authority for decisions about book and non-book selections in architecture and the arts as well as general oversight of all reference collections. The Media & Digital Assets Librarian (former Visual Resources Librarian) makes the primary decisions on slides, digital images, and other media supporting the curriculum and research. She also coordinates the libraries' Digital Projects Group.

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 *The Thirteen Conditions of Accreditation*

The Architecture Librarian manages the branch library and its staff as well as the Reference and Instructional Services Team. She is a member of the Libraries' Management Team and Collection Development Committee. The Librarian also works closely with the Coordinator of Technical Services and the Libraries' Systems Administrator on acquisitions, licensing, technical projects and equipment. Both the Architecture Library's Manager and the Media Librarian meet regularly with the Libraries' Director and the Dean of the School of Architecture. All of these forums are extremely useful for strategic planning and collection development discussions, as well as topics such as service issues, instructional programs, library consortia, wish lists of new resources, budgetary issues and automation projects.

The Architecture Library has an acquisition policy and a written collection development policy. The collection development policy can be viewed on the Architecture Library's web site:
<http://library.rpi.edu/architecture/update.do?artcenterkey=32>

Collecting levels reflect the emphasis and intensity of the school's programs. Cooperative and consortia agreements have continued to play an important role in the past several years, enhancing resource sharing and purchase of electronic resources, but the economic crisis has weakened some of the former benefits of cost sharing. Rensselaer Libraries continue to cooperate with groups such as the Capital District Library Council, ConnectNY, NorthEast Research Libraries Consortium (NERL), the New York State Higher Education Initiative (NYSHEI), Nylink, and Westchester Academic Library Directors Organization (WALDO). The ConnectNY service, a cooperative book lending service of fourteen academic libraries in New York State, is a valued resource for our students, faculty and staff. The catalogs of the participating libraries can be simultaneously searched and requests easily submitted electronically by our patrons. Because of the rapid delivery time (2-4) working days this is a valuable resource for our patrons. Since the architecture library is the only branch library of this type in the consortium it lends a good amount of material to other ConnectNY participants.

Rensselaer Libraries has a standing Institute Library Advisory Committee drawn from all schools on campus. This Institute library committee consists of one faculty member from each school, students, two librarians, the Library Director and the Assistant Vice President of Information Services (as an ex officio member). <http://library.rpi.edu/update.do?catcenterkey=289> Each Dean (including the Dean of Architecture) nominates the faculty representative to the committee and this faculty member also acts as the liaison between the school or department and the library subject specialist. The Architecture Librarian and the Media Librarian work closely with their faculty liaisons on acquisitions, policies and services.

The Architecture Library has a book and slip approval plan with Blackwell North America enabling acquisition of new book titles at a 16 percent discount. In fiscal year 08-09 approximately 70.9% percent of the architecture book material funds were spent on approval plan titles. This is a slight increase over the 65% ratio of funds spent on approvals noted in the last self study.

The Architecture Librarian and staff of the Technical Services unit also periodically review the parameters selected on the library's approval plan. Rensselaer Libraries also has an approval plan with Yankee Book Peddler. The Architecture Librarian utilizes their electronic ordering system as well as that from Blackwell North America when searching requests for purchase. In 2005 the Architecture Librarian set up an additional book approval plan with Worldwide Books, a specialized supplier of exhibition catalogs.

In addition to fund reports and approval book notifications, the Architecture Librarian also regularly solicits faculty on recommendations for purchase either through meetings or by email. The librarians often receive individual requests for material purchases directly from faculty. Both BNA's web based approval profile and acquisitions system, called *Collection Manager* and YBP's *GOBI* system allow the bibliographer to send email notifications directly from the acquisition database to faculty and staff on campus for input. New book

RENSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

titles received are regularly posted on the libraries' web gateway, *RensSearch* and a new online form for users, who wish to request purchases, was instituted. New electronic resources are announced through a campus-wide email group, *RensServ*, and also listed on the "What's New" section of *RensSearch*. The Architecture Library also maintains a small exhibit space and frequently posts book jackets to advertise recently received titles; a very popular service. Overall, communication with the faculty is frequent and supportive.

Serials

The library's serial collection and cooperative borrowing and lending programs, effectively supports the curriculum and research needs of the students and faculty. For years the libraries strived towards the goal of becoming a model digital library and prioritized the building of electronic serial collections and document delivery services over maintaining print collections. However, in the field of architecture the conversion of significant journal literature into electronic format, including deep and complete back files and accompanying visual material, has been slow. For these reasons, the Architecture Library has continued to maintain print journal holdings while evaluating the addition of electronic journals to the collections. Most of the holdings for print journals determined to be core titles are current, retrospective, and complete. A list of core periodical titles (specifically identified as being essential to all architecture libraries) was compiled by the Association of Architecture School Librarians' and kept current at the association's website:

<http://www.architecturelibrarians.org/corelist2009.html>

Of 53 of these core titles, the Architecture Library currently subscribes to 41. Of the 44 supplemental titles, the Architecture Library currently subscribes to 15. The journal collection includes 86 active print and electronic subscriptions, many of which are on the core and supplemental lists from the Association of Architecture School Librarians. The number of subscriptions to electronic journals in the field of architecture, fine and decorative arts has increased significantly in the last several years. Approximately 181 full text electronic journals are categorized as publications in this category through our ejournals management tool. A few of these titles are held in both print and electronic format. Overall the libraries have access to approximately 34,000 online, full text journals and over 50,000 electronic books.

The Rensselaer Libraries' goals have included provision of state-of-the art access to information and the implementation of digital collections and services to support the curricula and research interests of the Institute. The libraries have added significant electronic resources for searching bibliographic and full text databases, financial and statistical sources, reference tools and image files as well as enhancing service components such as document delivery, electronic reserves and inter-library loan. The libraries' web-based information system, *RensSearch*, provides online access to a wide variety of these databases and services through the campus network.

Electronic Databases:

The following online indexing, abstracting, full text and image based subscription databases are significant for research in architecture and are available to our campus community:

- **Academic Search Premier** (Scholarly, multi-disciplinary full text database including more than 3,600 peer-reviewed publications in nearly every area of academic study);
- **Art Index Retrospective** – 1929-1984;
- **ARTbibliographies Modern** -1974 to date;
- **Arts & Humanities Citation Index** (part of Web of Science) - 1974 to date;
- **Avery Index to Architectural Periodicals** 1934 to date;
- **Bibliography of the History of Art** 1973 to date;
- **BuildingGreen Suite** (BuildingGreen provides industry news, and in-depth articles about products, technologies and topics in green design and construction);

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

- **CSA Multi-databases / Arts & Humanities** – Simultaneously searches these CSA databases: ARTbibliographies Modern; Avery Index to Architectural Periodicals; Bibliography of the History of Art; and DAAI: Design and Applied Arts Index;
- **Design and Applied Arts Index (DAAI)** 1973 to date;
- **Digital Sanborn Maps: New York, 1867-1970;**
- **Compendex** (Engineering Index & Inspec) - 1970 to date (Engineering Index Backfile: 1884-1969);
- **Humanities and Social Sciences Index Retrospective** – 1907-1984;
- **JSTOR: the scholarly journal archive;**
- **Material ConneXion** (Material ConneXion is the largest global resource of new materials. Its library and search engine provides access to "over 3,500 new and innovative materials);
- **Materials Research Database with METADEX;**
- **Online Sanborn Maps: Boro of Manhattan;**
- **Oxford Art Online** (including Grove Art Online, the Oxford Companion to Western Art, Encyclopedia of Aesthetics, and the Concise Oxford Dictionary of Art Terms);
- **ProQuest Research Databases** (ProQuest Research Library includes more than 3,850 titles and over 2,600 in full text);
- **WorldCat** (a database of library collections).

In addition to those cited above, over 250 additional online databases, many multidisciplinary, are now available, thus enhancing the research capabilities for the School of Architecture and entire Institute community.

Hardcopy Indexes

The following indexes are still available in print format; however they are seldom used:

- **The Architectural Index** - 1950 to 1994;
- **Architectural Publications Index** (Royal Institute of British Architects)
 - 1972 to 2002;
- **Avery Index to Architectural Periodicals** - Vol. 1 to 1997.

Of the 278 current titles in the Avery Index to Architectural Periodicals the library subscribes to 66, or 24%. Retrospectively, the materials indexed in Avery Index go back to the 1930's with selective coverage to the late nineteenth-century. The Avery Index total source list includes both current and ceased serials titles, publications of professional associations, and regional publications, amongst others. Owing to this inclusiveness, it is difficult to estimate the total percentage of journals indexed in Avery that are in Rensselaer's collections. However, for any unavailable titles in Avery Index or any other subscription databases, the libraries provide online access to a subsidized inter-library loan service, called *Illiad*. Through the *Illiad* service, users can request materials from other libraries nationwide and internationally. Just recently, Rensselaer Libraries joined the RapidILL network of libraries to expedite interlibrary loan service for journal articles. Researchers can now expect to see many more of their requests filled within 24 hours on weekdays. The RapidILL network is comprised of about 100 research and college libraries across North America and Asia. Member libraries agree to use a common system of middleware, to rapidly respond to each other's interlibrary loan requests, and to waive transaction charges. This new service complements the libraries' continuing participation in other local and regional consortia.

Visual Resources and Non-book Resources

The analog visual resources collections are housed within the Architecture Library and consist of slides, architectural drawings, maps, historic urban plans, microforms, architecture and art photographs, videos, CD-ROMs, DVDs, and models. The library's digital collection of images, student projects and recent Bachelor of Architecture theses are stored and accessed through the Rensselaer Digital Collections database linked from the Rensselaer Libraries' homepage.

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

The Media and Digital Assets Librarian acquires digital images through subscription, donation and direct scans. New books and journals are also reviewed for potential additions to the collection. The librarian performs original cataloging of images and media files and provides access to these materials through an in-house catalog and the libraries' website. The librarian assists in collection development decisions on book and non-book materials, and provides reference assistance and instruction to users of the slide and the digital collections. The librarian advises faculty and graduate students on issues of copyright as it pertains to the fair use of images and digital resources and is available to assist with the development of course and lecture materials. The Rensselaer Libraries' budget provides funds for materials and selected digital images, as well as the Media and Digital Assets Librarian's salary. The librarian develops policies and procedures for both the analog and digital collections and the use of VR related equipment.

Special Collections

The Architecture Library has some special collection series and sets which include:

- **Garland Architectural Archives** (multi-volume sets on work of the following architects): Alvar Aalto; Buckminster Fuller; Walter Gropius; Holabird & Roche and Holabird & Root; Louis Kahn; LeCorbusier; Mies van der Rohe; R.M. Schindler; Frank Lloyd Wright;
- **Le Corbusier Sketchbooks** (MIT Press);
- **Le Pianta de Roma**;
- **Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER)** (3840 microfiche);
- **Armenian Architecture** (a documented photo archival collection on microfiche; some color photographs captured on CD-ROMs and available through the Rensselaer Digital Collections);
- **Davis Digital Art Images** (Japanese architecture, masterpieces from the Museum of Modern Art and U.S. revival architecture) (172 images); indexed and available through the libraries' web navigation tool, "RensSearch");
- **Archivision** (The Archivision collection is a licensed educational image resource which includes 16,000 images of architecture, urban design, landscape architecture, and public art from all periods; indexed and available through the libraries' web navigation tool, "RensSearch");
- **Global Architecture Series: GA Documents; GA Architects; GA Details; GA Interiors; Villages and Towns**;
- **Saskia, Limited Cultural Documentation**: (Digital image sets for major art/architecture textbook series and supplemental architectural details (3380 digital images); indexed and available through the libraries' web navigation tool, "RensSearch").

Conservation and Preservation

Architecture books and journals needing binding are sent to Folsom Library for processing and are then shipped to a commercial binder to be serviced. The Architecture Library also established a reserve area for shelving pre-1900 imprints. Many of these were formerly on open bookshelves. Any material needing special treatment or of a special nature is transferred to Archives and Special Collections after consultation with the Institute Archivist or Assistant Institute Archivist. Bound volumes of fifth-year architectural projects from 1933-1987 were transferred to Folsom for space and preservation reasons. Starting in 2008 all fifth-year architectural projects are also submitted in PDF form and added to the libraries' Digital Repository by the Media/Digital Assets Librarian.

Services

The Architecture Library serves faculty, staff, and students of the School of Architecture, members of the Rensselaer community, alumni/alumnae, employees of architectural firms and local residents. The Rensselaer Libraries is a member of the Capital District Library Council, a regional multi-library organization serving New York academic, public, school, and special libraries. Book loans are also made to patrons of the fourteen member libraries of the consortium *ConnectNY*. The *ConnectNY* service integrates the catalogs

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

of these participant libraries; Adelphi University, Bard College, Canisius College, Colgate University, Cazenovia College, LeMoyne College, Pace University, Rensselaer Polytechnic Institute, Rochester Institute of Technology, St. Lawrence University, Siena College, Union College, the United States Military Academy, and Vassar College. Rensselaer students, faculty and staff now have the option of borrowing needed materials from the millions of titles in the shared collections of the *ConnectNY* members. Users of *ConnectNY* can initiate their requests online without intermediation and can expect rapid response. Delivery is usually within 2-4 business days. The Architecture Library loans a large amount of material since it is the only architecture library in this consortium. In the future journals may also be included in the lending policy of *ConnectNY*.

Reference

The Architecture Librarian is one of 6 School/Center Liaisons on the Rensselaer Libraries' staff. She has primary responsibility for reference and collection development in the area of architecture and the arts as well as managing the broader reference and instructional services unit. The Architecture Librarian serves as the subject specialist in offering services to architecture students and faculty. As the Manager of the libraries' Reference and Instructional Services unit, the Architecture Librarian also plans, schedules and provides reference desk coverage at Folsom Library, and plans and coordinates email reference as well as orientation and instructional sessions.

The Operations Coordinator and the Media and Digital Assets Librarian also provide reference assistance to architecture library users. The Operations Coordinator is also in charge of training and scheduling student workers to staff the circulation desk; part of this training prepares them for handling directional and brief reference questions which need no referral to another member of the staff or a librarian. The Operations Coordinator conducts successful training modules for student workers. Student assistants staff the library in evenings and on weekends.

Reference services include library orientations, reference consultation, search strategy options, referrals, assistance with database searching, campus wide sessions on databases, course-related sessions combining lecture or hands-on instruction or both. Special guides to the collections, databases, and frequently asked questions are developed and refined for the audience of the School of Architecture. These are done in both print and online versions. Email forms are posted on all the libraries' web pages including those of the Architecture Library. General email queries usually come through an electronic mail group called "lib-support" which reaches a group of library staff drawn from different departments and areas of expertise. All librarians and archivists are included in this email group, as well as the other 2 members of the architecture library staff. The architecture staff also promotes their own email group called "lib-architecture" on the "Contact Us" web page and is targeted for their specific audience. The libraries have also recently implemented an "Ask-A-Librarian" icon and webpage advertising research assistance and consulting services. All the librarians share in staffing services during the academic year.

Information Literacy

The Architecture Librarian, assisted by other members of the staff, gives bibliographic instruction and library user instruction to new architecture students each year. The first-year class is normally divided into groups and given orientations and tours, as well as, any online tutorials necessary. The Architecture Librarian also plans and conducts course-related sessions for design studios and graduate seminars tailoring the instruction to the requests of individual faculty members. These usually involve lecture and hands-on demonstrations using topics of relevance to their projects. The Architecture Librarian also participates, as do all the librarians in the Reference and Instructional Services Team, in conducting general campus-wide instruction sessions on the catalog, research databases, or general library services. Much effort is also given to the design of instructional guides posted on the libraries' web gateway and tailored to the School of Architecture audience. Help guides to the collections and services as well as reference and instructional

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

materials on research databases, online reference tools, electronic journals, services for graduate students, are some of the information literacy materials developed by the staff. Quite a significant amount of effort of late was given to the development of online "Pathfinders" using an open software set of Perl programming modules developed by Notre Dame called MyLibrary 3. Our systems administrator worked closely with the subject librarians as they programmed lists of recommended resources, guides and tutorials using the program. The web-based pathfinders are clearly promoted on the libraries navigation site, "RensSearch" and used as teaching tools in informational sessions.

http://www.lib.rpi.edu/html/ml/subject/subject_396_tab_1.html

The pathfinders are still actively under development and a committee of librarians from various units and technical and systems administrators collaborate on the development of the overall web site as well as these tools for instruction. The committee is currently working on the online versions of help and more in-depth instruction modules.

Another service for user instruction which was developed several years ago and is still maintained is a user-driven, customizable service called *My RensSearch*. *My RensSearch* gives the campus community the ability to define and display their prioritized or favorite library research databases, guides, reference tools, campus links, etc. The librarians establish content for many of the underlying lists of resources and recommended links that patrons can then select to create their customized library webpage.

With the development of a new graduate program in Built Ecologies (M.S. in Architectural Sciences) and the location of the Center for Architecture Science and Ecology (CASE) in New York City, the librarians worked closely with the faculty to find ways to provide instruction for students in that program. Instruction is now provided annually through the online web conferencing tool, "Go to Meeting." Also materials both in print and electronically were transferred to the downstate location for students' use. Interlibrary loan and ConnectNY services were also tailored to the needs of the students.

The Media and Digital Assets Librarian assists faculty in locating and developing their course-related materials. The Librarian scans study images which are then linked to faculty course pages. The digital images are later archived for the faculty future use. The scanned images are cataloged for the collection if deemed important. The Media/Digital Assets Librarian often lectures graduate students on the identification and fair use of images for their publications and thesis work and often lectures to MLIS graduate students from the University of New York at Albany on indexing and cataloging of non book materials, the Rensselaer Digital Collections and on the organization of knowledge pertaining to art and architecture.

The Operations Coordinator receives many requests for assistance from the school community since she is normally the most visible staff member. She is frequently left in charge of all operations when the librarians are absent. She is knowledgeable about the libraries' collections, policies, and the automated system. In this position, the coordinator particularly needs to know when it is appropriate to refer patrons to the librarian or graphics curator. She also develops and maintains the help and services pages on the Architecture Library's website and produces print guides as needed for instruction and directional assistance.

This year the Architecture Library staff conducted 11 instructional sessions for both undergraduate and graduate students, did 27 consultations with architecture faculty, and designed or updated many different web based guides for research topics, such as online reference tools, image resources, ejournals, as well as a "Architecture Library Survival Guide," and help guides to the new scanning stations, new networked printers, user services, hours and contact information.

Overall, the Architecture Library staff acts as a team when delivering reference and instructional services. Cooperation and training have enabled the existing staff to provide knowledgeable, professional, and

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

personal guidance in use of library materials. The library staff is considered part of the architecture program educational team.

Current Awareness

RensSearch has a "What's New" feature where announcements are posted on such things as new services, databases, special events, etc. There is a campus wide email group called, *RensServ*, where librarians post notices of new subscriptions, products, and services. In-house, the Architecture Library utilizes its entrance corridor exhibit space for announcements of new book titles, student work, and exhibits on other timely themes. Faculty members are also informed by email and personally when purchase requests have been received. Staff can verify the status of any faculty request through the staff mode of the libraries' automated catalog.

Access to Collections

The organization and cataloging of the collection provides full physical, bibliographical, and intellectual access to the information. Architecture library books and other materials are cataloged at Folsom Library's Technical Services unit using the Library of Congress system. Records for journals, with holding statements, are entered into the catalog and classified in the Dewey Decimal system. Rensselaer Libraries is a member of the OCLC (Online Computer Library Center, Inc.) and catalog materials using this cooperative network. Catalog records conform to MARC21, AACRII and LC standards. Library materials are cataloged soon after receipt. There is also a provision for rush cataloging for expediently needed materials, such as class reserves.

The library has a commercially developed integrated library information system from Innovative Interfaces Inc. (III) Access to the libraries' catalog of collections, research databases, and approximately 34,000 electronic journals and 50,000 electronic books, are available across campus through *RensSearch*, the libraries' web-based information system. Internet-accessible web pages provide a unified interface to the catalog, electronic reserves, research databases and other instructional tools, guides and service descriptions. Off campus users can also access most of the online subscription databases and services by using the libraries' proxy server. Within *RensSearch* the Architecture Library's staff has also developed web-based pages on services and collection. These are viewable at: <http://library.rpi.edu/architecture>

The majority of the print collections are on open bookshelves. Books are shelved in the main reading room and are easily accessible. Print indexes and reference tools are shelved together. Journals, both bound and unbound, are also shelved alphabetically in one section of the main reading room. Journals, and other materials such as reference items and class reserves, are restricted to use within the library. Just recently the library acquired six new flat bed scanners and established several public scanning stations to assist the architecture students in their use of journal and other in-house material needed for projects and research. Also a new large format networked color printer was acquired this year. Floor maps to the library are posted in-house and are available electronically on *RensSearch*.

The visual resources collections are all housed in an adjoining room within the Architecture library. Slides, digital images, maps, drawings, videos, microforms and models are conveniently located along with their appropriate equipment, such as slide projectors, light tables, a television with a DVD/VCR player, and a microfiche reader. There are also slide and flat bed scanners to digitize material. All of this equipment is available for patron use within the library. Slides, videos, and most CD-ROMs and DVDs are able to circulate. Maps and drawings may be taken out for copying with special permission. This is the largest circulating slide library in the Capital District area, and local users are permitted to borrow slides.

RensSearch makes it possible for any patron to access information on the Architecture Library and to search the collection catalog remotely and whenever needed. Rensselaer community users can also

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

access the libraries' research databases, document delivery services, class reserves, electronic inter-library loan forms, circulation records, and email reference remotely.

The libraries have appropriate written loan policies and procedures. All circulation policies and procedures are available electronically on *RensSearch*, and are displayed at public desks and other service points. All staff members are well versed on the libraries' rules and policies.

The Architecture library is open 68.5 hours a week. Our hours coincide with and consider the class schedule of the School of Architecture. Arrangements have been made to be open for special occasions such as Alumni Weekend.

During the regular fall and spring session the hours are:

Monday - Thursday	8:30 a.m. - 9:00 p.m.
Friday	8:30 a.m. - 5:00 p.m.
Saturday	2:00 p.m. - 6:00 p.m.
Sunday	3:00 p.m. - 9:00 p.m.

During the summer sessions, the library hours are:

Monday - Friday	8:30 a.m. - 5:00 p.m.
Saturday and Sunday	closed

Cooperative Agreements

When researchers need material not held by one of the Research Libraries, they can initiate online inter-library loan requests through the libraries' automated service called *Illiad* or use the non-intermediated electronic *ConnectNY* service to borrow books rapidly from a fourteen library statewide consortia. Member libraries include Adelphi University, Bard College, Canisius College, Colgate University, Cazenovia College, LeMoyne College, Pace University, Rensselaer Polytechnic Institute, Rochester Institute of Technology, St. Lawrence University, Siena College, Union College, the United States Military Academy, and Vassar College. *ConnectNY* loans are normally delivered between 2-4 working days.

Rensselaer Libraries is also members of the Capital District Library Council (CDLC), a regional consortium with interlibrary loan services, cooperative collection development, and reciprocal borrowing programs, amongst others. CDLC's Direct Access Program allows member patrons to borrow books in person from more than 50 regional libraries. The libraries recently joined the RapidILL network of libraries to expedite interlibrary loan service for journal articles. Researchers can now expect to see many more of their requests filled within 24 hours on weekdays. The RapidILL network is comprised of about 100 research and college libraries across North America and Asia. Member libraries agree to use a common system of middleware, to rapidly respond to each other's interlibrary loan requests, and to waive transaction charges. This new service complements the libraries' continuing participation in other local and regional consortia

The Architecture Library's book budget has benefited from CDLC grants for the purchase of circulating architecture materials. Rensselaer Libraries' administration has also been instrumental in establishing and joining other regional and statewide consortia which have enhanced and facilitated cost savings when licensing electronic research databases, aggregated services and other resources. Rensselaer Libraries now cooperate with groups such as the Capital District Library Council (CDLC), *ConnectNY*, the New York State Higher Education Initiative (NYSHEI), NorthEast Research Libraries Consortium (NERL), Nylink, and Westchester Academic Library Directors Organization (WALDO).

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

Staff

The Research Libraries belong to the portfolio of Rensselaer's Division of the Chief Information Officer, DotCIO. The Manager of the Architecture Library/Reference & Instructional Services, who reports directly to the Libraries' Director, supervises 4 staff members: the Media and Digital Assets Librarian, the Operations Coordinator of the Architecture Library, the Management Librarian and the Science Librarian. Regular budgeted student assistants and college work-study students are relied upon for adequate staffing; student assistants report to the Operations Coordinator. The Rensselaer Libraries Director reports to the Assistant Vice President for Information Services who in turn reports to the Vice President for Information Services and Technology and Chief Information Officer.

The Architecture Library is sometimes described as a working library, laboratory or an auxiliary classroom for the school. The library strives to support and enhance the students' formal education and to promote and strengthen information literacy.

The Architecture Library is located so physically close to the school's studios, computer labs, and classrooms, that it often plays both an academic and a social role in students' education. Likewise, the library staff interacts with teaching faculty and administrators on a day-to-day basis making for a very effective and close working relationship. The librarian meets formally with the Dean and faculty liaisons once a month. The librarians are always welcome to attend the faculty meeting and are invited when library related topics are on the agenda. In addition, all library staff is involved in many school-wide functions, thus reinforcing their value within the school.

Architecture Library Staff Expenditures (Table B)

Types of Positions	Expenditures Fiscal Year 06/07	Expenditures Fiscal Year 07/08	Expenditures Fiscal Year 08/09
Librarians (2)	\$80,825	\$82,789	\$103,778
Paraprofessional (1): Operations Coordinator	\$27,393	\$31,554	\$32,421
Student Assistants (1.5)	\$27,638	\$27,638	\$28,000

There are written job descriptions for members of the library staff and student assistants. The salaries are commensurate with training and experience and comparable to others in the institution, as approved by the Rensselaer's Division of Human Resources.

Manager, Architecture Library/Reference & Instructional Services

The Architecture Librarian also manages the Reference and Instructional Services Unit. The Manager reports to the Libraries' Director and is a member of the Libraries' Management Team and the Collection Development Committee. Frances Y. Scott is the Architecture Librarian and has held this position for 15 years. She holds the following degrees:

- B.A. in Art History, Douglass College, Rutgers-The State University
- M.L.S. Master of Library Science, Rutgers-The State University
- M.A. in Art History, Hunter College, City University of New York

She is an active member of several professional associations, including the Art Libraries Society of North America (ARLIS), the New England chapter and the Western NY chapter of ARLIS, the Association of Architectural School Librarians, and the Capital District Library Council. She has served as Secretary, Treasurer and President of the Western New York chapter of ARLIS and as Treasurer and Board member of the parent organization, the Art Libraries Society of North America.

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 *The Thirteen Conditions of Accreditation*

Media and Digital Assets Librarian

Under the general supervision of the Manager of the Architecture Library and Reference & Instructional Services, the Media/Digital Assets Librarian is responsible for the visual resources collection and chairs Rensselaer Libraries' Digital Projects team. Jeanne Keefe is the Media and Digital Assets Librarian and has been employed by the libraries for 29 years. She holds the following degrees:

- B.A. in Fine Arts/Museum Studies, Russell Sage College
- M.S. in Science and Technology Studies, Interdisciplinary degree in History, Anthropology and Archeology, Rensselaer Polytechnic Institute
- M.L.S. Master of Library Science, the State University of New York at Albany

Jeanne Keefe is an active member of the Visual Resources Association (VRA-the international organization of image media professionals), serving as Vice President and Co-Chair of the ARLIS-VRA Summer Educational Institute, and President of the Upstate New York chapter of VRA. She has presented numerous papers at professional meetings describing the slide collection and the application of the Art & Architecture Thesaurus in visual resource cataloging. She has also written a booklet, several journal articles and chapters for books on this same subject. She is currently serving as a Director of the Visual Resources Association Foundation.

Operations Coordinator

The Coordinator manages the daily operation of the Architecture Library. This position is supervised by the Architecture Librarian. LaVerne Sankey is the Operations Coordinator and has held this position for 2 years. She is an active member of local and state professional associations, including the New York State Library Assistants Association (NYSLAA) and the Capital Area Library Assistants group (CALA).

Support Staff

The support staff consists of the Operations Coordinator and approximately 15 student workers during the school year and 1-2 during the summer session. Student workers and the Operations Coordinator staff the circulation desk during day hours. Student workers staff the library during weekend and evening hours. The evening and weekend workers are normally upper class students, master's students, or doctorate candidates. All are well trained and versed in library rules and policies.

Student workers staff the circulation desk, shelve materials, run errands (mainly to Folsom library), shift collections when necessary, and assist with other clerical work. The student workers' budget comes from a combination of the Federal Work-Study Program and Rensselaer Libraries' operational budget. By federal law, work-study students cannot be employed during college breaks and the amount of money they can earn is limited. In order for the library to operate, the Institute allocates funds for student workers, so that the Architecture Library can be staffed all year round. The Operations Coordinator trains the students with assistance from the librarians when appropriate. Student workers are encouraged to attend any and all staff development programs.

The staff is encouraged and continues to participate in professional organizations, pursue continuing education programs, and attend any needed staff development workshops. Rensselaer Libraries' committees plan several workshops during the year and staff members are encouraged to attend.

Facilities

The Architecture Library, a branch of the Rensselaer Libraries, is centrally located in the Greene Building. Workstations for staff and patrons are comfortable and appropriate. Although there is no AC system in the Greene Building the library has air-conditioners and the slide room has a dehumidifier. Lighting, heating, and electrical supplies are adequate. Concerns about upgrades to electrical supply, temperature, humidity

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 *The Thirteen Conditions of Accreditation*

controls and space constraints have been expressed to the Dean. The School funds the maintenance of the facility. In general, the library is a visually comfortable space.

The library was fully renovated in 1995, improving lighting, stack arrangement, and seating in the Reading Room, and upgrading the public access service stations, the circulation area, photocopy room, and staff work areas. A staff meeting room was incorporated to the staff work area. The slide room was reconfigured to make better use of its space. New furniture was acquired for all the public spaces. A new exhibit case was designed to better house a collection donated in the late nineteenth-century to the School of Architecture.

Since that time public and staff workstations have been upgraded on a timely basis. Wireless access points were installed in 2003. This greatly improved the networking capabilities; especially for the large number of Rensselaer students with laptops. New slide and video shelving was acquired several years ago to better house those collections and regain space. New tables with task lighting and power outlets were installed in the library's reading room in 2007.

However, space in the Architecture Library is extremely tight and the total library square footage is small (4,198). Stack space is limited and crowded collections are only alleviated by transfer of journal volumes to Folsom Library and by weeding the monograph collection.

The Architecture Library has the following safety and security items:

- A book security system
- A sprinkler system
- Procedures for egress in evacuating the building
- Fire doors and a fire escape
- Safety lights

There is seating for approximately 70 users. The Reading Room contains 2 comfortable seating areas, 4 quiet study carrels, and 5 large tables for group study. The collections are easily accessible and organized with the intent that users can find materials independently. The former slide room was also reorganized in 2007. Most of the outdated equipment, such as light tables, copy stands, and slide projectors, were removed. Half of the space was reassigned for public group study and for housing the new book collections and some fine art books. The remainder of the space was adapted for the Media Librarian's office area, including incorporating the slide collections and a production area for digital collections.

The public workstations are located in alcoves near the circulation and staff areas so that assistance can be easily and readily available. The public workstations, photocopy room, service desk and staff areas are separate from the main reading room, which is reserved for more quiet study. The various renovations, recent computing upgrades, and overall reorganizations of all areas make the library a more attractive and efficient environment for users and staff.

Equipment

At present, there is adequate shelving for the housing of all types of materials. At times, retrospective runs of bound journals are transferred to the main library to free up shelf space for current journal holdings. Weeding of the print collections takes place periodically. However, other alternatives should be investigated (like off-site storage) as the collection continues to expand. New video shelving was ordered this past year to better house the collection and regain space.

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

The Architecture Library is adequately equipped for public and staff computing needs and other services. All computers are connected to the campus network. The library has the following equipment for public and staff use:

- 8 workstations for public access to the libraries' automated system with zip, and DVD/CD-RW drives. USB jump drives can be used on the left side of the monitors. All machines have access to the networked printers in the library and other networked printers on campus;
- 2 public workstations have attached 12' x 17" flat bed scanners and four have 8.5" x 11' scanners;
- 4 public machines are set up with Microsoft Office 2007 (including Access, Excel, Outlook, PowerPoint, Publisher and Word). The other 4 machines have the Microsoft package as well as an Adobe package with PhotoshopCS3 version and Acrobat 8.0 Professional;
- All staff members have networked equipment and the Media Librarian's office has a second staff machine for student or interns' use;
- 1 workstation with attached printer is located at the Circulation Desk;
- 1 networked black and white laser printer for public use;
- 1 networked color printer with both letter and tabloid sized printing;
- 1 slide scanner;
- 2 flat bed scanners for staff use;
- 2 black and white printers and 2 color printers for staff use;
- 1 digital camera (staff);
- 1 single-lens reflex camera (staff);
- 1 fax machine;
- 1 microfiche reader;
- 6 slide projectors;
- 2 large format color slide projectors;
- Television with VCR/DVD player;
- 1 coin operated photocopy machine that reduces and enlarges copies;
- 1 large light table;
- 2 small light tables.

Assessment of Budget and Administration of the Library and Visual Resource Operations

Rensselaer Libraries' budget covers the operations of both Folsom Library and the Architecture Library. There are two major sources of funds: the institutional allocation and endowment income.

This fiscal year the libraries had the following expenditures for library operations:

Salaries (including fringe)	\$1,330,965
Materials	\$2,021,046
Other	\$ 380,552
Total:	\$3,732,563
Endowment income for FY08	\$ 482,660

The Manager of the Architecture Library is a member of the libraries' Management Team and belongs to the libraries' Collection Development Committee and manages the Reference and Instructional Services team. Rensselaer Libraries contribute to the campus-wide performance planning process, particularly that of the Division of the Chief Information Officer. Attendance at School of Architecture faculty meetings and discussions with the Dean keep the library staff informed of the school's planning initiatives.

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

Architecture is the only school for which a separate library is maintained. All other schools and departments rely on Folsom Library for collections and services. The School of Architecture's budget provides space for the collections and maintains the facility. The libraries' budget provides for the salaries, collections, equipment, and all other categories of expenditure.

Efficiency of Operations

Over the last five years the library has continued to streamline work processes. As part of the overall Rensselaer Libraries restructuring, the Architecture Librarian and the Media/Digital Assets Librarian have taken on additional responsibilities and management duties in 2009.

A Statistics Report

Architecture Library Collection Expenditures (Table A)

Types of Collections	Number of Volumes	Expenditures 06/07	Expenditures 07/08	Expenditures 08/09
Books (Total in Branch Library)	32,000*	\$23,238**	\$23,560**	\$25,552**
Book Titles Classed in LC-NA & theses	12,000	\$3,051**	\$10,192**	\$2,952**
Periodical Subscriptions	86	\$9,518	\$10,025	\$10,237
Other Ejournals through packages***	182			
Other Serial Subscriptions	3	\$334.75	\$64.60	\$1223.30
Microfilm Reels	22	\$0	\$0	\$0
Microfiche	124,166	\$0	\$0	\$0
Slides	117,000	N.A.	N.A.	N.A.
Digital Images	50,000	\$0	\$0	\$0
Videos/CD-ROMs, DVDs	585	From book funds	From book funds	From book funds
Maps/Drawings	1000	From book funds	From book funds	From book funds
Other Electronic Publications (Ebooks, EReference)	130	From book funds	From book funds	From book funds
Photographs	1340	\$0	\$0	\$0
Historic Urban Plans	110	Gifts or book funds	Gifts or book funds	Gifts or book funds

* Includes bound journals, student theses, reference items, and non-print materials (other than slides)

** Amounts include Institute funds (listed first) and grant/gift funds (listed second)

*** Electronic journals and electronic database subscriptions are bundled into Rensselaer Libraries' electronic products budget

RENSSELAER SCHOOL OF ARCHITECTURE

3.9 The Thirteen Conditions of Accreditation

Architecture Library Staff Expenditures (Table B)

Types of Positions	Expenditures Fiscal Year 06/07	Expenditures Fiscal Year 07/08	Expenditures Fiscal Year 08/09
Librarians (2)	\$80,825	\$82,789	\$103,778
Paraprofessional (1): Operations Coordinator	\$27,393	\$31,554	\$32,421
Student Assistants (1.5)	\$27,638	\$27,638	\$28,000

Conclusion

Overall, the Architecture Library plays a vital role in the educational mission of the Institute and the School of Architecture. Budget, space, and preservation provide challenges. There is open communication between the architecture library staff and the administration of Rensselaer Libraries and the School of Architecture.

As is often the case with academic libraries, the staff works as a team in providing excellent levels of service. The development of web-based instructional components and guides for collections and services, the upgrades in computing equipment and other needed equipment, and the improvement in collection organization has strengthened the library's ability to function smoothly and systematically.

Financial Resources (3.10)

3.10 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.10 Financial Resources

An accredited degree program must have access to sufficient institutional support and financial resources to meet its needs and be comparable in scope to those available to meet the needs of other professional programs within the institution.

The APR must provide the following:

- *Comparative annual budgets and expenditures for each year since the last accreditation visit, including endowments, scholarships, one-time capital expenditures, and development activities.*
- *Data on annual expenditures and total capital investment per student, both undergraduate and graduate correlated to the expenditures and investments by other professional degree programs in the institution.*

Comparative annual budgets and expenditures for each year since the last accreditation visit, including endowments, scholarships, one-time capital expenditures, and development activities.

Program Budget

Since 2001 the institute has been working with a budget process which is inextricably linked to annual Portfolio Performance Plan updates (explained in section 3.2 Self Assessment).

This process represents the culmination of an integrated planning approach designed to link strategy with action and to measure progress toward achieving the objectives outlined in the strategic plan.

The integrated planning, investment, and economic changes have required financial reporting and monitoring. The reporting and monitoring procedures are embodied in the *Operating and Capital Budget Guidelines* that were also adopted in July 2001. These guidelines outline the operating budget policies and processes necessary to meet those requirements as well as to reinforce the principles and practice of integrated planning. The *Operating and Capital Budget Guidelines* can be found at <http://www.rpi.edu/dept/finance>. The financial resources available to Architecture are as follows:

Education and General (E&G)

(E&G) funding based on undergraduate and graduate enrollment, is provided by the Institute, and distributed annually through the budget process which is approved by the Board of Trustees. Our E&G funding has seen a modest increase in the last five years; the following table shows historical E&G data for the school.

Institute Support for Education and General Expenses

Fiscal Year	Budget	Expensed
2004	\$2,971,575	\$2,985,018
2005	\$2,908,328	\$2,886,702
2006	\$2,976,145	\$2,979,854
2007	\$2,822,209	\$3,097,001
2008	\$3,112,201	\$3,110,155
2009	\$3,277,040	\$3,183,402

Endowments

In total each year the School receives about \$300k in endowment income. This funding is used to support international programs, contingent faculty salaries, lecture and exhibit series, travel, academic programs,

RENSSELAER SCHOOL OF ARCHITECTURE

3.10 The Thirteen Conditions of Accreditation

faculty, and student enrichment, and/or other designated purposes. Interest earned from the following endowment accounts provides the majority of the \$300k support.

- Robert S. Brown '52 Fellowship to support Robert S. Brown '52 Travel Fellowships for students and faculty - \$55,000 per year
- Dean's Development Fund generated by interest from Dean's Development Fund Endowment devoted to support alumni development and other special projects - \$22,000
- Samuel F. Heffner '56 Fund to support computer facilities and academic program development - \$35,000 per year.
- John Huberty '40 Fund to support computer facilities and academic program development - \$5,000 per year
- Mabel Marsh Fund to support school lectures, critics, underwriting of student projects, and related extra curricula activities - \$57,000 per year
- Wilson Graham Memorial Fund endowment for students in financial need, with preference given to married students - \$1,000 per year
- Lee Harris Pomeroy '54 Fund is used to support innovative teaching that demonstrates the creative use of technology in architecture - \$8,000 per year
- James E. Penn Bequest to be spent at the dean of architecture's discretion - \$119,000 per year – currently underwater and projected to receive only 30% of annual income (\$41,000)
- Leslie Seward VanCampen '36 Fund to support faculty salary for the school's artist in residence - \$39,700 per year – currently underwater and projected to receive only 30% of annual income (\$14,000)

Scholarships for Undergraduate Students

Most assistance from Rensselaer is based on financial need and determined by financial aid – i.e. the difference between college costs and what student and family can be expected to pay. Rensselaer is committed to making a quality education financially possible for undergraduates and their families. The Institute is equally committed to making a complex process as straight forward as possible. Approximately 94 percent of Rensselaer undergraduates receive some form of financial aid. Prospective first-year students as well as upper-class students apply for financial aid by submitting only the Free Application for Federal Student Aid (FAFSA).

To provide access to a quality education for high-quality students, Rensselaer offers substantial financial aid from its own funds. Scholarship grants are awarded after full consideration of the following factors: relative financial need, academic achievement and promise, qualities of character as suggested by recommendations submitted on behalf of the student, evidence of willingness to help oneself by working, and participation in community and school activities. Students do not apply separately for these awards.

Industrial, Foundation, and Endowed Scholarships

Many scholarships are given to Rensselaer by corporations and foundations and through the generosity of alumni and friends. Some of these scholarships are available to first-year students and continue for four years; others are available only in the upper-class years. A list of these scholarships is available through the print and on-line catalog.

Rensselaer Medal

This medal has been awarded to several thousand high school students worldwide to the most promising juniors in math and science. Medalists who enroll at Rensselaer receive a substantial scholarship throughout their four years, five years for architecture. The fall 2009 Medal is provided at \$15,000 per year and approximately 7 have been offered. Since the last accreditation visit the following medals have been awarded to architecture students:

RENSSELAER SCHOOL OF ARCHITECTURE

3.10 *The Thirteen Conditions of Accreditation*

Fall 2004 - 9 Medals awarded to architecture students
Fall 2005 - 9 Medals awarded to architecture students
Fall 2006 – 17 Medals awarded to architecture students
Fall 2007 – 11 Medals awarded to architecture students
Fall 2008 - 4 Medals awarded to architecture students
Fall 2009 - 7 Medals awarded to architecture students

Undergraduate Graders: Undergraduate students may qualify to work with faculty as graders. This involves assistance in course administration and grading. These students receive hourly pay at approximately \$10 per hour.

Brown Fellowship

The School of Architecture Brown Fellow provides an exciting travel-study opportunity for both undergraduate, graduate students and faculty. The Robert S. Brown '52 Travel Fellowship awards each year, \$5,000 in travel expenses to two students (normally in their penultimate year) based upon competitive submission of a study plan proposal. Recipients of Brown Fellowships are obliged to present a report of the results of their study to the school.

Two \$5,000 student fellowships are awarded in each even-numbered year (i.e., 2002, 2004, etc...) and one \$5,000 student fellowship plus one \$10,000 faculty fellowship in each odd-numbered year (i.e., 2007, 2009, etc...) Students in their final or penultimate year are eligible, and upon completion return to present their work in a public forum. Selections are competitive based on awards by a jury consisting of a former faculty Brown Fellow, an architecture faculty member, a faculty member from another RPI school; and a former student Brown Fellow.

MArch Scholarships

Historically MArch students were provided merit scholarships that were funded through the school's E&G budget. However over the years with budget reductions and reorganization the funding for this support was reduced to only the current students which greatly impacted attracting new students. In 2008 no new MArch students were recruited. To rectify this program and help rebuild the enrollment, the Institute initiated a program of merit scholarships, in fall 2009, to exceptional members of this year's entering Master of Architecture class. Awards were made on the basis of GRE scores, GPA's, and a review of the applicants' portfolio. The Institute awarded scholarships to four of the program's six new students. Individual awards varied from \$7,500 to \$12,500 per semester. The program is seven semesters in length (one summer plus three academic years). No other institute support is available to MArch students as they cannot be teaching assistants (TA) because their undergraduate degree is in another discipline or research assistants or Institutional Research Assistant (IRA) because the MArch program is not research based.

Graduate Tuition and Student Support

Graduate Tuition and Student Support Policy was implemented in the fall 2002 to improve the quality of graduate students and strengthen research programs. Through better funding and more competitive financial aid we plan to enhance the intellectual level at which we as an institution function and promote the higher level of scholarship demanded by the Rensselaer Plan. The policy defines a fixed number of teaching assistant (TA) and institutionally supported research assistant (IRA) positions assigned to each school to assist in attraction the very highest quality students. This program has been instrumental in the growth and progress of our research based graduate programs. Funding to support this initiative is provided by the Institute; historical data on the budget and expenditures follow:

RENSSELAER SCHOOL OF ARCHITECTURE

3.10 The Thirteen Conditions of Accreditation

Institute Support for TA/IRA Funding

Fiscal Year	Budget	Expenses
2004	\$593,200	\$620,576
2005	\$613,200	\$602,410
2006	\$684,500	\$683,695
2007	\$612,300	\$583,564
2008	\$790,400	\$788,789
2009	\$953,100	\$873,675

Humanities, Architecture & Social Science Scholarships (HASS)

Beginning in fall 2004 the Institute initiated a scholarship for the schools of Architecture and Humanities, Art & Social Science which will fully support two PhD candidates. The fellowships are for two years with the potential for a third year of funding following a review of the student's degree progress and the availability of funding. The fellowships will provide a stipend of \$22,000 for the calendar year and a full academic year tuition scholarship. To be eligible for this award a student must have completed at least 30 credits of coursework. Fellowships are awarded on a competitive basis.

One Time Capital Project Expenditures

Capital Project Funding procedures were put in place in 2001 as part of the Performance Planning process. The process includes an assessment of priority needs for each portfolio/academic school and or division. These expenditures can be facilities-related and include leasing of real estate, deferred maintenance and/or renewal needs or they may be related to other initiatives within the portfolio that require capital funding. In all instances requests must be considered high priorities and consistent with Portfolio Performance Plan. Architecture has been very successful since the last accreditation visits with total project funding over \$1.1 million.

FY	Proj #	Project_Name	Project Final Cost
FY04	03036	GREENE BUILDING GRADUATE SPACE RENOVATIONS	\$49,416.00
		GREENE BUILDING RENOVATE ARCHITECTURE DESIGN	
FY04	03037	STUDIOS	\$148,523.00
FY04	04029	GREENE BLDG MAIN ENTRANCE RESTORATION	\$196,237.00
FY04	04104	GREENE 402 RACEWAY FOR A/V CABLES	\$3,757.00
FY05	05018	Greene 403 Laser Ventilation	\$5,300.00
FY05	05020	Greene Public Space Improvements	\$71,429.00
FY05	05024	Greene Building Graduate Space Renovation	\$48,354.00
FY06	05025	Greene Building Design Studio Furniture	\$173,232.00
FY06	06015	Greene 207 Window Sash Restoration	\$1,639.00
FY06	06017	Greene 403 New Laser	\$5,000.00
FY06	06041	Greene Door Signage	\$3,844.00
FY07	06068	Greene Entrance Plaza & Sidewalks Reconstruction	\$2,830.00
FY07	07046	Greene 207/305 Lighting Improvements	~~\$3,188.00~~
FY08	08004	Greene 116 Floor & Woodwork Refinishing	~~\$2,289.00~~
FY08	08010	Greene 100 A Corridor Display Boards	~~\$1,686.00~~
		Greene Building Design Studio & Wood Shop Relocation/Gallery Fire	
FY08	08094	Exit	\$412,170.00
Total	16		\$1,128,894.00

RENSSELAER SCHOOL OF ARCHITECTURE

3.10 The Thirteen Conditions of Accreditation

Development Activities with Institute Advancement

2008-2009 Activity:

- American Institute of Architects National conference held in Boston (AIA) – Dean Balfour attended and our alumnus Steve Ehrlich '77 was the guest speaker.
- American Institute of Architects National Conference held in San Francisco (AIA) - Acting Dean Mark Mistur '83 attended and our alumnus Jim Collins '77 and Peter Pfeiffer '78 were the guest speakers.
- Build Boston – Acting Dean Mark Mistur '83 attended and alumnus Emily Grandstaff –Rice was the guest speaker. Joe Szaibowski '88 was our alumni contact for this event.
- Mark Mistur attended a dinner at alum Steve Ehrlich '68 home with other alumni.
- Mark Mistur visited with Chris Jaffe '49 in CT.
- Giving Information: 50 gifts/pledges = \$1,084,730

2007-2008 Activity:

- Building Trades Event in Washington DC - Dean Balfour attended and our alumnus Tom Huber '93 and Mitch Weber '76 were the guest speakers.
- Build Boston – Dean Balfour attended and alumnus Eric Lambiaso '90 was the guest speaker. Joe Sziabowski '88 was our alumni contact for this event.
- Dean Balfour attended a reception/dinner hosted by alumnus Jim Collins '77.
- Dean Balfour attended Philadelphia Federal Reserve hosted by alumnus Peter Levasseur '93.
- Dean Balfour was part of a platinum visit on campus with John Jackson '73, Peter Bohlin '58, and Frank Grauman '73.
- Giving Information: 64 gifts/pledges = \$2,101,427

2006-2007 Activity:

- Build Boston – Dean Balfour attended and Stephen Chung '91 was the guest speaker. Joe Sziabowski '88 was our alumni contact for this event.
- Dean Balfour attended a dinner on campus with Jim LaPosta '80 and David Jepson '63.
- Dean Balfour was part of the Renaissance Weekend on campus.
- Dean Balfour met with Mitch Weber and Charlie Thornton with Adrienne Larys in Baltimore.
- Dean Balfour attended a luncheon in Pittsburgh with Ken Ralph (former Athletic Director) and alumni from the Pittsburgh area. Dean Balfour also visited with Jon Jackson '73 privately.
- Dean Balfour visited in Philadelphia with alum Alan Greenberger '74.
- Giving Information: 118 gifts/pledges = \$1,323,553

2005-2006 Activity:

- Build Boston – Johannes Goebel, Director, Experimental Media and Performing Arts Center, was the guest speaker. Daid Riebe, Clinical Associate Professor & Chair of Professional Programs, was the School of Architecture liaison. Joe Sziabowski '88 was our alumni contact for this event.
- Giving Information: 84 gifts/pledges = \$1,956,270

2004-2005 Activity:

- Build Boston – Dean Balfour was the guest speaker, along with student C.J. LaMora '06. Joe Sziabowski '88 was our alumni contact for this event.
- Giving Information: 29 gifts/pledges = \$280,788

Development Baseline Formation as of August 2009

▪ Total number of school of architecture alumni (Grad and undergrad)	2,689	
▪ Total number of school of architecture alumni making at least		
▪ one gift to Rensselaer during the past 10 years	923	34% of total
▪ Total number of school of architecture alumni donors to		
▪ Rensselaer whose lifetime giving is \$2,500 or more.	308	11% of total
▪ Raised for school of architecture in last campaign		\$11,325,830

RENSSELAER SCHOOL OF ARCHITECTURE

3.10 The Thirteen Conditions of Accreditation

Other Funds Available

Overhead Research Incentive Funds

The institute returns to faculty principal investigators and their respective schools/departments and/or centers 10% of the overhead collected from sponsored research. Current indirect cost and fringe benefit rates for Fiscal year 2010 are:

- On Campus Research: 61.00%
- Off Campus Research: 26.00%
- On Campus Training: 34.41%
- Off Campus Training: 26.00%
- Employee Benefits: 41.50%
- Tuition: \$38,100 per year
- GRA Stipend: \$22,000
- (AY - \$16,500 SUM - \$5,500)

For tenure track or research faculty principal investigators the total incentive amount shall be divided 30% to the principal investigator(s), 55% to the PI's department(s), and 15% to the center(s) that the research is affiliated with, or if there is no center affiliation, to the provost's research incentive fund for subsequent distribution.

For center staff principal investigators the total incentive amount shall be divided 45% to the principal investigators center, 55% to the academic department(s) that the research is affiliated with, or if there is no departmental affiliation, to the provost's research incentive fund for subsequent distribution.

Architecture research return annually is between \$5 - \$8k, however closer to \$45k is returned to Architecture from Lighting. These funds are used at the dean's discretion and have been used to support administrative supplements for center directors, fund research initiatives and to replace equipment.

Gift Income

Gift income varies from year to year. Generally the School receives ~\$20k in unsolicited donations for various events, projects etc. Increasingly with research we are soliciting donations to contribute to program development and establishing research resources. For example the Built Ecologies Program in NYC has entered into an agreement with Skidmore, Owings and Merrill, (SOM) who has pledged \$525k over three years in funding to help seed the program, this coupled with in-kind contributions of just over \$2 million annually.

Sponsored Research

Research activity in Architecture is a sea change for the School. Within the Performance Plan the case is made for the need for the Institute to recognize the limitations of the School's budget to support this transition, and help seed the change in areas such as release time, cost sharing and startup packages comparable to science and engineering. The school has been very successful in securing initial research funds in the area of Built Ecologies with \$1.2m awarded in last four years. Acoustics has also seen some success with an NSF award of \$200k. The Lighting Research Center now in its 20th year averages approximately \$5 million dollars in research awards per year.

Data on annual expenditures and total capital investment per student, both undergraduate and graduate correlated to the expenditures and investments by other professional degree programs in the institution.

RENSSELAER SCHOOL OF ARCHITECTURE

3.10 *The Thirteen Conditions of Accreditation*

Rensselaer's School of Engineering has 12 ABET accredited programs and accounts for 57% of undergraduate enrollment at the Institute. With seven areas of study, six research centers and multiple specialized facilities including the 100 Clean Room, Plasma Lab, Advanced Manufacturing Lab, O.T. Swanson Multidisciplinary Lab, MDL Fabrication and Prototyping Area and Litec Lab Classroom, the infrastructure, annual expenditures and total capital investment per student with Architecture are nearly impossible to compare. Additionally students enrolled in Engineering do not declare a major until the start of their third or junior year. All Engineering freshman and sophomores are considered "undeclared" and enrolled/supported through Core Engineering. The following expenditure data takes into account *program* education and general budgets divided by total enrollment (undergrad and grad) to provide a baseline of institutional support. It does not account for the differences in infrastructure or initial engineering support from Core Engineering (chart next page).

RENSSELAER SCHOOL OF ARCHITECTURE

3.10 The Thirteen Conditions of Accreditation

Comparative Expenditure Data

Architecture	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
<i>Enrollment</i>						
BArch	252	248	276	296	293	298
Building Sciences	6	14	15	15	7	3
Graduate	63	50	65	64	75	61
Total (A)	321	312	356	375	375	362
<i>Expenditures</i>						
E&G	\$ 2,985	\$ 2,886	\$ 2,979	\$ 3,097	\$ 3,110	\$ 3,055
Institute GFA	\$ <u>620</u>	\$ <u>602</u>	\$ <u>683</u>	\$ <u>583</u>	\$ <u>788</u>	\$ <u>873</u>
Total (B)*	\$ 3,605	\$ 3,488	\$ 3,662	\$ 3,680	\$ 3,898	\$ 3,928
<i>Exp. Per Student</i>						
Undergraduate	n/a	n/a	n/a	n/a	n/a	n/a
Graduate	n/a	n/a	n/a	n/a	n/a	n/a
Total (B/A)**	\$11	\$11	\$10	\$10	\$10	\$11
Civil Engineering	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
<i>Enrollment</i>						
Undergraduate	164	170	202	236	301	327
Graduate	47	48	46	45	45	47
Total (C)	211	218	248	281	346	374
<i>Expenditures</i>						
E&G	\$ 1,868	\$ 2,037	\$ 1,926	\$ 1,688	\$ 1,980	\$ 1,814
Institute GFA	\$ <u>787</u>	\$ <u>617</u>	\$ <u>856</u>	\$ <u>991</u>	\$ <u>1,167</u>	\$ <u>907</u>
Total (D)*	\$ 2,655	\$ 2,654	\$ 2,782	\$ 2,679	\$ 3,147	\$ 2,721
<i>Exp. Per Student</i>						
Undergraduate	n/a	n/a	n/a	n/a	n/a	n/a
Graduate	n/a	n/a	n/a	n/a	n/a	n/a
Total (D/C)**	\$ 13	\$ 12	\$ 11	\$ 10	\$ 9	\$ 7
Difference Per Student	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total (D/C minus B/A)	\$ 1	\$ 1	\$ 1	\$ (0)	\$ (1)	\$ (4)

*Million; ** Thousand

Administrative Structure (3.11)

RENSSELAER SCHOOL OF ARCHITECTURE

3.11 *The Thirteen Conditions of Accreditation*

The Thirteen Conditions of Accreditation

3.11 Administrative Structure

The accredited degree program must be, or be part of, an institution accredited by one of the following regional institutional accrediting agencies for higher education: the Southern Association of Colleges and Schools (SACS); the Middle States Association of Colleges and Schools (MSACS); the New England Association of Schools and Colleges (NEASC); the North Central Association of Colleges and Schools (NCACS); the Northwest Commission on Colleges and Universities (NWCCU); and the Western Association of Schools and Colleges (WASC). The accredited degree program must have a measure of autonomy that is both comparable to that afforded other professional degree programs in the institution and sufficient to ensure conformance with the conditions for accreditation.

The APR must include the following information:

- *A statement verifying the institution's accreditation from the regional institutional accrediting agency for higher education*
- *A description of the school's administrative structure and a comparison of this structure with those of the other professional programs in the institution*
- *A list of other degree programs, if any, offered in the same administrative unit as the accredited architecture degree program.*

A statement verifying the institution's accreditation from the regional institutional accrediting agency for higher education

Rensselaer Polytechnic Institute is accredited by Middle States Association of Colleges and Schools and has been since 1927. The Institute's last Middle States Report was completed in 2006 the next commission action is scheduled for 2011.

A description of the school's administrative structure and a comparison of this structure with those of the other professional programs in the institution

Rensselaer is a private university with a Board of Trustees. The vision and mission of the Institute are set by its President who has given leadership and direction through *The Rensselaer Plan*, and who has established annual performance planning procedures which ensure an evergreen examination of each enterprise, while substantively engaging leadership at the School level. Vice presidents, a chief of staff, and a provost who are members of the president's cabinet support her. The University consists of five Schools, each having a Dean who is the head and reports to a Provost, the Chief Academic Officer of the University: (see organization charts)

Board of Trustees – Samuel Hefner, Chair
President – Dr. Shirley Ann Jackson
Provost – Dr. Robert Palazzo

Academic Deans

Architecture – Evan Douglass
Engineering – David Rosowsky
Humanities, Arts and Social Sciences – Wayne Gray (Acting)
Lally School of Management and Technology – David Gautschi
Science – David Spooner (Acting)

(see organization chart describing the executive level of the Institution following this section)

RENSSELAER SCHOOL OF ARCHITECTURE

3.11 *The Thirteen Conditions of Accreditation*

Each Dean reports to the provost and is part of the Provost's Dean's Council. The Dean's Council includes the five academic Deans, a Vice Provost and Dean of Undergraduate Education and a Vice Provost and Dean of Graduate Education. Under the performance planning process employed at Rensselaer, each School is a 'Portfolio'. The Deans are the 'Portfolio Owners', responsible for annual review, reporting, planning and budgeting, and are ultimately responsible for their respective School.

The School of Architecture is one of two [Architecture and Engineering] with a professional program. Of the five Schools, three [HASS, Science, and Engineering] have departments, and two [Architecture and The Lally School of Management and Technology] do not. The School of Engineering is the largest School comprising 57% of the undergraduate student population. It has seven academic areas of study and is structured with two years of common core engineering in anticipation of a declared discipline area leading to 1 of 12 professional Engineering [ABET] accredited degree, one of the three prerequisites to a professional engineering status.

Summary Comparison of Significant Differences

Engineering Faculty are assigned to a department and report to their department head. In Architecture there are no departments and faculty report directly to the Dean. In both Engineering and Architecture research faculty and specialists report to Center Directors. The principle difference, besides scale, is in Architecture faculty's direct reporting to the Dean. The Chairs in Architecture serve an administrative role, are a part of the Dean's leadership team and are responsible to execute, deliver, and initiate in the interest of the School, but do not have faculty reports, or perform annual reviews, as do department heads in Engineering.

School of Architecture [see org chart following section]

Dean^{1,2}

Associate Dean^{1,2,3}

Chair of Graduate Programs^{1,2,3}

Chair of Undergraduate Programs^{1,2,3}

Business Manager^{1,4}

Center Directors [CASE and LRC] ²

LRC Associate Director ^{2,5}

Graduate Program Area Heads [Lighting, Acoustics, Built Ecologies] ^{2,6}

Faculty ³

Executive Assistant to the Dean ³

Administrative Staff ⁷

Digital Fabrications Lab Manager ⁷

IT Director ⁷

¹ Leadership Team

² Tenured Faculty Appointment

³ Report to the Dean

⁴ Reports to the Dean and to the Director of Budget in Finance

⁵ Reports to the Dean and LRC Director

⁶ Reports to the Dean and Chair of Grad Programs

⁷ Reports to the Business Manager

RENSSELAER SCHOOL OF ARCHITECTURE

3.11 The Thirteen Conditions of Accreditation

School of Engineering Civil & Environmental [see org chart following section]

Dean²

Department Head(s)^{2,3}

Financial Manager⁸

Executive Assistant⁸

Research Engineer⁸

Systems Programmer, Sr.⁸

Post-doc⁸

Departmental Faculty⁸

A list of other degree programs, if any, offered in the same administrative unit as the accredited architecture degree program.

Other degrees offered from the School of Architecture:

- B.S. Building Science – 4 year Bachelor of Building Science (no longer offered as a program into which a student can matriculate)
- M.Arch II – Post-Professional option for persons having a NAAB accredited B.Arch or M.Arch degree. The degree is a 3 semester, 30 credit degree program structured to permit a range of investigations / research. The program is not heavily promoted and remains an option for study with select faculty in their area of investigation and research.
- Master of Science in Lighting - 2 years, 48 credits
- Master of Science in Architectural Sciences - 1 year, 30 credits
 - Concentration in Architectural Acoustics
 - Concentration in Built Ecologies
 - Concentration in Lighting
- Ph.D. Architectural Sciences - 72 credits including a dissertation
 - Concentration in Architectural Acoustics
 - Concentration in Built Ecologies
 - Concentration in Lighting

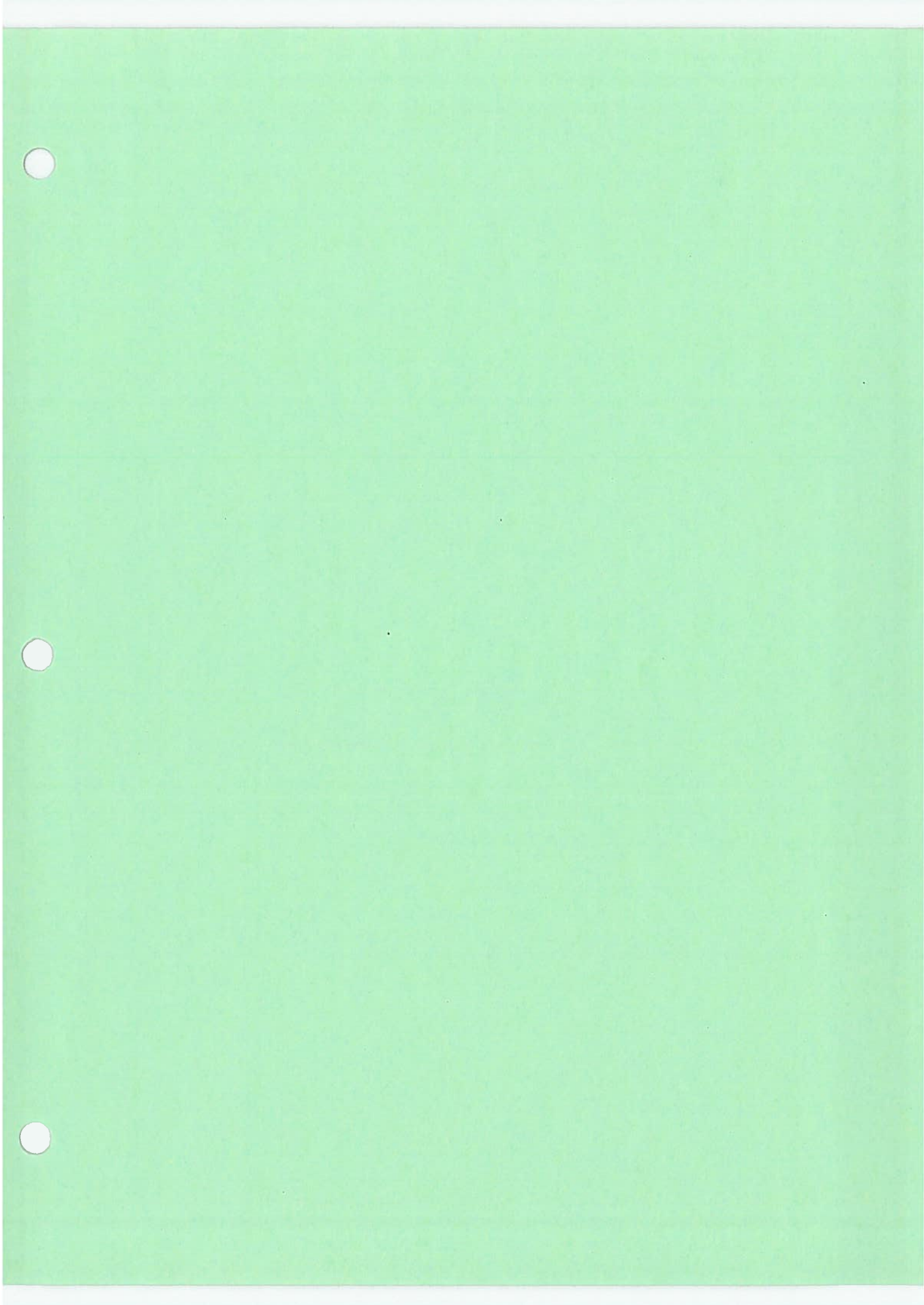
The Ph.D. in Architectural Sciences was approved by the New York State Education Department in 2004 and provides the umbrella structure for the concentration areas described above. The Ph.D program:

- Promotes interdisciplinary approaches to research
- Builds on the Rensseler platform and distinction
- Creates resources, expertise and opportunities for professional program students in the form of faculty, research, scholars, labs, tools, minors, courses and programs (NYC) and undergraduate research opportunities.

The Master of Science in those same concentration areas, are much the same:

- Allowing students with professional degrees, and students from alternative related disciplines to engage in study in a specific area
- Preparing graduates with specific expertise, for consultancies, or in anticipation of / as part of a PH.D.

⁸ Reports to the Department Head





STATEMENT OF ACCREDITATION STATUS

RENSSELAER POLYTECHNIC INSTITUTE
110 Eighth Street
Troy, NY 12180-3590
Phone: (518) 276-6000; Fax: (518) 276-8702
www.rpi.edu

Chief Executive Officer: Dr. Shirley Ann Jackson, President

INSTITUTIONAL INFORMATION

Enrollment (Headcount): 5367 Undergraduate; 2014 Graduate
Control: Private (Non-Profit)
Affiliation: n/a
Carnegie Classification: Research - Very High Research Activity
Degrees Offered: Bachelor's, Master's, Doctoral;
Distance Learning Programs: Yes
Accreditors Approved by U.S. Secretary of Education: Accrediting Board for Engineering and Technology (ABET); National Architecture Accrediting Board (NAAB)
Other Accreditors: American Chemical Society Association to Advance Collegiate Schools of Business

Instructional Locations

Branch Campuses: Rensselaer at Hartford, Hartford, CT
Additional Locations: None
Other Instructional Sites: Rensselaer at Hartford, Groton, CT

ACCREDITATION INFORMATION

Status: Member since 1927
Last Reaffirmed: June 22, 2006

Most Recent Commission Action:

June 22, 2006: To reaffirm accreditation and to commend the institution for the quality of the self-study report. To request that the Periodic Review Report, due June 1, 2011, document further progress in the implementation of an organized and sustained process for the assessment of student learning.

Brief History Since Last Comprehensive Evaluation:

November 20, 2001: To accept the Periodic Review Report, to reaffirm accreditation, and to commend the institution for progress to date and for the quality of the report. The next evaluation visit is scheduled for 2005-06.

Next Self-Study Evaluation: 2015 - 2016

Next Periodic Review Report: 2011

Date Printed: June 11, 2009

DEFINITIONS

Branch Campus - A location of an institution that is geographically apart and independent of the main campus of the institution. The location is independent if the location: offers courses in educational programs leading to a degree, certificate, or other recognized educational credential; has its own faculty and administrative or supervisory organization; and has its own budgetary and hiring authority.

Additional Location - A location, other than a branch campus, that is geographically apart from the main campus and at which the institution offers at least 50 percent of an educational program.

Other Instructional Sites - A location, other than a branch campus or additional location, at which the institution offers one or more courses for credit.

Distance Learning Programs - Yes or No indicates whether or not the institution has been approved to offer one or more degree or certificate/diploma programs for which students could meet 50% or more of their requirements by taking distance learning courses.

EXPLANATION OF COMMISSION ACTIONS

An institution's accreditation continues unless it is explicitly suspended or removed. In addition to reviewing the institution's accreditation status at least every 5 years, actions are taken for substantive changes (such as a new degree or geographic site, or a change of ownership) or when other events occur that require review for continued compliance. Any type of report or visit required by the Commission is reviewed and voted on by the Commission after it is completed.

In increasing order of seriousness, a report by an institution to the Commission may be accepted, acknowledged, or rejected.

Levels of Actions:

Grant or Re-Affirm Accreditation without follow-up

Defer a decision on initial accreditation: The institution shows promise but the evaluation team has identified issues of concern and recommend that the institution be given a specified time period to address those concerns.

Postpone a decision on (reaffirmation of) accreditation: The Commission has determined that there is insufficient information to substantiate institutional compliance with one or more standards.

Continue accreditation: A delay of up to one year may be granted to ensure a current and accurate representation of the institution or in the event of circumstances beyond the institution's control (natural disaster, U.S. State Department travel warnings, etc.)

Recommendations to be addressed in the next Periodic Review Report: Suggestions for improvement are given, but no follow-up is needed for compliance.

Supplemental Information Report: This is required when a decision is postponed and are intended only to allow the institution to provide further information, not to give the institution time to formulate plans or initiate remedial action.

Progress letter: The Commission needs assurance that the institution is carrying out activities that were planned or were being implemented at the time of a report or on-site visit.

Monitoring report: There is a potential for the institution to become non-compliant with MSCHE standards; issues are more complex or serious; or issues require a substantive, detailed report. A visit may or may not be required.

Warning: The Commission acts to Warn an institution that its accreditation may be in jeopardy when the institution is not in compliance with one or more Commission standards and a follow-up report, called a monitoring report, is required to demonstrate that the institution has

ppr... improvements to bring itself into compliance. Warning indicates that the Commission believes that, although the institution is out of compliance, the institution has the capacity to make appropriate improvements within a reasonable period of time and the institution has the capacity to sustain itself in the long term.

Probation: The Commission places an institution on Probation when, in the Commission's judgment, the institution is not in compliance with one or more Commission standards and that the non-compliance is sufficiently serious, extensive, or acute that it raises concern about one or more of the following:

1. the adequacy of the education provided by the institution;
2. the institution's capacity to make appropriate improvements in a timely fashion; or
3. the institution's capacity to sustain itself in the long term.

Probation is often, but need not always be, preceded by an action of Warning or Postponement. If the Commission had previously postponed a decision or placed the institution on Warning, the Commission may place the institution on Probation if it determines that the institution has failed to address satisfactorily the Commission's concerns in the prior action of postponement or warning regarding compliance with Commission standards. This action is accompanied by a request for a monitoring report, and a special visit follows. Probation may, but need not always, precede an action of Show Cause.

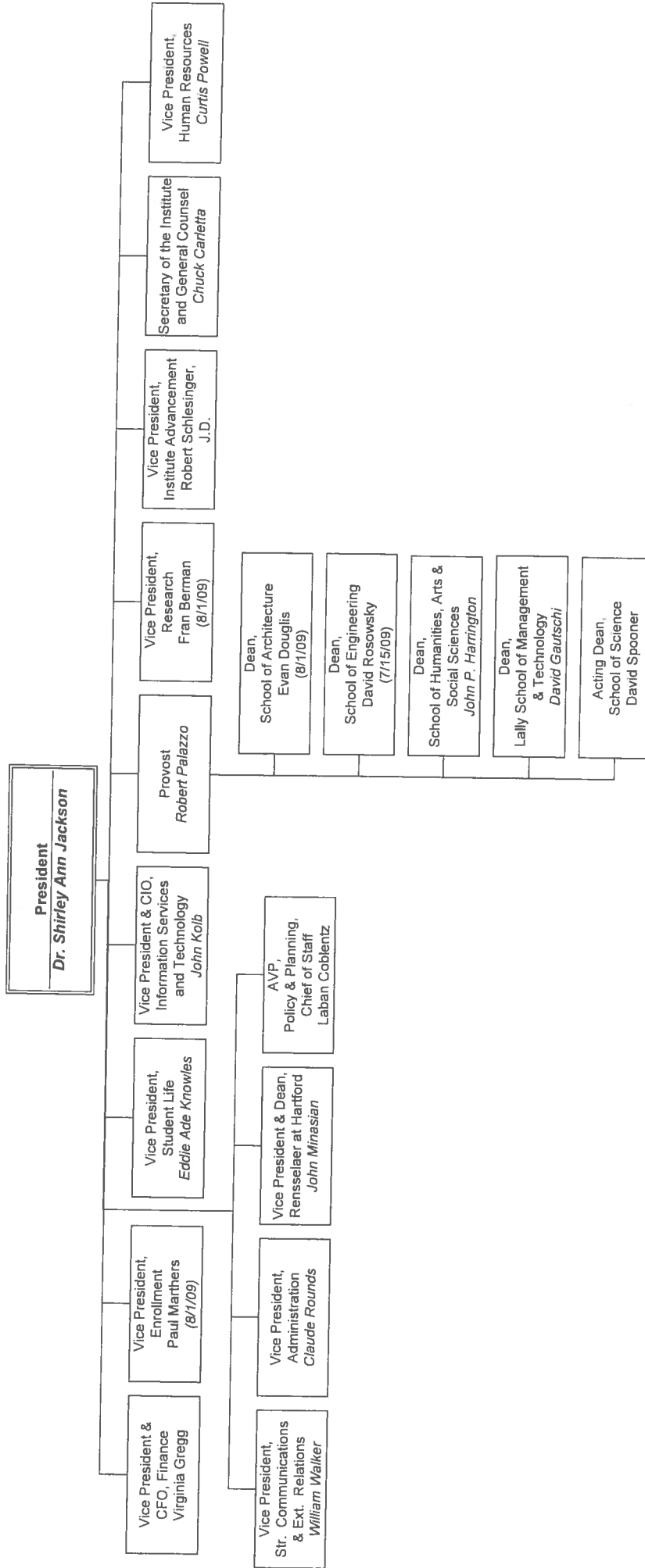
Suspend accreditation: Accreditation has been Continued for one year and an appropriate evaluation is not possible. This is a procedural action that would result in Removal of Accreditation if accreditation cannot be reaffirmed within the period of suspension.

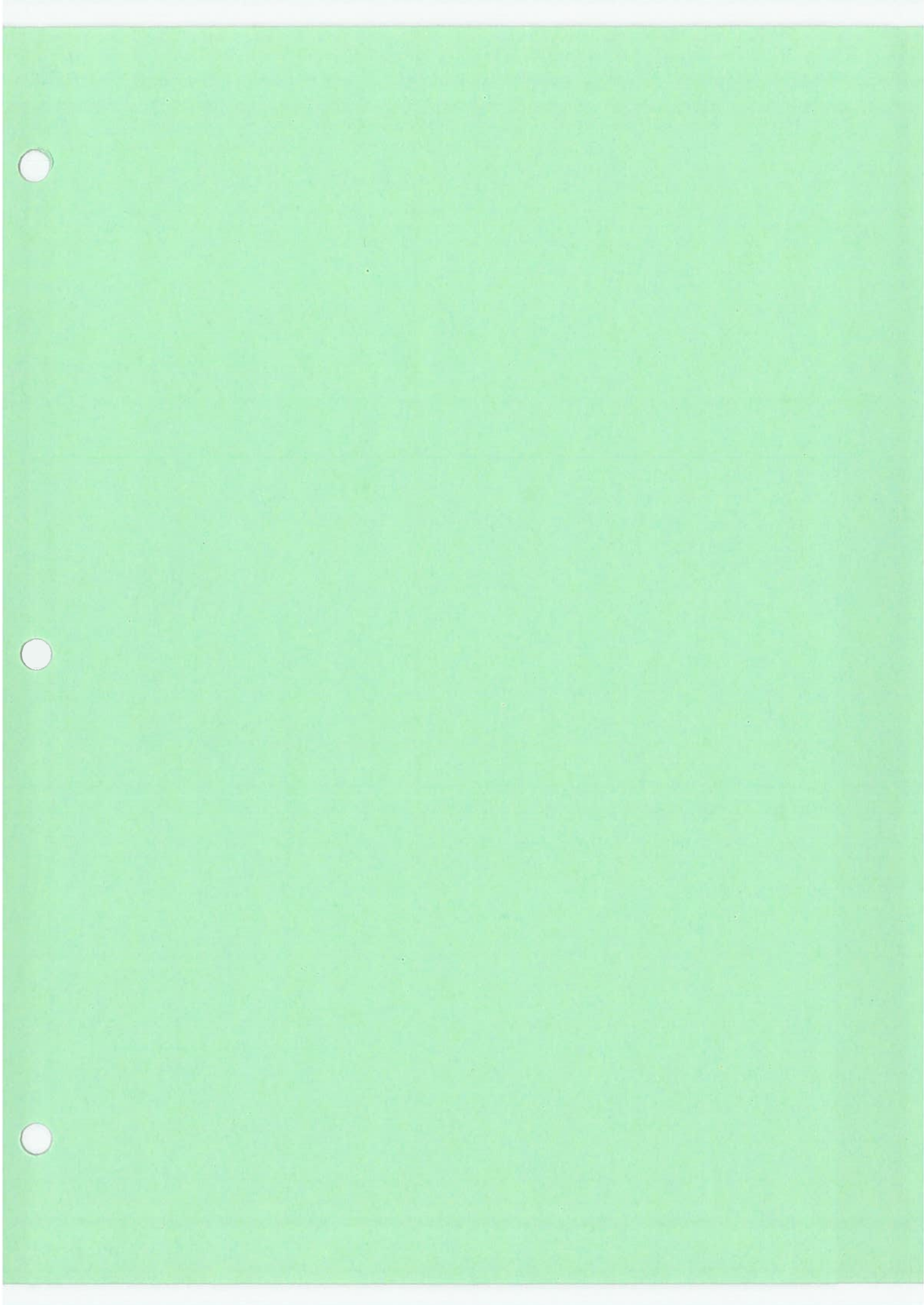
Show cause why the institution's accreditation should not be removed: The institution is required to present its case for accreditation by means of a substantive report and/or an on-site evaluation. A "Public Disclosure Statement" is issued by the Commission.

Remove accreditation. If the institution appeals this action, its accreditation remains in effect until the appeal is completed.

Other actions are described in the Commission policy, "Range of Commission Actions on Accreditation."



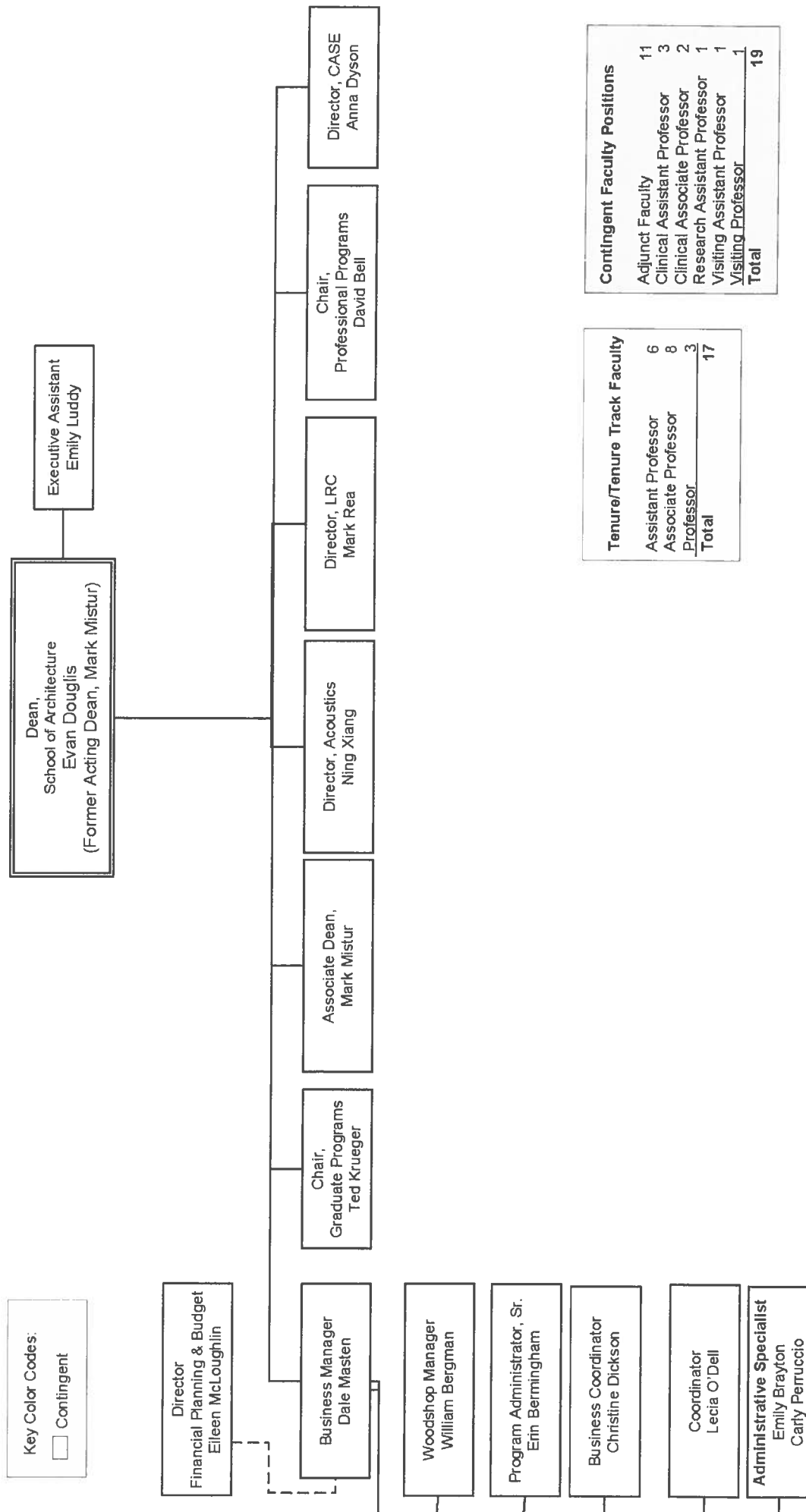




Office of the Dean School of Architecture



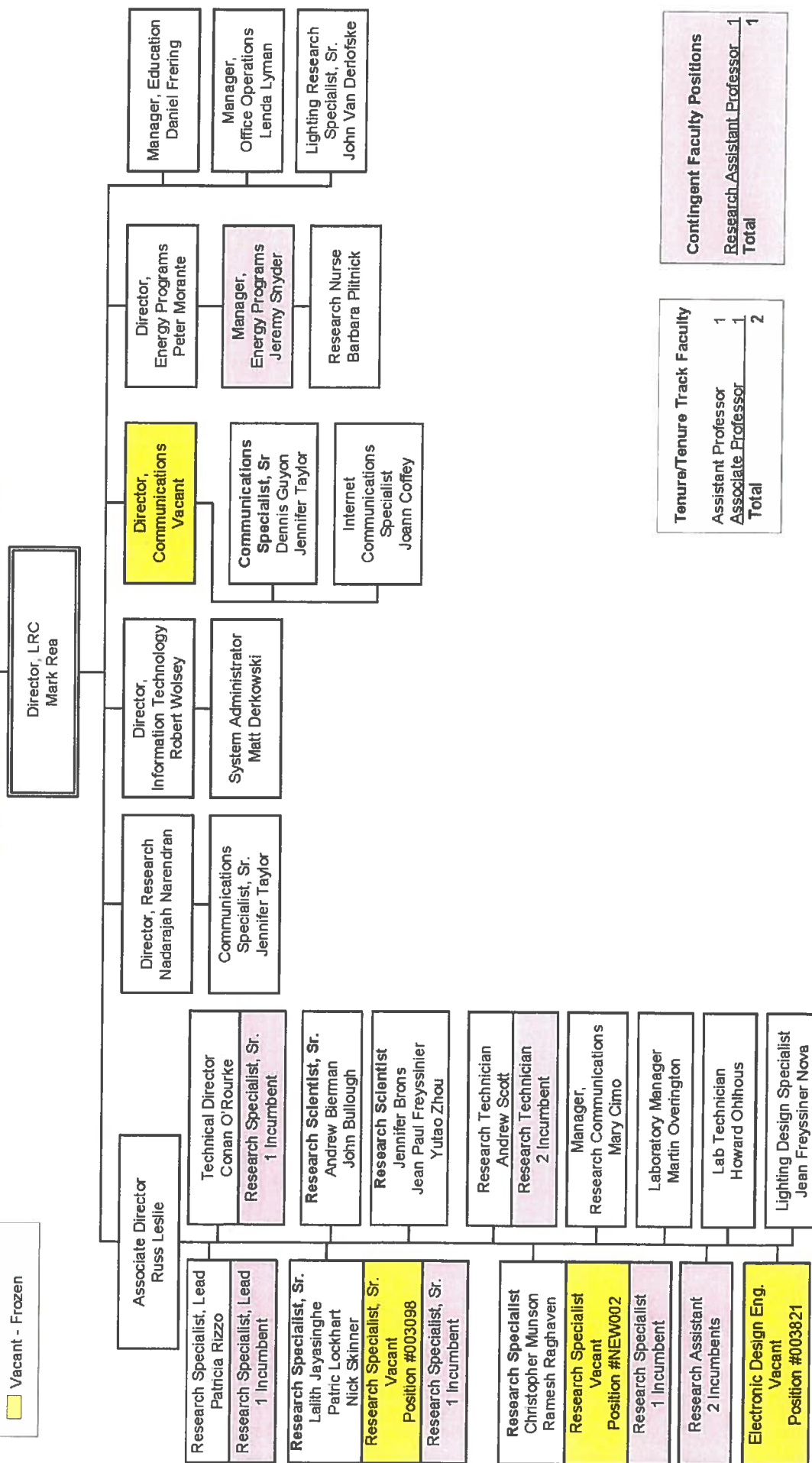
Monday, August 24, 2009



Rensselaer

Dean,
School of Architecture
Evan Douglas
(Former Acting Dean, Mark Mistur)

 Vacant - Frozen



Page 2



Office of the Dean School of Engineering

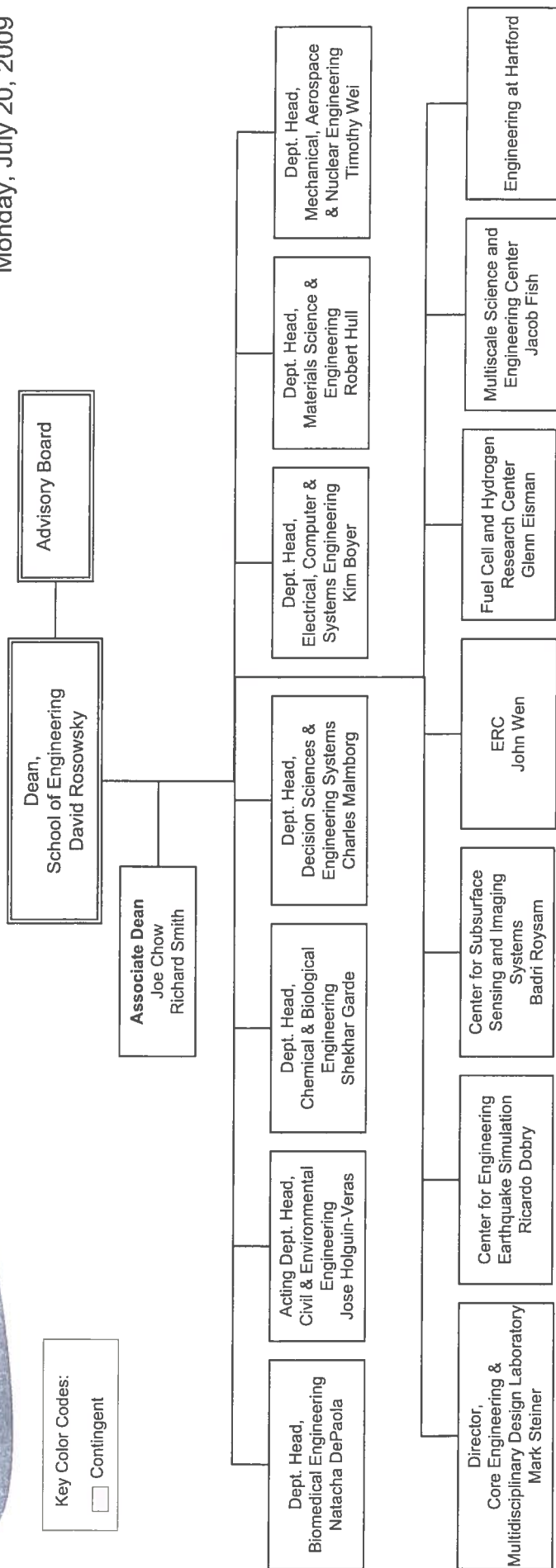


Rensselaer

Monday, July 20, 2009

Key Color Codes:

☐ Contingent



Tenure/Tenure Track Faculty	
Assistant Professor	33
Associate Professor	36
Professor	69
Total	138

Contingent Faculty Positions	
Adjunct Faculty	8
Clinical Assistant Professor	3
Clinical Associate Professor	3
Lecturer	1
Research Assistant Professor	3
Research Associate Professor	1
Research Professor	3
Visiting Professor	1
Total	24

Office of the Dean School of Engineering



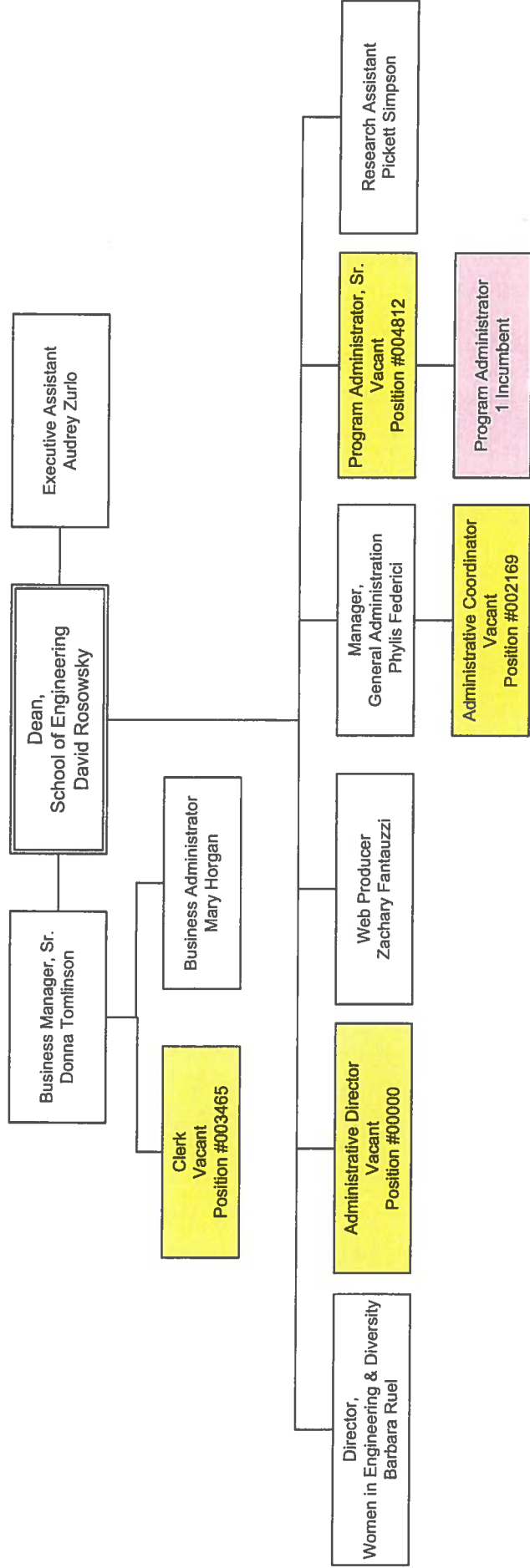
Rensselaer

Monday, July 20, 2009

Key Color Codes:

Contingent

Vacant

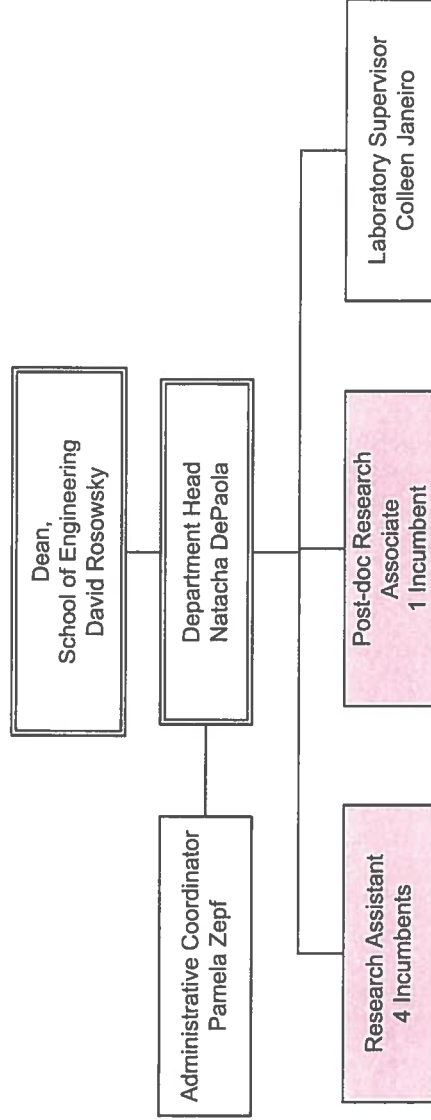


Biomedical Engineering School of Engineering



Monday, July 20, 2009

Key Color Codes:



Tenure/Tenure Track Faculty	
Assistant Professor	6
Associate Professor	1
Professor	2
Total	10

Contingent Faculty Positions	
Research Professor	1
Total	1

CEES Earthquake School of Engineering

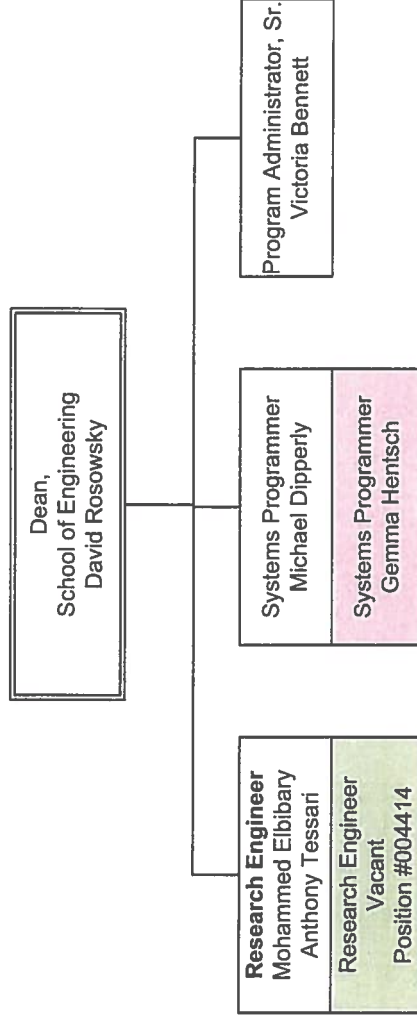


Rensselaer

Monday, July 20, 2009

Key Color Codes:

Approved for Recruitment
Contingent
Vacant



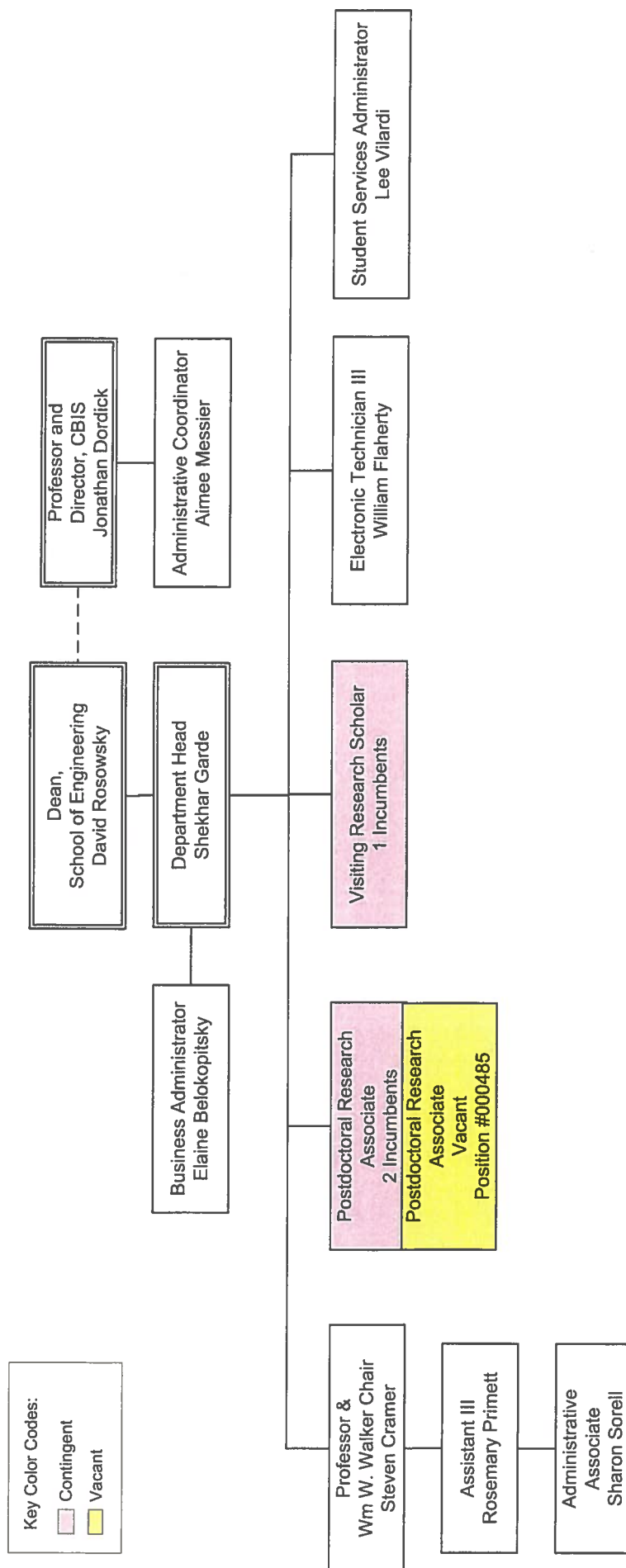
Contingent Faculty Positions	
Research Assistant Professor	1
Total	1



Rensselaer

Chemical & Biological Engineering School of Engineering

Monday, July 20, 2009



Tenure/Tenure Track Faculty	
Assistant Professor	6
Professor	7
Total	13

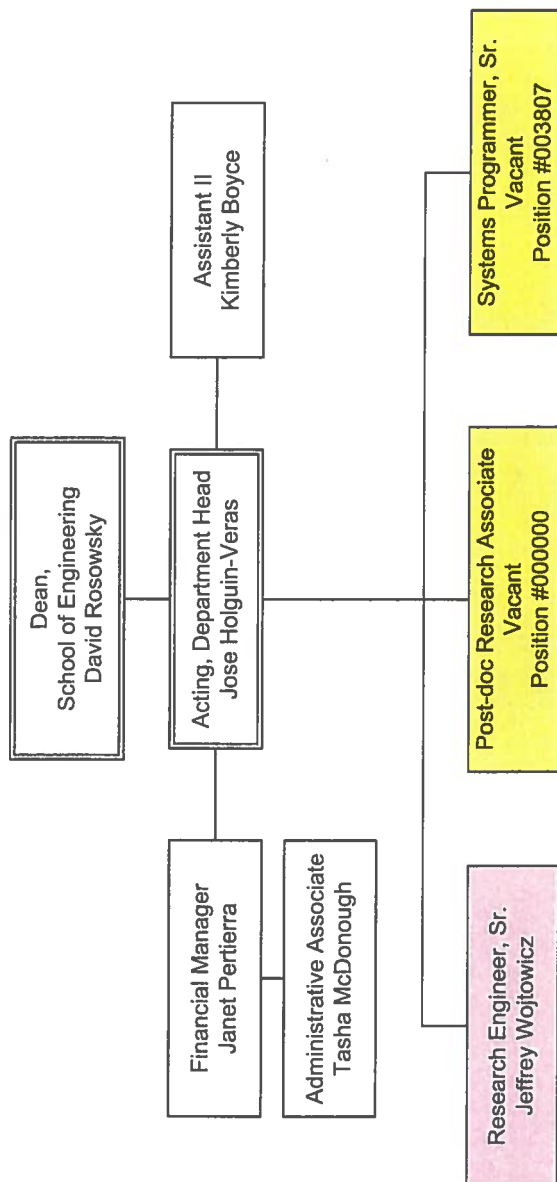
Contingent Faculty Positions	
Research Associate Professor	1
Total	1

Civil & Environmental Engineering School of Engineering



Rensselaer

Monday, July 20, 2009

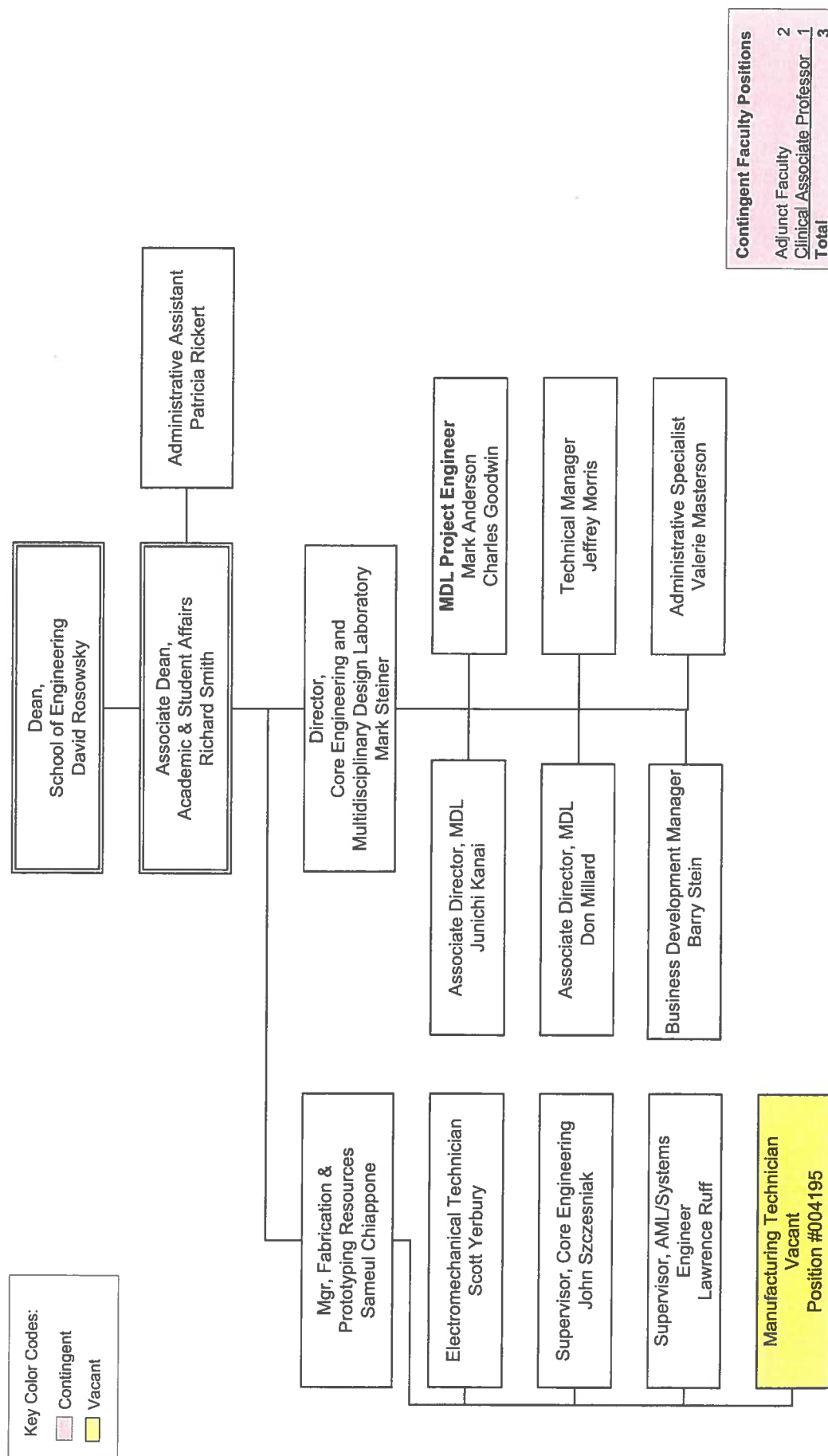


Tenure/Tenure Track Faculty	
Assistant Professor	3
Associate Professor	5
Professor	4
Total	12

Contingent Faculty Positions	
Adjunct Faculty	2
Total	2

Core Engineering School of Engineering

Monday, July 20, 2009

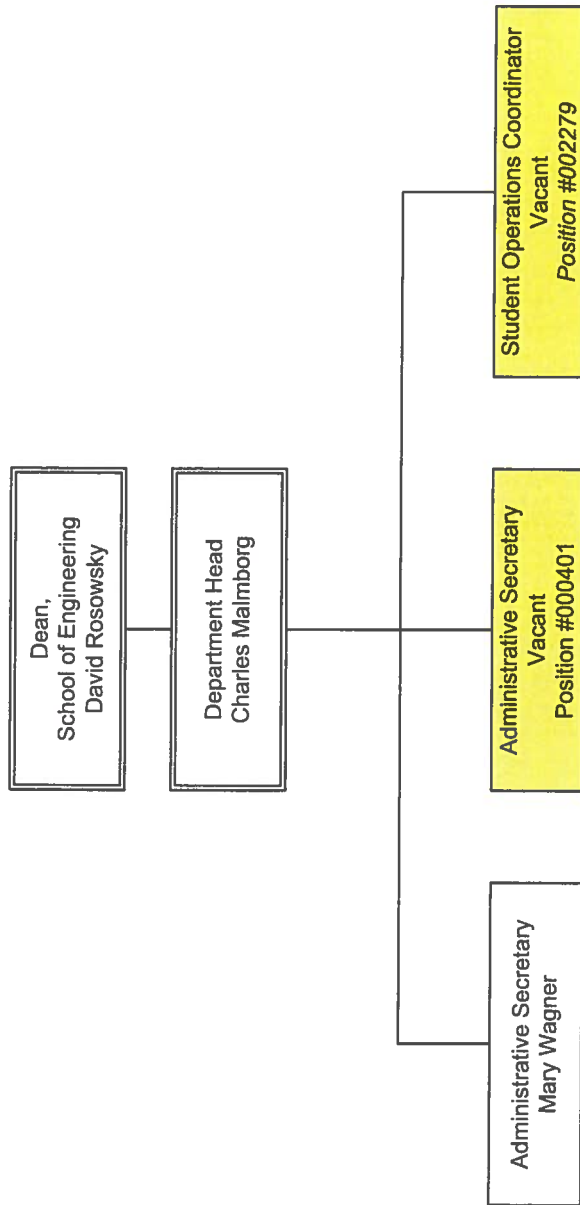


Decision Sciences & Engineering School of Engineering



Monday, July 20, 2009

Key Color Codes:



Tenure/Tenure Track Faculty

Assistant Professor	3
Associate Professor	1
Professor	3
Total	7

Contingent Faculty Positions

Clinical Assistant Professor	1
Clinical Associate Professor	1
Professor	1
Research Professor	1
Total	4

Electrical, Computer & Systems Engineering School of Engineering



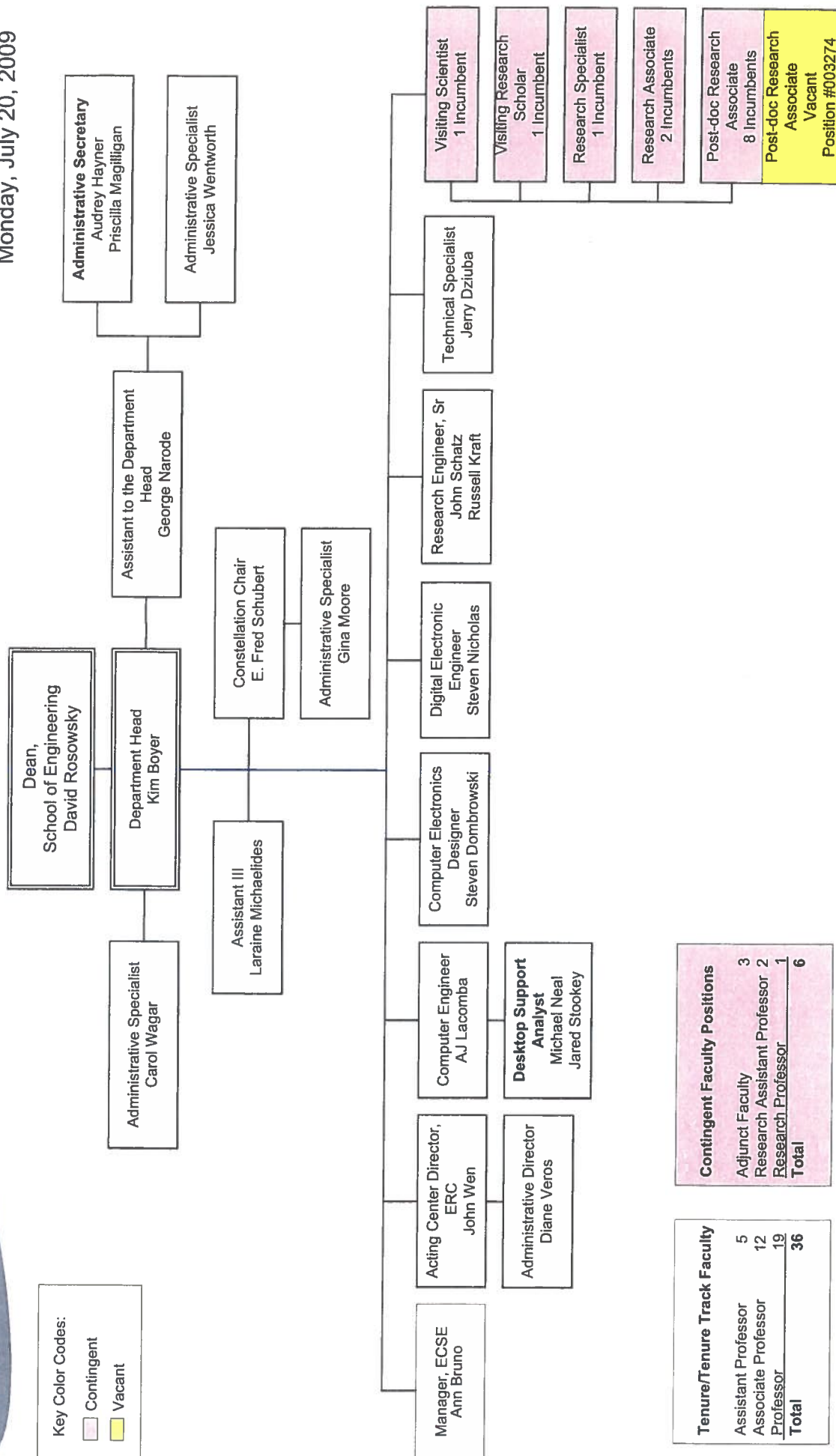
Rensselaer

Monday, July 20, 2009

Key Color Codes:

Contingent

Vacant



Tenure/Tenure Track Faculty

Assistant Professor	5
Associate Professor	12
Professor	19
Total	36

Contingent Faculty Positions

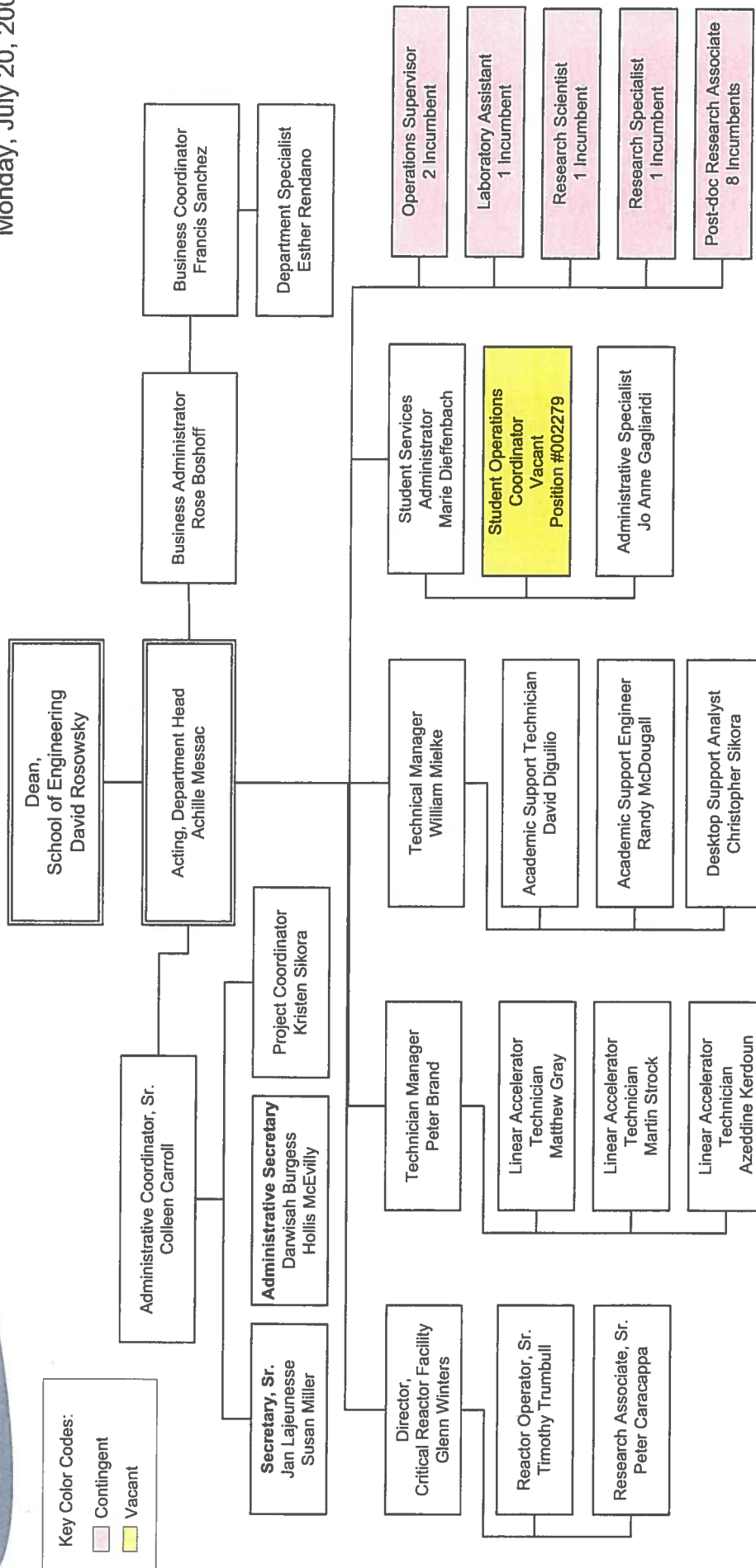
Adjunct Faculty	3
Research Assistant Professor	2
Research Professor	1
Total	6

Mechanical, Aerospace & Nuclear Engineering School of Engineering



Rensselaer

Monday, July 20, 2009



Contingent Faculty Positions	
Clinical Assistant Professor	1
Clinical Associate Professor	2
Lecturer	1
Total	4

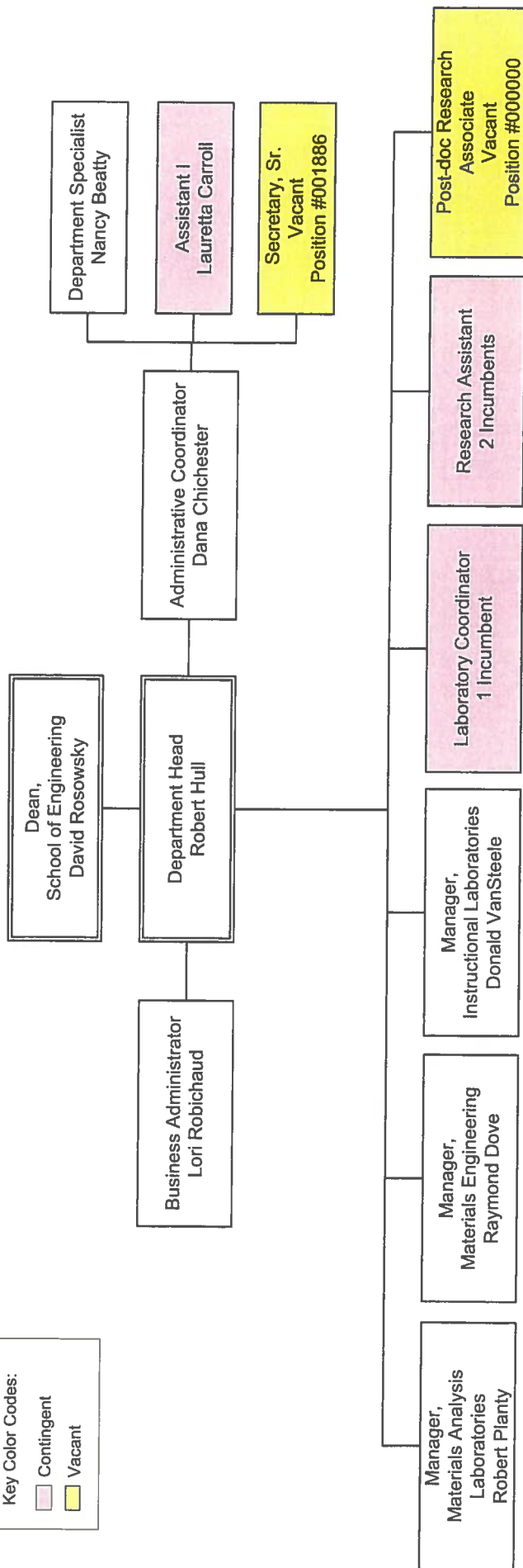
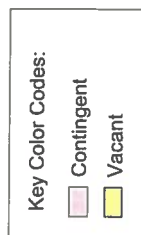
Tenure/Tenure Track Faculty	
Assistant Professor	8
Associate Professor	13
Professor	15
Total	36

Materials Science & Engineering School of Engineering



Rensselaer

Monday, July 20, 2009



Tenure/Tenure Track Faculty			
Assistant Professor	3		
Associate Professor	3		
Professor	7		
Total	13		

Contingent Faculty Positions			
Adjunct Faculty	1		
Visiting Professor	1		
Total	2		

Multiscale Science and Engineering Center School of Engineering



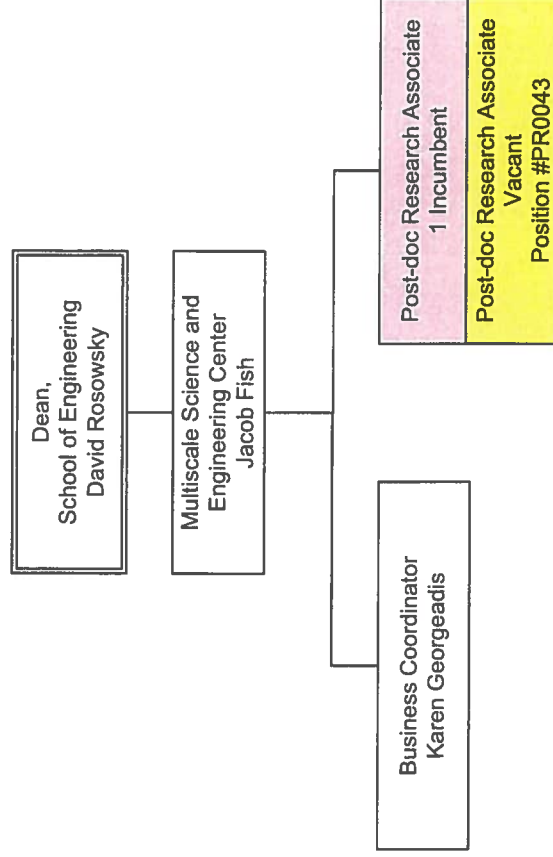
Rensselaer

Monday, July 20, 2009

Key Color Codes:

 Contingent

 Vacant



Degrees and Curriculum (3.12)

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

The Thirteen Conditions of Accreditation

3.12 Professional Degrees and Curriculum

The NAAB accredits the following professional degree programs: the Bachelor of Architecture (B. Arch.), the Master of Architecture (M. Arch.), and the Doctor of Architecture (D. Arch.). The curricular requirements for awarding these degrees must include professional studies, general studies, and electives. Schools offering the degrees B. Arch., M. Arch., and/or D. Arch. are strongly encouraged to use these degree titles exclusively with NAAB-accredited professional degree programs.

The number of credit hours for each degree is specified in the following paragraphs:

- **Doctor of Architecture.** Accredited degree programs awarding the D. Arch. degree must require either an undergraduate baccalaureate degree or a minimum of 120 undergraduate semester credit hours, or the undergraduate-level quarter-hour equivalent, and a minimum of 90 graduate-level semester credit hours, or the graduate-level quarter-hour equivalent, in academic coursework in professional studies and electives.
- **Master of Architecture.** Accredited degree programs awarding the M. Arch. degree must require a minimum of 168 semester credit hours, or the quarter-hour equivalent, of which 30 semester credit hours, or the quarter-hour equivalent, must be at the graduate level, in academic coursework in professional studies and electives.
- **Bachelor of Architecture.** Accredited degree programs awarding the B. Arch. degree must require a minimum of 150 semester credit hours, or the quarter-hour equivalent, in academic coursework in professional studies and electives.

Every existing accredited program must conform to the above minimum credit hour requirements by 1 January 2015.

Curricular requirements are defined as follows:

- **General Studies.** A professional degree program must include general studies in the arts, humanities, and sciences, either as an admission requirement or as part of the curriculum. It must ensure that students have the prerequisite general studies to undertake professional studies. The curriculum leading to the architecture degree must include at least 45 credit hours, or the quarter-hour equivalent, that must be outside architectural studies either as general studies or as electives with other than architectural content. For the M. Arch. and D. Arch., this calculation may include coursework taken at the undergraduate level.
- **Professional Studies.** The core of a professional degree program consists of the required courses that satisfy the NAAB Student Performance Criteria. The accredited degree program has the liberty to require additional courses including electives to address its mission or institutional context.
- **Electives.** A professional degree program must allow students to pursue their special interests. The curriculum must be flexible enough to allow students to complete minors or develop areas of concentration, inside or outside the program.

Table 3-1, Minimum Credit Distribution, presents a summary of the preceding three paragraphs.

Table 3-1
Minimum Credit Distribution

General (non-architecture) Studies 45 Semester-Credit-Hour Minimum*	Professional Studies

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

• <i>Required courses with other than architectural content</i>	• <i>Courses with architectural content required of all students</i>
• <i>Elective courses with other than architectural content</i>	• <i>Elective courses</i>

The APR must include the following:

- *Title(s) of the degree(s) offered*
- *An outline, for each accredited degree program offered, of the curriculum showing the distribution of general studies, required professional courses (including prerequisites), required courses, professional electives, and other electives*
- *Examples, for each accredited degree offered, of the minors or concentrations students may elect to pursue*
- *A list of the minimum number of semester credit hours or the equivalent number of quarter credit hours required for each semester or quarter, respectively*
- *A list identifying the courses and their credit hours required for professional content and the courses and their credit hours required for general education for each accredited degree program offered.*
- *A list of off-campus programs, description of facilities and resources, course requirements, and length of stay.*

Title(s) of the degree(s) offered

NAAB Accredited Degrees

- Bachelor of Architecture, B.Arch
- Master of Architecture I, M.Arch I

Other Degree Programs

- Bachelor of Science Building Science
- Master of Architecture 2 (Post-Professional Degree)
- Master of Science in Architectural Science
- Ph.D in Architectural Science

An outline, for each accredited degree program offered, of the curriculum showing the distribution of general studies, required professional courses (including prerequisites), required courses, professional electives, and other electives

The School of Architecture offers a five-year Bachelor of Architecture degree. The Bachelor of Architecture is a professional degree accredited by the National Architecture Accrediting Board. Approximately 60-70 students are admitted directly into the program each year. As a professional school designed for those ready to begin serious architectural study in the first year, the School of Architecture's admissions decisions are based on three criteria:

- Overall academic excellence
- Creativity demonstrated through work in the arts and other areas
- Maturity and personal motivation.

The School encourages visiting the campus and the Greene Building, home of the School of Architecture, along with a faculty interview. Students who have completed some architecture course work at other schools may apply for transfer to Rensselaer. Upon acceptance, transfer students are placed at an appropriate level in the professional program based on a review of their transcript, course descriptions, and work portfolio.

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

Bachelor of Architecture (168 credit hours)

General Studies	52 credit hours ¹
Required Professional Courses	104 credit hours
Required (General) Courses	16 credits ²
Professional Electives	12 credit hours
General Electives	12 credits ³

General Studies	40 credits ⁴
Humanities Arts and Social Sciences (20 cr) ⁵	
4 cr - (1) required Humanities Course	
16 cr - (4) electives from school of HASS	

Sciences (20 cr) ⁵	
4 cr - (1) required Math course	
4 cr - (1) elective Math course	
8 cr - (2) required science courses	
4 cr - (1) elective from School of Science	

Required Professional Courses	104 credits
History/Theory Sequence (22 cr)	
22 cr – (7) required courses ⁶	
Technology Sequence (24 cr)	
24 cr – (8) required courses	
Core Design Sequence (46 cr)	
28 cr – (5) required studios	
18 cr – (3) elective options studios	
Final Project / Thesis (12 cr)	
2 cr – (1) required competition studio	
1 cr – (1) required Research / Methods Seminar	
9 cr – (2) required Final Project Studios	

Professional Electives	12 credits
12 cr - (3-6) elective courses	

Required General Education	16 credits
16 cr – (4) required courses	

General Electives	12 credits
12 cr - (3-6) elective courses	

¹ Including general electives (12 cr)

² Included in General Studies credit hours

³ Included in General Studies credit hours

⁴ Additional 12 general elective credits

⁵ Additional 4 credit equivalent in required professional courses

⁶ Including ARCH 4040 Case Studies (4 cr) which links H/T and Technology.

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

Any and all course prerequisites exist within the 168 credits, courses and categories outlined above. Prerequisites are specifically identified with course sequences and listings below.

Outline Notes:

- There are 20 stand alone general studies credits in Humanities Arts and Social Sciences
- There are 20 stand alone general studies credits in Science
- An additional eight credits of general studies content have been formally attributed to required architecture course content by the School of Science (4 cr), the School of Humanities Arts and Social Sciences (4 cr), and the Institute Wide Curriculum Committee, respectively. (see catalog)
- There are 12 additional unrestricted general elective credits
- The Italian and Chinese International study programs have language and culture course requirements taken before and while studying abroad, these are taught by non-architectural faculty, and do not include professional content. They were merely administered through the School of Architecture and counted as professional electives. In 2008-09 the School determined that the Italian Language and Culture, Caligraphy painting and Chinese mandarin language course, having general studies content, will no longer be counted as professional electives and shall be counted as general electives.

Summary:

- The majority of architecture students take 60 or more general studies credits or the equivalent counting all of the above. If the equivalent 8 credit content from architecture courses is excluded, students take 52 or more general studies credits.
- The possibility that an architecture student could take all of their unrestricted electives in architecture exists though, this does not typically happen. Nevertheless, a ruling prohibiting students from taking more than 6 of their 12 general elective credits in architecture courses is being implemented.

Examples, for each accredited degree offered, of the minors or concentrations students may elect to pursue.

Bachelor of Architecture (B.Arch)

Minor Programs

Each of Rensselaer's five Schools: Engineering, Science, Management, Humanities Arts and Social Sciences and Architecture offer minors which architecture students may elect to pursue. The School of Architecture offers minors both for Architecture undergraduate students (B.Arch) and undergraduate students majoring in other Rensselaer programs. The various options are listed and described below. The minor and the course content is administered by each of the respective School's and not the School of Architecture.

Architecture Minor (not available to architecture students)

A minor in architecture is directed toward Rensselaer students interested in architecture as a sociocultural phenomenon and/or those envisioning a career in some segment of the building industry. The minor program provides an exposure to architecture—what it is, what it includes, its history, how it is accomplished; and how architects think and work. The minor consists of ARCH 2110 Building and Thinking of Architecture 1 and a select; courses to build a 12 credit concentration in architecture that supports their own disciplinary interests.

Lighting Minor

The minor in Lighting is open to all Rensselaer students, architecture and non-architecture alike. It gives

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

students the awareness and the confidence to extend their creative work through controlled use of light. The program covers human responses to light, both visual and nonvisual, and the means by which light is produced and controlled. Interactions of light with form, texture, and color are examined in the contexts of daylight, electric lighting, and their integration. The program comprises 16 credits taken in the Lighting Research Center including:

- LGHT 4230 - Lighting Design: Credit Hours - 4
- LGHT 4770 - Lighting Technologies and Applications: Credit Hours - 4
- LGHT 4840 - Human Factors in Lighting: Credit Hours - 4
- LGHT 4940 - Advanced Individual Projects in Lighting: Credit Hours - 1 to 6

Architectural Acoustics Minor

The minor in architectural acoustics is open to all Rensselaer students, architecture and non-architecture alike, who are interested in advanced study focusing on the optimization of acoustical quality of performance spaces and other aurally sensitive environments. After completing the minor, the student will be well prepared for an entry level position dealing with acoustics issues in architectural practice, in acoustical consulting, or as a preparation for graduate studies in acoustics, for example in the Graduate Program in Architectural Acoustics at Rensselaer. The program consists of 16 credits. Proficiency in Calculus I is necessary to comprehend the basics of architectural acoustics. Approval of the director of the program area is required for the minor. The required courses are:

- ARCH 4840 - Architectural Acoustics 1: Credit Hours - 4
- ARCH 4850 - Architectural Acoustics 2: Credit Hours - 4
- ARCH 4860 - Applied Psychoacoustics: Credit Hours - 3
- ARCH 6840 - Engineering Acoustics: Credit Hours - 2
- ARCH 6890 - Aural Architecture: Credit Hours - 3

Civil Engineering Minor

Given the close link between architecture and civil engineering, a minor in Civil Engineering has been created for architecture students, built on the foundation of the architecture technology sequence.

- CIVL 2670 Introduction to Structural Engineering
- CIVL 4070 Steel Design
- CIVL 4080 Concrete Design
- Plus two additional Civil Engineering courses from a preset list

Many additional minors consisting of an approved 16-credit sequence in a particular discipline area and which are available to architecture students include:

▪ Anthropology	▪ Ecological Economics, Values, and Policy
▪ Architectural Acoustics	▪ Economics
▪ Astrobiology (Multidisciplinary)	▪ Electrical Engineering
▪ Astronomy	▪ Electronic Arts
▪ Biology	▪ Environmental Engineering
▪ Brain and Behavior	▪ Environmental Science
▪ Chemistry for Non-Chemistry Majors	▪ Financial Technology
▪ Civil Engineering	▪ Games Studies
▪ Cognition	▪ Gender, Science, and Technology
▪ Communication	▪ General Psychology
▪ Community and Health Psychology	▪ Geology
▪ Computer Science	▪ History

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

- Human Factors
- Hydrogeology
- Industrial/Organizational Psychology
- Information Technology
- Interschool Minor in Energy
- Interschool Minor in Energy (SHSS)
- Lighting
- Literature
- Logic, Computation, and Mind
- Management and Technology
- Marketing
- Materials Science and Engineering
- Mathematics
- Music
- Philosophy
- Philosophy of Human Values and Cultures
- Philosophy of Science and Mathematics
- Physics
- Political Science
- Professional Writing
- Psychology
- Science, Technology, and Society
- Social Psychology
- Sociology
- Sport Psychology
- Studio Arts
- Technological Entrepreneurship
- Technology Commercialization and Entrepreneurship

Built Ecologies Concentration

Though not formalized as a concentration, students participating in the semester long program at CASE in New York City participate in a program which themes and structures a 6 credit studio together with courses in ARCH4971.OC Environmental Parametrics (2cr), ARCH6320.OC Built Ecologies 1 (3cr), Graduate level Built Ecologies Elective (3cr) on topics relating to sustainability in architecture and the environment. This opportunity is available to both B.Arch and M.Arch1 students. (24 positions annually)

Computation Concentration

Though not formalized as a concentration, students are able to select a combination of computationally intensive option studios and professional elective courses, including but not limited to ARCH 4430, Electronic Media: Physical Design Processes and ARCH 4060, Surface as Structures as Form which together constitute the equivalent of a concentration area.

The School is currently considering the development of formalized concentrations in each of these areas, Computational Design and Sustainability for the B.Arch and M.Arch.1 professional students.

A list of the minimum number of semester credit hours or the equivalent number of quarter credit hours required for each semester or quarter, respectively

Bachelor of Architecture (B.Arch)

The standard curriculum template requires students to take between 16 and 18 credits per semester. Students taking less than 12 credits in a given semester are classified as part-time students. Full time students may register for up to 20 credits in a given semester before special permission for an overload is required. This is rarely granted. A sample template is provided below.

A list identifying the courses and their credit hours required for professional content and the courses and their credit hours required for general education for each accredited degree program offered.

Bachelor of Architecture (B. Arch.)

Courses and Credit Hours - Professional Content (104 credits)

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

The B.Arch professional degree program consists of 92 required course credits⁷ and 12 credits of Final Project. The professional studies curriculum includes a History/Theory sequence, a Technology sequence and a Design sequence within which are integrated computing and drawing components.

- History / Theory Sequence (22 credits)
 - ARCH 2110 Building and Thinking Architecture 1 4 cr
 - ARCH 2120 Building and Thinking Architecture 2 2 cr
 - ARCH 2140 Building and Thinking Architecture 3 2 cr
 - ARCH 2130 Contemporary Design Approaches 2 cr
 - ARCH 4140 Modernity in Architecture and Culture 4 cr
 - ARCH 4690 Cities / Lands 4 cr
 - ARCH 4040 Case Studies: Investigations in Architectural Knowledge 4 cr
- Technology Sequence (24 credits)
 - ARCH 2510 Materials and Design 2 cr
 - ARCH 2350 Construction Systems 2 cr
 - ARCH 4560 Materials and Enclosure 2 cr
 - ARCH 2330 Structures 1 4 cr
 - ARCH 4330 Structures 2 4 cr
 - ARCH 2360 Environmental and Ecological Systems⁸ 4 cr
 - ARCH 4740 Building Systems and the Environment 4 cr
 - ARCH 4540 Professional Practice⁹ 2 cr
- Design Sequence (46 credits)
 - ARCH 2200 Design Studio¹⁰ 4 cr
 - ARCH 2210 Architecture Design 1¹⁰ 6 cr
 - ARCH 2220 Architecture Design 2¹⁰ 6 cr
 - ARCH 2230 Architecture Design 3¹⁰ 6 cr
 - ARCH 4240 Architecture Design 4 (Options – vertical) 6 cr
 - ARCH 4250 Architecture Design 5 (Options – vertical) 6 cr
 - ARCH 4260 Architecture Design 6 (Options – vertical) 6 cr
 - ARCH 4300 Design Development Studio¹⁰ 6 cr
- Final Project (12 credits)
 - ARCH 4980 Final Project 1 6 cr
 - ARCH 4990 Final Project 2 6 cr
- Professional Electives (12 credits)
 - 3-6 Professional Elective courses (2-4 credits each) 12 cr

⁷ 3 studio courses totaling 18 of the 92 credits are options studios selected from multiple offerings

⁸ Concurrent and coordinated with ARCH 2230 Arch Design 3

⁹ Co requisite with ARCH 4300 Design Development

¹⁰ Integrated Design and Drawing Instruction Components

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

Courses and Credits - General Education (52 credits¹¹)

The curriculum leading to the architecture degree includes 52 credit hours of required, restricted and unrestricted elective general education courses. Students are required to complete:

- **Science Core** (20 credits) ¹¹

MATH 1500	Calculus for Architecture, Management, and HASS	4 cr
MATH XXX	Math Elective	4 cr
BIOL 1010	Biology	4 cr
PHYS 1050	General Physics	4 cr
	Science Elective	4 cr

- **Humanities Arts and Social Sciences Core** (20 credits) ¹¹

IHSS1970	Design, History and Society	4 cr
	Social Sciences Electives	8 cr
	Humanities or Social Sciences Elective	4 cr

- **General Elective Credits** (12 Credits) 12 cr
Students have 12 free electives credits which may be used to pursue a minor or dual major, or as a means of further broadening exposure to a range of disciplines.

In addition, institute core curriculum / HASS requirements include a:

Depth requirement: student must take at least one course sequence in the same HASS discipline including a lower and an upper level course. (for example, a 1000 level and a 4000 level Psychology course), and a

Writing / Communications Requirement: Students must take a writing intensive course from a predetermined list.¹² For Architecture students, IHSS1970 - Design, History and Society, a Humanities course taught by Architecture faculty

Required General Education Courses (16 credits – see above)

As part of Rensselaer's 48 credit hour general studies core (see above) the following courses are required for Bachelor of Architecture students:

IHSS1970	Design History and Society	4 cr
PHYS1050	General Physics	4 cr
BIOL1010	Biology	4 cr
MATH1500	Calculus 1	4 cr

Prerequisites

Sequences embedded in the professional curriculum have the following cumulative prerequisites:

¹¹ Does not include 8 credits associated with content in required architecture courses that has formally been considered equivalent general studies content by the Institute Wide Curriculum Committee, School of Humanities Arts and Social Sciences faculty (4cr), and School of Science faculty (4cr).

¹² Students scoring a 4 on English AP or above a 670 on the Verbal SAT are exempt

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

- Studios are sequential with the exception of the Design Development studio, which may be taken any time after the completion of Architecture Design 4 and before ARCH 4980 Final Project 1.
- ARCH 4980 Final Project 1 is prerequisite to ARCH 4990 Final Project 2
- ARCH 2510 Materials and Design is prerequisite to ARCH 2330 Structures 1
- ARCH 2330 Structures 1 is prerequisite to ARCH 4330 Structures 2
- ARCH 2360 Environmental and Ecological Systems prerequisite to ARCH 4740 Building Systems and Environment.
- ARCH 4250 Architecture Design 5, ARCH 4330 Structures 2, ARCH 2360 co-requisite Environmental and Ecological Systems, are prerequisites to the ARCH 4300 Design Development studio.
- ARCH 4740 Building Systems and Environment may be taken as a prerequisite or concurrently with the ARCH 4300 Design Development studio.
- ARCH 4540 Professional Practice is a co-requisite with ARCH 4300 Design Development.
- ARCH 2110 Building and Thinking of Architecture 1, and ARCH 2120 Building and Thinking of Architecture 2 are prerequisites to ARCH 2130 Contemporary Design Approaches.
- ARCH 2120 Building and Thinking of Architecture 1 and ARCH 2130 Building and Thinking of Architecture 3 are prerequisites to ARCH 4140 Modernity in Architecture and Culture

The Institute's disciplinary communication requirement is met with ARCH 4980 and 4990 Final Project 1 and 2. Humanities and Social Science writing requirement is met with IHSS 1970 Design, History and Society.

A sample template of the B.Arch. curriculum structure is provided below. Special circumstances such as dual majors, international program participation, etc., may involve some variation in the sequence with which the curriculum is fulfilled however, the required courses and meeting all the requirements of the curriculum are required for graduation.

Bachelor of Architecture (B.Arch) – Sample Curriculum Template

First Year	Fall
	ARCH 2110 - The Building and Thinking of Architecture 1 Credit Hours: 4 (See footnote 2 below)
	ARCH 2200 - Design Studio Credit Hours: 4
	BIOL 1010 - Introduction to Biology Credit Hours: 4
	MATH 1500 - Calculus for Architecture, Management, and H&SS Credit Hours: 4
	Spring
	IHSS 1970 - Design, History, and Society Credit Hours: 4
	ARCH 2120 - The Building and Thinking of Architecture 2 Credit Hours: 2 (See footnote 2 below)
	ARCH 2210 - Architecture Design 1 Credit Hours: 6
	ARCH 2510 - Materials and Design Credit Hours: 2
	PHYS 1050 - Physical Principles of Design ¹³ Credit Hours: 4
Second Year	Fall
	Hum. or Soc. Sci. Elective Credit Hours: 4
	ARCH 2130 - Contemporary Design Approaches Credit Hours: 2
	ARCH 2220 - Architecture Design 2 Credit Hours: 6
	ARCH 2330 - Structures 1 Credit Hours: 4 (See footnote 3 below)

¹³ To be renamed "General Physics" Spring 2010

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

ARCH 2350 - Construction Systems Credit Hours: 2

Spring

Math Elective Credit Hours: 4 (See footnote 4 below)

ARCH 2140 - The Building and Thinking of Architecture 3 Credit Hours: 2

ARCH 2230 - Architecture Design 3 Credit Hours: 6

ARCH 2360 - Environmental and Ecological Systems Credit Hours: 4 (See footnote 3 below.)

Third Year

Fall

Hum. or Soc. Sci. Elective Credit Hours: 4

ARCH 4140 - Modernity in Culture and Architecture Credit Hours: 4

ARCH 4240 - Architecture Design 4 Credit Hours: 6

ARCH 4330 - Structures 2 Credit Hours: 4 (See footnote 3 below)

Spring

H&SS Elective 4 credit hours

ARCH 4250 - Architecture Design 5 Credit Hours: 6

ARCH 4560 - Materials and Enclosures Credit Hours: 2

ARCH 4740 - Building Systems and Environment Credit Hours: 4 (See footnote 3 below)

Fourth Year

Fall

Professional Elective Credit Hours: 4

Elective Credit Hours: 4

ARCH 4260 - Architecture Design 6 Credit Hours: 6

ARCH 4690 - Case Studies: Investigations into Architectural Knowledge Credit Hours: 4

Spring

Elective Credit Hours: 4

ARCH 4040 - Cities/Lands Credit Hours: 4

ARCH 4300 - Design Development Credit Hours: 6

ARCH 4540 - Professional Practice Credit Hours: 2 (See footnote 5 below)

Fifth Year

Fall

Hum. or Soc. Sci. Elective Credit Hours: 4

Elective Credit Hours: 4

Professional Elective Credit Hours: 2

ARCH 4980 - B.Arch. Final Project 1 Credit Hours: 6 (See footnote 6 below)

Spring

Science Elective Credit Hours: 4

Professional Elective Credit Hours: 4

Professional Elective Credit Hours: 2

ARCH 4990 - B.Arch. Final Project 2² Credit Hours: 6

Sample B.Arch Template Footnotes

1. IHSS 1970 Design History and Society fulfills the Institute writing requirement.

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

2. Four credits of the Institute's 24 Humanities Arts and Social Science core requirements are embedded within The Building and Thinking of Architecture sequence: ARCH 2110 Building and Thinking of Architecture 1 and ARCH 2120 Building and Thinking of Architecture 2.
3. Four credits of the Institute's 24 core Science requirements are embedded within the technology sequence: ARCH 2330 Structures 1, ARCH 2360 Environmental and Ecological Systems, ARCH 4330 Structures 2, and ARCH 4740 Building Systems and Environment.
4. In general, the recommended course is MATH 1620 Contemporary Mathematical Ideas in Society offered only in the spring.
5. Taken in the same semester as ARCH 4300.
6. Arch 4980 B.Arch Final Project 1 (credit breakdown: 3 credits, Final project, 1 credit Research/Methods Seminar, 2 credits competition).

All undergraduate students are required to meet yearly with their advisor and if applicable, develop a Plan of Study which anticipates and accounts for participation in International programs or a semester at CASE in NYC.

Title(s) of the degree(s) offered

Master of Architecture 1 (M.Arch.1)

The Master of Architecture I program is a first professional degree designed for students with Bachelor's degrees in areas unrelated to architecture.

The program provides a balanced education in architectural design, history, theory, and technology. It centers on the design studio where projects address a multitude of design issues through multiple strategies ranging from the design of carefully crafted objects to architecture, landscape architecture, and urban design. The Master of Architecture I program interconnects the important elements of design, history and theory, technology and building science, and computing.

The Master of Architecture I program is a first professional degree designed for students with Bachelor's degrees in areas unrelated to architecture.

Summer Session

The program begins with a 12-week summer session that provides full immersion in architectural design. The studio is small and characterized by intense and highly individualized student-faculty interaction. The graduate professional student uses the summer session to prepare for entry into design at the second-year level in the fall; it also provides an opportunity to evaluate his or her design capacity.

The Thesis

The program culminates with an individually initiated, planned, and developed thesis. The thesis is an opportunity to develop a point of view about architecture and its place in the world, to question conventions, habitual responses, and routine approaches to architectural design, and to investigate issues that the student sees as significant to architecture.

Planning begins in the summer preceding third year and involves an exchange of ideas with and a critique by a faculty adviser and review committee in the fall. The resulting proposals are published statements of interest from the faculty combined with the students' experiences and areas of special concern. These may emerge from a synthesis of previous work applying gained knowledge to advanced issues, or alternatively, make use of experiences to date as a base from which to explore and to innovate. This final year begins with a short competition project in which all participate. An integrated design research phase then lasts the remainder of the first and throughout the second semester.

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

An outline, for each accredited degree program offered, of the curriculum showing the distribution of general studies, required professional courses (including prerequisites), required courses, professional electives, and other electives

Master of Architecture 1 (M.Arch 1) (112 credit hours)

Students admitted to the program must have successfully completed a Bachelors degree in an area unrelated to architecture, taken and met minimum GRE examination scores. There are no additional general studies requirements for Masters Students.

▪ Required Professional Courses	96 credit hours ¹⁴
▪ Professional Electives	4 credit hours
▪ General Electives	12 credit hours
▪ Graduate Level Courses	30 credit hours

Any and all course prerequisites exist within the 112 credits and categories listed above. Prerequisites are specifically identified together with course sequences and listings below.

Examples, for each accredited degree offered, of the minors or concentrations students may elect to pursue

Master of Architecture 1 (M.Arch 1)

Minors are not applicable to the M.Arch 1 program. It is understood that M.Arch 1 students enter with a baccalaureate in another discipline, have met the general education requirements of Rensselaer and have considerable breadth of experience and study.

Built Ecologies Concentration

Though not formalized as a concentration, students participating in the semester long program at CASE in New York City are participating in a program which themes and structures a studio together with courses in ARCH 4971.OC Environmental Parametrics 2cr, ARCH 6320.OC Built Ecologies 1 (fall) and ARCH 6330.OC Built Ecologies II 2cr (spring), on topics relating to sustainability in architecture and the environment. This opportunity is available to both B.Arch and M.Arch1 students. (24 positions annually)

Computation Concentration

Though not formalized as a concentration, students are able to select a combination of computationally intensive option studios and professional elective courses, including ARCH 4430, Electronic Media: Physical Design Processes and ARCH 4060, Surface as Structures as Form which together constitute the equivalent of a concentration area.

The School is currently examining the curriculum and considering the development of formalized concentrations in each of these areas, Computational Design and Sustainability for both the graduate M.Arch1 and undergraduate B.Arch professional students.

A list of the minimum number of semester credit hours or the equivalent number of quarter credit hours required for each semester or quarter, respectively

Master of Architecture 1 (M.Arch 1)

¹⁴ Includes Masters Thesis 1 and 2 (12 cr), and a 6 credit options studio - Architecture Design Studio 4 (6 cr)

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

A Plan of Study is required for all graduate students. The degree requires 112 credit hours. Admission with advanced standing can fulfill a significant number of these credits, especially for students who have been enrolled in undergraduate pre-architecture programs or non-accredited professional programs.

The standard recommended template (see sample below) requires between 16 and 18 credits a semester. Students taking less than 12 credits in a given semester are classified as part-time students.

Students in the graduate M.Arch 1 program are required to file and update their plan of study each year and in doing so, determine and plan in advance whether and how they might participate in an International program opportunity, a semester at CASE in New York City, or develop a sequence of courses that would result in a concentration.

The Plans of Study include the following graduate level courses: (30 credits)

ARCH 6110	Design Explorations 1	4 cr
ARCH 6120	Design Explorations 2	4 cr
ARCH 6130	Design Explorations 3	4 cr
ARCH 4300	Design Development	6 cr
ARCH 6990	Masters Thesis 1	6 cr
ARCH 6990	Masters Thesis 2	6 cr

A sample M.Arch I Graduate Plan of Study follows this section.

A list identifying the courses and their credit hours required for professional content and the courses and their credit hours required for general education for each accredited degree program offered.

Master of Architecture 1 (M.Arch 1) Curriculum (112 credits)

Required Professional Courses

The M.Arch 1 professional degree program consists of 84 required course credits, and 12 credits of Masters Thesis. The professional studies curriculum includes a History/Theory sequence, a Technology sequence, a Design Explorations sequence and a Design sequence within which are integrated computing and drawing components.

- History / Theory Sequence (14 credits)

ARCH 2110	Building and Thinking Architecture 1	4 cr
ARCH 2120	Building and Thinking Architecture BTA2	2 cr
ARCH 2140	Building and Thinking Architecture BTA3	2 cr
ARCH 2130	Contemporary Design Approaches	2 cr
ARCH 4140	Modernity in Architecture and Culture	4 cr
- Technology Sequence (22 credits)

ARCH 2510	Materials and Design	0 cr ¹⁵
ARCH 2350	Construction Systems	2 cr
ARCH 4560	Materials and Enclosure	2 cr
ARCH 2330	Structures 1	4 cr

¹⁵ Content and delivery integrated into ARCH2600 Graduate Design Studio and ARCH2210 Architecture Design 1 and 2610 Graduate Arch Design 1

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

ARCH 4330	Structures 2	4 cr
ARCH 2340	Environmental and Ecological Systems ¹⁶	4 cr
ARCH 4740	Building Systems and the Environment	4 cr
ARCH 4540	Professional Practice ¹⁷	2 cr
▪ Design Explorations Sequence (12 credits)		
ARCH 6110	Design Explorations 1	4 cr
ARCH 6120	Design Explorations 2	4 cr
ARCH 6130	Design Explorations 3	4 cr
▪ Design Sequence (36 credits)		
ARCH 2600	Graduate Design Studio ¹⁸	6 cr
ARCH 2610	Graduate Architecture Design 1 ¹⁸	6 cr
ARCH 2620	Graduate Architecture Design 2 ¹⁸	6 cr
ARCH 2630	Graduate Architecture Design 3 ¹⁸	6 cr
ARCH 4360	Architecture Design 4 (Options – vertical)	6 cr
ARCH 4300	Design Development Studio ¹⁸	6 cr
▪ Masters Thesis (12 credits)		
ARCH XXX	Competition Studio	2 cr
ARCH XXX	Research / Methods Seminar	1 cr
ARCH 6990	Masters Thesis	3 cr
ARCH XXX	Masters Thesis 2	6 cr

Professional Electives (4 credits)¹⁹

▪ Professional Elective Credits	4 cr

General Electives (12 credits) . 12 cr

M.Arch 1 students have 12 credits of free electives. Given the breadth of general educational experience each M.Arch 1 student has by virtue of their baccalaureate degree, elective credits afford an opportunity to pursue a concentration, to participate in a semester at CASE or on one of the School's International programs.

Prerequisites

Sequences embedded in the professional curriculum have the following cumulative prerequisites:

- Studios are sequential with the exception of the Design Development studio, which may be taken any time after the completion of ARCH 4360 Graduate Architecture Design 4 and before ARCH 6990 Masters Thesis 1.
- 6990 Masters Thesis 1 is prerequisite to ARCH 6990 Masters Thesis 2
- ARCH 2510 Materials and Design is prerequisite to ARCH 2330 Structures 1
- ARCH 2330 Structures 1 is prerequisite to ARCH 4330 Structures 2
- ARCH 2360 Environmental and Ecological Systems prerequisite to ARCH 4740 Building Systems and Environment.

¹⁶ Concurrent and coordinated with ARCH2230 Arch Design 3

¹⁷ Co requisite with ARCH 4300 Design Development

¹⁸ Integrated Design and Drawing Instruction Components

¹⁹ In Arch1 students also have one 6 credit option studio

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

- ARCH 4360 Graduate Architecture Design 4, ARCH 4330 Structures 2, ARCH 2360 Environmental and Ecological Systems, are prerequisites to the ARCH 4300 Design Development studio.
- ARCH 4740 Building Systems and Environment may be taken as a prerequisite or concurrently with the ARCH 4300 Design Development studio.
- ARCH 4540 Professional Practice is a co requisite with ARCH 4300 Design Development.
- ARCH 2110 The Building and Thinking of Architecture 1, is a prerequisite for ARCH 2120 The Building and Thinking of Architecture 2.
- ARCH 2110 The Building and Thinking of Architecture 1, and ARCH 2120 The Building and Thinking of Architecture 2 are prerequisites to ARCH 2130 Contemporary Design Approaches.
- ARCH 2110 The Building and Thinking of Architecture 1, and ARCH 2120 The Building and Thinking of Architecture 2 are prerequisites to ARCH 4140 Modernity in Architecture and Culture

A sample template of the M.Arch.1 curriculum structure is provided below. Special circumstances such international program participation, etc., may involve some variation in the sequence with which the curriculum is fulfilled however, the required courses and meeting all the requirements of the curriculum are required for graduation.

Master of Architecture 1 (M.Arch 1) – Sample Curriculum Template

Summer Sessions 1 - 2

The program begins with a 12-week summer session that provides full immersion in architectural design. The summer studio is small and characterized by intense and highly individualized student faculty interaction. The graduate professional student uses the summer session to prepare for entry into design at the second-year level in the fall; it also provides an opportunity to evaluate his or her design capacity.

Summer

ARCH 2600 - Graduate Design Studio *Credit Hours: 6*

ARCH 2610 - Graduate Architecture Design 1 *Credit Hours: 6*

First Year

Fall

ARCH 2110 - The Building and Thinking of Architecture 1 *Credit Hours: 4*

ARCH 2330 - Structures 1 *Credit Hours: 4*

ARCH 2350 - Construction Systems *Credit Hours: 2*

ARCH 2620 - Graduate Architecture Design 2 *Credit Hours: 6*

Spring

ARCH 2120 - The Building and Thinking of Architecture 2 *Credit Hours: 2*

ARCH 2360 - Environmental and Ecological Systems *Credit Hours: 4*

ARCH 2630 - Graduate Architecture Design 3 *Credit Hours: 6*

ARCH 6110 - Design Explorations 1 *Credit Hours: 4*

Second Year

Fall

ARCH 2130 - Contemporary Design Approaches *Credit Hours: 2*

ARCH 4330 - Structures 2 *Credit Hours: 4*

ARCH 4360 - Graduate Architecture Design 4 *Credit Hours: 6*

ARCH 6120 - Design Explorations 2 *Credit Hours: 4* (See footnote 1 below)

Spring

ARCH 2140 - The Building and Thinking of Architecture 3 *Credit Hours: 2*

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

- ARCH 4300 - Design Development *Credit Hours: 6*
- ARCH 4540 - Professional Practice *Credit Hours: 2* (See footnote 2 below)
- ARCH 4560 - Materials and Enclosures *Credit Hours: 2*
- ARCH 4740 - Building Systems and Environment *Credit Hours: 4*

Third Year

Fall

- Elective *Credit Hours: 4*
- ARCH 4140 - Modernity in Culture and Architecture *Credit Hours: 4*
- ARCH 6130 - Design Explorations 3 *Credit Hours: 4* (See footnote 1 below)
- ARCH 6990 - Master's Thesis *Credit Hours: 6*

Spring

- Professional Elective *Credit Hours: 4*
- Elective *Credit Hours: 4*
- Elective *Credit Hours: 4*
- ARCH 6990 - Master's Thesis *Credit Hours: 6*

Sample Curriculum Template Footnotes

1. ARCH 6120 and ARCH 6130 address a variety of significant theoretical issues and are taught together. Topics alternate each year.
2. Taken the same semester as ARCH 4300.

A list of off-campus programs, description of facilities and resources, course requirements, and length of stay.

Special Opportunities Available to both B.Arch and M.Arch I Students

International study is a defining aspect of Rensselaer's architectural education and the School of Architecture offers several international semester-long programs of study. Offered in Italy, India, and China; these programs are fully integrated with the requirements of the undergraduate degree and have been established in three world cities that will challenge and help to define the future of architecture. Each of these programs is open, by competitive application, to students in their fifth semester and above. In addition to a Rensselaer faculty member who directs these students, adjunct faculty in the host city or institution provide instruction. There is a program fee for participation in each of these programs, which are described briefly below.

- **Italy**—The program involves a 5 week collaborative workshop in Turin with the Politecnico of Torino, a 10 week design studio and examination of the architectural development of Rome, courses in Italian language and culture, and travel throughout Italy. The program seeks to deepen appreciation of the city and the layers of its culture that have played a seminal role in the development of Western culture and architecture.
- **India**—The program is based in the School of Architecture CEPT at Ahmedabad, India, a highly respected school for the study of architecture and urbanism. It offers students the opportunity to travel, study, and apply the lessons learned from Indian architecture and Indian history and theory within the context of a major research center.
- **China**—The semester in Shanghai is based at the School of Architecture at Tongji University, one of the great institutions of China. The program offers joint studios in design with Chinese faculty and students, and travel through central China augments additional courses in Chinese history and culture.
- **New York City**—The semester in New York City is based at Skidmore Owings and Merrill at the Center for Architecture Science and Ecology (CASE) facility that allows both undergraduates and graduates to work with and on advances in sustainable technologies.

RENSSELAER SCHOOL OF ARCHITECTURE

3.12 The Thirteen Conditions of Accreditation

Examples of the course students would take in the programs listed above area as follows:

India Program

ARCH 4240-EXI	Arch Des 4, 5 or 6 (6 cr)
ARCH 4960-EXI	Workshop in Arch Research (2 cr)
ARCH 4968-EXI	Indian Architecture and Urbanism (4 cr)
ARCH 4974-EXI	Indian Studies (4 cr)

Italy Program

ARCH 4240-EXR	Arch Des 4, 5 or 6 (6 cr)
ARCH 4964-EXR	Performative Morphologies (2 cr)
ARCH 4966-EXR	Urban & Arch History of Rome (4 cr)
ARCH 1974-EXR	Italian Culture & Lang (4 cr)

NYC Program

ARCH 4240-OC	Arch Des 4, 5 or 6 (6 cr)
ARCH 4971-OC	Environmental Parametrics (2 cr)
ARCH 6320-OC	Built Ecologies 1 (3 cr)
ARCH 4330.01	Structures 2 (4 cr)
	Grad Elective (3 cr)

China Program

ARCH 4240-EXC	Arch Des 4, 5 or 6 (6 cr)
ARCH 4974-EXC	Chinese Arch & Urban (4 cr)
ARCH 4964-EXC	Chinese Lang & Cult (4 cr)
ARCH 4975-EXC	Topics / could be Modular Thinking: Ceramics or Calligraphy Painting (4 cr)

In addition the School of Architecture offers studio related and summer study abroad programs to places of special architectural interest. In recent years, these have included visits to Portugal, Switzerland, and Argentina. The Bedford Initiatives, focused on the interface between Architecture and Engineering best practices also provides opportunities for M.Arch students to travel to International best practices.

RENSSELAER
GRADUATE PLAN OF STUDY

Name: _____ S.S. #: _____

Address: _____

Phone: _____

Degree: ☐ M.S. ☐ M.Eng. ☐ M.B.A. ☒ M.Arch. ☐ M.F.A. ☐ Ph.D. ☐ D.Eng.

Curriculum: _____ Dual Degree: _____

Adviser: _____

Expected Graduation Date: _____

(If you are receiving a dual degree,
please list your other major)

☐ New Plan ☐ Revised Plan

Date of Previous Plan: _____

[illegible]

TOTAL CREDITS	30	page 1 of 2

SIGNATURES:

STUDENT: _____ DATE: _____ ADVISER: _____

DEPT: _____ DATE: _____

*F=FALL S=SPRING U=SUMMER

DATE: _____

☐ Original to Registrar Photocopies to: ☐ Graduate School ☐ Student ☐ Department ☐ Adviser

PLEASE NOTE: AWARDING OF THE DEGREE IS BASED UPON SATISFACTORY COMPLETION OF INSTITUTE REQUIREMENTS AS WELL AS COMPLETION OF ALL THE COURSES LISTED AND APPROVAL OF ANY TRANSFER CREDITS BY THE REGISTRAR'S OFFICE.

RENSSELAER
GRADUATE PLAN OF STUDY

Address: _____

Degree: ☐ M.S. ☐ M.Eng. ☐ M.B.A. ☒ M.Arch. ☐ M.F.A. ☐ Ph.D. ☐ D.Eng.

Expected Graduation Date: _____

☐ New Plan ☐ Revised Plan Date of Previous Plan: _____

Course Number	Course Title	Credit Hours	Semester		Required	Elective	Advanced Placement
			Year	F,S,U*			
Arch2600	Graduate Design Studio	6					
Arch2610	Graduate Architecture Design 1	6					
Arch2620	Graduate Architecture Design 2	6					
Arch2110	The Building and Thinking of Arch 1	4					
Arch2330	Structures 1	4					
Arch2630	Graduate Architecture Design 3	6					
Arch2130	Contemporary Design Approaches	2					
Arch2350	Construction Systems	2					
Arch2120	The Building and Thinking of Arch 2	2					
Arch4360	Graduate Architecture Design 4 (Urban)	6					
Arch2340	Environmental and Ecological Systems	4					
Arch-2140	The Building and Thinking of Arch 3	2					
Arch4330	Structures 2	4					
Arch4140	Modernity in Culture and Arch	4					
Arch4740	Building Systems and Environment	4					
Arch4540	Professional Practice	2					
Arch4560	Materials and Enclosure	2					
Note	Professional Elect (4 credits) list above						
Note	Electives (12 credits) list above						
TOTAL CREDITS		82	Page				
			2				

Original to Registrar Photocopies to: ☐ Graduate School ☐ Student ☐ Department ☐ Adviser

☐ Original to Registrar Photocopies to: ☐ Graduate School ☐ Student ☐ Department ☐ Other

PLEASE NOTE: AWARDING OF THE DEGREE IS BASED UPON SATISFACTORY COMPLETION OF INSTITUTE REQUIREMENTS AS WELL AS COMPLETION OF ALL THE COURSES LISTED AND APPROVAL OF ANY TRANSFER CREDITS BY THE REGISTRAR'S OFFICE.

Revised 1/5/2006

INSTITUTE INSTRUCTIONS

The Plan of Study must be submitted during the first academic year a student has been accepted into a graduate program. Please complete the top portion of the form, indicating your degree, curriculum, adviser, and expected graduation date. In addition, you should list any previous graduate level degrees that you have received. Dual degree students, please list both degrees.

All the courses that will be applied toward the degree must be listed. This must include the course number, course title, credit hours received for the course, the semester in which the course has or will be completed. You must also check whether the course is required, elective, transfer or waived.

TRANSFER CREDITS: Please be aware if a course is listed as a transfer, the transfer credits must be approved by the Registrar's Office before they can be applied toward the degree. You should verify that the Transfer Credit Approval Form and an official transcript showing the completion of the course are on file with the Registrar's Office. Because the residence requirement for the master's degree is 24 credit hours, not more than six credits may be transferred toward the master's degree. A student may not transfer more than 45 credit hours toward the doctoral degree program of 90 credit hours.

WAIVERS: If a course is listed as waived, it must be replaced by another course to total the appropriate number of credits required for the degree. This does not apply for the MBA degree in Management where up to 12 credits are allowed to be waived.

DUAL MASTER'S DEGREES: A Plan of Study must be filed simultaneously for both degrees. Please be aware that not more than six credit hours used for a master's degree in one area can be applied to a second master's degree.

DOCTORAL DEGREES: The Plan of Study must contain a minimum of 90 credit hours beyond the bachelor's degree or 60 credits beyond the master's degree with satisfactory grades.* At least two-thirds of the total credit hours, excluding thesis, must contain the suffix numbers 600-699, with the further limitation that no more than 21 credit hours of 400-499 courses are to be allowed. The degree must be completed within ten years. Please be aware that 200 level courses cannot be applied towards a doctoral degree.

MASTER'S DEGREE: The Plan of Study must contain at least 30 credit hours (60 for the MBA and MFA) beyond the bachelor's degree with satisfactory grades.* At least half of the total credit hours presented toward the degree must have the suffix numbers 600-699. The master's degree must be completed within five years. Please be aware that 200 level courses cannot be applied towards a master's degree.

NOTE: In addition to meeting the institute requirements, the plan must adhere to all departmental regulations.

After the plan has been completed, please sign it and meet with your adviser for his/her approval. Upon receiving your adviser's approval, the form should be forwarded to the designated person within your department for departmental approval.

When the plan has received departmental approval, the original should be forwarded to the Registrar. Photocopies should be sent to the Graduate School, the student and the adviser. The department should retain a copy for their files.

***SATISFACTORY GRADES:** The minimum average of all grades used for credit toward an advanced degree must be B.

Student Performance Criteria (3.13)

3.13 The Thirteen Conditions of Accreditation

3.13 Student Performance Criteria

The accredited degree program must ensure that each graduate possesses the knowledge and skills defined by the criteria set out below. The knowledge and skills are the minimum for meeting the demands of an internship leading to registration for practice.

The school must provide evidence that its graduates have satisfied each criterion through required coursework. If credits are granted for courses taken at other institutions, evidence must be provided that the courses are comparable to those offered in the accredited degree program.

The criteria encompass two levels of accomplishment:

- **Understanding**—means the assimilation and comprehension of information without necessarily being able to see its full implication.
- **Ability**—means the skill in using specific information to accomplish a task, in correctly selecting the appropriate information, and in applying it to the solution of a specific problem.

The NAAB establishes performance criteria to help accredited degree programs prepare students for the profession while encouraging educational practices suited to the individual degree program. In addition to assessing whether student performance meets the professional criteria, the visiting team will assess performance in relation to the school's stated curricular goals and content. While the NAAB stipulates the student performance criteria that must be met, it specifies neither the educational format nor the form of student work that may serve as evidence of having met these criteria. Programs are encouraged to develop unique learning and teaching strategies, methods, and materials to satisfy these criteria. The NAAB will consider innovative methods for satisfying the criteria, provided the school has a formal evaluation process for assessing student achievement of these criteria and documents the results.

The APR must include the following information:

- An overview of the school's curricular goals and content.
- A matrix cross-referencing each required course with the performance criteria it fulfills. For each criterion, the school must highlight the cell on the matrix that points to the greatest evidence of achievement.

An Overview of the Curricular Goals and Content

MISSION: To prepare the most effective and thoughtful practitioners of architecture and its related fields for international practice in the 21st century

VISION: Structure the School of Architecture to become an international center for the intelligent integration of innovations in technology and science into design at many scales especially with respect to issues of environmental and ecological responsibility.

Rensselaer aims to graduate students who will lead in the profession and its transformation, a prospect of global and social consequence. We understand architecture and its related fields to be a material project with an increasingly important technological interface that is key to the transformation of both practice techniques and the designed environment.

The objective of the curriculum and in particular the design sequence is to be effective in developing imaginative, knowledgeable, and capable graduates, ready to enter the profession as interns and continue to mature into leaders in practice. That capacity should include the confidence and ability to imagine, create, and invent in the context of complex situations and parameters, to research, act, and work effectively, to

3.13 *The Thirteen Conditions of Accreditation*

reason and communicate clearly, and to prepare for lifelong learning and the advancement of critical positions within ever-changing contexts.

General Studies

General studies are important to the breadth of our students. Bachelor of Architecture students must satisfactorily complete 20 credits of course work in the School of Humanities, Arts, and Social Sciences, including the satisfaction of a breadth and depth requirement. They must also complete 20 credits of course work in the School of Science, including Calculus 1, a 4-credit math elective, Introduction to Biology, and General Physics. Based on the general studies content intrinsic to the architecture curriculum, eight additional credits taught within the School of Architecture are qualified by the Institute to meet the general studies requirements – four credits in the humanities and four credits in the sciences. Bachelor of Architecture students have 12 unrestricted free elective credits. M.Arch. 1 students are admitted on the basis of having an equivalent general studies background comparable to these requirements.

In the second semester of their first year of the B.Arch. program, students take Design, History, and Society, which is a writing intensive course taught in the School of Humanities, Arts, and Social Sciences. This course covers the relationship of design to the development of knowledge and society, with particular emphasis on theories of design and society in the North American context. Students develop an understanding of crucial concepts in modern social and political theory, and how those concepts are related to design at various scales. The course is 'writing intensive' and constitutes the first half of an Institute communications requirement. To meet the second half of that requirement the Institute has established the requirement that all degree programs include at least one required course that is communications intensive. Students fulfill the communications requirement in the final year of the professional program wherein they must demonstrate the capability to communicate through a variety of media – oral, visual, and written through both analog and digital means and assemble a book documenting their project.

Professional Studies

Professional studies are critical to providing base knowledge that is specific to the profession, creating the context from and within which Architecture operates, developing the skills necessary to act and contribute to the profession, and providing the undergirding principles that facilitate students' ability to think critically and innovative effectively. The professional studies courses include a History/Theory/Criticism sequence, a Design sequence, a Technology sequence, and Professional Practice. The latter is taught both in seminar format and in conjunction with the Design Development Studio. Professional electives allow students to investigate topics of interest in greater depth.

Two introductory summer sessions of 6 weeks each are required of all M.Arch. students and B.Arch. transfer students. These sessions provide full immersion into architectural design, are characterized by intense and highly individualized student-faculty interaction, and include integrated instruction components in computing and technology. The graduate professional student and undergraduate transfer students use the summer sessions to prepare for entry into the design sequence at the second-year level while providing the school an opportunity to evaluate his or her design capacity.

Design Sequence

Design studios form the core of the professional architecture degree programs. In the design studios, students are presented with a wide range of issues and are expected to synthesize many aspects of architectural design with knowledge gained in other courses. There students develop the tools, skills, and judgments that underlie the production of architecture.

The ability to freely manipulate space, surface, structure, and texture is central to the formation of architecture. The development of a diverse skills set reinforces the concept that the hand is as important as

3.13 The Thirteen Conditions of Accreditation

the computer in the exploration and representation of ideas. Studio computing and drawing components develop students' confidence in their ability to form architecture and are an essential support to creativity. The maturity of judgment is a more patient search, developed over time through a series of projects premised on the continual evolution of architecture as a manifestation of the social, economic, political, and technological forces within the culture. Studios draw on the exceptional range of urban and architectural contexts near the campus, from the historic towns of upstate New York to major urban centers like New York City, Boston, Montreal, and Philadelphia.

In the design studio there are no singular, provable, or perfect answers to any of the projects presented to students. Students explore and develop design proposals based on their growing knowledge of the world, architecture, and their own emerging abilities. Early in the sequence, studios introduce students to a wide range of issues. They position and reinforce design as an act of critical inquiry. Later in the sequence, studios are "vertical" in that they include students from different class years and students may choose from a variety of options presented by the individual faculty who teach a vertical studio in a given semester. The Design Development studio is a required one-semester comprehensive studio for students in their fourth year. In this studio, students begin with a design that is at the schematic level and subject it to further design development including the integration of structural, mechanical, material, and code conformance considerations. Students in this comprehensive studio also take a coordinated, concurrent co requisite course in professional practice which links practice topics and their design project work.

The project-based studio model is premised on learning by doing, iteration, and developing an independent critical perspective on one's work. It utilizes a teaching model that employs professors and professionals as teachers who deliver knowledge, coach students to develop independent and objective perspectives toward their work, and critically engage their work and its consequences within the larger context. Most of the requisite design skills and tools are learned and applied in the development of project work in the design studio.

The objectives and pedagogic means of design studio teaching are as follows:

1. Studio should be set up to develop the following student capacities
 - To work productively and creatively within complex situations
 - To work in teams in both disciplinary and multidisciplinary situations
 - To work independently and develop an independent and educated view of architecture
 - To be able to make a case for one's decisions
 - To form a critical position, think and act critically, ethically, and responsibly
 - To take initiative and carry something through from start to finish
2. The pedagogic means to accomplish these capacities are
 - Defamiliarization as a means to expand one's capacity to think and act
 - Exercises and critiques that promote reflective objectivity
 - Case studies, research, and programming
 - The definition of design situations that promote the understanding of the multiple and often competing contexts in which design occurs – physical, cultural, social, programmatic, technological, formal, spatial, etc.
 - Utilizing multiple scales as a means to understand the linkage of effects and consequences among them and the implications of potential conflicts within these venues
 - The use of iterative processes that explore and evaluate difference, value, and promote critical thinking.

3.13 *The Thirteen Conditions of Accreditation*

To achieve these goals, the faculty reached four broad agreements under prior leadership, agreements which through a series of curriculum retreats under the leadership of the new Dean will be addressed together with an examination of the curriculum content, structure and delivery modes. Those four agreements are as follows:

1. COMBINATORIC, NOT ESSENTIALIST [approach taken to process work]

Those participating in the design studios agree that formal and informal project challenges will call for design proposals that explore the tensions among several (3 or more) equally valid concerns / form generators. And, whatever combination is set out as the basis for the design study, the whole process will be embedded in the potentialities of particular concrete socio-physical situations.

The design results thus produced have every reason to exhibit at least a rudimentary level of comprehensiveness, even if relatively unsophisticated in the earliest years. This comprehensiveness is not a guarantee of quality but a necessary precondition.

The resulting design proposals also should show substantial differences between and within studios, in addition to those differences generated by the intentionally recognized biases of the faculty involved. This can be assured by encouraging differences in the specific combinations of concerns set up in each studio challenge. Further, the identification of differing influences generated by the concrete socio-physical situation will lead to differing proposals.

This is, in effect, an injunction against teaching essentialist notions of architecture or hierarchical pre-orderings of values. For instance, it would not be acceptable to take multiple concerns - tectonics, cultural meanings, site dynamics and programmatic direction, for example, and then insist that these diverse concerns be channeled only into the making of an expressive work (i.e., architecture = in essence, expression, symbolization, representational object - in this case only expressing the tension among these forces).

Within the context of the overall studio charge, design explorations would be given to help students to break through preconceived notions of what is possible or desirable (defamiliarizations, etc.), to experiment with relations among intensities (diagramming, etc.) - in general, to provoke a critical experimentation in the early design phases that is not predetermined by normative expectations only. This would extend as well to research and programming exercises in studio.

2. VALIDATION BY CONSEQUENCE

The design projects resulting from the above, in the end would be posited as interventions into the given concrete situation and as such, would have de facto consequences in addition to those initially intended - to whomever and whatever was embodied in the situation.

It is important for students to be aware of the validation of their work that would probably be given by the present critical establishment. However, the more pressing question would be: What does the intervention do that makes it desirable and perhaps excellent as well, for those affected, not only for the immediate present but in considering the impact of such decisions in subsequent years and decades, even over many generations? In this latter regard, an issue such as sustainability could be expected to generate an active political debate when the values of competing conceptions are considered.

3. NON-POLARIZATION

Recognizing that Agreements 1 and 2 must be joined, all projects must have built within their overall challenge two concerns. First, projects should include some aspects that have no

3.13 *The Thirteen Conditions of Accreditation*

precedents and require inventive flights of the imagination. Second, projects should include some aspects that are non-negotiable and require precise attention to the ways they contribute to the overall proposal.

Building these two qualifications into projects is especially important in shifting the students' perspectives away from automatic polarization. Polarization could also be lessened as well as students' tendency to project only subjective desires by setting up projects (as a variant of the two concerns expressed in the paragraph above) to have within the sponsor's request some desires that are equally valid and with which there must be a struggle to produce a really vital proposal.

The play back and forth between careful consideration of consequences, effects, and open "un-valued" design explorations is difficult to maintain, but is a skill that is at the core of a non-essentialist practice.

4. MULTIPLE MODES OF UNDERSTANDING / REPRESENTING

We agree that in all core design studio semesters the project assignments will be constructed to require the students to shift among all available modes of understanding/representation. The intent is to have students realize, and can take advantage of two things through design. First is the particular scope and kinds of capabilities intrinsic to each mode of understanding/representation (and their deficiencies). Second is that students will eventually be able on their own to move among modes, combining them to make the most of each particular design situation. These modes include: all digital means, freehand sketching, hand drawings of all conventional kinds and scales, physical modeling in differing materials, differing perspectives (e.g. construction sequence, pure formal relationships, etc.) and different scales, combinations of abstractions, diagrams and mappings, written descriptions, and others as they are devised. The primary emphasis should be on the exploratory yet balanced use of these multiple modes in understanding and gaining insights that are not available with conventional modes. The intent is to inform better one's design actions. At the same time, these tools are also externalized for engagement and dialogue. If we expect students to develop this capacity to realize the value of utilizing multiple modes, the project presentation requirements must insist on their co-presence in a productive demonstration of what they, in combination, can do. For example, this approach can help eliminate the polarization always evident between conventional and more abstract modes by stating that this school, intending to go beyond conventional practices, insists on both conventional and the more experimental modes that convey considerations not possible with conventional modes.

Operative Questions and methods agreed upon to be present in studios, and which form an important basis for both the evaluation of the students and studio success include;

1. Whether there are clearly stated objectives for the studio - Each studio offered shall explicitly engage a premise or critically framed question for which architecture in general and the specific projects developed in the studio are the vehicle to be measured and evaluated both by their internal logic as well as their larger consequences relative to stated and other questions.
2. Whether students are able to form a constructively critical position and response to a project and its larger consequences.
3. How the studio is focused on enabling students to develop independent, informed, objective and creative practices.

3.13 *The Thirteen Conditions of Accreditation*

4. Whether and how the studio addresses sustainable principles - belongs to, affects and is affected by its situation or larger ecological system(s).
5. How the studio and studio projects address community issues.
6. What are the consequences of the design proposal, and how to decipher the differences between intent and effect or consequences wholly external to intent?
7. Some studios should take up the ordinary or mundane site as opposed to consistently dealing with the dramatic and the special.
8. Studios should set up projects that demonstrate how a designer can intervene in creative and meaningful ways that have an effect on a larger condition / situation.
9. Studios should address projects that address real concerns and conditions, and to be responsible to consider and know the consequences of the action/intervention.
10. Develop projects and studio pedagogies that do not polarize creativity and originality against research and precedent. Do not foster or accept uninformed subjectivity with regard to studio projects. Research and informed action should be a component of every studio.
11. Each studio must accord significance to research as a fundamental part of the design process. In addition, each studio should address programming in some fashion – through a specific programming exercise, an analysis of an established program, etc. Whatever the case, adopting a critical perspective on program information and decisions in relation to the design process as a whole is a necessary part of any design project.
12. Include content delivery in every studio including readings and seminars as an integral part of the larger endeavor of creating/designing. There should be an area of in-depth investigation in every studio.
13. Each studio has a responsibility to teach media skills and to position critically the project's relationship to various forms of design and representation tools.
14. Each studio has a responsibility to reinforce the relevance and relationship of ecology to design.

Design Sequence

The design studios present a wide range of project situations; the emphasis is on exploration, on uncovering the critical aspects of the project, and then on developing appropriate design responses. Most studio situations are contextually complete and students are expected to address cultural, social, economic, political, and technological issues in design. The earlier projects are usually set within the Rensselaer campus context and as the design sequence unfolds in subsequent semesters, projects are located in a variety of places including the major urban centers of New York City, Boston, and Philadelphia. Sometimes projects are even further afield in world cities and significant urban situations in Europe, Africa and Latin America.

The first four studios (Design Studio through Architectural Design 3) introduce students to a range of issues. They initiate and reinforce methods of analysis and various modes of inquiry and exploration, while teaching specific skills and how to utilize them as critical devices in design.

3.13 *The Thirteen Conditions of Accreditation*

The first semester of studio, Design Studio, introduces students to issues of materiality, technique, precision, space, structure, and site in such a way to overcome students' taken-for-granted assumptions about these qualities. Students work with these conditions integrally at full scale and explore the possibilities of their integration using familiar and conventional materials (many of them "found" materials) in unconventional and unfamiliar ways. The final project of the semester involves full-scale design and construction in student teams. In addition there is imbedded a drawing and computing stream that sets up the foundations for later more advanced work in both drawing and computing. The second semester of the initial year continues a highly integrative approach also formally situating drawing and computing within the studio. Students explore spatial concepts within the context of specific sites with the purposeful blurring of distinction between building and landscape. Also the students are asked to begin working in more abstract scaled conditions and to explore design through tools that allow for multiple scales of investigation. A concurrent two-credit introduction to building technologies and environmental ecologies materials and design intersects with the pedagogy of studio.

The first semester of the second year introduces issues of dwelling and community and their relationship to urbanity and context. It examines these issues at multiple scales and demands coherent planning and sectional studies as part of the design realization process. In addition, research agendas are introduced through a simple programming exercise. The studio also explores advanced computational techniques and opportunities afforded through the management of cellular or repeated units/components. Advanced visualization skills are also expected to be developed through in the studio. This studio also employs teamwork on the major design project of the semester. A concurrent course in construction systems correlates with specific concerns of building design in the studio. The second semester of second year focuses on the programming and design of an infrastructural and institutional facility, usually a transportation structure such as a train station. Students are particularly responsible for considering how long-span structure plays a role in architectural design conception and how the powerful computation tools they have been introduced to may help in the development of these structures. At this point the students are expected to demonstrate a mastery over the many skill sets they have been introduced to and demonstrate the skills to utilize them appropriately. In addition, a concurrent four-credit course in Environmental and Ecological Systems coordinates content, environmental analysis, and design exercises with the studio in the development of the project.

The remaining studios present students with a choice of faculty and topic focused on a significant and specific concern in architectural design. These verticals are seen as a pre-thesis opportunity in which the students work through a clearly defined architectural theses posited by the faculty. They are made aware that these vertical studio investigations could be an appropriate model for the development of their own Final Project that will be pursued later in their education. These are 'vertical' studios in that they include a mixture of students in the third and fourth year of the professional curriculum. Students at these levels are presented with several options from which to choose. The options are intentionally diverse, giving students the opportunity to pursue individual interests. Topics range from issues such as cultural identity to, landscape, geometry and advanced computation, spatial and formal exploration, urban - infrastructural, and history theory based projects. The Design Development studio is required of all students during one of the semesters of the fourth year undergraduate program and one of the semesters of the second year of the graduate professional program. In this studio a project is advanced from the schematic design phase through significant structural, mechanical, and construction system integration and material detailing, all of which are presented as a significant and critical part of the design process. Students are expected to create a workflow based on a single computational platform that allows for a stronger and more agile relationship between 3D, 2D, critical visualization, prototyping, and diagramming. All are expected to be tools that are at their disposal at any time and not reliant upon the creation of additional files to engage with any of these tools. BIM workflow is a natural supplement to this workflow once established. This comprehensive design studio interfaces in the spring semester with the senior civil engineering capstone course and requires

3.13 *The Thirteen Conditions of Accreditation*

architecture students to work with structural engineering students and faculty in the development and delivery of their project. In 2005 it received together with the Bedford Initiatives the NCARB prize for creative integration of the academy and practice.

History and Theory Sequence

A required six-course sequence presents the diversity of architectural works and ideas relative to the contexts within which architecture emerges. It addresses key historical and theoretical issues in the field. Upon completion of the first four courses in this sequence, students may take additional advanced architectural history/theory electives as part of their professional electives.

The history/theory sequence explores and raises questions about architectural works and ideas in the contexts within which we build and to the historical and theoretical bases for the field. The first two courses, *The Building and Thinking of Architecture 1 and 2*, position architecture in its chronological context beginning with Egypt and moving through to the Renaissance and critically examines works in their complex intellectual, cultural, physical, social, political, and technological contexts rather than as isolated building form or style events. Both of these courses consider architectural developments in the western and non-western traditions. The third course, *The Building and Thinking of Architecture 3* addresses similar concerns throughout history and particularly in the 20th and 21st century context of ways of thinking embedded in human culture working on the premise that architecture's domain extends beyond the limits of the individual building. This course especially focuses on the nature of architecture since the Enlightenment as a particular kind of thought process and examines various concepts regarding unity, plurality space, place, identity, tectonics, function, autonomy, nature, precedent, vision, tactility, etc. as they relate to specific buildings, the landscape, and the city.

The Building and Thinking of Architecture 1 and 2, courses have positioned non-western thought and precedents into the content including the architecture, landscape, and urban design of the Islamic world from the foundation of Islam in the 7th century to the works of the Ottoman architect Sinan in the 16th century. They include a two-lecture sequence on the non-Islamic architecture, landscape, and urban design of the Indian sub-continent. This covers the developments from the second millennium BC at Mohenjo-Daro and Harappa to the major Buddhist works of the 4th century BC to the 5th century AD, to the great Hindu works from Brahmanism to the 13th century AD.

Following this sequence, students take a course in *Contemporary Design Approaches* to examine, compare, and critically contrast late-20th and 21st century significant architectural practices. Students also take a required course in *Modernity in Culture and Architecture* enabling them to position the profession in a larger intellectual and cultural context associated with major paradigm shifts that have occurred since the Enlightenment. The final course in the sequence is *Cities/Land* that examines the historic and contemporary relationships of cultures and societies to both the city and the landscape. This course looks at these phenomena in both western and non-western contexts. M.Arch I professional students take *Design Explorations 2* in lieu of *Cities/Land*.

Technology Sequence

Technological issues are introduced from the beginning of the curriculum as essential to the conception and creation of architecture. In the School of Science, students take *Introduction to Biology and General Physics*. These courses introduce students to physical, life, and environmental science issues as they relate to the world we observe and work with and as a prerequisite to the professional technology sequence. Technological issues that relate to the environment and building technologies are first introduced in the *Materials and Design* course taught concurrently with the first architectural design studio and as a prerequisite to the balance of the technology sequence. This course provides an introduction to the broad range of technology, material, and system issues that interface with architectural design. In all, a series of

3.13 The Thirteen Conditions of Accreditation

eight required technology courses consider both qualitative and quantitative views of building technologies. These include statics and strength of materials, basic structures and framing, design of wood, steel, and concrete structures, criteria for selecting building materials and systems, environmental systems, including heating, ventilation, air conditioning, plumbing, electrical systems, sensory environments including the luminous, acoustical, and tactile environments, and codes and contract documents. Structures 1 and 2 are taught by a structural engineer/architect with a Ph.D. in engineering. The two-credit Construction Systems and Materials and Enclosure courses address the range of building systems, materials and enclosure principles and systems employed in building construction. These courses introduce students to both manual and computer based analysis and design tools such as RISA and Ecotect.

Environmental and Ecological Systems provides the basis for understanding the environment, the consequences of building with respect to ecological systems, and provides principles and tools for responsibly designing the built environment. First principles are complemented with instruction in tools and techniques to analyze and design. The course is integrated with Architecture Design 3 studio and incorporates an exercise to analyze and affect each student's design through climatic design principles. Building Systems and Environment addresses through texts and hands-on investigation of campus facilities, environmental systems, and their controls and integrates instruction on sustainability in the planning of buildings and integration of systems.

Case Studies, a final course in the required sequence, is conceived as a crossover experience that belongs to both the History/Theory and Technology sequences. It is predicated on the value of learning from precedents and focuses on careful analysis techniques including reverse engineering, hands-on techniques of select scale modeling, historic research, site visits, and personal interviews. It emphasizes how one can draw conclusions about and learn lessons from precedents. Though related to the national case study initiative, this course does not attempt to follow the template laid out in that initiative. Case Studies is conceived as an investigation, initiated by teams of students into the multifaceted issues and concerns of a particular built structure. The projects are to be analyzed and examined in a historic, technological, economic, cultural, and social context with the intent that each student be able to understand and describe the larger context, the nature of building systems, and how they are integrated, and to make critical observations regarding the social and cultural impact of the work. M.Arch I professional students take Design Explorations 1 in lieu of Case Studies.

Students are eligible to take advanced technology and architectural science course electives after completing certain components of this sequence, e.g., completion of the structures sequence allows students to do advanced study in structures, completion of Environmental and Ecological Systems allows students to be eligible to take courses in the Built Ecologies graduate program. Integration of technological considerations is central to many of the studios with a focused emphasis on integrating building technologies in support of design intent in the required fourth year Design Development studio.

Design Explorations 1 – 3 (M.Arch.1)

Design Explorations is a series of required graduate-level seminar courses that explore the implications of various theoretical and historical areas of architecture germane to current practices of design and theoretical concerns in the profession and how they relate to architectural design. DE1 substitutes for the Case Studies course and DE3 substitutes for the Cities/Land course. Although the content of these two Design Explorations courses is similar to Case studies and Cities/Land, the pedagogical approach is different in that both are more focused on a seminar format that depends on greater initiative taken by the graduate students in elaborating upon primary issues. The content of the third Design Explorations course is left open to target contemporary issues of design and builds on the strengths and interests of the particular faculty member teaching the course.

3.13 The Thirteen Conditions of Accreditation**Computing**

Computing proficiency is central to the future of architecture. Pedagogically the school has taken a position that computing should be integrated and discussed critically as a tool that opens creative possibilities in design. The School is currently reformulating the core computation sequence with regards to the early integration of parametric logic in the design studio sequence. While the explicit strengths of parametric modeling and BIM are reshaping the workflow of the profession in profound ways, we intend to be at the front of these tools within the core design sequence. Parametric thinking is understood as recognizing associated relationships between multiple criteria and as crucial to the future of the profession. Through parametric associative thinking is not exclusively digital, computational tools are enabling. The recognition that these tools are changing the way we conceptualize and manage workflow is guiding the integration of computation in the studio sequence. The introduction of parametric logics as the first 3D workspace will lead to the common use of these tools without the potential stigma of them being “niche” or high-end digital skills. We believe all students need these skills to participate and lead in the profession. Instruction is embedded into the studio sequence and related to the studio objectives. From the first year, students are able to expand their knowledge and skills through coursework that engages specific computing concepts integrated with the design studios. Students have access to the latest in three-dimensional design software, and programming tools, to investigate the relationship and value of these technologies to critical design practice. The opening of EMPAC will allow for expanded research into immersive environments beyond the expected studio skills gained. At the upper level the School of Architecture has entered into a collaborative arrangement with the Politecnico di Torino with express intention of sharing advanced digital design techniques based in Bentley MicroStation’s Generative Components module and links parametric performance based criteria to the Built Ecologies Studio at CASE..

The School of Architecture has recently invested in relocating its fabrication facility from the fourth floor of the Greene Building to the basement. The move provided greater space for the addition of a variety of digital fabrication equipment including a 3-axis CNC milling machine, two laser cutters, a ceramics lab, and a new rapid prototyping machine. Beginning in the second-year studios, architecture students have access and instruction in the use of this equipment. The employment of these technologies are integrated into the studios beginning with the second year as a supplement and complement to traditional methods of fabrication, which are also available in the relocated facility.

In the computing curriculum, coordinators are expected to integrate the instruction and application of the digital skill sets into the general design curriculum requirements.

Overall Computing Sequence Timeline

The following chart describes the general flow of conceptual ideas and software use throughout the studio sequence. Current software applications employed are indicated in brackets.

There is formal instruction in computing in five studios – all studios in the first two years and the Design Development studio of the fourth year.

3.13 The Thirteen Conditions of Accreditation

design studio	architectural design 1	architectural design 2	architectural design 3	design development
intro to computing	critical visualization	architectural geometry & 3d modeling	integrated parametric modeling	3D-2D design development
parametric logic as design method	introduction to 2d drafting and 3d modeling	sketch modeling & precision modeling	digital fabrication	building information modeling (BIM)
introduction to graphic design applications		2d drafting	introduction to [Eco-Tect] in Environmental and Ecological Systems	physical representation through digital fabrication
		introduction to digital fabrication		critical visualization
[adobe suite] [Generative components] [grasshopper]	[adobe suite] [Bentley microstation] [rhinoceros]	[rhinoceros, grasshopper] [microstation, generative components]	[rhinoceros, grasshopper] [Bentley Generative Components]	[microstation Bentley Architecture. Generative Components]

First Year: Design Studio / Architectural Design 1

The focus of the first year of computing is to develop core knowledge in a number of areas related to computer-based design, especially as it concerns spatial modeling and representation. It is important to see this year as a year in which it is critical to build technical and creative confidence in all students so they can make their own decisions in the future about their use of computing. Computing is not a choice for a design strategy, but an integral tool for managing design. In particular, students address issues of 3D modeling including rendering and parametric modeling. In addition, they are introduced to 2D drafting. The goal is to introduce the most powerful tools and work environments as commonplace to the production of architecture, and not seem as an optional advanced way of working.

Second Year: Architectural Design 2/3

In the second year, the focus will be to continue to develop additional skills and intelligently apply these skills in the general design tasks, specifically as it can complement the multi-scalar (individual building, urban, landscape, etc.) design process. Here there is a higher degree of reliance upon the integration into the design process as the skills will have been established in previous semesters, thus removing the learning curve needed to critically apply these tools in the workflow. Finally, students learn the use of various digital fabrication equipment. Throughout the second year, students use computational techniques in all aspects of architectural design and representation.

3.13 *The Thirteen Conditions of Accreditation*

Fourth Year: Design Development Studio

By this point, students have a fluid comparative framework of 3D software applications, modeling methods, and representation techniques. The trend is that the students have been introduced to numerous application software and skill sets. The focus on this studio is the in-depth development of a workflow that is single platform based, and not relying on many software that do different things. This allows for the agile utilization of 3D, 2D, Visualization, Fabrication, and Communication from a single file, in much the same way that a professional practice might be arranged. Efficiency and management of information is critical to the success of this studio, and hence delves into BIM (Building Information Modeling) as a final aspect that rounds out the computation curriculum.

Professional Electives

The School of Architecture offers electives and topics in architectural and urban theory and history, advanced building technology, computational design, landscape, acoustics, and architectural lighting. In addition to regularly offered electives, there are many topics and experimental courses. Professional electives may be used to develop particular depth within the discipline or to pursue a minor in Acoustics or Lighting.

Off Campus Programs

The School of Architecture offers a variety of opportunities for students to study architecture off campus. Not only does the School of Architecture offer the opportunity to study abroad for a semester in Italy, China, or India but also the opportunity to spend a semester in New York City with the school's Built Ecologies program at CASE. All these programs fully integrate with the professional degree programs. They are all set within world cities (Rome, Turin, Shanghai, Ahmedabad, and New York City) that will challenge and help to shape the future of architecture. All of these programs are open by competitive application to students who have completed the fourth semester of the professional program. Each program accepts a limited number of students from the professional programs based on their academic accomplishment (18 - 22 for Italy, 15 - 18 for China, 10 - 15 for India, and 10 - 12 for New York City). In addition to a Rensselaer faculty member who accompanies the group of students, there are adjunct faculty in the host city and/or institution who assist in site coordination and instruction. There is a program fee for participation in each of these programs except for New York City.

Italy

The semester in Italy is split between Turin and Rome and involves a design studio, an examination of the architectural and urban development of these cities, a course in Italian language and culture, and travel throughout Italy. The program seeks to deepen appreciation of these cities and the layers of culture and history, particularly in Rome, which have played a seminal role in the development of Western culture, civilization, and architecture. The School of Architecture has recently entered into an agreement with the Turin Polytechnic School of Architecture such that our students spend four weeks in Turin working with architecture students there on a design project employing advanced computational techniques. The School sends students to Italy every fall semester.

China

The semester in Shanghai is based in the School of Architecture at Tongji University, which is one of the great institutions of China. The program offers joint studios in design with Chinese faculty and students in addition to courses in Chinese language, culture, art, architecture, and urbanism.

India

The program is based in the School of Architecture CEPT at Ahmedabad, which is an internationally respected school for both architectural and urban design. This program offers

3.13 *The Thirteen Conditions of Accreditation*

students the opportunity to travel, study, and apply the lessons learned from Indian architecture and Indian history and theory within the context of a major research center.

New York City

Every semester a select group of architecture students studies in New York City with CASE. In addition to design studio, students take a concentration of courses related to advanced issues in built ecologies and sustainability. As part of these studies, students from the professional programs collaborate with faculty and graduate students of the Built Ecologies program on original research.

Other Off-Campus Opportunities

In addition to these semester-long programs, the school also offers summer travel programs. In summer 2009, students traveled to South America for several weeks in conjunction with a course on South American architecture that was offered in the spring 2009 semester.

Also, the School has offered travel abroad during spring break in association with a studio project. In recent years, students have traveled with a faculty member to Switzerland, Spain, Portugal, and Austria.

B.Arch. Final Project / M.Arch. Thesis

The B.Arch. Final Project / M.Arch.¹ Thesis is a two-semester endeavor that marks the critical aptitude and abilities of students in the professional programs. A multiple session not for credit seminar introduces students to the expectations of final project / thesis during the semester prior to its official start. Students submit preliminary topics proposals at the conclusion of their penultimate year in the professional program for review and comment by the faculty. During the summer prior to their final year, students receive faculty comments and suggestions and revise their topic proposal for submission on the first day of classes in their final year of study. The faculty review the submissions collectively, make comments and recommendations, and designate an interim faculty advisor to each student for the first several weeks of the semester.

During the first six to seven weeks each student participates in a professional competition studio run by a practicing architect. At the same time they participate in a Methods / Research Seminar designed to assist in the detailed development of their topic, help them frame their projects and refine the means and methods of their research, analyses, and strategies in order to accomplish their design goals.

Upon presenting their developed proposals in the seventh week of the semester students are grouped into clusters of 12-14 students with three faculty members based on their interest in working with particular faculty and the faculty's ability and interest in the topic areas presented. From this point forward, students continue research and development of their ideas through design as a vehicle of investigation. They may consult with faculty advisors and must present at periodic 'cluster reviews'. A final review at the end of the first semester includes the internal cluster faculty and external reviewers and includes the requirement to submit documentation of the work in preliminary book format.

Upon successful completion of the first semester, students proceed to a second full term in which they continue to develop their research and design proposal. The students' work is largely independent though they are encouraged to schedule progress meetings with any of the faculty members of their cluster. At three points during each semester, students make a formal presentation of their progress work to the faculty members and other students in their cluster. The final presentation / review attended by internal faculty and external reviewers occurs at the end of the semester and is complemented by the submission of a Final Project / Thesis book.

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

A matrix cross-referencing each required course with the performance criteria it fulfills. For each criterion, the school must highlight the cell on the matrix that points to the greatest evidence of achievement

(See graphic matrix on the following pages)

CURRICULUM: STUDENT PERFORMANCE CRITERIA

COURSE NUMBER	COURSE NAME	EXPECTED LEVEL OF COMPETENCE	ELECTIVE COURSES																																	
			Speaking and Writing Skills	Critical Thinking Skills	Graphics Skills	Research Skills	Formal Ordering Systems	Fundamental Design Skills	Collaborative Skills	Western Traditions	Non-Western Traditions	National and Regional Traditions	Use of Precedents	Human Behavior	Accessibility	Sustainable Design	Program Preparation	Site Conditions	Structural Systems	Environmental Systems	Life Safety	Building Envelope Systems	Building Service Systems	Building Systems Integration	Building Materials and Assemblies	Construction Cost Control	Technical Documentation	Client Role in Architecture	Comprehensive Design	Architect's Administrative Roles	Architectural Practice	Professional Development	Leadership	Legal Responsibilities		
ARCH-0961	Italian Lang & Cult (Rome) (Riebe) - F 08																																			
ARCH-0960	Surface as Structures as Form (Saunders) - S 09		A	A	U	U																														
ARCH-4430	Electronic Media Phys Design Processes - F 08		A	A	A	U	U																													
ARCH-4840	Architectural Acoustics 1 (Calamia) - Fall		A		A	A	U																													
ARCH-4850	Architectural Acoustics 2 (Calamia) - Spring		A		A	A	U																													
ARCH-4860	Applied Psychoacoustics (Braasch) - Spring		A	A	U	U																														
ARCH-4961	Bedford Seminar (Arch/Civil Eng students) - Fall / Spring		U	A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4963	Extreme Drawing (Oatman) - Spring		A	A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4967	Landscape Patterns: (Coudert) - Spring		U	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4969	Public Art Seminar (Szoska) - Spring		A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4970	Sensing Architecture (Ngai) - Spring		A	A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4975	Sys Bldg Materials (Holmes) - Fall/Spring		A	A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4984	Lang & Urbanism (Cremlib) China Alternate Spring - S 08**		A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4985	Lang & Culture (Cremlib) - China Alternate Spring - S 08		A		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4988	Modular Thinking: Ceramics - China - S 08		A		A	U	A	U	U	U	U	U	A		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4988	Calligraphy Painting (Cremlib) - China Alternate Spring - S 08		A		A		A	A	U	U	U																									
ARCH-4984	Seminar in Turin (Riebe) - Rome F 08		A	A		A	A																													
ARCH-4986	Urban & Arch Hist Rome (Riebe) Fall 08		U	U	U	U																														
ARCH-4967	Latin American Architecture - S09 (Cremlib)		A	A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4969	Furniture Explorations - S08 (Riebe)		A	A	A	A	A	A	A																											
ARCH-4971	Eco-Ceramic Phase II: High Performance Masonry Enclosures		A	U	A	U	U	U	U	U	U	U	A	A	U	U	U	A	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4971	Environmental Parametrics (NYC) (Ngai) Fall 08		A	A	A	A	A	U	U	U	U	A	A	A	U	U	A	A	A	U	A	A	A	A	A	U	U	U	U	U	U	U	U	U	U	
ARCH-4972	Workshop in Multi-Naturalism - S09 (Carver)		U	U	U	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
ARCH-4962/2	Adv Study Baroque Parametrics (Saunders) Fall 08 - Spring 09																																			
ARCH-4966	The Culture of Transparency (Mical) - Spring '09		A	U	U	A	U	U	U	A	A	A	A																							
ARCH-4974	Design Philosophies: Towards a New Technique - S'09		A	A	A	A																														
ARCH-4975/61	Sustainable Building Metrics - F'08 & S'09 (Holmes)		A	A	A	U	U	U	U	U	U	U	A	U	A	U	A	U	A	U	A	A	A	A	A	A	A	U	U	U	U	U	U	U	U	
ARCH-49684	Seminar in Sensory Culture (Krueger) - Spring		A	A	A	U	U	U	U	U	U	U	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	
LGHT-4230	Lighting Design - Spring (Minor)		A	A	A	U	A	A					A	U	A	U	U																			
LGHT-4770	Lighting Technologies and Applications - Fall (Minor)		A	A	A	A																														
LGHT-4840	Human Factors in Lighting- Fall (Minor)		A	A	A								U	U	U																					
LGHT-4940	Adv Projects in Lighting (Minor)		A	A	A	A	A	A					U	U	U	U	U																			

3.13 The Thirteen Conditions of Accreditation

Student Performance Criteria

The accredited degree program must ensure that each graduate possesses the knowledge and skills defined by the criteria set out below. The knowledge and skills are the minimum for meeting the demands of an internship leading to registration for practice.

The school must provide evidence that its graduates have satisfied each criterion through required coursework. If credits are granted for courses taken at other institutions, evidence must be provided that the courses are comparable to those offered in the accredited degree program.

The criteria encompass two levels of accomplishment:

- **Understanding**—means the assimilation and comprehension of information without necessarily being able to see its full implication.
- **Ability**—means the skill in using specific information to accomplish a task, in correctly selecting the appropriate information, and in applying it to the solution of a specific problem.

For the purpose of accreditation, graduating students must demonstrate understanding or ability in the following areas:

1. Speaking and Writing Skills

Ability to read, write, listen, and speak effectively

An emphasis on the development of writing skills is placed in each student's second semester humanities course. Design, History, and Society taught under the auspices of the Science and Technology Studies Department of the Rensselaer's School of Humanities, Arts, and Social Sciences is an Institute "writing intensive course". Particular attention is paid to the development of writing skills in the context of content relating to Design, History, and Society. Writing skills are developed throughout the History/Theory sequence with reading and writing requirements in BTA1, BTA2, and CDA. In BTA3, Modernity in Culture and Architecture, and Cities/Lands, the reading and writing requirements are most intensive with the expectation that critical thinking skills be expressed clearly through written assignments and essays on a variety of topics. All courses in the History/Theory sequence include a discussion component where students give spoken expression to the various ideas introduced in the readings and lectures. The Design Exploration sequence of courses in the M.Arch. program have substantial reading, writing, and speaking requirements. The Professional Practice course includes a research/writing requirement. Students in the second-year core studios have a research/writing component in the preparation of a program associated with one of the projects they do during the course of the semester.

In addition, The their final year in the professional program, is defined as an Institute "communication intensive course", which integrates, written, spoken, and graphic expression. The Final Project (B.Arch.) / Thesis (M.Arch.) results in a student initiated design project accompanied by a written document, a book, that frames, describes, and summarizes the findings of their final year's work. The design work as well as the written document are reviewed and commented upon by the faculty at crucial points throughout the year.

Effective speaking is developed through presentation requirements in each of ten studio semesters (eight for M.Arch. students), which includes the final year Final Project/Thesis. This requires students to present their work to the faculty, outside reviewers, and the class. Specific assignments requiring students to present material to their colleagues is part of the case study work in Materials and Enclosure and the Design development Studio.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

3.13 *The Thirteen Conditions of Accreditation*

ARCH-2140: The Building & Thinking of Architecture 3
ARCH-4040: Cities/Lands
ARCH-4140: Modernity in Culture & Architecture
ARCH-4690: Case Studies

2. Critical Thinking Skills

Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test them against relevant criteria and standards.

With respect to the School of Architecture's mission, every instructor has the objective of developing the student's critical thinking skills. This is a result of a long-standing commitment to enable students to analyze critically situations, whether specific and concrete or more ephemeral and ambiguous in nature. They are expected to be able to discern the relevant issues in a given situation and what the consequences might be of various courses of action in responding to that situation. Both the History/Theory and Design sequences are designed to open an approach of critical inquiry through observation, analysis, and action. Contemporary Design Approaches questions the consequences of different practices, buildings, building complexes, and urban spaces. The Building and thinking of Architecture 3 and Modernity in Culture and Architecture both address architecture at multiple scales and its relationship to ideas from the Enlightenment era to the present with the expectation that students will be able to articulate a position of their own on the various subjects presented to them.

Critical thinking skills are reinforced through questioning how design interventions are seen in the broad context of social, cultural, and physical phenomena, and affect situations. Critical thinking skills extend to instruction in the more technical aspects of the profession through the technology sequence and Design Development studio. Several of the technology courses taught in the first two years (Materials and Design, Construction Systems, and Environmental and Ecological Systems) are structured to have a direct correlation to work being done in the studios of those early years. These courses require individual case study research, analysis of buildings and their component systems. Ultimately, this is borne out in the individually initiated Final Project (B.Arch.) or Thesis (M.Arch.) that require students to formulate and act upon a position with a critical understanding of the broader context and consequences of their actions.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-2130: Contemporary Design Approaches
ARCH-2140: The Building & Thinking of Architecture 3
ARCH-4040: Cities/Lands
ARCH-4140: Modernity in Culture & Architecture
ARCH-4690: Case Studies

3. Graphics Skills

Ability to use appropriate representational media, including freehand drawing and computer technology, to convey essential formal elements at each stage of the programming and design process.

The approach to teaching, developing, and employing representational media is integrated throughout the curriculum. A one-credit drawing component in Design Studio and Architectural Design 1, which are the studios of the first year, give formal instruction in drawing as a procedural and representational technique. In those studios, there is also a one-credit component in computing instruction. Both are integrated into studio projects and requirements. Formal computing instruction continues in Architectural Design 2 and 3 and in

3.13 *The Thirteen Conditions of Accreditation*

the Design Development studio. The use of image manipulation and three-dimensional modeling and rendering tools are introduced in the first year followed by more advanced modeling and simulation applications as well as 2D/3D applications in Architectural Design 2 and 3. The Construction Systems course in the first semester of the second year emphasizes graphic portrayal of building construction ideas and information through manual as well as digital means. More extensive instruction in the systematic organization of information and representational use of CAD applications is given as a formal component of the Design Development studio. This instruction includes the necessary graphic skills to communicate the information required to construct a design project. Graphic project representation is required in each studio and in the B.Arch. Final Project and M.Arch. Thesis. Ongoing portfolio development is also required of students and a portfolio is required with the student's submission of a proposal for the B.Arch. Final Project and M.Arch. Thesis and for admission into the off-campus programs.

Professional electives in various aspects of electronic media and digital design and fabrication allow advanced mastery of computing technologies and their application to the profession and discipline. International studies programs emphasize the ability to draw in a manner that enables observation and analysis of situations. The School of Architecture's annual seminar in Torino with the Politecnico di Torino is founded upon the use of parametric modeling for design.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2200: Design Studio
- ARCH-2600: Graduate Design Studio
- ARCH-2210: Architectural Design 1
- ARCH-2610: Graduate Architectural Design 1
- ARCH-2220: Architectural Design 2
- ARCH-2620: Graduate Architectural Design 2
- ARCH-4300: Design Development

4. Research Skills

Ability to gather, assess, record, and apply relevant information in architectural course work.

Research skills are addressed with respect to a wide range of issues that range from historical research to architectural analysis (formal, typological, performance, site, etc.) to investigations of material systems and types of practice. These research skills are developed in the context of studios, history/theory courses, and the technology and professional practice courses. Research skills are addressed in a rudimentary way in The Building and Thinking of Architecture 1 and 2, Contemporary Design Approaches, The Building and Thinking of Architecture 3, and Modernity in Culture and Architecture. Case Studies and Cities/Lands are positioned to reinforce and amplify those skills. In the technology sequence, Professional Practice as well as Materials and Design employ basic research methods to inform inquiry. Research projects are also required in Structures 1 and 2, Construction Systems, Environmental and Ecological Systems, Materials and Enclosure, and Building Systems and Environment, and the Design Development studio. Graduate students further develop research skills in the Design Exploration sequence, particularly through a case study analysis in Design Explorations 1 (analogous to the Case Study course).

Studios at every level require research and data collection by the students for projects. Case studies and program analysis are key components of informing projects and are formally addressed in the Architecture Design 2 and 3 studios. In Final Project 1 / M.Arch. 1 Thesis, a formal research seminar covering the methods and means of research and project definition is given. Ultimately, this is borne out in the individually initiated Final Project (B.Arch.) or Thesis (M.Arch.).

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2350: Construction Systems
- ARCH-2360: Environmental & Ecological Systems
- ARCH-2510: Materials & Design
- ARCH-4040: Cities/Lands
- ARCH-4690: Case Studies

5. Formal Ordering Systems

Understanding of the fundamentals of visual perception and the principles and systems of order that inform two- and three-dimensional design, architectural composition, and urban design.

Formal ordering systems are presented throughout the History/Theory sequence of courses with particular attention paid to the principles, perception, and consequences of ordering systems in *The Building and Thinking of Architecture 1 and 2*, *Contemporary Design Approaches*, and *The Building and Thinking of Architecture 3*. *case Studies (DE1 for graduate students)* embeds the expectation that case studies reveal formal ordering systems and their implications through a range of concerns – aesthetic, tectonic, technological, societal, cultural, etc. *Cities/Lands (DE2 or 3 for graduate students)* explores the same especially at the urban scale.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2110: *The Building & Thinking of Architecture 1*
- ARCH-2120: *The Building & Thinking of Architecture 2*
- ARCH-2210: *Architectural Design 1*
- ARCH-2610: *Graduate Architectural Design 1*
- ARCH-2220: *Architectural Design 2*
- ARCH-2610: *Graduate Architectural Design 2*

6. Fundamental Design Skills

Ability to use basic architectural principles in the design of buildings, interior spaces, and sites.

Fundamental design skills are primarily developed in the studios. The design sequence begins with a general design course for architecture students. This studio is team taught and has instructional components in drawing and computer media techniques. Following the first semester in the design sequence architecture studios increasingly layer knowledge from parallel disciplinary areas (history, theory, technology) and increase the number and complexity of issues that must be addressed in the project expectations. *Architectural Design 1* addresses architecture as a multi-scale discipline and introduces design at the individual building, urban, and landscape levels simultaneously. Its particular focus is on the experiential and spatial characteristics of architecture. *Architectural Design 2* extends and amplifies these characteristics to address issues of plan and section in a rigorously systematic way. This studio focuses on dwelling at a variety of scales. A simple programming exercise is introduced in this studio. *Architectural Design 3* focuses on infrastructural issues within an urban and landscape context. A more substantive programming exercise is a constituent part of this studio. All studios of these first two years are team taught. The upper level studios in the third and fourth years offer a variety of options including semester-long experiences in Italy, China, India, and New York City. These studios are individually taught. The Design development studio is a one-semester studio required of students in their fourth year. The most comprehensive demonstration of the abilities introduced in the studios of the first three years occurs in the Design Development studio. This studio is predicated on the integration of the various building systems and

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

components and details within the context of a rigorous design perspective and expressed comprehensively and coherently in 2D and 3D.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2210: Architectural Design 1
- ARCH-2610: Graduate Architectural Design 1
- ARCH-2220: Architectural Design 2
- ARCH-2610: Graduate Architectural Design 2
- ARCH-2230: Architectural Design 3
- ARCH-2630: Graduate Architectural Design 3

7. Collaborative Skills

Ability to recognize the varied talent found in interdisciplinary design project teams in professional practice and work in collaboration with other students as members of a design team.

The School of Architecture has for several years recognized the importance of collaborative work in a variety of ways and it occurs in numerous courses. It is an essential component of the school's pedagogy as the faculty believes that students learn a great deal through peer education in the sharing of knowledge, ideas, techniques, etc. In the core design studios collaborative work is stressed and built into their curricula. The culminating project of the first semester of the first-year studio is typically a design project that depends on the collaborative effort of teams composed of 6 – 8 students each. The students design and build at full scale constructions using found materials. Following a series of short individual projects, the culminating project of the first semester of the second-year studio requires students to work in both two- and four-person teams on various aspects of the project, which includes programming, design, and production.

Collaborative work also occurs in the vertical design studios at upper levels. This occurs in various ways either as a team research and programming project or as a design project or as both. The Design Development studio is founded on two-person teamwork and during the spring semester of this studio, architecture student design teams work collaboratively with engineering student design teams in developing the design of a building.

Collaborative work occurs as well in several non-studio courses. The Materials and Design course of the second semester of the first year has as one of its student deliverables a collaborative project. Similarly, the Materials and Enclosure and Building Systems and Environment courses in the spring of the third year B.Arch. or second full year of the M.Arch. curriculum require collaborative work. The Case Studies of the fall of the fourth year also has a component of collaborative work.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2200: Design Studio
- ARCH-2220: Architectural Design 2
- ARCH-2610: Graduate Architectural Design 2
- ARCH-2510: Materials & Design
- ARCH-4300: Design Development

8. Western Traditions

Understanding of the Western architectural canons and traditions in architecture, landscape and urban design, as well as the climatic, technological, socioeconomic, and other cultural factors that have shaped and sustained them.

3.13 *The Thirteen Conditions of Accreditation*

The History/Theory sequence, particularly The Building and thinking of Architecture 1, 2, and 3 and Modernity in Culture and Architecture, present the periods and preoccupations of architectural traditions in the context of societal and cultural factors. Contemporary Design Approaches makes a closer comparative examination of particular practices in the context of those traditions. Cities/Lands (DE2 or 3 for graduate students) examines specific historical and contemporary attitudes toward land and the urban situation and how these affect architectural, landscape, and urban design responses. The Environmental and Ecological Systems course examines the climatic and technological factors in relation to culture and explores how a wide range of environmental factors have affected the development of architectural responses. It further investigates how available technologies have and can shape and sustain those responses.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2110: The Building & Thinking of Architecture 1
- ARCH-2120: The Building & Thinking of Architecture 2
- ARCH-4040: Cities/Lands
- ARCH-4140: Modernity in Culture & Architecture

9. Non-Western Traditions

Understanding of parallel and divergent canons and traditions of architecture and urban design in the non-Western world

There is substantial attention given to non-western cultural canons and traditions and their concomitant architectural developments in the both semesters of the first year in The Building and Thinking of Architecture 1 and 2. These ideas and issues are continued in Contemporary Design Approaches and Cities/Lands. Environmental and Ecological Systems continues to introduce various non-western attitudes and approaches to environmental issues.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2110: The Building & Thinking of Architecture 1
- ARCH-2120: The Building & Thinking of Architecture 2
- ARCH-4040: Cities/Lands

10. National and Regional Traditions

Understanding of national traditions and the local regional heritage in architecture, landscape design and urban design, including the vernacular tradition

The Building and Thinking of Architecture 1 and 2, though not initially focused on the American project, develop an understanding of architecture in relation to national and local issues and concerns. Modernity in Culture and Architecture explicitly frames the relationship of emergent thought, attitudes, and architectural approaches to shifting national and cultural phenomena. In doing so, one of the components of this course devotes attention to the American experience. The Building and Thinking of Architecture 3 in examining the works of various key architects from the 17th century to the present focuses attention on several key American architects, their work, and the ideas that support that work. Cities/Lands (DE 2 or 3 for graduate students) is also focused on the relationship between various cultures, landscape, and urban design. In this respect it devotes considerable attention to developments in America. Environmental and Ecological Systems focuses in part on the regional and local peculiarities of site and climate that provoke specific responses to architectural design.

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

Design, History, and Society, a course in the Rensselaer's School of Humanities, Arts, and Social Sciences, is required of every architecture student in the B.Arch. program and addresses various issues that correlate humanity's physical interventions in the world with social concerns. This course devotes attention to the American experience in this respect.

The regular use of New York City, Boston, and Montreal as the subjects and locations of many of the school's projects draws students ever closer to an understanding of American architecture and urbanism. The school's lecture series and exhibitions have traditionally focused on those American practices that are preoccupied with emergent architecture and landscape traditions.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2110: The Building & Thinking of Architecture 1
- ARCH-2120: The Building & Thinking of Architecture 2
- ARCH-2140: The Building & Thinking of Architecture 3
- ARCH-2360: Environmental & Ecological Systems
- ARCH-4040: Cities/Lands
- ARCH-4140: Modernity in Culture & Architecture

11. Use of Precedents

Ability to incorporate relevant precedents into architecture and urban design projects.

Our School has traditionally avoided the notion of design based on precedent believing that such study tends to preference the purely formal and stylistic over the broader systemic, strategic, and conceptual issues of architecture. Instead, the School's curriculum has incorporated a case study approach to examining a variety of previous architectures. That said, the use of case studies is employed throughout the curriculum as a basis for understanding the context of varied approaches and to form critical judgments about the implications of established work. Though they are used to inform and provide important knowledge for design, the results of case study work are not directly employed in either the conceptualization or development of design work if so doing implies following a type or typology. Instead, the case study is an instructional device from which a variety of lessons may be derived. In the history/theory core (as well as in the technology sequence) an examination of existing architectures is carried out at multiple analytical levels.

In the core design and required upper-level vertical studios, students must develop and present rationales for the conceptualization and development of their architecture and urban design projects in the context of ideas, situations, and established work. In the Architectural Design 2 and 3 studios, students engage in case study analysis of various program types and site conditions with respect to their projects to use as a knowledge base in the development of an architectural program. Similar case studies are employed in many of the upper level vertical studios. In the Design Development studio a research exercise that examines materials and systems in existing contemporary buildings contributes to a collective knowledge base for use and application in each student's design work. The Case Study course (Design Explorations 1 for M.Arch. 1 students) has been designed to give broad exposure to a number of architectural projects and depth of investigation/inquiry ranging from its technical analysis to an understanding of the work in its cultural context.

In the Final Project / M.Arch. 1 Thesis year, students are expected to research and present a coherent rationale for their projects. This includes bibliographic materials and research, which in most instances includes critical and analytical case studies.

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2220: Architectural Design 2
- ARCH-2620: Graduate Architectural Design 2
- ARCH-2230: Architectural Design 3
- ARCH-2630: Graduate Architectural Design 3
- ARCH-4300: Design Development

12. Human Behavior

Understanding of the theories and methods of inquiry that seek to clarify the relationship between human behavior and the physical environment.

Understanding of human behavior in relation to the physical environment is addressed in Design, History, and Society, a first year course taught in the School of Humanities, Arts, and Social Sciences. This understanding is also embedded in the content of The Building and Thinking of Architecture sequence, Contemporary Design Approaches, and Modernity in Culture and Architecture. Studios are based on the premise that there exists a close relationship between behavior and the physical environment and that the designed environment has a profound effect on people and their cultures. Students are expected to address those consequences in their design proposals and presentations.

The Environmental and Ecological Systems course makes a case for this relationship through case study analysis and course material that is explicit in its expectation that students understand the relationship between the mediated physical environment, comfort, and behavior. The Case Studies course (DE1 for M.Arch. 1 students) requires the analysis of a particular built work, with the expectation that the broad human and cultural context, as well as their response, be addressed. Cities/Lands (DE2 or 3 for M.Arch. 1 students) requires an understanding of the various historical and contemporary attitudes toward and understandings of the landscape and urban conditions.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2130: Contemporary Design Approaches
- ARCH-2210: Architectural Design 1
- ARCH-2610: Graduate Architectural Design 1
- ARCH-4040: Cities/Lands

13. Human Diversity

Understanding of the diverse needs, values, behavioral norms, physical ability, and social and spatial patterns that characterize different cultures and individuals and the implication of this diversity for the societal roles and responsibilities of architects

An understanding of human diversity and the implication for the societal roles and responsibilities of architects are addressed in Design, History, and Society, a first-year course taught in Rensselaer's School of Humanities, Arts, and Social Sciences. It is further embedded in the content of The Building and Thinking of Architecture sequence, Contemporary Design Approaches, and Modernity in Architecture and Culture. Cities/Lands (DE2 or 3 for M.Arch. 1 students) addresses the historic and contemporary social and spatial attitudes and relationships to landscape and cities that characterize different cultures and periods.

Studios regularly address and reinforce these concerns through the framing of projects in contexts outside of students' area of familiarity with the expectation that they consider the impact and significance of design decisions and propositions. Students are expected to address the predictable implications and

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

consequences of their design proposals. This is perhaps nowhere better understood than through the semester-long international programs in Italy, China, and India in which approximately 70% of our students participate. The School's strong commitment to the value of travel as an essential part of an architectural education, whether to New York, Boston, Montreal, Italy, China, or India or in recent spring break or summer travels to South America, Switzerland, Spain, Portugal, and Austria, is a direct demonstration of commitment to the concern for understanding diverse human conditions and the global context of the profession. The recent selection of a final year competition studio project in Africa for a health facility further demonstrates a commitment to expand the awareness and ability of students to act responsibly in a global context.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2110: The Building & Thinking of Architecture 1
- ARCH-2120: The Building & Thinking of Architecture 2
- ARCH-2130: Contemporary Design Approaches
- ARCH-4040: Cities/Lands

14. Accessibility

Ability to design both site and building to accommodate individuals with varying physical abilities.

Issues of accessibility are addressed throughout the design sequence. Specific material is presented on accessibility is presented as a lecture in the series of TAC sessions in the Architectural Design 2 studio in the first semester of the second year and the Design Development studio in the fourth year.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2220: Architectural Design 2
- ARCH-4300: Design Development

15. Sustainable Design

Understanding of the principles of sustainability in making architecture and urban design decisions that conserve natural and built resources, including culturally important buildings and sites, and in the creation of healthful buildings and communities.

Sustainability issues permeate all design studios to some degree. However, these issues are an important focus of studio work in Architectural Design 3 which is taught in parallel with the course Environmental and Ecological Systems. Sustainable design principles are emphasized further in Materials and Enclosure, Building Systems and Environment, and Case Studies. The New York City semester, which is a selective off-campus program conducted in collaboration with the School of Architecture's Center for Architectural Science and Ecology (CASE), focuses on advanced issues in sustainable design.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2230: Architectural Design 3
- ARCH-2630: Graduate Architectural Design 3
- ARCH-2360: Environmental & Ecological Systems
- ARCH-4690: Case Studies
- ARCH-4740: Building Systems & Environment

3.13 *The Thirteen Conditions of Accreditation*

16. Program Preparation

Ability to prepare a comprehensive program for an architectural project, including assessment of client and user needs, a critical review of appropriate precedents, an inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and assessment of their implication for the project, and a definition of site selection and design assessment criteria.

Program preparation is first addressed in the Architectural Design 2 studio through case study investigations of housing types, their organization, structure, and use of materials. Students are also required to develop a program for a small commercial or community oriented facility. In Architectural Design 3, students are required to develop a more in-depth program with respect to an infrastructural facility like a railroad passenger station. Specific lectures are given during studio time elaborating on the necessity, purpose, and development of an architectural program. Case studies are generally a feature of subsequent design studios to develop programmatic criteria. Frequently these upper level studios require the development of a program as part of the design project. In the Design Development studio, case studies extend to the laws and standards that inform an appropriate design response. Also in the Design Development studio, students are expected to inventory and evaluate their space conditions relative to accepted norms and definitions. In their final year, students are expected to develop a proposal and program statement for their final project (B.Arch.) or thesis (M.Arch.). It is first documented in the form of a proposal and later developed through case study research and design investigation into the brief for their project.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2220: Architectural Design 2
- ARCH-2620: Graduate Architectural Design 2
- ARCH-2230: Architectural Design 3
- ARCH-2630: Graduate Architectural Design 3
- ARCH-4300: Design Development

17. Site Conditions

Ability to respond to natural and built site characteristics in the development of a program and the design of a project.

The importance of analyzing, understanding, and responding to site conditions is introduced in the first-year studios through exercises that address both natural and built sites. The projects are regularly based on the question of how site is inextricably connected to program and design. This approach is carried through the core studios and into many of the vertical option studios and requires students to take a position with respect to their projects implications to site, whether and how they are transformative.

The Environmental and Ecological Systems course addresses the environmental context of projects with respect to climatological analysis and implications as well as the possible and most appropriate climatological responses, energy systems, and implications. Traditional and more progressive strategies of passive and active systems are introduced with an emphasis on gaining the ability to analyze critically site conditions in anticipation of better informing responsible design responses.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2220: Architectural Design 2
- ARCH-2620: Graduate Architectural Design 2
- ARCH-2230: Architectural Design 3

ARCH-2630: Graduate Architectural Design 3

18. Structural Systems

Understanding of principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems.

Co-requisite to the second semester of the first-year studio, the Materials and Design course presents a broad introduction to technologies that relate to structural, environmental, and material building practices. These principles are reinforced in the first-year studio beginning with the development of a tacit understanding of materials in the first semester followed by the implementation of basic structural systems in the second semester of the first-year studio and all subsequent studios.

The Structures sequence presents statics and strength of materials, basic structural principles and types, wood, steel, and concrete design, and an introduction to more advanced structural systems. It is expected that all students gain a conceptual understanding of forces that act on buildings (including gravity and lateral forces), methods of resisting and analyzing the paths of those loads, the various systems and their appropriate applications. In the Construction Systems course, a more comprehensive examination of component systems and their integration into building design are investigated. The Design Development studio requires that this knowledge be resolved and integrated into the considerations, design, and documentation of a project at the schematic design level (such as any studio project of previous semesters would be) in support of the project objectives.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2330: Structures 1
- ARCH-2350: Construction Systems
- ARCH-4300: Design Development
- ARCH-4330: Structures 2

19. Environmental Systems

Understanding of the basic principles and appropriate application and performance of environmental systems, including acoustical, lighting, and climate modification systems, and energy use, integrated with the building envelope.

Physical Principles of Design, taught in the Physics department, provides base information necessary to understand the physical world and principles at work in it. Students are also required to take an introductory course in biology that gives students a foundation in the relationship between the environment and forms of life. Materials and Design, a two-credit co-requisite to the second semester of the first-year studio, introduces a number of principles and systems that are integral to the design of buildings – some of them having to do with environmental principles and systems.

The Environmental and Ecological Systems and Building Systems and Environment courses comprise the two-course sequence that provides the requisite environmental systems knowledge. This includes an understanding of first principles in environmental analysis and a working understanding of specific building environmental systems. After gaining a thorough knowledge of macro- and micro-climates, energy systems, possible architectural responses (both passive and active), and an appreciation for the factors that affect human comfort in Environmental and Ecological Systems, the Building Systems and Environment course addresses specific building systems. Sections on architectural acoustics and lighting are taught by leading experts with a heavy reliance on fieldwork and analysis. The Design Development studio requires the basic

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

integration of environmental systems into the development of a project beyond the level of schematic design.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2360: Environmental and Ecological Systems
- ARCH-4300: Design Development
- ARCH-4560: Materials and Enclosure
- ARCH-4740: building Systems and Environment

20. Life Safety

Understanding of the basic principles of life-safety systems with an emphasis on egress

Basic life-safety principles are presented in the second-year studio. From that juncture in the studio sequence, compliance with basic life safety principles, particularly with respect to egress, is required. The principles and systems are more specifically presented and addressed in the Professional Practice course linked to the Design Development studio, where a substantial code analysis and compliance are required in each student's project.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2220: Architectural Design 2
- ARCH-2620: Graduate Architectural Design 2
- ARCH-2230: Architectural Design 3
- ARCH-2630: Graduate Architectural Design 3
- ARCH-4300: Design Development
- ARCH-4540: Professional Practice

21. Building Envelope Systems

Understanding of the basic principles and appropriate application and performance of building envelope materials and assemblies

Principles that have informed the design of building envelope systems are addressed in the Modernity in Culture and Architecture course with respect to the historical shifts in thinking and technology. Conceptual and technological principles of building envelopes are examined in the Materials and Design, Materials and Enclosure, and Construction Systems courses particularly with respect to how they address envelope as a material system that resists forces and must be attached to structure and construction. The Environmental and Ecological Systems course addresses the envelope as a skin that mediates between environments. The Case Studies course (DE1 for graduate students) includes the analysis and understanding of the building envelope system.

Beginning with Architecture Design 3, design courses address the concerns associated with the design of various envelope systems and their making. The Design Development studio requires each student to design and detail a building envelope system with respect to the studio project objectives.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2350: Construction Systems
- ARCH-4300: Design Development
- ARCH-4560: Materials & Enclosure

22. Building Service Systems

Understanding of the basic principles and appropriate application and performance of plumbing, electrical, vertical transportation, communication, security, and fire protection systems

Two four-credit Environmental Systems courses present and address building service systems. The first, Environmental and Ecological Systems, addresses the principles that inform design with a more application minded presentation of building service systems in the second course, Building Systems and Environment. The Design Development studio requires an understanding of the integration of these systems into the development of a design project.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-4300: Design Development

ARCH-4740: Building Systems and Environment

23. Building Systems Integration

Ability to assess, select, and conceptually integrate structural systems, building envelope systems, environmental systems, life-safety systems, and building service systems into building design

Structural knowledge gained in the two structures courses is applied and integrated into design projects starting in the second year. The Construction Systems course of the first semester of the second year introduces the necessity of considering the integration of design and construction issues. The Case Studies course and to a lesser extent Materials and Enclosure provide additional knowledge regarding the integration of construction systems into design. The knowledge base for understanding the application and implication of environmental and building service systems is gained in the environmental course sequence – Environmental and Ecological Systems and Building Systems and Environment. The second of those two courses, Building Systems and Environment, examines each of the systems and how they may be integrated. Extensive field study in this course provides students with illustrative examples of successful and failed integration. The ability to assess, select, and integrate structural systems, building envelope, life safety, and other systems into a building's design is required in the Design Development studio.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-4300: Design Development

ARCH-4740: Building Systems and Environment

24. Building Materials and Assemblies

Understanding of the basic principles and appropriate application and performance of construction materials, products, components, and assemblies, including their environmental impact and reuse

Beginning in the first-year studio, materials and material properties are engaged through hands-on applications and making both at reduced and full scale. A first-year course in Materials and Design presents the importance of understanding materials and systems. To follow, Construction Systems, Materials and Enclosure, and Case Studies cover materials and assembly systems including both traditional and innovative applications. The Design Development studio requires students to execute a research investigation into a particular material and/or system and share their findings with the balance of the studio. Students are expected to integrate their understanding of materials and assembly systems into the design development process and project. The environmental impact of materials and their assemblies are addressed in Environmental and Ecological Systems and Building Systems and Environment.

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

The addition of rapid prototyping to the school's workshop has given increased emphasis to the material dimension of the architectural project. The workshop has traditionally played a crucial role in the development of a "culture of making" in the school and now has increased strategic relevance to the prospect of education, experimentation, and architecture relative to materials and material assembly.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2350: Construction Systems
- ARCH-4300: Design Development
- ARCH-4560: Materials & Enclosure

25. Construction Cost Control

Understanding of the fundamentals of building cost, life-cycle cost, and construction estimating

Various aspects of building costs, construction estimating, and cost control are addressed within the professional practice course including an introduction to factors that contribute to project costs and an introduction to the process of building cost estimating. These issues are discussed in the context of the Design Development studio projects.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-4300: Design Development
- ARCH-4540: Professional Practice

26. Technical Documentation

Ability to make technically precise drawings and write outline specifications for a proposed design

Development of the ability to represent proposed designs and make technically precise documents begins with manual drawing and formal computing instruction in the first- and second-year studios and continues, though less formally in the vertical studios. The ability to make technically precise documents and descriptions of proposed design is strongly and consistently emphasized in Construction Systems in the second year. It is further reinforced strongly in the Design Development studio, which includes an integrated computing seminar on technical drawing and the organization of information using a CAD system.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2350: Construction Systems
- ARCH-4300: Design Development
- ARCH-4540: Professional Practice

27. Client Role in Architecture

Understanding of the responsibility of the architect to elicit, understand, and resolve the needs of the client, owner, and user

The issue of understanding the needs of the client are considered throughout the design studio sequence and strongly reinforced in the first and second semesters of the second-year studio with respect to formal lectures and exercises in program preparation. Various other issues regarding the client's role in architecture are addressed throughout the vertical studios and especially in the Design Development studio. Client relationships and responsibilities are discussed in a variety of ways in Contemporary Design

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

Approaches, The Building and Thinking of Architecture 3, Case Studies, and Building Systems and Environment.

The Professional Practice course also examines in depth the relationship between the architect and client with respect to the nature of those relationships as expressed in the AIA contract documents as well as the general concerns of ethical practice.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-2230: Architectural Design 2
- ARCH-2630: Graduate Architectural Design 2
- ARCH-4540: Professional Practice

28. Comprehensive Design

Ability to produce a comprehensive architectural project based on a building program and site that includes development of programmed spaces demonstrating an understanding of structural and environmental systems, building envelope systems, life-safety provisions, wall sections and building assemblies and the principles of sustainability

The Design Development studio, the prerequisites of which include the technology sequence, simultaneously integrates the considerations of life safety, systems, and building assemblies as coincident to furthering a project's design intentions. The design intentions and criteria are among the principal measures against which each project's success is measured. In this studio, students are expected to present at the beginning of the semester several possible existing projects that are at the schematic design level. Once one of these projects has been approved by the faculty, the students will carry the projects through design development.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-4300: Design Development

29. Architect's Administrative Roles

Understanding of obtaining commissions and negotiating contracts, managing personnel and selecting consultants, recommending project delivery methods, and forms of service contracts

Different methods of project delivery are introduced in the Design Development studio through discussion of the types of documents required and office visits that expose students to a variety of practice types ranging from mid-size experimental practices to large corporate firms. A seminar on project documentation and delivery methods is given in the studio. The integrated computing seminar addresses approaches to information and document management. In that seminar a progressive position with respect to the developments derived from the three-dimensional sources is put forward. In the Professional Practice course, co-requisite to the Design Development studio, additional exposure to the types and extent of documentation is presented.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

- ARCH-4300: Design Development
- ARCH-4540: Professional Practice

3.13 *The Thirteen Conditions of Accreditation*

30. Architectural Practice

Understanding of the basic principles and legal aspects of practice organization, financial management, business planning, time and project management, risk mitigation, and mediation and arbitration as well as an understanding of trends that affect practice, such as globalization, outsourcing, project delivery, expanding practice settings, diversity, and others

Understanding of the basic principles of practice organization, management, and the legal context of practice (including the laws relating to registration and professional service contracts) are presented as a part of the required Professional Practice course. A research paper requiring each student to visit and interview the principal in a professional practice ensures exposure to multiple types of firms. The Design Development studio travels as a group to several architectural firms to gain additional exposure to various sized firms and a wide variety of approaches to practice. Those interested in further study may participate in elective courses that track the progress of on-campus building projects.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-4540: Professional Practice

31. Professional Development

Understanding of the role of internship in obtaining licensure and registration and the mutual rights and responsibilities of interns and employers

Understanding the role of internship and the IDP is presented both in the Professional Practice course and in separate seminars offered by the IDP Education Coordinator. These are offered to students following their second year and are designed to provide an understanding of the benefits of IDP registration and the initiation of an IDP record. The reciprocal rights and responsibilities of both interns and employees are described. IDP materials and links to the AIA and IDP are provided.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-4300: Design Development

ARCH-4540: Professional Practice

32. Leadership

Understanding of the need for architects to provide leadership in the building design and construction process and on issues of growth, development, and aesthetics in their communities

Understanding the leadership role of architects is central to the progressive development of the curriculum from highly focused studios to the offering of increasingly open-ended situations that require students to take a position and develop the criteria as well as the design proposal.

Both Professional Practice and the Design Development studio emphasize the importance of leadership at all levels of design and project management as do a wide range of courses that investigate emerging processes and techniques for digitally mediated design and fabrication, new materials and ideas about shop-built work.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-2220: Architectural Design 2

ARCH-2620: Graduate Architectural Design 2

RENSSELAER SCHOOL OF ARCHITECTURE

3.13 *The Thirteen Conditions of Accreditation*

ARCH-2230: Architectural Design 3
ARCH-2630: Graduate Architectural Design 3
ARCH-4300: Design Development

33. Legal Responsibilities

Understanding of the architect's responsibility as determined by registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulation, historic preservation laws, and accessibility laws

Understanding the architect's legal responsibilities begins early in the design studio sequence with respect to emphasis on the leadership role of architects and their responsibility to public health, safety, and welfare. Accessibility and life safety are specifically addressed in the second-year studio. This is followed by more substantial coverage in the Design Development studio including the requirement for each student to execute a code analysis of their project and bring it into compliance with respect to project objectives. Legal responsibilities are formally addressed in Professional Practice, which is a co-requisite of the Design Development studio.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-4300: Design Development
ARCH-4540: Professional Practice

34. Ethics and Professional Judgment

Understanding of the ethical issues involved in the formation of professional judgment in architectural design and practice.

The ethical issues involved in professional judgments are generally presented in and discussed throughout the history/theory and design sequences. Environmental concerns and professional judgments in relation to it are addressed in the Environmental and Ecological Systems course. Ethical issues as they relate to professional practice are specifically addressed in the Professional Practice course that is co-requisite to the Design Development studio.

The following required courses for undergraduate and graduate students exemplify fulfillment of this criterion:

ARCH-2360: Environmental & Ecological Systems
ARCH-4540: Professional Practice

Supplemental Information

Student Progress Evaluation Procedures

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

Supplemental Information

Student Progress Evaluation Procedures

Supplemental information to the *APR* must include the following:

- *A description of the procedures for evaluating student transfer credits and advanced placement*
- *A description of the procedures for evaluating student progress, including the institutional and program policies and standards for evaluation, advancement, graduation, and remediation*

A description of the procedures for evaluating student transfer credits and advanced placement

Students Entering Rensselaer as Freshmen

Incoming freshmen may be eligible for advanced placement or advanced standing.

Advanced Placement

The student should request the Educational Testing Service (ETS) to send Advanced Placement (AP) scores to the Registrar's Office at Rensselaer. The scores are evaluated and notice of the decision is sent to the student. Credit is granted, but there is no grade assigned and the credit is not included in calculating the grade point average (GPA).

Students who have completed the General Certificate of Education (GCE) Advanced Level Examinations may receive credit for relevant courses. Students must have an official copy of the Advanced level examination results sent to the Registrar. The scores are evaluated and the student will be notified of the credit decisions. No grade is assigned and the credit is not included in calculating the grade point average.

Advanced Standing

Credit may be granted for college-level work taken while in high school. Transfer credit will not be given for any college courses taken while in high school if these courses are used in obtaining the high school diploma. One exception is the matriculated student who attends college full time and transfers back credits to complete the high school diploma. This rule does not exclude the possibility of placement in a higher level of a subject area without being given academic credit for the placement. "Placement" in this case does not refer to the Educational Testing Service Advanced Placement Tests, which are accepted at the Institute depending on the level of score.

After admission, the student should have an official copy of a transcript from the college sent to the Registrar's Office at Rensselaer along with a copy of the course description for each course. The appropriate academic department evaluates the material. If acceptable, it is posted on the student's record and a copy of that record is sent to the student. No grade is given and it is not included in calculating the GPA.

Rensselaer Polytechnic Institute does not accept the College Level Entrance Program (CLEP) for credit.

Undergraduate Students Entering Rensselaer from another College

Students entering Rensselaer from another college must apply to the Office of Transfer Admissions. The Office of Transfer Admissions notifies the student of the results of preliminary evaluation and requests the student to send a final transcript at the end of the current semester to the Office of Transfer Admissions. After the final course evaluation is made, the credit hours will be posted on the student's permanent record. No grade is given for accepted courses, nor are these courses included in calculating the GPA.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

Students desiring to take course work at other institutions should obtain approval prior to enrollment at that institution. Transfer credit cannot be guaranteed unless prior approval is obtained, since unapproved courses may not be equivalent to Rensselaer courses. In addition, many institutions require proof of prior approval before allowing a visiting student to register.

Students desiring transfer credit must have the registrar of the other institution forward an official transcript and course descriptions (or the student may submit copies of catalog course descriptions) to the Rensselaer Registrar's Office. When the Transfer Credit Approval form, the official transcript, and course descriptions are received, the Registrar's Office will forward the material to the appropriate departments for their review (if approval was not previously obtained). Final grades will be checked for courses previously approved, and if at least a "C-" credit can be given directly. A student who repeats at another college a course failed at Rensselaer may be required by the department at Rensselaer to pass an examination.

The institute requires a degree candidate's last 30 credits in courses to be completed on this campus or through a program formally recognized by the Institute. Transfer courses are limited to two courses or eight credits counting toward the student's last 30 credits and require approval of the director of the Advising and Learning Assistance Center.

Credit by Validation Exam

Academic credit for college-level proficiency may, in special cases, be established for formal study done in other than an accredited institution by validation exam. Only full-time students are eligible. A written statement submitted to the registrar detailing the basis of their experience is required. A student must obtain approval from the registrar and the adviser or department head in the area concerned. Validation examinations are not permitted for courses previously failed or audited. A fee is charged for each examination taken. Students should check with the Registrar's Office for procedures and appropriate forms.

Graduate Credit by Transfer and Examination

Credit for graduate work completed at other accredited institutions may be offered in partial fulfillment of the requirements for a degree at Rensselaer when the work is appropriate to the student's program. As a rule, this work will have been earned prior to admission at Rensselaer. Students already enrolled at Rensselaer who wish to take courses elsewhere must obtain the prior approval of his or her adviser and the Dean of Graduate Education.

Because the residence requirement for master's is 24 credit hours, not more than six credit hours may be transferred toward the 30- credit master's degree, and not more than six credit hours used for a master's degree in one area can be applied to a second master's degree of 30 credits. In no case can the result of transfer or waived credits reduce this general degree requirement below 24 earned credit hours in a master's program at Rensselaer.

Because the residence requirement for the doctor's degree is 48 credit hours beyond the master's degree, not more than 42 credit hours may be transferred toward the doctorate.

Double counting credits for multiple degrees is subject to approval by all departments.

Application for the transfer of credit must be made to the student's department. The department is responsible for evaluating course work taken elsewhere and reporting allowable transfer credit to the registrar on the transfer credit approval form. Courses taken elsewhere and approved for transfer to Rensselaer must be taken at the graduate level and have a grade of "B-" or better to be approved. They are not considered in computing the B average requirement.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

A student who obtains the approval of his or her adviser and the Dean of Graduate Education to work elsewhere while already enrolled at Rensselaer must apply for transfer of credits as soon as the credit has been earned. Transfer of Credit forms may be obtained from the Registrar's Office.

Academic credit for college-level proficiency may, in special cases, be established for formal study done in other than an accredited institution by validation exam. A student must obtain approval from the registrar and the adviser or department head in the area concerned. A fee is charged for each examination taken. Students should check with the Registrar's Office for procedures and appropriate forms. Normally a validation exam is used to satisfy a specific course requirement, thereby allowing the student to replace the required course with an appropriate elective on his or her Plan of Study. Credits earned by validation exam may not be used to satisfy residence requirements.

A graduate student who has taken courses at Rensselaer as a special non-degree student may transfer to a degree program a maximum of 12 credits earned in that status. If a student has taken a graduate credit course while an undergraduate, received a grade of B or B- or better, and did not use the credit to fulfill the requirements for the bachelor's degree, he or she may request, through the faculty adviser, that the Office of Graduate Education count the credit toward the requirements for an advanced degree.

A description of the procedures for evaluating student progress, including the institutional and program policies and standards for evaluation, advancement, graduation, and remediation

The School of Architecture has approximately 20 transfer applicants each year and admits 12 on average. These come from two distinct sources.

1. First are internal transfers. These are students enrolled in another curriculum at Rensselaer who are interested in pursuing a career in architecture. In order for them to make the internal transfer, they must submit a portfolio of creative work and have a minimum 3.0 average on a 4.0 scale. However, in certain cases, these students have finished only one year at Rensselaer and realized that the curriculum they originally selected for themselves is not at all appropriate and thus their academic record may be below the 3.0 standard. Because we realize that they have already been admitted to Rensselaer and therefore have been judged to be capable of its challenges, if they have an acceptable portfolio and have interviewed successfully with a faculty, we will admit them conditionally. This condition usually is that they must take and receive a grade of B or better in each of 2 studios (Design Studio and Architecture Design 1) offered during the 2 summer sessions.

2. External transfers typically seek admission to Rensselaer's architecture program after having completed one or two years at a community college or a four-year college. Often, they have taken some architecturally related courses but just as often they have not, especially if they are seeking admission from a four-year college. The standard for admission for an external transfer is a 3.25 overall academic average on a 4.0 scale and a portfolio that scores a B or above. Once admitted, they must provide us with a transcript and a catalog description of every course for which they are seeking transfer credit. The transcripts and course descriptions are sent to the Institute departments or School of Architecture faculty most competent to evaluate the request for transfer, e.g., a general physics course would be reviewed by a faculty member in physics, and an architectural history course would be evaluated by an architecture faculty member who teaches architectural history. We rarely give transfer credit or advanced standing for design studio unless the course taken is from a peer program or the portfolio is exceptional. Even in these rare cases, we often require the student to take one or both of the summer studios to determine if advanced placement is merited.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

Students entering The School of Architecture as freshmen who have completed a summer career discovery course in architecture at an accredited school of architecture are eligible to receive up to 4 credits of professional elective credit for that experience based on the program, their performance in it and an assessment of the student's portfolio by the program chair.

A description of the procedures for evaluating student progress, including the institutional and program policies and standards for evaluation, advancement, graduation, and remediation.

The following are Rensselaer's general policies regarding the evaluation of student progress such as standards of evaluation, advancement, graduation, and remediation.

Attendance Requirements

The academic department concerned generally determines requirements for class attendance. Each instructor must make these requirements clear at the beginning of the course, and the student must abide by them. Faculty are required to have attendance policies on their syllabi.

The *Provost's Memorandum regarding the Academic Calendar and Regulations* is distributed each semester and outlines, in detail, the dates, information, policy and procedures pertinent to teaching activity. All Faculty members should be familiar with the academic regulations of Rensselaer and the relevant content of the publications in section 3.2.1 of the Faculty Handbook.

Course Management. For each course, the Faculty is expected to: (1) provide a course syllabus at the beginning of each semester with assignments, grading and attendance policy, office hours and other particulars, such as exam dates, so that students will understand what is expected of them; (2) provide timely and relevant feedback to students on their performance; and (3) provide course structure and instruction that is consistent with Rensselaer's policies and procedures. Faculty should also provide students with information on academic integrity that is consistent with *Rensselaer Policy and Procedures Regarding Academic Dishonesty*.

A student who is a member of an authorized team or organization for which events are scheduled is excused from class attendance during the time actually spent away from the campus or during the hours of the events on campus. The student still has to complete the work that is missed. A student admitted to Samaritan Hospital will, upon request, receive a written excuse from the medical director.

Because Rensselaer is a nondenominational university that welcomes all faiths, the decision regarding absence from classes and laboratories on religious holidays is left to the individual. In the case of conflicts between the university calendar and an individual's beliefs, students, faculty, and administrative staff will make arrangements to assure that religious participation is not restricted.

Final Examinations

The examinations given at the end of each semester take place at the times announced on the examination schedule, published prior to the examination period. No student is allowed more than one final examination in a course. (See Senior 'F' Examination Rule.)

Every student has to take all of his or her examinations at the scheduled time unless excused because of illness or other sufficient reason by the dean of students or, in the case of graduate students, by the Office of Graduate Education. Students with exam conflicts (i.e., examinations scheduled at the same time) should contact their course instructors to schedule a make-up exam. Examinations for lower level courses generally take precedence over the upper level courses. Students with more than two exams on one day can request a make up examination. Details on the procedures will be announced with the final examination schedule.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

The reason for an expected absence should be presented in advance of the examination. The dean of students or the dean of the Office of Graduate Education will accept no excuse on the grounds of illness unless the medical director approves it.

The student who has been excused by the dean of students or dean of the Office of Graduate Education from a final examination is reported "NE" (Not Examined) and will be examined later at a time set by the instructor. Only the dean of students and the Office of Graduate Education may excuse a student from a final examination. Unless so excused, a student who is absent from final examinations is given zero credit for the exam and may at the discretion of the instructor be given an "F" for the course.

Senior "F" Examination Rule

Senior students who have no outstanding failures on record that would prevent graduation and who fail only one course taken during the first semester of their senior year and who are candidates for a degree at the end of the second semester, may be eligible to take a re-examination in the course that was failed. These students must not have outstanding "I" or "NE" grades, either in prior semesters or in the current semester that would prohibit them from graduating. A senior who fails a course in the second semester may take a re-examination providing the course failed is the only course preventing his or her graduation.

Students must apply to the registrar to qualify for a Senior "F" Exam. The registrar will certify the eligibility of the student for a re-examination and authorize the instructor to examine eligible students.

For students who seek to qualify for their bachelor's degree in the spring semester, the following applies: A student failing a course in the fall semester of the senior year will be examined after the middle and before the end of the spring term. If it is possible to repeat the failed course in the spring semester, the student has that option. A re-examination in a failed spring semester course may not be taken until the first summer session at the earliest. The time of the re-examination will be at the discretion of the department involved.

Students should know that it may not be possible to give re-examination in courses that require certain physical facilities until those facilities are again available.

For students who seek to qualify for their bachelor's degree in August or December, similar rules apply. The student should consult the registrar for details.

Under no circumstances will an examination be taken later than one year after the end of the term in which the failure occurred. The results of the re-examination when passed or failed will not alter the term or cumulative grade point averages previously earned nor remove the "F" grade from the record. When passed, a statement is posted on the transcript stating the failed course was passed by re-examination.

Letter Grades

The letter grades and their meanings are:

A	Excellent, A- = Excellent
B+	Good, B = Good, B- = Good
C+	Average, C = Average, C- = Average
D+	Passed, D = Passed (not available to graduate students)
F	Failed FA = Failed (due to administrative reasons)
I	Incomplete course work
IP	Progress (multiple-term course)
NE	Not Examined
NC	Failed a Pass/No Credit course (undergraduates only)
P	Passed a Pass/No Credit course (undergraduates only)

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

S	Satisfactory in a Satisfactory/Unsatisfactory graded course
U	Unsatisfactory in a Satisfactory/Unsatisfactory graded course
W	Withdrawn
WI	Failed (course previously graded "I" student did not meet deadline for completion)
Z	Grade Unknown-see instructor
AU	Audit

"D" Grade

The letter grades "D" or "D+" does not apply to graduate students. Thus, when a graduate student takes a course that is also open to undergraduates and performs at a level equivalent to a "D" or "D+" grade, this grade cannot be recorded. Such grades are automatically converted to "F."

"FA" Grade

This letter grade is assigned by the registrar to students who withdraw from a course but do not submit a Drop/Add form or an official notice of withdrawal from the university.

"I" Grade

The grade "I" (incomplete course work) is given, when, due to illness or other extenuating circumstances such as a personal emergency beyond the student's control, a student has been unable to complete the required course work. The "I" grade is given only after the contract form, Authorization for Grade of Incomplete, has been completed and signed by both the instructor and the student and received by the registrar.

The "I" grade is given only in instances of incomplete course work, such as laboratory exercises, course projects, term papers, etc. Under no circumstances may the "I" be given for the following situations:

- Absence from a final examination.
- Student on class list who has never attended class.
- Student who wishes to do additional post-semester work in order to improve a grade.
- Student who wishes to repeat the course as auditor, retaking examinations, etc., in order to improve a grade.

The "I" grade must be completed within one semester. If facilities (i.e., laboratory) are required to complete the outstanding work but are not available during the next semester, then one year is the maximum time limit, subject to approval by the instructor.

If the agreements made in the "I" grade contract are not observed or if the "I" grade is not cleared in the time specified in the contract, the grade automatically becomes the grade noted on the "I" contract at the time the "I" contract is signed. If no grade is noted on the contract the "I" grade automatically becomes a "WI." Once the "I" grade is changed to "WI," no other grade change will be accepted. The "WI" grade will be calculated as an "F" in the student's GPA. The grade of "I" is considered a penalty grade in the calculation of the term GPA. The grade of "I," until it is changed is calculated as if it were the grade of "F."

"WI" Grade

The registrar assigns this letter grade to students who received an Incomplete ("I") and failed to meet the criteria or the deadline specified in the "I" contract. It is calculated as an "F" in the student's GPA.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

"IP" Grade

The "IP" (In Progress) grade is given at the end of preliminary semesters of multiple-term courses such as Thesis, Project, or Research.

"NE" Grade

The "NE" grade is given only by the dean of students or the Office of Graduate Education to students who have been excused from taking a final exam at its scheduled time. In each case, the course instructor is to be informed. (See "Final Examinations" rules listed previously.) If the examination is not taken by the date specified, the grade automatically becomes an "F." Once the "NE" grade is changed to an "F," no other grade change will be accepted.

Grades of "NE" given in the fall semester must be made up during the spring semester. "NE" grades given at the end of the spring semester must be made up during the summer recess and not later than two weeks after the beginning of the fall semester. The grade of "NE" is not considered in the calculation of the term GPA.

"P" and "NC" Grades (Pass/No Credit Option)

Subject to the limitations listed below, undergraduate students may elect to take courses on a pass or no credit basis, for which the grade is either "P" (Pass) or "NC" (Fail). Grade points will not be assigned for these courses and the "P" or "NC" will not be reflected in the grade point average. "NC" is a failing grade and can be cause for academic action. Courses taken on a Pass/No Credit option can count toward credit hour and distribution requirements if the grade "P" is received. This option allows a student to take courses outside his or her normal curriculum or minor program that, because of grade considerations, the student otherwise might not consider.

A student may take no more than 12 credit hours of courses designated as Pass/No Credit courses. No more than 6 credits of these may be humanities and social sciences courses used to satisfy the requirements of the undergraduate courses in these fields. A Pass/No Credit course may not be used in the HASS depth requirement. Courses graded Satisfactory/Unsatisfactory only are not included in the above restrictions. For the five-year B. Arch. curriculum, the Pass/No Credit option is extended, giving a maximum of 16 Pass/No Credit credits.

No course previously failed or specifically required by name or required to be chosen from a list of named courses in the student's curriculum or minor may be taken on a Pass/No Credit basis. Courses at the 6000 level may not be taken on a Pass/No Credit basis.

A student exercising the Pass/No Credit option must file a form with the registrar before the Friday of the 13th week of the semester. Having elected to take a course on this basis, a student may drop the Pass/No Credit designation by notifying the registrar in writing by the Friday of the 13th week of classes for the semester. This option is not available to graduate students or non-matriculated students.

"S" and "U" Grades

These grades can only be assigned in courses specifically approved for such grading by the Faculty Senate Curriculum Committee. Examples of such courses are seminar, thesis, or certain general electives, such as Tour of the Solar System, and others.

"W" Grade

The grade of "W" is assigned when a student is permitted to withdraw from a course after the deadline to drop a course. Only the Office of Graduate Education or the Academic Standing Committee can permit a student to drop a course after the deadline. If permission is granted, the registrar will assign a grade of "W."

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

"Z" Grade

The registrar assigns the grade of "Z" if the instructor does not submit the course grade in time to print the semester grade reports. The student should see his or her instructor for a grade.

B.Arch program 2-D rule (2-C rule for M.Arch1)

A student earning a D or lower in any subsequent required design course must either repeat the course or take another course specified by the faculty before advancing to the next course in the design sequence.

Grade Point Average

A student's grade point average is determined on the basis of the following numbers assigned to the letter grades: A=4, A-=3.67, B+=3.33, B=3, B-=2.67, C+=2.33, C=2, C-=1.67, D+=1.33, D=1, F=0, I=0, FA=0, WI=0. The grades P, U, S, IP, NE, NC, W, and Z are not considered in computing averages. The grade point average is computed by multiplying the number corresponding to the grade in each course by the number of credit hours for the course, totaling these products for the courses taken, and then dividing the sum by the total number of credit hours for the courses considered.

The grade point average for the term is computed at the end of each term. The cumulative grade point average is also computed at the end of each term for the full period of attendance at the university.

All grades are included in computing the average; even those earned in courses not required for the degree sought. Courses taken at institutions other than those at a consortium college, or through exchange programs are not included in calculating the GPA although they may qualify for credit.

Undergraduate Repeating a Course

If an undergraduate repeats a course, both grades are entered on the record. However, course credit will count only once and, although both grades appear on the transcript, the grade received in the repeated course is always the one used in computing the GPA. Senior "F" examination rules remain the same. The grade for a repeated course taken on a Pass/No Credit basis or for which the student receives a grade of "W" or taken at another institution cannot be used in place of the original course grade in calculating the GPA. Students in a premedical or pre-professional program may want to consult with their advisers before repeating a course.

Graduate Repeating a Course

If a graduate student repeats a course, both grades are entered on the record. However, course credit will count only once and, although both grades appear on the transcript, the grade received in the repeated course is always the one used in computing the GPA. The grade for a repeated course for which the student receives a grade of "W" or taken at another institution cannot be used in place of the original course grade in calculating the GPA.

Scholastic Reports

Grades are reported to the registrar at the end of each semester. Students are responsible for knowledge of their deficiencies and failures and may obtain a copy of their grades from the Registrar's Office or may view their grades online. Only final semester grades are part of the student's permanent record. Class rankings for undergraduates are calculated only once a semester; at the time grade reports are printed. Final semester grades and transcripts may be withheld from the student because of an outstanding bill to the Institute or because of pending disciplinary action.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

Curriculum Advising and Program Planning

A Curriculum Advising and Program Planning (CAPP) report is available online for undergraduate students. This report shows what degree requirements have been met and identifies those requirements that are outstanding.

Academic Standing

A student is considered in good academic standing if the student is making satisfactory progress toward his or her educational goals. Students not making satisfactory progress will be suspended or dismissed from the university. The university serves students from diverse educational backgrounds and interests and recognizes the individual differences in educational goals between matriculating and non-matriculated students, between full-time and part-time students, and between graduate and undergraduate students.

Undergraduate Academic Probation

Students are placed on academic probation as a warning that they are in jeopardy of losing their good academic standing. Students are informed of their probationary status by a letter from the director of the Advising and Learning Assistance Center at the end of the semester. Academic and extracurricular restrictions may be placed on them so that they can concentrate on their academic programs.

A student whose grade point average for any term falls below 1.50 is placed on academic probation automatically. In addition, any student whose cumulative grade point average falls below the following specified averages is automatically placed on probation: freshmen-1.50 at the end of the fall term or 1.60 at the end of the spring term; sophomores-1.70 at the end of the fall or spring term; juniors and seniors-1.80 at the end of the fall or spring term.

Probation is removed when the following minimum requirements are met during a term in a program of not less than 12 credit hours: freshmen-1.80 grade point average for the term and a cumulative grade point average of 1.60; sophomores-1.80 grade point average for the term and a cumulative grade point average of 1.70; juniors and seniors-1.80 grade point average for the term and a cumulative grade point average of 1.80.

A student on academic probation may have that status removed at the end of the summer session if he or she maintained a grade point average of 1.50 during the previous term and has raised his or her cumulative average to the following prescribed levels: entering sophomore year, 1.60; entering junior year, 1.70; entering senior year, 1.80.

Undergraduate Academic Suspension and Dismissal

The Committee on Academic Standing reviews the records of students subject to suspension or dismissal. The committee is authorized to suspend or dismiss any student who:

- Fails to qualify for removal from probationary status at the end of a term.
- Has been on probation for two separate terms and is subject a third time to probationary status.
- Fails three or more courses in any one term.

Undergraduate Disciplinary Suspension or Expulsion

A student whose behavior is in violation of university regulations is subject to disciplinary action. This may result in disciplinary suspension or expulsion from Rensselaer. These disciplinary actions may become a permanent part of the student's record. A student who is expelled for disciplinary reasons cannot apply for readmission.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

Graduate Academic Suspension and Dismissal

The Office of Graduate Education will review the records of students recommended for suspension or dismissal by the department chair. The student will be notified in writing by the Office of Graduate Education of any decision to suspend or dismiss. A student who is dismissed from a graduate program is not eligible for readmission or for a change of curriculum except under conditions stated in the letter of dismissal.

Study-Review Period

No classes or exams will be held during the study-review period at the end of the semester. This day or these days will be the study period for final examinations.

In addition to the above general issues regarding student progress, standards of evaluation, advancement, graduation, and remediation at Rensselaer are the following School of Architecture policies regarding the evaluation of student progress such as standards of evaluation, advancement, graduation, and remediation.

As with all courses at Rensselaer, all School of Architecture courses must have a syllabus. All architecture syllabi must contain the following information: course title, course number, course credits, term (fall or spring)/year, instructor(s) name(s), office location, office hours, campus phone, email address, course description, reading materials, course schedule (includes exam, major papers and projects, and review dates), course learning outcomes, assignments and due dates, attendance policy, grading policy, assessment progress, academic integrity statement, archiving requirements, statement regarding use of hazardous materials.

All students in The School of Architecture are assigned an architecture faculty member who will serve as their academic advisor throughout their time in the school. Students are required to meet at least one time per year with their academic advisors. A student may make an appointment to meet with his or her advisor at any time. In architecture students often meet more regularly with their academic advisor throughout the year to make sure they are on track with respect to the level in the program, meeting their academic requirements, and making sure they are on track to graduate on schedule. In addition, the academic advisor will discuss options for employment or professional development, possible minors, options for taking courses in the sciences, humanities, arts, and social sciences as well as elective and professional elective options. Any faculty member may act in an advisory capacity for any architecture student but only the student's officially designated academic advisor can access the student's CAPP report and sign-off regarding any curricular changes the student makes. All students have the option of requesting a change of academic advisor. In their final year in the architecture program, each student goes through a degree clearance process with the School of Architecture's Program Coordinator (B.Arch.) or Program Administrator (M.Arch.) to make certain that they have fulfilled all the requirements for graduation.

Evaluation

The evaluation of student work is generally based on tests, homework assignments, projects, etc. The percentage that each of these contributes to a student's final grade is listed in the syllabus. The syllabus also states the general grading policy for the course, especially with respect to design studio projects. Typically this grading policy will factor in a student's process, capacity to explore possibilities, capacity for critical reflection, design quality, and communication. In addition, consideration in studio grading is given to the degree of progress a student exhibits in the course of a semester. At mid-term all Architecture course faculty must notify students who are performing at a grade of D or below (C or below for M.Arch. students). These students and their academic advisor are sent a letter advising the student of their status with the reasons for low performance and recommending they seek assistance from the instructor and their advisor. A copy of the letter also goes into the student's file. In addition, faculty should notify the Institute's EWS

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

(Early Warning System) and Institute support system of students who are performing poorly in a course or who exhibit attendance, behavioral, or other problems in the classroom or studio.

Remediation

In addition to the Institute's end-of-semester review of students who are in academic difficulty, The School of Architecture holds an academic review at the end of each semester. In this review, all students in required courses who exhibit difficulty with grades, especially D or below (C or below for M.Arch. students), or who have exhibited other problems, are discussed in depth and recommendations are given that are communicated in writing to the student by his or her academic advisor. Students receiving an F in any course must repeat that course. Students who receive a second D in the design sequence, regardless of level, are subject to some kind of remedial action as specified by the faculty. This action is often a requirement to repeat a studio that the faculty specifies and receive a grade of at least C (B in the case of M.Arch.). The student is informed of this decision in writing.

Students who receive 3 Ds (3Cs for M.Arch.) in the studio sequence are subject to dismissal from the architecture program.

The School of Architecture has a formalized process for appealing grades that is applicable for every course including design studio. The appeal process is as follows:

1. Before formally bringing an appeal, the student is asked to:
 - a. Discuss the matter fully with the instructor to understand reason for grade given
 - b. Believe firmly that the grade is not an accurate measure of performance and that he/she has been wronged.
 - c. Write a letter to the Dean stating the reasons why a grade change should be considered
 - d. Meet with the Dean who determines, if complaint is valid, to initiate the appeals procedure
2. The Dean identifies faculty members (three in the case of design studio appeals; two faculty member otherwise) who are familiar with the work of the course but who were not involved in teaching the student for the course in question.
3. For design studio appeals, the Chair of Undergraduate Programs arranges a session in which:
 - a. The student posts the work of the studio
 - b. The studio instructor presents the syllabus, objectives of the course and basis for the grade (the three reviewers and the Dean are present)
 - c. The student presents (10-20 minutes) his/her understanding of the studio objectives and how he/she believes the work has met the objectives. (the three reviewers and the Dean are present)
 - d. After the respective presentations, the reviewers make a recommendation to the Dean. They may recommend any grade, including one which is lower than that originally given.
4. For non-studio appeals, the Dean collects student work from the course and shares it, along with the instructor's stated objectives, with the faculty reviewers and asks for a recommendation.
5. The Dean considers the recommendation and makes a decision. If it is to change the grade, the course instructor is asked to make the change. If the instructor refuses to do so, the Dean may make the change.

RENSSELAER SCHOOL OF ARCHITECTURE

4.1 Student Progress Evaluation Procedures

6. If not satisfied with the Dean's Decision, the student may continue the appeal with the Faculty Board on appeals as described on page 11 of the *Rensselaer Handbook of Student Rights and Responsibilities*. See Faculty Academic Board.

Studio Culture Policy

Studio Culture Policy

STUDIO CULTURE POLICY

revised 9.01.09

Introduction

Studio based learning is at the core of an architectural education at Rensselaer. It is where knowledge is gained, design skills developed, and a variety of techniques and technologies explored. Research, analysis, and speculation; aspirations and criticisms are integrated into the work dedicated to developing design abilities while critically engaging matters of cultural, design and professional significance. The values learned in studio become the guiding principles for professional conduct.

Studios are fundamentally about synthesis. Knowledge, skills and information from fact-based descriptive or analytic courses are integrated with critical and cultural perspectives to provide the platform from which the creative enterprise of the studio proceeds. The objective of the studio is not only to creatively engage problems, but also to develop the design skill by which the developing knowledge and experience of the student can be brought to bear on the definition and resolution of the issues under consideration.

Studios provide a variety of learning modalities, from informal conversations, to formal presentations, individual critiques, short exercises and longer design projects. They require both individual and team-based work. They integrate research, learning by doing and making, iteration, experimentation, and trial and error frequently employing multiple solutions in order to develop a critical perspective and become increasingly independent designers and critical thinkers. Studios reward initiative, creativity, and risk-taking. They are focused on matters that do not have single fixed solutions. They engage both internal faculty and external experts in reviews of the design work where presentation and communication skills are honed and where student's capacities to reflect on and respond to constructive criticism are developed.

Studios are pedagogical laboratories and beg investigation into techniques, forms, programs and performances that are continually evolving. Studio is a place of optimism, where faculty members construct opportunities to learn, to mature in awareness and in the capacity to design. Studios provide the opportunity to imagine and create with optimism and the confidence that architecture (design) matters, has consequence and can make a difference.

Studios are models for professional conduct. The high faculty-to-student ratio of the studio enables weekly one-on-one critiques as well as meaningful group discussions and ensures a high level of social interaction. Effective studio culture depends upon a respect between the faculty and students and relies on open sharing of work and thinking with a willingness to give, receive and respond to constructive criticism. Central to the success of this manner of working is the dialogue among students within and across studios, within and across classes. It is essential that this conversation take place in a climate of mutual respect and support and with recognition for a diversity of views, backgrounds, values and perspectives. The ability to constructively engage in critical peer-to-peer conversations about the work is the foundation of professional life.

STUDIO CULTURE POLICY

In support of a vibrant studio culture:

Studio Setting

Studios are furnished and equipped work and learning places, dedicated to students for work during and outside of scheduled studio hours. They are shared spaces and should promote both faculty student interaction and student to peer learning. Studios are open to faculty and students from other studios and invite circulation and observation without distracting those working in them. It is expected that all participants show greatest respect for their peers, the faculty, and for the facilities. Each student registered for studio will be assigned an accessible studio workplace with a complement of studio furniture and access to the institute network, computing infrastructure, peripheral devices and the Internet. The School will insure that studio spaces and furnishings are comfortable, safe, clean, convenient, well equipped, and in good repair. Studio faculty will supervise how students set up furniture with respect to didactic purpose, communication, access, and life safety.

Collaborative work

Studios provide an opportunity to work and learn collaboratively. Faculty should provide ample opportunity for teamwork and collaborative learning. Diverse opinions, points of view and approaches are welcome and supported.

Experimentation and Risk-Taking

Studios provide a place where it is expected and safe for students to take risks with their work, push the limits of what they believe they can do by experimenting with design methods, means and materials with the support of the faculty and peers.

Multiple Modes of Learning

Studios provide a place to combine, compare and experiment with different techniques, tools and methodologies of learning and working ranging from the engagement of computational strategies, to physical model making, and drawing. Particular approaches may be the subject of a specific studio. However, an accommodation for the critical development and use of multiple methods is expected.

Time Management

Studio provides an opportunity to develop healthy and productive time management skills and work habits. The faculty recognizes that students have other courses and lead rich lives outside the studio. The projects and workload should reflect this understanding. Students should recognize that having made the choice to study architecture, there is an expectation that they will devote a significant amount of quality time to their work. Each semester architecture faculty teaching the same student cohort will review and coordinate studio and non-studio course content and due dates.

Syllabi and Attendance

All studio and course syllabi and project descriptions will contain specific information regarding project requirements, field trips and due dates. Faculty should, a) establish reasonable time frames and expectations for the completion of design projects, b) carefully monitor progress and be willing to modify requirements and due dates, and c) be conscious and respectful of demands on student time from other courses and activities. Studio faculty and students are expected to be in studio during scheduled contact hours and should use the studio for work during non-studio hours. Faculty must include contact information on all studio handouts and have a clearly stated policy regarding availability to meet with students outside of studio time either by having posted office hours, or by appointment.

Assessment

All studio syllabi must specifically state how student work will be assessed, i.e., by indicating both the criteria and the percentage value for each studio component. Grade evaluations are confidential and should be provided in a timely manner. At or near mid-semester faculty should provide students with an evaluation of their performance and

RENSSELAER SCHOOL OF ARCHITECTURE

progress to date. At that time, students in danger of receiving a grade of D or below (C or below for graduate students) should receive a warning letter, a copy of which goes to the student's academic advisor. These grades should also be reported to the Institute's Early Warning System (EWS). The School of Architecture has both an ombudsperson and a formal process for appealing grades that is applicable to every course and design studio. The details of this process are available to every student.

Reviews

Pin-ups and reviews are open. Students and faculty from other studios are encouraged to attend any review. Students are expected to attend and participate in their own studio's pin-ups and reviews as important didactic events in an architectural education. Critiques are expected to be directed to the design work, products or process and should be respectful, meaningful and constructive.

Lectures and Events

Public lectures and events provide access to speculative thinking and leading practices in the profession and its related disciplines. They create a reference for discussion in the studios and seminars, and contribute to the culture of the school. Participation is required for students enrolled in a design studio.

Advising

Each student is assigned a faculty advisor and is expected to meet with that advisor at least one time each year. Advisors should be familiar with the degree program requirements and available at any time by appointment to discuss progress, assist in developing plans of study, make recommendations for registration, review portfolios and provide academic and career guidance and advice.

Student Leadership and Involvement

Student organizations provide important opportunity to develop leadership skills, represent the student voice and contribute to the culture and policies of the School. Participation in the AIAS, NOMAS and other Institute wide student organizations and initiatives is encouraged. School committees have student members and together with student representatives elected from each class and program and officers of AIAS and NOMAS comprise a Dean's Student Advisory Committee.

Index of Course Descriptions

Index of Course Descriptions

ARCH-2110	The Building and Thinking of Architecture 1 - Fall	pg. 1
ARCH-2120	The Building and Thinking of Architecture 2 – Spring	pg. 2
ARCH-2130	Contemporary Design Approaches – Fall	pg. 3
ARCH-2140	The Building and Thinking of Architecture 3	pg. 4
ARCH-2200	Design Studio – Fall	pg. 5
ARCH-2600	Graduate Design Studio - Summer	pg. 6
ARCH-2210	Architectural Design 1 - Spring	pg. 7
ARCH-2610	Graduate Architectural Design 1 - Summer	pg. 8
ARCH-2220	Architectural Design 2 – Fall	pg. 9
ARCH-2620	Graduate Architecture Design 2 - Fall	pg. 10
ARCH-2230	Architectural Design 3 – Spring	pg. 11
ARCH-2630	Graduate Architectural Design 3 - Spring	pg. 12
ARCH-2330	Structures 1 - Fall	pg. 13
ARCH-2350	Construction Systems – Fall	pg. 14
ARCH-2360	Environmental and Ecological Systems - Spring	pg. 15
ARCH-2510	Materials and Design - Spring	pg. 16
ARCH-4040	Cities/Land (Warriner) - Spring	pg. 17
ARCH-4140	Modernity in Culture and Architecture - Fall	pg. 18
ARCH-4300	Design Development - Fall / Spring	pg. 19
ARCH-4330	Structures 2 - Fall	pg. 20
ARCH-4560	Materials and Enclosure – Spring /Summer	pg. 21
ARCH-4690	Case Studies - Fall	pg. 22
ARCH-4740	Building Systems and Environment – Spring	pg. 23
ARCH-4360	Graduate Architecture Design 4 - Fall* (See Vertical Studios)	pg. 24
ARCH-4240, -50, & -60	Campbell Vertical Studio - S 08	pg. 25
ARCH-4240, -50, & -60	Riebe Vertical Studio - S 08	pg. 26
ARCH-4240, -50, & -60	Crembil Vertical Studio (China) – S 08	pg. 27
ARCH-4240, -50, & -60	Bell Vertical Studio (Rome) - F 08	pg. 28
ARCH-4240, -50, & -60	Bell Vertical Studio (Troy) - F 08	pg. 29
ARCH-4240, -50, & -60	Comodromos/Campbell Vertical Studio - F 08	pg. 30
ARCH-4240, -50, & -60	Riebe Vertical Studio (Rome) - F 08	pg. 31
ARCH-4240, -50, & -60	Riebe Vertical Studio (Troy) - F 08	pg. 32
ARCH-4240, -50, & -60	Warriner Vertical Studio (Urban) - F 08	pg. 33
ARCH-4240, -50, & -60	Ngai Vertical Studio (NYC) - F 08	pg. 34
ARCH-4240, -50, & -60	Ngai Vertical Studio (NYC) - S 09	pg. 35
ARCH-4240, -50, & -60	Garba Vertical Studio - S 09	pg. 36
ARCH-4240, -50, & -60	Mical Vertical Studio - S 09	pg. 37
ARCH-4360	Graduate Architecture Design 4 Campbell/Comodromos - F 08	pg. 38
ARCH-4980	B.Arch Final Project 1 - Fall / Spring	pg. 39
ARCH-6990	M.Arch Thesis - Fall / Spring	pg. 40

Index of Course Descriptions

ARCH-6120	Design Explorations 2 - (Warriner) – Fall**	pg. 41
ARCH-4060	Surface as Structures as Form (Saunders) - S 09	pg. 42
ARCH-4430	Electronic Media Phys Design Processes - F 08	pg. 43
LGHT-4230	Lighting Design - Spring (Minor)	pg. 44
LGHT-4840	Human Factors in Lighting- Fall (Minor)	pg. 45
ARCH-4860	Applied Psychoacoustics (Braasch) - Spring	pg. 46
ARCH-4963	Extreme Drawing (Oatman) – Spring	pg. 47
ARCH-4967.01	Landscape Patterns: (Coudert) - Spring	pg. 48
ARCH-4969	Public Art Seminar (Szoska) - Spring	pg. 49
ARCH-4970	Environmental Parametrics (Ngai)	pg. 50
ARCH-4975	Sys Bldg Materials (Holmes) - Fall/Spring	pg. 51
ARCH-4964	Arch & Urbanism (Crembil) China Alternate Spring - S 08**	pg. 52
ARCH-4965	Lang & Culture (Crembil) - China Alternate Spring – S 08	pg. 53
ARCH-4966	Modular Thinking: Ceramics - China -S 08	pg. 54
ARCH-4968	Caligraphy Painting (Crembil) - China Alternate Spring - S 08	pg. 55
ARCH-4964	Seminar in Turin (Riebe) - Rome F 08	pg. 56
ARCH-4967	Latin American Architecture - S'09 (Crembil)	pg. 57
ARCH-4969	Furniture Explorations - S'09 (Riebe)	pg. 58
ARCH-4962/72	Advanced Study Baroque Parametrics – F'08/S'09 (Saunders)	pg. 59
ARCH-4966	The Culture of Transparency – S'09 (Mical)	pg. 60
ARCH-4974	Design Philosophies: Towards a New Technique - S'09	pg. 61
ARCH-6964	Seminar in Sensory Culture (Krueger) - Spring	pg. 62
LGHT-4230	Lighting Design (Leslie) - Fall	pg. 63
LGHT-4770	Lighting Technologies and Applications - Fall (Minor)	pg. 64
LGHT-4840	Human Factors in Lighting – Fall (Figueiro)	pg. 65
LGHT-4940	Adv Projects in Lighting (Minor)	pg. 66
LGHT-6830	The Physics of Light	pg. 67
LGHT-6750	Lighting Research Design	pg. 68
LGHT-6770	Light and Health	pg. 69
LGHT-6780	Leadership in Lighting	pg. 70
LGHT-6760	Lighting Workshop	pg. 71
ARCH-6820	Research Methods in Acoustics	pg. 72
ARCH-6870	Sonics Research Lab 1 - F'08	pg. 73
ARCH-6880	Sonics Research Lab 1 - S'09	pg. 74
ARCH-6962.01	Topics in Environmental Hist & Theory (Dyson)	pg. 75
ARCH-6964	Topics in Built Ecologies 1 (Bhiwapurkar)	pg. 76
ARCH-6963	Material Systems and Productions- Fall (Vollen)	pg. 77
ARCH-6966	Design Research Studio – Fall (Vollen)	pg. 78
ARCH-4540	Professional Practice	Pg. 79

Index of Faculty Biographies

RENSSELAER SCHOOL OF ARCHITECTURE

Index of Faculty Biographies

Architecture Faculty 2008-2009

Full Professor

Douglis, Evan	Pg. 1
Leslie, Russell	Pg. 4
Rea, Mark	Pg. 6

Associate Professor

Bell, David	Pg. 8
Dyson, Anna	Pg. 10
Krueger, Ted	Pg. 12
Markov, Ivan	Pg. 14
Mical, Thomas	Pg. 16
Mistur, Mark	Pg. 17
Narendran, Nadarajah	Pg. 19
Oatman, Michael	Pg. 21
Vollen, Jason	Pg. 23
Warriner, Ken	Pg. 25
Xiang, Ning	Pg. 27

Assistant Professor

Braasch, Jonas	Pg. 29
Crembil, Gustavo	Pg. 30
Ellinger, Jefferson	Pg. 31
Figueiro, Mariana	Pg. 32
Garba, Fareh	Pg. 34
Saunders, Andrew	Pg. 36

Clinical Professor

Bhiwapurkar, Pravin	Pg. 38
Carver, Erik	Pg. 39
Ngai, Ted	Pg. 40
Riebe, David	Pg. 41

Adjunct

Bedford, Steven	Pg. 43
Bierman, Andrew	Pg. 44
Brons, Jennifer	Pg. 45
Bullough, John	Pg. 46
Campbell, Reese	Pg. 47
Chu, Yan We	Pg. 48
Comodromos, Demetrios	Pg. 49
Draper, Josh	Pg. 50
Hausler, Axel	Pg. 51
Holmes, Oliver	Pg. 52
Keseru, Adriana	Pg. 53
Kreger, Leah	Pg. 54
Morante, Peter	Pg. 55
Nishimura, Jacob	Pg. 56
Reilly, Steven	Pg. 57
Rizzo, Patricia	Pg. 58
Szoska, Mikołaj	Pg. 59

Visiting Professor

Danziger, Bruce	Pg. 60