Section
4

Assessment Report for the Construction Management Program

Executive Summary

The annual assessment report provides the opportunity to review the state of the construction management program at Roger Williams University. This annual report covers the academic year beginning in July 2009 and ending in June 2010 (AY 09-10). Its focus is on the academic assessment through the year. Based on a review of the course reports as well as surveys and discussion with students and recent graduates, it is evident that the state of the program is strong.

The program faculty met on May 21, 2010 to review the AY 09-10 academic year and to discuss changes for next year. At this meeting we reviewed all published program outcomes and the metrics we are using to measure each. Reports were also made on our internship program, the CM club, Capstone project, Senior exit surveys, alumni survey, and the AC exam. The meeting agenda and the reports made are attached to this assessment report.

Overall this was a strong year for the Construction Management program. Some of the highlights of the year are as follows:

- The student population dropped with the fall 2009 enrollment at 144 students compared to 178 students in fall 2008.
- It was another good year for our three student competition teams. All three teams placed with both our Design Build and Heavy Highway teams winning first place at the ASC Region 1 competition. No National Competition was held this year. Our team's activities were supported by funding provided by Rhode Island AGC and the Construction Industries of Rhode Island.
- The CM Professional Advisory Board has announced the creation of an endowed scholarship. The scholarship will be funded and managed by the CMPAB with guidance provided by the program faculty.
- The CM club was active running both a fall and spring lecture series.
- Dr. Bilge Gokhan Celik joined the faculty for the start of the fall 2009 semester and after a national search, Dr. Michael Emmer will join the faculty for the start of the 2010-2011 academic year.
- Our Sigma Lambda Chi student chapter created a University-approved USGBC student chapter that has grown to over 50 members from three majors.

- The conversion of SE125 to a dedicated CM Project Room was completed and is scheduled for use starting with the fall 2010 semester. Design and construction funding was provided by Shawmut Design and Construction Company.

- The Masters of Science in Construction Management program is scheduled to start with fall 2010 semester.

1. Introduction

The Construction Management program was reaccredited by the ACCE in spring 2005.The First Year Interim Report was submitted in AY 2005-2006 and the Third Year Interim Report was submitted in AY 2007-2008. One published ACCE concern was outcomes assessment. In October 2006 the SECCM published a comprehensive Assessment Plan that detailed the assessment process for the school and each program. The Construction Management program has submitted annual assessment reports in compliance with this plan for AY 2005-2006, AY 2006-2007, AY 2007-2008 and AY 2008-2009. This report will address the 2009-2010 academic year.

Each year the program faculty reviews the instruments used to gather assessment data making the necessary adjustments to streamline the effort and to attain better information. Program faculty members use these data to measure our success in meeting our defined objectives and outcomes as they have been described in the SECCM Assessment Plan. Successes, failures and metric adjustments are discussed on an annual basis. Programmatic adjustments made in previous years are also assessed on an annual basis as well as changes that are implemented for the following year.

The generation of formal reports (written for the first time in AY 2006-2007) for the Internship program, Construction Management Student Club, and the Associate Constructor exam was continued this year. These reports, along with inputs from course transcripts, exit surveys, alumni surveys, capstone juror reports, student competition performance, course binders and advisory board communications were used to perform this annual assessment. The program faculty met on May 21st, 2009 to discuss the above reports and to conduct this annual assessment. The agenda for this assessment meeting is included at Tab D. At this meeting program performance for AY 2009-2010 was assessed and adjustments in outcomes and metrics were made for coming year. Faculty also discussed ways to strengthen the Construction Management Student Club, the Internship and Externship programs, CM Capstone Project and the Associate Constructor exam. All of the above topics are addressed further within the body of this report.

2. Analysis of Evaluation Instrument Data

Present

This assessment report considered both formal and informally gathered data. The formally gathered input information included transcript review, Senior Exit Survey Results (Tab E), Senior Capstone Jury Report (Tab F), Associate Constructor Report including exam performance (Tab G), CM Club report (Tab H), Internship and Externship Report (Tab I), and Alumni Survey (Tab J). Informal data included informal conversations between faculty and faculty, faculty and students and between faculty and industry. The Associated Schools of Construction student competition serves as an excellent assessment input – our student's work is formally assessed and scored by industry professionals.

For the second time, the CM advisory board through the academic subcommittee coordinated our senior exit surveys. A board member chaired this panel which included two alumni. The board academic subcommittee also managed the senior capstone project reviews also involving program alumni. Both panels submitted reports located at Tabs E and F. In preparation for these reviews the

program faculty worked with the panels to structure the reporting instruments and valuable assessment data were attained. This goal was an adjustment noted in last year's report

Program faculty members also gather input from professional associations such as AGC, ASC, CSI, ACCE and ASCE. At these meetings faculty stay abreast of changes in accreditation standards and construction education "best practices" as regularly reported at these venues. Both permanent and intern employers provided feedback to the faculty on student performance. Formal internship reports are particularly valuable. Professional Advisory Board members also provide valuable support and feedback to the faculty. Program faculty members meet with the board each semester. Tab K includes copies of our meeting minutes.

Within each course assessment report students are provided the opportunity to evaluate their accomplishment of course objectives. This information is used by instructors to modify courses from semester to semester. Faculty members provide formal course reports after each semester and a summary of each course is reviewed and discussed with other faculty from the program. This discussion facilitates adjustment in course coverage and adjustments in the overall program.

Noted last year was the goal to obtain employer and graduate surveys. A graduate survey was conducted, but poor results were attained. The survey form also needs to be constructed in a more quantitative manner to speed processing and the survey questions in the future need to be better tied to stated metrics. Looking ahead it is our plan to better engage program alumni through our newly established Advisory Board Alumni committee. More involvement should generate a stronger connection with the program and better input. An employer survey was not conducted.

Lastly, all metrics have been changed to a 5 point scale with 5 representing most desirable and 1 least. Also, our target for these metrics is a mean and median score of 4 or better.

Adjustments for Next Year

It is still the intention to more formally survey internship employers with regards to both student internship performance as well as student interview performance though this was not done last year. Prior to next year, Dr. Brunnhoeffer, SECCM Internship Coordinator, will work with the Career Center to develop a survey instrument that works for the CM program. Dr. Brunnhoeffer will incorporate the survey results into the annual Internship report he already provides.

3. Program Assessment

The program educational objectives were first presented in that format for the 2007-2008 academic year. These objectives are shown in the table below.

Table 4.3-1 RWU Construction Management Program Educational Objectives

Objectives – Three to Five Years After Graduation, We Expect Our Graduates To:
1. Demonstrate exemplary technical knowledge and skills while achieving success as a practicing constructor and leader, and always displaying the highest standards of ethical conduct.
2. Value the concept of life-long leaning and continue to grow intellectually while keeping informed of new concepts and developments in the construction process.
3. Advance the construction management profession by becoming actively involved in professional associations and societies, serving in professional and community volunteer positions, and acting as a role model for the future generation of constructors and the Roger Williams University Construction Management students.

Assessment of CM Program Educational Objectives

An Alumni Survey was conducted over the summer of 2009. Results, as previously noted, were not great. 112 interview forms were sent out to the 2003-2008 graduate classes and only 8 were returned. In the future the manner in which the survey is delivered and the questions and the form in which they are asked will be adjusted. The 2009 survey results and faculty conversations with employers and graduates have been used to assess graduate success in meeting our stated program objectives.

1. Demonstrate exemplary technical knowledge and skills while achieving success as a practicing constructor and a leader, and always displaying the highest standards of ethical conduct.

Graduates display a high level of success in all of the in-house management training programs the large, more established, construction companies conduct. Also, quite a few of our graduates were promoted ahead of peers to advanced leadership positions. One company representative noted RWU retention as the highest of any school they hire from. In examining the survey results the areas of oral and written communication, interpersonal skills, multidisciplinary teamwork, ethics and professional behavior, estimating, scheduling, leadership, problem solving, and research skills were scored the highest. (Mean & Median 4 and above on a scale of 1-5)

2. Value the concept of life-long learning and continue to grow intellectually while keeping informed of new concepts and developments in the construction process.

Three of the eight alumni who responded to our survey are currently pursuing an advanced degree or a second bachelor's degree. Graduate employers commented that our graduates display the ability to grasp new concepts and technologies well and also show a strong interest in teaching others. Graduates embrace learning and take regular advantage of in house training offered by their employers. Graduates show the ability to be cross trained to various industry roles. All eight survey respondents are in the process of pursuing or have received a special license or certification.

3. Advance the construction management profession by becoming actively involved in professional associations and societies, serving in professional and community volunteer positions, and acting as a role model for the future generation of constructors and the Roger Williams University Construction Management students.

Seven out of our eight survey respondents are members of professional associations. Alumni involvement on our CM Advisory Board and as members of our capstone review panel has grown. An alumni subcommittee has been formed by the CM Advisory Board and an effort is being made to form a sub-group in the Boston area. Employers report that our graduates have demonstrated a willingness to become involved in community and professional organizations. Graduates have joined Habitat for Humanity, ACE Mentoring, United Way and Rebuilding MA to name a few. Our graduates have become active in AGC's young constructor program in MA, RI and CT. Graduates have also displayed a willingness to mentor others both outside and within their companies.

To better identify the interrelationship between the program educational objectives and the program outcomes, Table 4.3-1, is presented below.

Table 4.3-2 Program Educational Objectives linked to Construction Management Program Outcomes

□ = Weak Relationship
□ = Moderate Relationship
□ = Strong Relationship

a – k Outcomes	Technical knowledge, success as a practicing constructor and leader, display the highest standards of ethical conduct	Lifelong learning	Advance the construction management profession, service, role model, assist SECCM
a. an ability to apply knowledge of mathematics and science to typical Construction Management tasks	●	●	●
b. effective research and problem solving skills applied to typical Construction Management tasks	●	●	●
c. an ability to plan, organize and control a construction project	●	●	●

a – k Outcomes	Technical knowledge, success as a practicing constructor and leader, display the highest standards of ethical conduct	Lifelong learning	Advance the construction management profession, service, role model, assist SECCM
d. an ability to lead and/or function as a member of a team	●	●	●
e. students will experience and educationally benefit from quality facilities and equipment, strong industry support, and comprehensive extra-curricular activities	●	●	●
f. an understanding of professional and ethical responsibility	●	●	●
g. an ability to communicate effectively	●	●	●
h. the broad education necessary to understand the impact of construction in a global, economic, environmental, and societal context	●	●	●
i. a recognition of the need for, and an ability to engage in lifelong learning	●	●	●
j. a knowledge of contemporary issues	●	●	●

Program graduates continue to stay involved with the construction management program as members of the advisory board, mentors to our competition teams, guest speakers and employers of our most recent graduates. All of these graduates speak highly of the education they received at Roger Williams University and, given the overall success they have had in their careers, it is evident that our graduates are attaining our program objectives.

Based on the anecdotal information collected from our graduates' employers as well as the feedback received from the graduates themselves, the program faculty members believe that the Program Educational Objectives are being satisfied. A better constructed and administered alumni survey and an employer survey need to be conducted in the future.

Assessment of CM Program Outcomes

In our assessment plan metrics were defined to assess each program outcome on an annual basis. The tables below outline each program outcome, defined metrics, and a summarization with comments as to whether or not the identified metric was met. The outcomes and metrics as defined in the table are what the faculty evaluated for the AY 09-10 academic year. However, as each outcome was evaluated, program faculty examine the outcomes and metrics and made adjustments to better evaluate program performance. The newly defined outcomes and metrics are located at the end of this report (Appendix A) and will be utilized for the AY 2010-2011 academic year.

Table 4.3-3 Outcome "a" Metrics with Evaluations

Outcome a: an ability to apply knowledge of mathematics and science to typical Construction Management tasks			
Metrics Associated with Outcome a:	**Where Measured**	**Met**	**Comments**
1. CM student pass rate of the AC exam meets or exceeds the national average	AC Exam	No	RWU score 213 National score 215
2. For each required construction course with a prerequisite in mathematics, science or engineering, at least 75% of the students who have C or better in the prerequisite course pass the course on the first attempt.	Transcript Review	Yes	
3. All graduating seniors report that they have achieved proficiency in the ability to apply knowledge of mathematics and science to solve construction problems. Proficiency is defined as a score of 1 or 2.0 on a 5 point scale where 1 means proficiency achieved and 5 means proficiency not achieved.	Course Student Survey Student Exit Survey	Yes	
4. Faculty report adequate application of mathematics in construction coursework.	Construction Faculty Course Assessment Report Faculty Program Assessment Report	Yes	Seniors report positively via course surveys
5. At least 85% of all alumni rate their preparation by RWU for the workplace in the ability to apply knowledge of mathematics and science as good to excellent.	Alumni Survey Employer Survey	No	Insignificant sample

Table 4.3-4 Outcome "b" Metrics with Evaluations

Outcome b: effective research and problem solving skills applied to typical Construction Management tasks			
Metrics Associated with Outcome b:	**Where Measured**	**Met**	**Comments**
1. 100% of CM students will successfully complete applications in coursework involving research aspects and problem solving techniques.	Transcript Review	Yes	
2. At least 10% of all Construction Management seniors will participate in a competition where their ability to research and solve problems and will be externally judged and assessed.	Student Competitions CM Capstone	Yes	
3. Graduating seniors report that they have achieved proficiency in the ability to solve construction problems. Proficiency is defined of at least a score of 1 or 2 on a 5 point scale where 1 means proficiency achieved and 5 means proficiency not achieved.	Student Exit Survey	Yes	Mean 4.42 and median 4
4. At least 85% of all alumni rate their preparation by RWU for the workplace in the ability research and solve problems	Alumni Survey Employer Survey	No	Insignificant sample

Table 4.3-5 Outcome "c" Metrics with Evaluations

Outcome c: an ability to plan, to organize and to control a construction project			
Metrics Associated with Outcome c:	**Where Measured**	**Met**	**Comments**
1. 100% of Construction students participate in a Capstone Project Class that involves a semester long industry sponsored project that demonstrates their ability to successfully plan, organize and control a project.	Capstone Project Juror Evaluations Transcript Review	Yes	
2. Employment Interviewers favorably rate (2 or better) applicants for internship and permanent placement in the applicant's ability to plan, organize and control a construction project.	Employer Interview Survey	N/A	Need to conduct an employer survey
3. Employers favorably rate (2 or better) previous Construction Management hires graduate's ability to plan, organize and control a construction project.	Employer Survey	N/A	Need to conduct an employer survey

Table 4.3-6 Outcome "d" Metrics with Evaluations

Outcome d: an ability to lead and/or function as a member of a team			
Metrics Associated with Outcome d:	**Where Measured**	**Met**	**Comments**
1. 100% of students participate as a team member as they complete their Capstone project. Each team member brings different construction experiences to the project.	Transcripts Capstone Project juror evaluations Faculty Course assessment report	Yes	
2. 100% of all Construction students will participate in the university CORE sequence and University Senior Interdisciplinary Experience.	Transcripts	Yes	
3. At least 50% of construction courses will give students the opportunity to work on collaborative team projects.	Course Binders Construction Faculty Course Assessment Report	Yes	
4. At least two student-led teams will participate in the Associated Schools of Construction Region 1 student competition	Student Competitions	Yes	2 teams won first place and one team won third at the Regional level
5. At least 100% of construction management students will have held a construction related summer position, internship or co-op, or construction management work study related position by the time of graduation.	Senior Exit Survey	No	Only 67% did – will reduce our target to 75% for next year.

Table 4.3-7 Outcome "e" Metrics with Evaluations

Outcome e: an understanding of professional and ethical responsibility			
Metrics Associated with Outcome e:	**Where Measured**	**Met**	**Comments**
1. 25% of graduating seniors, will sit for the AC exam.	AC Examination	Yes	67%
2. All students will develop and present a case that focuses on professional and ethical responsibility.	Course Binders	Yes	Course requirement for CNST 480
3. At least 25% of all construction management classes will address, and students will demonstrate an understanding of professional and ethical responsibility.	Course Binders Course Student Surveys	Yes	

Table 4.3-8 Outcome "f" Metrics with Evaluations

Outcome f: an ability to communicate effectively			
Metrics Associated with Outcome f	**Where Measured**	**Met**	**Comments**
1. At least 85% of all mentors and potential employers agree that graduating seniors possess the ability to communicate effectively.	Professional Advisory Board Meeting Employer survey Graduate employer survey	N/A	Got positive feedback from the capstone jury. Will adjust the measurement of this metric for next year.
2. 100% of seniors will have the opportunity in construction classes to make an oral presentation at least twice a month in their senior year.	Course Binders Faculty Course Assessment Report	No	Seniors make 2 presentations per semester
3. 100% of all freshmen will have the opportunity to make an oral presentation in a construction class at least 2 times per semester.	Course Binders Faculty Course Assessment Report	No	Met fall semester, but not spring.
4. 100% of graduates will produce an acceptable senior capstone oral report as evaluated by external and internal review.	Transcript Review	Yes	
5. At least 90% of alumni report that their RWU education has prepared them extremely well in communication skills for the workplace. "Extremely well" is defined as a 1 or 2 on a five point scale where 1 means proficiency achieved and 5 means proficiency not achieved.	Alumni Survey	No	Insignificant sample

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Table 4.3-9 Outcome "g" Metrics with Evaluations

Outcome g: the broad education necessary to understand the impact of construction in a global, economic, environmental, and societal context			
Metrics Associated with Outcome g	**Where Measured**	**Met**	**Comments**
1. 100% of construction students fulfill the Multidisciplinary Core Education component as well as the Core Concentration component of study to include the Core Senior Seminar.	Transcripts	Yes	
2. At least 25% of construction courses address this outcome.	Course Assessment Report Course Binders	Yes	
3. At least 1 guest speaker per semester will address the above outcome.	CM Club Report	Yes	

Table 4.3-10 Outcome "h" Metrics with Evaluations

Outcome h: a recognition of the need for, and an ability to engage in lifelong learning			
Metrics Associated with Outcome h	**Where Measured**	**Met**	**Comments**
1. 25% of graduating seniors, will sit for the AC exam.	AC Exam Results	Yes	67%
2. At least 50% of CM students will be active members in the CM club.	CM Club Report	Yes	Need to develop a membership list
3. At least 75% of surveyed alumni indicate participation in professional training, professional societies or a graduate school since graduating from RWU.	Alumni Survey	Yes	

Table 4.3-11 Outcome "i" Metrics with Evaluations

Outcome i: a knowledge of contemporary issues related to the construction industry			
Metrics Associated with Outcome i	**Where Measured**	**Met**	**Comments**
1. All (100%) of construction students will be exposed to contemporary issues through the Multidisciplinary Core Education component as well as the Senior multidisciplinary Core course	Course Binders	Yes	
2. At least 25% of construction courses will address this outcome.	Course Binders Faculty Course Assessment Report.	Yes	
3. At least 85% of graduating seniors will rate their proficiency in knowledge of contemporary issues at a score of 1 or 2 on a five point scale where 1 means proficiency developed and 5 means proficiency not developed.	Construction Student Exit Survey	Yes	Mean 4.03 and median 4
4. All (100%) of construction students will be exposed to contemporary issues through the Senior Seminar class.	Course Binders	Yes	
5. All (100%) of construction students will participate in the Feinstein Service Learning Requirement of at least 5 hours in the surrounding community.	Transcripts	Yes	

4. Assessment of Previously Implemented Program Changes

The CM Masters program initiated during the 2007-2008 academic year deserves comment.

AY0708-1 Launched a Master of Science in Construction Management (MS in CM) program scheduled for the start with the fall 2009 semester. The program is designed to incorporate both on-line, classroom, and resident instruction. The program will be two years in length, 36 credits, with the students operating as a cohort. Unfortunately, current enrollment was not adequate to start the program in 2009. Due to tough economic times, corporate support has not materialized this year, so the program faculty have agreed to temporarily move away from the "corporate sponsored," cohort model and run the program with more liberal entrance requirements. Currently, fall enrollment looks good. Once the Masters program becomes established and the economy strengthens it is the program faculty objective to revert back to the original model.

5. Discussion of Recommended Program Changes

No curriculum changes were made during the 2009-2010 academic year for the Construction Management program.

As mentioned earlier a number of formal reports were made this year which were reviewed and discussed be the faculty:

Internship Program

Internship participation was up over last year, but down when compared to two years ago. Please see the attached internship report at Tab I. Externships are up substantially compared to the last few years with over 22 students participating.

In reviewing the internship coordinator report program faculty see an opportunity to improve the manner by which students and companies connect. The CM program will begin to look to create a "searchable/sortable" resume book. Potentially this book could be marketable and serve to provide funding to support the internship coordinator position.

Faculty members also see the need to begin to make connections with second tier companies, smaller general contractors and subcontractors. Dr. Brunnhoeffer will work with the Career Center to begin this effort.

CM Student Club activity: CM Club, Sigma Lambda Chi and USGC Student Chapter

The CM Student Club Activity under the leadership of Dr. Celik was very high. See Dr.Celik's report and the Club President reports for the fall and spring semester under Tab H. His report outlines both the activities and plans for the CM Club, Sigma Lambda Chi (SLC), and the newly formed RWU USGBC Student Group.

The CM club ran a strong spring and fall lecture series, managed elections for next year's officers, set up next year's competition teams and ran a fundraising activity. All club members were very supportive of fall and spring open house activities.

SLC increased its level of activity over past years spawning the RWU USGBC club. A SLC initiative for next year will be to connect with SLC organizations at other schools and develop Building Information Modeling (BIM) activities that could be integrated into the CM program. The new USGBC

student chapter grew to approximately 65 members with members from both CM and Architecture. Next year the chapter will seek to expand membership to students from engineering, business and the arts and sciences. The USGBC chapter ran a LEED GA workshop and awarded over 30 certificates. The USGBC chapter received over $3,000 in University funding to support organization activities next year.

Capstone Project

Capstone project results this year were again excellent. Professor Gould, with the support of our advisory board, assembled an excellent panel to review our senior capstone projects. For the first time, the majority of the review panel was made up of Alumni who had completed a similar Capstone Project when they were at RWU.

Two changes that were implemented based on previous faculty assessment discussions were to excuse all seniors who were participating as members of national student completion teams and to add 5% to the course grade of any student who takes and passes the AC Level 1 exam. Unfortunately, a national student competition was not held, so all students participated in the capstone project. Like last year, senior exit surveys were held in conjunction with the capstone project presentations. Both the capstone review panel and the senior exit survey panels were chaired by advisory board members. Capstone project juror comments are at Tab F. The Senior Exit survey report can be found at Tab E.

All projects this year were sponsored by Shawmut Design and Construction. The projects were provided to the students with varied level of completeness and information. This focus on real projects had some good and bad results. Since estimating and scheduling information was provided the students were able to work a project of a larger scale than if they had to develop the estimate from scratch. This provided benefits in the areas of site logistics, home and field organization, crashing and cash management. The downside however, was that the students often did not know where the costs came from and had difficulty matching costs to schedule activity. This created across the board frustration. Since students didn't "own" the estimate they had a tendency to not dig as deep as they needed.

Listening to student and juror comments our plan for next year will include the following. Projects will again be corporate sponsored, but will be more varied to include a heavy highway, industrial and possibly a residential option in addition to the current commercial building and institutional option. Other corporate sponsors will be needed. The projects will be run in a competition format similar to what occurs in the fall ASC Region 1 competition. This will create more interest for the students. Graded gates (interim submittals) which worked well this year will be continued, but will need to involve the corporate sponsors. This strategy will need to be organized during the fall semester with student teams formed prior to the winter recess.

Associate Constructor Exam and Review Course

The program faculty felt that our previously implemented changes worked well. Exam participation was promoted by the faculty. Students who did sit for and passed the exam received a 5% bonus in CNST 480 and their exam fee was reimbursed.

Class results were mediocre at best – 66.7% of eligible seniors took the exam and of those that took it, 58% passed. (The National pass rate was 62%) The full AC Exam report is included at Tab G.

Some faculty members see the poor results as one of apathy on the part of the students as well as our supporting employers. Others, however, see the exam as an accurate reflection of the base knowledge our graduates should have mastered at the time of graduation. It is our intention to continue to push the exam, provide a 5% bonus in CNST 480 for those that pass, and reimbursements for the exam cost and, new next year, penalize those who do not pass the exam 5% in CNST 480.

Other Topics

Efforts continue to be made to strengthen the CM Advisory Board. The academic subcommittee actively supported the senior exit interview and Capstone Project activities. The subcommittee also held a mentoring workshop and oversaw competition team activities. The development committee established an endowed scholarship. The newly formed alumni subcommittee has begun to reach out to all graduates and held a mixer in Boston to connect to alumni that work in that area.

Thanks to a gift from Shawmut Design and Construction a dedicated Construction Management laboratory is near completion and will be fully utilized next fall. This space will be utilized for courses in estimating, scheduling, project control, project management and capstone. The space would also support club and competition activities and serve as the center for the Construction Management program.

Enrollment looks good for the start of the CM Master's next fall.

AY 2009-2010 was our documentation year in preparation for our spring 2011 ACCE visit. Our self-study will be written during the summer 2010 and submitted to ACCE by December 2010.

1. Appendix A: Revised Program Outcomes and Metrics

The following pages reflect the adjusted outcomes that will be used to assess the CM program starting in Academic Year 2010-2011. Indicated on each page is a brief note of the changes made.

Outcome a: an ability to apply knowledge of mathematics and science to typical Construction Management tasks			
Metrics Associated with Outcome a:	**Where Measured**	**Met**	**Comments**
1. CM student pass rate of the AC exam meets or exceeds the national average	AC Exam		
2. For each required construction course with a prerequisite in mathematics, science or engineering, at least 75% of the students who have C or better in the prerequisite course pass the course on the first attempt.	Transcript Review		
3. All graduating seniors report that they have achieved proficiency in the ability to apply knowledge of mathematics and science to solve construction problems. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Course Student Survey Student Exit Survey		
4. Faculty report adequate application of mathematics in construction coursework.	Course Assessment Report		
5. Alumni rate their preparation for the workplace proficient in the use of mathematics and science to solve construction management tasks. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Alumni Survey Employer Survey		

Outcome b: effective research and problem solving skills applied to typical Construction Management tasks			
Metrics Associated with Outcome b:	**Where Measured**	**Met**	**Comments**
1. At least 50% of all CM courses will require research and problem solving skills.	Course Binders		
2. At least 10% of all Construction Management seniors will participate in a competition where their ability to research and solve problems and will be externally judged and assessed.	Student Competitions		
3. Graduating seniors report that they have achieved proficiency in the ability to solve construction problems. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Student Exit Survey		.
4. Alumni rate their preparation for the workplace proficient in the area of research and problem solving. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Alumni Survey Employer Survey		

Outcome c: an ability to plan, to organize and to control a construction project			
Metrics Associated with Outcome c:	**Where Measured**	**Met**	**Comments**
1. 100% of Construction students participate in a Capstone Project Class that involves a semester long industry sponsored project that demonstrates their ability to successfully plan, organize and control a project.	Capstone Project Juror Evaluations Transcript Review		
2. Employment Interviewers rate applicants proficient for internship and permanent placement in the applicant's ability to plan, organize and control a construction project. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Employer Interview Survey		
3. Employers rate proficient RWU Construction Management hires in their ability to plan, organize and control a construction project. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Employer Survey		

Outcome d: an ability to lead and/or function as a member of a team			
Metrics Associated with Outcome d:	**Where Measured**	**Met**	**Comments**
1. 100% of students participate as a team member as they complete their Capstone project. Each team member brings different construction experiences to the project.	Transcripts Capstone Project juror evaluations Course Assessment Report		
2. 100% of all Construction students will participate in the university CORE sequence and University Senior Integrative Experience.	Transcripts		
3. At least 50% of construction courses will give students the opportunity to work on collaborative team projects.	Course Binders Course Assessment Report		
4. At least two student-led teams will participate in the Associated Schools of Construction Region 1 student competition	Student Competitions		
5. At least 75% of construction management students will have held a construction related summer position, internship or co-op, or construction management work study related position by the time of graduation.	Senior Exit Survey		

Outcome e: an understanding of professional and ethical responsibility			
Metrics Associated with Outcome e:	**Where Measured**	**Met**	**Comments**
1. 75% of graduating seniors will sit for the AC exam.	AC Examination		
2. All students will develop and present a case that focuses on professional and ethical responsibility.	Course Binders		
3. At least 25% of all construction management classes will address, and students will demonstrate an understanding of professional and ethical responsibility.	Course Binders Course Student Surveys		

Outcome f: an ability to communicate effectively			
Metrics Associated with Outcome f	**Where Measured**	**Met**	**Comments**
1. At least 85% of all mentors and potential employers agree that graduating seniors possess the ability to communicate effectively.	Capstone Jury Graduate employer survey		
2. 100% of seniors will have the opportunity in construction classes to make an oral presentation at least twice a semester in their senior year.	Course Binders Course Assessment Report		
3. 100% of all freshmen will have the opportunity to make an oral presentation in a construction class at least 2 times per year.	Course Binders Course Assessment Report		
4. 100% of graduates will produce an acceptable senior capstone oral report as evaluated by external and internal review.	Transcript Review		
5. At least 90% of alumni report that their RWU education has prepared them proficiently in communication skills for the workplace. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Alumni Survey		

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Outcome g: **the broad education necessary to understand the impact of construction in a global, economic, environmental, and societal context**			
Metrics Associated with Outcome g	**Where Measured**	**Met**	**Comments**
1. 100% of construction students fulfill the Multidisciplinary Core Education component as well as the Core Concentration component of study to include the Core Senior Seminar.	Transcripts		
2. At least 25% of construction courses address this outcome.	Course Assessment Report Course Binders		
3. At least 1 guest speaker per semester will address the above outcome.	CM Club Report		
4. Graduating seniors rate themselves proficient with the broad education necessary to understand the impact of construction in a global, economic, environmental and societal context. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Senior Exit Survey		

Outcome h: a recognition of the need for, and an ability to engage in lifelong learning			
Metrics Associated with Outcome h	**Where Measured**	**Met**	**Comments**
1. 75% of graduating seniors will sit for the AC exam.	AC Exam Results		
2. At least 50% of CM students will be active members in the CM club.	CM Club Report		
3. Alumni indicate participation in professional training, professional societies or a graduate school since graduating from RWU. Adequate participation is defined as a mean and median score of 4 or above on a 5 point scale where 5 means participation achieved and 1 means participation not achieved.	Alumni Survey		

Outcome i: a knowledge of contemporary issues related to the construction industry			
Metrics Associated with Outcome i	**Where Measured**	**Met**	**Comments**
1. All (100%) of construction students will be exposed to contemporary issues through the Multidisciplinary Core Education component as well as the Senior multidisciplinary Core course	Course Binders		
2. At least 25% of construction courses will address this outcome.	Course Binders Course Assessment Report		
3. Graduating seniors will rate themselves proficient in knowledge of contemporary issues Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved.	Construction Student Exit Survey		
4. All (100%) of construction students will be exposed to contemporary issues through the Senior Seminar class.	Course Binders		
5. All (100%) of construction students will participate in the Feinstein Service Learning Requirement of at least 5 hours in the surrounding community.	Transcripts		