# Michigan State University

# Construction Management Undergraduate Program

# Public Disclosures (ACCE Standard Section 8.1.5)

2019 - 2020

### Construction Management Program Mission, Objectives, and Learning Outcomes

The **mission** of the Construction Management (CM) Program at Michigan State University (MSU) is to inspire and educate future leaders who will innovate the industry.

To support this mission, our **program's objectives** are to provide:

- A learning setting where students develop an understanding of the real world of construction management and its requisite content and skills.
- Appropriate course content building upon sound fundamentals which is accurate and up to date in construction science and management.
- A learning setting where students can master the material and are encouraged to explore.
- A learning setting where students can develop strong interpersonal, communication, and leadership skills.
- A learning environment where students develop an understanding of the broader social, environmental, economic and business context in which the construction industry operates.

CM **program learning outcomes** align with the American Council for Construction Education's (ACCE) twenty Student Learning Outcomes (SLOs) listed below. Upon graduation our students shall be able to:

- 1. Create written communications appropriate to the construction discipline.
- 2. Create oral presentations appropriate to the construction discipline.
- 3. Create a construction project safety plan.
- 4. Create construction project cost estimates.
- 5. Create construction project schedules.
- 6. Analyze professional decisions based on ethical principles.
- 7. Analyze construction documents for planning and management of construction processes.
- 8. Analyze methods, materials, and equipment used to construct projects.
- 9. Apply construction management skills as a member of a multidisciplinary team.
- 10. Apply electronic-based technology to manage the construction process.

- 11. Apply basic surveying techniques for construction layout and control.
- 12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
- 13. Understand construction risk management.
- 14. Understand construction accounting and cost control.
- 15. Understand construction quality assurance and control.
- 16. Understand construction project control processes.
- 17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
- 18. Understand the basic principles of sustainable construction.
- 19. Understand the basic principles of structural behavior.
- 20. Understand the basic principles of mechanical, electrical and piping systems.

# **Program Admission Requirements**

Admission to the CM program is at junior level. As presented in MSU's Official Academic Programs catalog:<sup>1</sup>

Construction management builds upon a basic understanding of mathematics, physics, statistics, and economics to develop the skills necessary to manage construction projects. Prior to enrollment in the major, students must have demonstrated this basic understanding by a minimum performance in the courses listed and a minimum overall grade point average.

Enrollment in the construction management major is limited. Those seeking admission must at least meet the criteria listed below.

2. Completion of the following courses with a minimum grade of 2.0 in each course:

1. Completion of at least 56 credits.

1. Completion of at least 30 credits.

MTH	124	Survey of Calculus I	3
PHY	231	Introductory Physics I	3
STT	200	Statistical Methods	3
Or			
STT	201	Statistical Methods	4
Or			
STT	315	Introduction Probability and Statistics for Business	3
Or			
STT	421	Statistics I	3
EC	201	Introduction to Microeconomics	3
Or			
EC	202	Introduction to Macroeconomics	3
CMP	101	Principles of Construction Management	2
CMP	124	Residential Construction Materials and Methods	3

<sup>&</sup>lt;sup>1</sup> Source accessed on 12/3/2020 via: https://reg.msu.edu/AcademicPrograms/Text.aspx?Section=114#s1516

CMP	210	Commercial Construction Methods	3
CMP	222	Statics and Strengths of Materials	3
CMP	230	Utility Systems	4
CMP	245	Principles of Green Building	3

3. Have either a cumulative grade-point average of 3.00 in the CMP courses listed in item 2. or a cumulative MSU grade-point average of 3.00.

While meeting all of the criteria above is necessary to be considered for admission to the Bachelor of Science Degree in Construction Management, it does not guarantee admission. Other factors such as work experience, personal experience, and diversity may also be considered.

# Program Assessment Measures

In 2014, our program faculty voted to adopt the latest American Council for Construction Education (ACCE) Student Learning Outcomes (SLO) to measure achieving program objectives. Student learning outcomes adopted include the following:

Upon graduation from an accredited ACCE 4-year program a graduate shall be able to:

- 1. Create written communications appropriate to the construction discipline.
- 2. Create oral presentations appropriate to the construction discipline.
- 3. Create a construction project safety plan.
- 4. Create construction project cost estimates.
- 5. Create construction project schedules.
- 6. Analyze professional decisions based on ethical principles.
- 7. Analyze construction documents for planning and management of construction processes.
- 8. Analyze methods, materials, and equipment used to construct projects.
- 9. Apply construction management skills as a member of a multidisciplinary team.
- 10. Apply electronic-based technology to manage the construction process.
- 11. Apply basic surveying techniques for construction layout and control.
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- 16. Understand construction project control processes.
- 17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
- 18. Understand the basic principles of sustainable construction.
- 19. Understand the basic principles of structural behavior.
- 20. Understand the basic principles of mechanical, electrical and piping systems.

Each SLO is measured annually using one direct and one indirect measure:

- 1. Direct assessment measures include the use of in-class assessments and Associate Constructor (AC) Exam results.
  - a. For in-class assessments, our program collects assessment data annually, and records are kept in electronic form through an MSU shared drive site which is accessible by all program faculty to upload their assessment information which includes:
    - The individual course SLO assessment plan with performance targets for individual SLO.
    - Specific assessment tools including exam questions and homework assignments used for data collection.
    - Summary assessment data.
    - o Analysis against performance criteria in an annual report card.
    - Any corrective measures as needed to address gaps from performance objectives and actual achievement are indicated in the report card.
  - b. All of our seniors are required to take the AC exam in the senior year as they are enrolled in CMP 415 and CMP 423. The College of Agriculture and Natural Resources pays the exam fee from funds obtained from the university.
- 2. Indirect assessment measures include feedback from graduating senior survey administered by our program and distributed to senior students every fall semester. This anonymous survey is administered via the MSU subscription of Qualtrics. Students registered for CMP 415 are invited to participate. An initial invitation is sent during the first week of November and a weekly reminder is sent till the exam week. During the exam week, 2 reminders were sent to the remaining list of students. In the survey, students are asked to rate their perception of ability in relation to each SLO using a five-point Likert scale (between 1: Not much 5: Great deal).

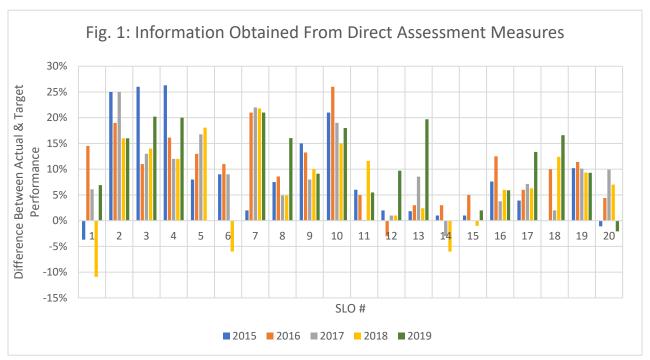
#### Information Obtained from Assessment Measures

Target performance for direct assessment measures are: (a) average of 70-75% performance on a group of test/exam questions or assignment that reflect the essence of the SLO; and (b) AC exam performance for relating SLOs are equal to the passing rate or above the national average.

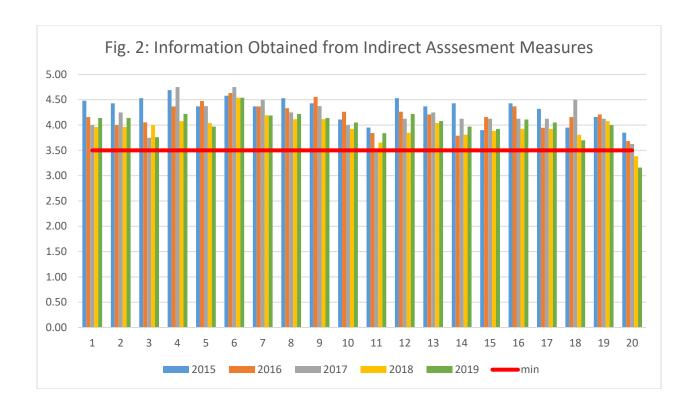
Table 1: Direct Assessment Measures and Faculty Champions for each SLO

SLO#	Class	Faculty	Direct Assessment
		Champion	
1	CMP 385	Mrozowski	Writing Assignment
2	CMP 328	Zhao	Final Project Presentation
3	CMP 401	Welch	Safety Plan Book
4	CMP 415	ElGafy	Project 2
5	CMP 311	Metoyer	Individual Scheduling Project

6	CMP 311	Metoyer	Ethics Homework
7	CMP 415	ElGafy	Construction Documents Assignment
8	CMP 210	Berghorn	Steel Fabrication and Crane Selection Assignment
9	CMP 423	Syal	Exam 1
10	CMP 328	Zhao	BIM for Construction Management Assignment
11	CMP 305	Welch	Exam 1 - Surveying questions
12	CMP 385	Mrozowski	Set of Questions (Test 1)
13	CMP 385	Mrozowski	Set of Questions (Test 2)
14	CMP 325	Maguire	Construction Accounting Assignment
	CMP 311	Metoyer	Final Exam - Cost Control Questions
15	AC	Mollaoglu	Associate Constructor (AC) Exam
16	CMP 423	Syal	Exam 2 Questions
17	CMP 385	Mrozowski	Set of Questions (Test 3)
18	CMP 245	Berghorn	Average of 3 Exams
19	CMP 322	Mrozowski	Average of Tests 1-5
20	CMP 230	Giordano	Final Exam Questions



In the graduating senior survey for indirect assessment, the target average rating for each SLO is 3.5 out of 5.0 (using a five-point Likert scale between 1: Not much -5: Great deal to measure student perception for their own SLO related abilities).



#### Actions Taken as Result of Assessment Data Collected

The CM program collects data and maintains records for each SLO annually. Every year the CM faculty hold an SLO meeting where approximately seven SLO are examined on a rotational basis in detail using data collected since the last analysis. This cycle ensures that all SLO will be evaluated at least every three years. Additionally, any SLO requiring corrective action may be required to be assessed again in the next year.

The CM program also holds an annual strategic meeting devoted to reviewing information obtained from assessment measures, records and documents action items at program level and shares with stakeholders at school, college and industry board levels.

The CM faculty met on December 16<sup>th</sup>, 2019 and reviewed all SLOs. The faculty agreed on updates relating to course modules and SLO mapping across the curriculum for better alignment with courses, while dropping AC Exam from direct assessment methods. Those major revisions are summarized below:

- SLOs 01 and 02: CMP 435 and CMP 436 (Capstones) for direct assessment (DA).
- SLO 07: CMP 415 for DA.
- SLO 08: CMP 210 for DA and to include a module devoted to construction equipment.
- SLO 09: CMP 328 for DA.
- SLO 11: CMP 305 DA revision to evaluate skills at 'apply' level for individuals.

- SLO 14: CMP 325 and 311 for DA.
- SLO 15: CMP 423 for DA.
- SLO 18: CMP 245 for DA.

Specific actions taken as a result of this meeting are listed below.

### SLO 01: Create written communications for a construction project and construction business

**Review and Revise Assessment:** The results of direct assessment fluctuate every two years. With the creation of the new capstone courses, the faculty agrees that it would be better to assess this SLO in the new capstone courses.

- **1. Review of Assessment Instrument:** Good assignment and might be considered for the new assessment tool.
- 2. Review performance trend & Action items: N/A.
- 3. Report action items follow-up: CMP 435 and CMP 436 (491) instructors to create a new assessment tool and report next year using the new assessment tool. Keep target performance to 70%.
- **4. Potential continuous improvement:** Faculty to study the current rubric used in CMP 385 assignment for writing and be consistent in giving feedback to the students in other courses (e.g., CMP 210, 311, and 415).
- **5. Others:** Starting Fall 2020, SLO 01 will be assigned in CMP 435 and CMP 436 (491) Capstone Courses.

#### SLO 02: Create and deliver an oral presentation appropriate to the construction discipline

**Review and Revise Assessment:** It looks good. Starting Fall 2020, SLO 02 will be assigned in new capstone courses as more suitable direct assessment platforms for this SLO.

- **1. Review of Assessment Instrument:** Good. All instructors requesting a presentation as part of the curriculum should consider using the same rubric.
- 2. Review performance trend & Action items: Met performance & No action items.
- **Report action items follow-up:** CMP 435 and CMP 436 (491) instructors to create a new assessment tool and report next year using the new assessment tool. Keep target performance to 70%.
- 3. Potential continuous improvement: N/A
- **4. Others:** Starting Fall 2020, SLO 01 will be assigned in CMP 435 and CMP 436 (491) Capstone Courses.

#### SLO 03: Create a project safety plan

Review and Revise Assessment: It looks good. Minor improvement points are outlined.

- **1. Review of Assessment Instrument:** Assessment instrument is appropriate.
- **2. Review performance trend & Action items:** Performance meets target. Set a new target using the 3-year average for continuous improvement. For example: Direct

- assessment average for this SLO is 85.7% (average of 83, 84, and 90.2%) and indirect assessment average is 3.84 (average of 3.76, 4.00, and 3.75).
- **3. Report action items follow-up:** This is the first year that the indirect measure did not meet the target. We will review the results next year.
- **4. Potential continuous improvement:** This year, CMP 401 Summer class results were included as requested. Graduate students and non-major grades will be excluded starting next year. Non submitted students will be graded "N/A" and not to be included in the average.
- **5.** Others: N/A.

## **SLO 04: Create construction project cost estimates**

Review and Revise Assessment: Accepted. Continuous improvement items outlined.

- **1. Review of Assessment Instrument:** Assessment instrument is appropriate but rubric needs to be included.
- **2. Review performance trend & Action items:** Met performance. No action items.
- **3. Report action items follow-up:** Include the developed rubric in the SLO package.
- **4. Potential continuous improvement:** SLO 04- Direct Assessment rubric to be accessible to student with the assignment (CMP 415- ElGafy).
- **5. Others:** Graduate students and non-major grades will be excluded starting next year. Non submitted students will be graded "N/A" and not to be included in the average.

## **SLO 05: Create construction project schedules**

Review and Revise Assessment: Accepted. Continuous improvement items outlined.

- 1. Review of Assessment Instrument: Instrument is accepted. The instructor is adding an additional assignment to assess the student's ability to create and update schedules using scheduling software. The direct assessment will be the average of the two assignment (equally weighted).
- 2. Review performance trend & Action items: Accepted.
- **3. Report action items follow-up:** DCMA 14-point check<sup>2</sup> might be considered as a rubric for the assignment.
- 4. Potential continuous improvement: For continuous improvement the following will be done in this course: Before this individual assignment in the semester, it would be useful to give the students a smaller and a similar homework assignment, where they possibly make the same mistake of creating a one-path schedules. In the class, this homework assignment should be revisited and solved on the board by demonstrating the actual multiple path solutions revealing the critical path at the end of the exercise. The pros and cons of both approaches also will be discussed.
- **5. Others:** Keep target performance to 70%.

<sup>&</sup>lt;sup>2</sup> Source accessed on 12/16/2019 via: https://edwps.com/wp-content/uploads/2016/03/DCMA-14-point.pdf

#### SLO 06: Analyze professional decisions based on ethical principles

#### **Review and Revise Assessment:**

- 1. Review of Assessment Instrument: Current assessment tool uses AC exam. The faculty proposes to use CMP 311 ethics homework as a direct assessment tool in lieu of the AC exam.
- **2. Review performance trend & Action items:** 2018 and 2019 data are missing and will be updated later in the semester.
- **3. Report action items follow-up:** AC Fall 2018, Spring 2019, and Fall 2019 results will be requested and will be used for the reporting of previous years.
- **5. Potential continuous improvement:** All instructors should have an ethics exercise in their courses and should consider using the same rubric for SLO 06. SLO 06- Direct Assessment rubric to be accessible to students with the assignment.
- **4. Others:** Keep target performance to 70%.

# SLO 07: Analyze construction documents for planning and management of construction processes

**Review and Revise Assessment:** Accepted.

- 1. Review of Assessment Instrument: Accepted
- 2. Review performance trend & Action items: Performance is accepted.
- 3. Report action items follow-up: N/A.
- 4. Potential continuous improvement: N/A.
- **5. Others:** Set a new target using the 3-year average for continuous improvement (CMP 415- ElGafy).

#### SLO 08: Analyze methods, materials and equipment used to construct projects

**Review and Revise Assessment:** Revised to "Steel Fabrication and Crane Selection assignment."

- 1. Review of Assessment Instrument: Accepted.
- **2. Review performance trend & Action items:** Met performance. No action items.
- **3. Report action items follow-up:** SLO 08- Direct Assessment rubric to be accessible to student with the assignment and assessment method to address 'analyze.'
- **4. Potential continuous improvement:** Construction equipment module to be added to the course
- **5. Others:** Set a new target using the 3-year average for continuous improvement.

# SLO 09: Apply construction management skills as an effective member of a multi-disciplinary team

**Review and Revise Assessment:** Accepted. Starting Fall 2020, CMP 328 will have the direct assessment for this SLO.

- **1. Review of Assessment Instrument:** Accepted. CMP 328 will develop the new assessment tool and present it in the next review cycle.
- **2. Review performance trend & Action items:** Met performance. No action items.
- **3.** Report action items follow-up: N/A.
- **4.** Potential continuous improvement: N/A.
- 5. **Others:** Keep target performance to 70%.

#### SLO 10: Apply electronic based technology to manage the construction process

Review and Revise Assessment: Accepted.

- 1. Review of Assessment Instrument: Revise the assessment instrument to reflect software exposure across the curriculum (Microsoft Project & P 6 in CMP 311, Onscreen, BlueBeam, and Sage 300 in CMP 415, Procore in CMP 423).
- **2. Review performance trend & Action items:** Met performance. No action items.
- 3. Report action items follow-up: N/A.
- **4. Potential continuous improvement:** More Bluebeam exposure in CMP 328.
- **5. Others:** Set a new target using the 3-year average for continuous improvement.

#### SLO 11: Apply basic surveying techniques for construction layout and control

**Review and Revise Assessment:** Accepted. Revisions suggested for assessment instrument.

- **1. Review of Assessment Instrument:** Accepted. Revise assessment instrument to ensure assessment of 'apply' level.
- 2. Review performance trend & Action items: Met performance. No action items.
- 3. Report action items follow-up: N/A.
- 4. Potential continuous improvement: N/A.
- **6. Others:** Set a new target using the 3-year average for continuous improvement.

# SLO 12: Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process

**Review and Revise Assessment:** Accepted.

- **1.** Review of Assessment Instrument: Accepted.
- **2. Review performance trend & Action items:** Met performance. No action items.
- 3. Report action items follow-up: N/A
- 4. Potential continuous improvement: N/A
- **5. Others:** Set a new target using the 3-year average for continuous improvement.

#### **SLO 13: Understand construction risk management**

Review and Revise Assessment: Accepted.

- 1. Review of Assessment Instrument: Acceptable
- **2. Review performance trend & Action items:** Met performance. No action items.
- 3. Report action items follow-up: N/A.

- **4. Potential continuous improvement:** Consider adding in a homework assignment on insurance policies against various claims to improve overall class performance.
- **6. Others:** Set a new target using the 3-year average for continuous improvement.

#### **SLO 14: Understand construction cost accounting and cost control**

**Review and Revise Assessment:** AC Exam is not a good representation for this direct assessment. Faculty agreed to change the direct assessment to be the average of two assignments: (a) An assignment in CMP 325 to assess cost accounting; (b) an assignment in CMP 311 to assess cost control.

- 1. Review of Assessment Instrument: N/A- we have no access to the AC exam. Starting Fall 2020, CMP 325 and CMP 311 instructors will develop the assessment tools and present it in the next review cycle.
- 2. **Review performance trend & Action items:** 2018 and 2019 data are missing. Low performance is recognized in 2015 and 2017. Data will be requested, and performance will be reviewed for 2018 and 2019 during the next review cycle.
- 3. Report action items follow-up: N/A.
- **4.** Potential continuous improvement: N/A.
- **5.** Others: N/A.

## **SLO 15: Understand construction quality assurance and control**

**Review and Revise Assessment tool:** AC Exam is not a good representation for this direct assessment. Faculty agreed to change the direct assessment to be an assignment in CMP 423.

- 1. Review of Assessment Instrument: N/A- we have no access to the AC exam. Starting Fall 2020, CMP 423 instructor will develop the assessment tools and present it in the next review cycle.
- 2. **Review performance trend & Action items:** 2018 and 2019 data are missing. Data will be requested, and performance will be reviewed for 2018 and 2019 during the next review cycle.
- 3. Report action items follow-up: N/A.
- **4.** Potential continuous improvement: N/A.
- **5.** Others: N/A.

#### **SLO 16: Understand project control processes**

**Review and Revise Assessment:** Accepted.

- 1. Review of Assessment Instrument: Accepted.
- 2. **Review performance trend & Action items:** Met performance. No action items.
- 3. Report action items follow-up: N/A.
- **4.** Potential continuous improvement: N/A.
- **5. Others:** Set a new target using the 3-year average for continuous improvement.

# SLO 17: Understand the legal implications of contract, common and regulatory law to manage a construction project

**Review and Revise Assessment:** Accepted.

- 1. Review of Assessment Instrument: Accepted.
- 2. Review performance trend & Action items: Met performance. No action items.
- 3. Report action items follow-up: N/A.
- **4.** Potential continuous improvement: N/A.
- **6. Others:** Set a new target using the 3-year average for continuous improvement.

### SLO 18: Understand the basic principles of sustainable construction

**Review and Revise Assessment:** Accepted.

- **1. Review of Assessment Instrument: C**MP 245 exam will directly assess this SLO starting Spring 2020. AC is not the best fit to measure this SLO.
- 2. **Review performance trend & Action items:** AC results will be used for 2019 direct assessment reporting and CMP 245 exam will be used afterwards.
- 3. **Report action items follow-up:** CMP 245 instructor to develop and present the assessment tool in the next review cycle.
- 4. **Potential continuous improvement:** Align CMP 245 content with AC exam. Faculty to report in the meeting on their plans.
- **1. Others:** Keep target performance to 70%.

#### SLO 19: Understand the basic principles of structural behavior

**Review and Revise Assessment:** Accepted.

- 1. Review of Assessment Instrument: Accepted.
- 2. Review performance trend & Action items: Met performance. No action items.
- 3. Report action items follow-up: N/A.
- 4. Potential continuous improvement: N/A.
- **5. Others:** Set a new target using the 3-year average for continuous improvement.

# SLO 20: Understand the basic principles of mechanical, electrical and plumbing systems

**Review and Revise Assessment:** Accepted.

- 1. Review of Assessment Instrument: Accepted.
- 2. Review performance trend & Action items: Low performance is recognized. A new instructor will teach the class in Spring 2020. The program director will work with the new instructor to brainstorm on ideas to improve performance.
- 3. Report action items follow-up: N/A.
- **4. Potential continuous improvement:** Additional site visits will be suggested to the new instructor.
- **5. Others:** Keep target performance to 70%.

#### Other Action Items:

- ALL Rubrics to be made accessible to students with the assignments
- ALL SLO report cards need:
  - Supervisor: Dr.s El-Gafy and Mollaoglu
  - An industry supervisor of SLO Faculty Campion's choosing, if not, a curriculum committee member from the Industry and Alumni Board will be assigned.
- ALL SLOs for Create, Evaluate, Analyze, and Apply needs a rubric.
- ALL SLO Assessments:
  - N/A for no submissions.
  - Graduate students will be excluded from evaluation.
- All instructors will cover ethics module in their courses and to consider SLO 06 rubric in their evaluations/feedback for student work.
- SLO target performance will use the last three years rolling average using indirect and direct assessments except for the cases where the instructor changes the assignment as a part of the continuous improvement process and in 200 level courses with justification (if needed).

#### Student Achievements

In Fall 2019, the CM Program had a total of 198 undergraduate students enrolled producing 2648 student credit hours (SCHs). Total enrollment in Spring 2020 was 145 with 1983 SCHs. About 15-17% of those students came from out of state and 10-13% of the students were female. During this academic year, 40 students were admitted to the upper level and 46 seniors graduated. Select student achievements are presented below:

#### **External:**

- 2019-2020 NAHB Competition Team Members -Won 1st Place (Second time in a row): Alex Beem, Kyle Broccardom, Eric Fantry, Evan Harless, and Aundrea Cole were the primary and Jake Garbarino, Matt Zenk, and Sabrina Maniaci were the alternate members.
- o 2019 NAHB Outstanding Student Chapter Award: Alex Beem.
- 2019 NAHB Professional Women in Building scholarship: Ashley Prince.
- 2020 Construction Intern Award of Heavy Construction Systems Specialists: Kelton Engemann.
- Abdallah Agabur and Samantha Bourgeois received the Clark Construction Diversity, Equity, and Inclusion Scholarship Award.

#### Internal:

- CM students of the year: Alex Beem and Chris Fowler.
- 2019-2020 CM Program Ambassadors: Alex Beem, Kelton Engemann, Quinn Mickens, and Tahmim Siddiquee.

- Graduated members of SLC: Alex Beem, Kelton Engemann, Max Labe, Quinn Mickens
   Student Organizations:
- Student Builders and Contractors Association (SBCA) reached a historic high of 60 members (i.e., 25% female while traditionally 5-10%).
- Professional Women Builders (PWB) became an official student organization and had 22 members.
- o Sigma Lambda Chi (SLC) was reactivated and sponsored by two companies.

# **Internships and Student Enrichment:**

According to Fall 2019 MSU Career Services Destination Survey of graduating seniors, of the CM students:

- 95 % engaged in a career-based experience outside of the classroom (i.e., internship for credit [28%] and internship for non-credit [67%]).
- o 18% engaged in each of the following: research, study abroad, and service learning.

# Rate and Types of Employment of Graduates

Destination survey of graduating senior students is administered by the CANR annually at the CM program. In Fall 2019, 22 CM students responded to the survey. Of those, 91% were employed by the time of graduation, and two students (9%) continued to graduate education. Career fair (53%) and internships (40%) were instrumental in job finding upon graduation for CM students.

Average starting salary for these students is \$60,357 and median starting salary is \$62,500. Majority of the students were employed in Midwest (See Figure below).

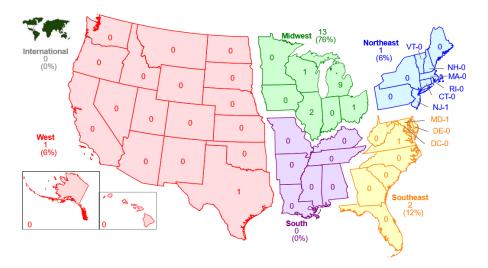


Fig. 3: Geographic Distribution of CM students employed across the U.S. (Fall 2019)

Graduates of the CM program have been hired by commercial, residential, infrastructure, and industrial sectors of the architecture, engineering, and construction industry.

The career options for our graduates upon graduation include project engineer, assistant project manager, project manager, scheduler, estimator, superintendent, project controls manager, and virtual design coordinator.

Types of companies that have hired our graduates include but are not limited to: general contractors, construction managers, design-builders, developers, multi-family and residential builders, transportation and logistics companies, real estate companies, suppliers, material testing firms, renovation, facility management and maintenance companies, mechanical and electrical contractors, insurance companies, project managers, consultants, and utility and renewable energy companies.

## Data to Support Qualitative Claims made by the Program

The data provided in this document intends to satisfy the public disclosure requirements of ACCE accreditation and to show that MSU's CM program is striving to continuously improve while providing the industry with well-prepared graduates that can become leaders in the future.

CM Career Fair has been well attended, with 60-80 companies attending, in the past three years. Employer to graduating CM senior rate has been consistently at around 1.5. Below are select testimonials from recruiters, following the 2019 CM Career Fair:

"Hensel Phelps is very grateful to be given the opportunity to come back into town every year and speak with the best and brightest students in the nation! This was my first year back to the MSU career fair since I graduated back in 2014, and I wanted to express how well I think the whole experience went. [...] This program always lives up to its expectations. The students we talked with were well-prepared, professional, and were a pleasure to get to know."

- Project Engineer and Recruiter at Construction Group, Hensel Phelps

"Thank you for hosting a fantastic career fair highlighting your very talented students. ..... I find some standouts [in other programs of the state] too, but not of the quantity available at MSU."

- Project Manager and Recruiter, Thomas Sebold and Associates

2018-2019 survey of MSU's CM Program alumni and recruiters<sup>3</sup> (n=248) showed that most participants highly regard the CM program as one of the best in the Midwest but pointed that the program needs to improve marketing to showcase it as one of the best programs in the nation.

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<sup>&</sup>lt;sup>3</sup> El-Gafy, M. (2019). 2019 Alumni Perspectives Survey Report. Submitted to The Construction Management Alumni and Industry Association. School of Planning Design and Construction, Michigan State University, East Lansing, MI, July 22, 2019. 81 Pages.