New Academic Degree Program Request for Preliminary Authorization

Institution ____ University of North Carolina at Charlotte _____

Degree Program Title _____B.S. in Construction Engineering _____

Reviewed and Approved By (Provide Name and title only. No signature required in this section.)

Review	Name	Title
Chief Financial Officer	Richard Amon	Vice Chancellor for Business Affairs
Faculty Senate Chair (Or appropriate faculty body)	Xiaoxia Newton	Faculty President
Graduate Council (If applicable)	N/A	N/A
Graduate/Undergraduate Dean (If applicable)	N/A	N/A
Academic College/School Dean	Robert Keynton	Dean W.S. Lee College of Engineering
Department Head/Chair	Glenn E. Moglen, Lingguang Song	Chair, Civil and Environmental Engineering; Chair, Engineering Technology and Construction Management
Program Director/Coordinator	N/A	

New Academic Proposal Process

New academic programs are initiated and developed by faculty members. The Request for Preliminary Authorization must be reviewed and approved by the appropriate individuals listed above before submission to the UNC System Office for review.

Please provide a succinct, yet thorough response to each section. Obtain signatures from the Chancellor and Provost and submit the proposal via the PREP system to the UNC System Vice President for Academic Programs, Faculty, and Research, for review and approval by the UNC System Office. If the Request for Preliminary Authorization is approved, the institution may begin work on the formal Request to Establish a New Academic Degree Program.

NOTE: If an institution is requesting preliminary authorization for a degree program at a higher level than

their current Carnegie Classification (e.g., a Master's institution proposing a doctoral degree), then a request for a mission review must first be submitted to the UNC Board of Governors Committee on Educational Planning, Programs, and Policies, through the Senior Vice President for Academic Affairs. If approved by the Board, then the institution may proceed with the Request for Preliminary Authorization.

UNC Institution Name	University of North Carolina at Charlotte
Joint Degree Program (Yes or No)? If so, list partner institution.	No
Degree Program Title (e.g., M.A. in Biology)	B.S. in Construction Engineering
CIP Code and CIP Title (May be found at National Center for Education Statistics)	14.3301 Construction Engineering
Require UNC Teacher Licensure Specialty Area Code (Yes or No). If yes, list suggested UNC Specialty Area Code(s).	No
Proposed Delivery Mode (campus, online, or site-based distance education). Add maximum % online, if applicable.	Campus
Will this program be offered by an outside provider such as an Online Program Manager (OPM) or Project Kitty Hawk (PKH)? If yes, list the provider.	No
Proposed Term to Enroll First Students (e.g., Fall 2023)	Fall 2026

I. SACSCOC Liaison Statement: *(Provide a brief statement from the University SACSCOC liaison regarding whether the new program is or is not a substantive change.)*

The proposed new B.S. in Construction Engineering program will be a total of 120 credit hours with 3 new courses, resulting in 95% existing courses and 5% new courses. Therefore, this new program is not substantive and does not require SACSCOC notification or approval.

II. Program Summary: (*Briefly describe the proposed program and summarize the overall rationale.*) Maximum of 1,000 words.

Include the following in your narrative:

a. How this program supports specific university and UNC System missions.
b. Collaborative opportunities with other UNC institutions as appropriate.
c. Ways in which the proposed program is distinct from others already offered in the UNC System.

Information on other programs may be found on the UNC System website, and all similar programs should be listed here (use the 4-digit CIP as a guide).

d. How does the program align with the UNC System and institutional strategic plan?

The University of North Carolina at Charlotte (UNC Charlotte) proposes to add a Bachelor of Science degree program in Construction Engineering. Construction engineering is a branch of engineering that focuses on the design, planning, construction, and management of construction projects. It combines principles from civil engineering with construction management techniques to ensure projects are completed efficiently, safely, and within budget. Due to its interdisciplinary nature, the program is jointly proposed by the Department of Civil and Environmental Engineering and the Department of Engineering Technology and Construction Management. As further described in Section III, the program will complement our existing programs in Civil Engineering, Civil Engineering Technology, and Construction Management, allowing UNC Charlotte to become the only institution in North Carolina that offers a comprehensive Construction Engineering and Management education to meet the construction industry needs. The program will obtain accreditation from the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology Inc. (ABET). The 120-hour curriculum uses existing courses in engineering fundamentals, civil engineering, and construction management, with two new courses to be developed (or 5% of the curriculum). It will be delivered by our 44 existing faculty members supplemented by industry experts as adjunct faculty. Given our existing resources, the new program does not require new faculty, staff position, or lab facilities. Thus, the program is expected to maintain a positive cash flow during the first five years.

The proposed program is designed first and foremost for North Carolina students and the construction industry. The labor market for construction engineers in North Carolina ranks #4 in the United States, and it is projected to grow three times faster than the national average. Regionally, North Carolina has the largest total employment in construction among neighboring states. Encouraged by the active job market and excellent pay, students are actively pursuing degrees in Construction Engineering. According to the attached EAB market insights report on Construction Engineering (Appendix A), the degree completion in this field grew 75% between 2017 and 2022 in the region that includes North Carolina, South Carolina, Tennessee, and Virginia. However, there is still a gap between job market need and existing student enrollment, as elaborated in Section V below. For states with a job market of comparable size, North Carolina's job-to-enrollment ratio is two times the average ratio. In the State of North Carolina, there is only one existing Construction Engineering program which is housed in the College of Engineering at North Carolina State University. Even with this existing program enrollment, there would still be a 50% estimated enrollment gap for North Carolina. In summary, the proposed program is necessary given the strong market needs and the gap for construction engineering talent in North Carolina, particularly the Charlotte metropolitan area.

The proposed new Construction Engineering program at UNC Charlotte is distinct from the existing programs in the region, including North Carolina, South Carolina, Virginia, and Tennessee, for its local job market, student supply, affordability, curriculum, program success and resources, and strong industry support.

- Charlotte's Job Market: Charlotte is the largest construction job market in North Carolina, accounting for about one-third of the state's job market and is 56% larger than Raleigh, ranked second. In addition to jobs

for graduates, Charlotte provides internship opportunities, allowing students to study and work simultaneously year-round.

- Student Demand: UNC Charlotte is the largest urban university in North Carolina. Charlotte is the second most populous city in the Southeastern United States, ensuring a steady supply of both traditional and transfer students. 87% of our current students are residents and about 34% are from the Charlotte metro area. Attending UNC Charlotte allows study, internship, full-time career, and home to be nearby, providing both convenience, cost-savings, and effective hands-on learning.
- Affordability: UNC Charlotte is among the Top 100 public universities in the United States, yet it offers one of the most affordable tuition rates. Its in-state tuition and fee rate is the lowest among all regional institutions listed in Table 2 that offer a Construction Engineering program, including institutions in North Carolina, South Carolina, Virginia, and Tennessee. It makes higher education more accessible, lowers debt burden, and attracts an economically diverse student population. Furthermore, UNC Charlotte has the highest percentage of adult and veteran students in the region (see Table 2).
- Curriculum: In addition to civil engineering principles, the proposed curriculum distinguishes itself from peer programs due to its heavy focus on construction science, emerging technologies (e.g., digital transformation), and experiential learning through a mandatory internship. This aligns with our goal to prepare real-world-ready graduates for today and tomorrow.
- Program Success and Resources: UNC Charlotte has the largest ABET-accredited engineering technology programs in the Southeastern United States and ranks 11th nationally (ASEE). Our Civil Engineering program ranked #28 in the nation, and it is accredited by ABET EAC. With 44 faculty members, our current faculty-to-student ratio of 15:1, suggesting an excellent growth potential due to available resources.
- Strong Industry Support: Our existing construction industry advisory board includes over 75 engineering and construction companies. The recommendation of adding a Construction Engineering undergraduate degree program received unanimous support based on a survey of the board member companies conducted in fall 2023 (see letter of support in Appendix B). Furthermore, the board holds two construction career fairs annually attracting local and national contractors offering both full-time and internship opportunities. The board supports program development through its four standing committees for curriculum, scholarship, internship, and capstone projects. The Charlotte construction industry also offers excellent opportunities to engage industry experts in teaching as adjunct faculty to support both curriculum delivery and cost efficiency.

The proposed program aligns with the State, UNC System, and UNC Charlotte's mission and strategic plan through promoting guiding commitments such as academic excellence, economic mobility, and community engagement. The North Carolina General Assembly recognizes the importance of STEM programs as drivers of economic investment, expansion, and employment throughout the State. Engineering N.C.'s Future has invested $35 million in key engineering schools and an additional $90 million for capital improvements in selected institutions, including UNC Charlotte. The proposed Construction Engineering program is aligned with the program goal of "… expanding enrollment opportunities … to enable more students to pursue an education in engineering fields." The program aims to transform lives, communities, and industries by providing students with essential skills and knowledge, aligning with the mission of transformative impact through accessible and affordable education. It will attract a diverse student body and invite broader engagement of community partners, supporting the institution's commitment to address local and global infrastructure challenges,

economic mobility, and local-to-global impact. With continuous improvement, the program is expected to significantly contribute to the institution's mission and enhance its impact on students, the community, and the broader field of construction engineering.

III. Student Demand*: (Provide evidence of student enrollment demand, including external estimates. Discuss the extent to which students will be drawn from a pool of students not previously served by the institution. Maximum length 1,000 words.)*

The attached EAB market insights report on Construction Engineering (Appendix A) confirmed a growing student demand and suggested a favorable competitive landscape for new program launch. Between the 2018 and 2022 academic years, the average annual degree completion growth rate for the region was 22.8%, compared to 3.9% for the nation, signaling growing student demand and a particularly strong trend in the region. During the same period, the number of institutions reporting completions grew by 12.5% on average annually in the region, indicating a favorable regional competitive landscape as student demand grew faster than competition. Considering the potential population of college transfer students, the North Carolina Community College System recorded a 12% increase in enrollment over the last five years in construction engineering-related associated degree programs, including Civil Engineering Technology, Construction Management, and Building Construction. In summary, the region's encouraging education market growth offers an excellent opportunity to launch the proposed program at UNC Charlotte, which, in turn, provides North Carolina residents an additional option for pursuing their Construction Engineering education.

UNC Charlotte currently offers three undergraduate degree programs for the engineering and construction industry. For students who are interested in a career focused on design and planning, they may choose civil engineering or civil engineering technology as a major, while for others who would like to focus on the managerial and logistical aspects of construction, a construction management major is the right choice. However, for a successful project from project design to execution, construction engineers are required to bridge the gap between civil engineering and construction management. Construction engineers bring a blend of engineering and management expertise to take the designs and plans created by civil engineers and implement them correctly on-site, ensuring the integrity, quality, and safety of structures. The departments within the William States Lee College of Engineering at UNC Charlotte frequently receive inquiries from prospective students as well as businesses in the Charlotte community desiring a construction engineering program. The proposed program fills the market gap by offering the degree option that students desire and is in strong demand from the engineering and construction industry. Furthermore, as discussed further in Section IV below, UNC Charlotte has the lowest in-state tuition and fee rate and the second highest acceptance rate among five regional institutions who offer a construction engineering program. Within the UNC system, the proposed program's tuition and fee rate for North Carolina residents is more than 30% lower than that of the existing program at North Carolina State University. The highly affordable program will increase student socio-economic diversity, lower the debt burden, and offer more students from families with limited financial resources to pursue higher education. In addition, the high acceptance rate along with a higher percentage of adult learners and veterans in the Charlotte area also opens the door for more students to pursue their engineering degrees.

To develop a realistic estimate of student demand range for the Construction Engineering program at UNC Charlotte, three projection methods were applied: 1) based on the enrollment of peer programs in the United States, 2) based on enrollment of peer institutions who offer civil engineering, construction engineering, and construction management programs, similar to what UNC Charlotte is envisioning, and 3) based on an analysis of job market and program enrollment in comparable states.

First, there are 22 ABET-accredited Construction Engineering programs in the United States; their average program enrollment is 74. Out of the 22 programs, 14 institutions offer Construction Engineering along with Civil Engineering, while the remaining 8 institutions offer all three programs: Civil Engineering, Construction Engineering, and Construction Management. The latter case resembles the plan at UNC Charlotte; thus, we use the 8-institution dataset to further refine our estimate. Several statistical measures were explored to account for variations in program enrollments due to significant differences in the size of the institutions offering this degree program. Table 1 below lists these 8 institutions and their construction engineering enrollment as a proportion of the enrollment of the program's parent college and university respectively. With a projected growth in the W.S. Lee College of Engineering undergraduate enrollment to 3000 students and UNC Charlotte's current total enrollment of 29,615, the projected enrollment is 41 students (1.4% of the college) and 70 students (0.24% of the university).

Table 1: Program enrollment as a % of college and university enrollment

	Con. Eng. Enrollment	**As % of College**	**As % of University**
University of Nebraska Lincoln	55	1.6%	0.21%
Purdue University	121	1.1%	0.26%
Virginia Tech	171	1.7%	0.47%
Arizona State University	95	0.4%	0.13%
Georgia Southern University	93	2.2%	0.35%
University of New Mexico	14	0.7%	0.06%
North Dakota State University	35	1.6%	0.26%
San Diego State University	59	1.7%	0.17%
Average	***80***	***1.4%***	***0.24%***

Finally, from a job market perspective, we analyzed each state's Construction Engineering program enrollment in relation to the size of the construction job market (civil engineer and construction manager jobs) for states that have a comparable job market size as North Carolina, including Alabama, Arizona, Georgia, Michigan, South Carolina, Virginia, and Wisconsin. The predicted enrollment for the State of North Carolina is 190, and considering North Carolina State University's current enrollment of 98, the remaining unmet need of 92 students creates an opportunity for the proposed program.

In summary, depending on the forecasting methods, the projection may range from 40 to over 90 students. The strong regional market demand and the competition advantage discussed in Section II present opportunities to grow the proposed program. Thus, the enrollment range at Year 5 is estimated to be between 60 and 75 students, and for financial planning purposes, an enrollment of 60 students is used.

IV. Access, Affordability, and Student Success: (*Provide an analysis of the impact of the program on student access and affordability. Maximum length 1,200 words. Include information from College Scorecard. May also include census postsecondary outcomes data, etc.)*

a. Analysis of the impact of the proposed program on student access, including key metrics identified in the UNC System Strategic Plan and statewide initiatives (such as myFutureNC https://www.myfuturenc.org/).
b. Analysis of student debt levels for similar programs and programs at the same academic level at the institution.
c. Provide an analysis of indebtedness, repayment, and relationship to potential earnings.

The proposed program provides students with excellent affordability, a reasonable debt level, and a very high potential earning after graduation. This is evidenced by a comparative analysis of national and regional data collected from the United States Department of Education's College Scorecard. A detailed side-by-side comparison of the other four regional institutions that currently offer a Construction Engineering program is presented in Table 2.

Table 2: A comparison of cost, economic diversity, indebtedness, and earning among regional peer institutions

	UNC Charlotte	**NC State**	**Virginia Tech**	**The Citadel**	**U Tennessee**
Approx. Distance to Charlotte (miles)	0	167	173	207	230
Acceptance Rate	80%	47%	57%	99%	68%
A. Tuition & Fee Rate (engineering college-level data)					
Tuition & Fee (resident)	$7,320	$10,861	$17,948	$ 15,348	$ 17,322
Tuition & Fee (non-resident)	$22,574	$34,909	$40,764	$ 40,148	$ 36,766
Average Net Price = Attend. Cost – Fin. Aid	$15,018	$16,563	$20,292	$21,619	$19,400
B. Socio-Economic Diversity (university-level data)					
% Students Receive Pell Grant	36%	20%	15%	20%	22%
% Family Income (Lowest quintile $0-30k)	35%	24%	18%	24%	31%
% Adult Learner (age 25+)	10%	5%	2%	10%	4%
% Veteran	0.23%	0.21%	No data	No data	0.16%
C. Indebtedness (civil/construction engineering major data)					
Indebtedness (after graduation)	$22,000	$24,876	$26,349	$23,481	$21,000
Debt Repayment (monthly)	$233	$264	$279	$249	$223

UNC Charlotte demonstrates a strong commitment to access and affordability. It has the lowest resident and

non-resident tuition fees and the lowest average net price after financial aid among the regional institutions (Table 2 Subsection A), making it the most affordable option for both in-state and out-of-state students. For residents in the Charlotte metro area, a combination of the low resident tuition rate and the convenient location leads to even more cost savings. This competitive rate can attract a larger pool of applicants, particularly those who are cost-conscious or come from lower-income families. This is especially important for the community served by UNC Charlotte, characterized by a high-level of student socio-economic diversity (i.e., high financial aid need, and low family income level as shown in Table 2 Subsection B). It can significantly reduce the financial burden on students and their families and make higher education more accessible.

From a student debt perspective, undergraduate graduates at UNC Charlotte have a median indebtedness (i.e. median total debt after graduation) of $21,500. The median indebtedness for public 4-year schools for the United States and North Carolina are $21,000 and $22,300 respectively. Specifically for the civil/construction engineering field of study, the median indebtedness is $22,000 for UNC Charlotte civil engineering graduates as well as all civil engineering graduates in the United States At the regional level (Table 2 Subsection C), UNC Charlotte has the second lowest indebtedness as well as monthly debt repayment amount, which is important for graduates' long-term financial stability, career choices, and overall quality of life.

UNC Charlotte graduates have a median earning of $57,300, while it is $53,600 for United States 4-year institutions as of 2024. For construction engineers, the median earning is $102,200, five years after graduation, according to College Scorecard. As a reference, $104,900 is reported for construction manager jobs by the United States Bureau of Labor Statistics (BLS). As an illustration, considering the monthly debt payment for UNC Charlotte civil engineering graduates at $233, repaying this loan for a graduate earning a starting salary of approximately $55,000 is about 5.1% of their annual salary, or 2.7% for a professional earning the median salary of $102,200, making this proposed program a high return-on-investment option for students.

The proposed program is fully aligned with UNC System Strategic Plan for access and affordability and future's education mission as summarized below. This also reflects the university's efforts to support students from lower-income families.

- Access, Goal #1: increase access for underserved population including adult learners and veterans
  myFutureNC mission: dramatically increase attainment of industry-valued credentials and postsecondary degrees.
  Engineering N.C.'s Future goal: expanding enrollment opportunities … to enable more students to pursue an education in engineering fields.
  - UNC Charlotte's leadership in serving underserved population can be evidenced by its high percentage of adult learners and veterans served in comparison with regional institutions (Table 2 Subsection B). 39% of the population in Mecklenburg or an average 58% in surrounding counties completed high school but does not have a bachelor's degree. Broader access will encourage these residents to pursue higher education and improve pathways for both transfer and nontraditional students.
- Affordability, Goal #6: increase affordability
  - UNC Charlotte offers the most affordable Construction Engineering program options in the region as discussed previously.

- Student success, Goal #2: increase 4-year graduation rate and undergraduate degree efficiency
    - Our goal of 4-year graduation rates and degree efficiency will be supported through the coordinated effort of student support from the William States Lee College of Engineering, School of Professional Studies, the Office of Adult Students and Extended Services, Veterans Services Office, the University Center for Academic Excellence, and the University Career Center.

Currently there is only one program choice in North Carolina for resident students seeking a Construction Engineering degree, the above analysis suggests that the proposed program will increase both access and affordability in the state's most populous and diverse metropolitan region.

V. Societal and Labor Market Demand: *(Provide evidence of societal demand and employability of graduates from each of the following source types. Must include external estimates. Maximum length 1,000 words)*

a. Labor market information (projections, job posting analyses, and wages)
    i. Specific to North Carolina (such as ncworks.gov, nctower.com, or outside vendors such as Burning Glass).
    ii. Available from national occupational and industry projections (such as the United States Bureau of Labor Statistics).
b. Projections from professional associations or industry reports (including analysis)
c. Other (alumni surveys, insights from existing programs, etc.)

A Construction Engineering graduate possesses a focused knowledge of some Civil Engineering systems – those most related to the construction field. In addition, a Construction Engineering graduate has an expansive knowledge of all phases of the construction industry, including safety, quality, time, cost, and contract administration. By contrast, a Civil Engineering graduate possesses a broad knowledge of and ability to create designs pertaining to structures, geotechnical, environmental, and transportation systems. Furthermore, a Civil Engineering Technology graduate is primarily focused on technical applications of civil engineering concepts in construction, surveying, and materials testing in the field. In short, a Construction Engineering graduate is fluent in both the engineering world and the business of construction. The proposed curriculum will provide students with civil engineering principles and construction management techniques so they can transform design vision into reality in an efficient, safe, and economic way.

From an employment perspective, due to their specialization in engineering-driven construction execution, structural analysis, and safety and quality compliance, Construction Engineering graduates are well-suited for roles such as Project Engineer or Field Engineer. In comparison, our Construction Management graduates, with their focus on project management and construction logistics, commonly serve as Construction Managers or Assistant Project Managers. Our Civil engineering graduates, specializing in design and infrastructure planning, often work as Design Engineers or Structural Engineers. Meanwhile, our Civil Engineering Technology graduates primarily take on field-focused roles such as Surveyor or Materials Testing Technician. In summary, the proposed program in construction engineering addresses the industry's need for project and field engineers, who specialize in delivering engineering-driven construction execution.

Societal demand and employability of graduates for the proposed program can be demonstrated through employment data from various sources, especially BLS employment data as well as the attached EAB market insights report. From an education requirement perspective, a bachelor's degree or above is specifically requested by 75% of job postings. A broad set of job titles are available to Construction Engineering graduates, among the top titles are project engineer, field engineer, project manager, structural engineer, and construction manager. Top employers in the region are found in a wide range of industry sectors, including engineering and construction (e.g., global E&C firms, Black & Veatch, AECOM, Jacobs, and Fluor), engineering services (e.g., Catalent, WSP Global, and Stantec), government agencies (e.g., the State of North Carolina), and clients (e.g., Amazon).

Construction engineering careers show strong potential due to high and growing demand for graduates in both regional and national markets. According to the Bureau of Labor Statistics (BLS) national job outlook, North Carolina employs 32,900 civil engineers and construction managers, which ranks it the fourth largest market nationally and the second largest in the Southeastern United States. The job outlook for civil engineering is projected to grow by 5% nationally over the next 10 years, while North Carolina's growth rate is 14% according to Projections Central[1] (sponsored by the United States Department of Labor), which is three times the national average. Over the next decade, employment in top relevant occupations for construction engineering professionals is projected to outpace overall employment growth (9.50%), indicating growing employment opportunities for program graduates.

EAB reported that between February 2021 and January 2024, employer demand grew an average monthly 0.8% regionally, indicating a healthy labor market with ample opportunities for program graduates due to a moderate-to-high number of job postings. Since 2021, North Carolina's total employment in the construction industry has exceeded that of neighboring states, including Georgia, South Carolina, Virginia, and Tennessee. Within the State of North Carolina, Charlotte is the largest market for construction related jobs and is 56% larger than second-ranking Raleigh market. In addition, North Carolina's booming construction industry is driven in large part by the expansion of the energy infrastructure and emerging renewable energy sectors. Construction engineers, project managers, and civil engineers equipped with knowledge in digital transformation are among the top high-demand positions frequently requested by our industry partners, such as Duke Energy.

College Scorecard reported a median wage of $102,200 for Construction Engineering graduates five years after graduation. North Carolina's median wage rate has been the second highest since 2020 and it is expected to exceed neighboring states by 2025.

Our current construction industry advisory board was surveyed during the week of November 6, 2023 on their opinion about the new Construction Engineering offering at UNC Charlotte. A brief description of the program objectives and curriculum was provided to the board companies, and they were asked whether UNC Charlotte should or should not offer such a program (i.e., yes or no). The survey showed unanimous support from the board to introduce the new Construction Engineering program. In summary, the above analysis suggests that a new undergraduate degree program at UNC Charlotte is a logical response to the strong societal demand for

[1] Projects Central, a sponsored by the UNITED STATES Department of Labor, https://projectionscentral.org/longterm

construction engineers at both the national, regional, and local levels.

VI. Costs, Funding, and Budget (*Maximum length 1,200 words)*

Adding a new degree program will cost the institution some amount of money and will potentially generate new revenues. Calculating the costs and identifying the funding sources associated with implementation of a new program requires several institutional offices (e.g., academic affairs, finance, institutional research, enrollment management) to collaborate to present an accurate estimate.

a. Complete and attach the *UNC System Academic Program Planning Financial Worksheet* showing all costs required and revenues generated for each of the first five years of the program. Provide a budget narrative for each year addressing the following:

   i. UNC Academic Program Costs

   Faculty costs include all faculty assigned to the proposed program, including faculty serving as program directors, coordinators, department chairs, etc. funded in the 101 instructional budget code. If an existing faculty member is reassigned to the program, the salary is reflected as a reallocated cost. New faculty salaries need to be competitive for the discipline, and figures should include all applicable fringe (e.g., retirement, medical). If the proposed program will hire new faculty, it is a new cost.

   Graduate Assistant costs are identified either as new or reallocated, as appropriate, and should include all stipends, tuition remission, and benefits, as applicable.

   EHRA non-faculty positions include non-instructional academic support costs directly associated with running the program, including amounts associated with the Dean's office, research support, etc. This should include salaries and all applicable fringes.
   SHRA non-faculty positions include all positions specific costs associated with the new program. This includes the additional staff needed to organize applications, prepare for the proposed program, and for general administration of the proposed program. New staff or purchases of new equipment should be adequate to support the stated goals and enrollments for the proposed program. Other program costs identified in the proposal should be realistic.

The proposed B.S. in Construction Engineering program curriculum takes advantage of existing engineering and construction courses and labs that are already offered as a part of our B.S. Civil Engineering, B.S.E.T. Civil Engineering Technology, and B.S. Construction Management. Only two new courses or 5% of the curriculum will be developed. There is no new general education course required for the proposed curriculum. As a result, no new tenure/tenure-track faculty lines, new lab equipment, or new facility is requested for the initial program offering.

The forecasted enrollment growth and the two new courses will modestly increase faculty teaching load. To efficiently handle the increased load, adjunct faculty and TAs/graders are required, and if enrollment increases as

expected, one non tenure-track teaching faculty is recommended. The above includes funding for 2 full-time equivalent TAs Year 2 to 5, and 2 adjunct faculty members for the first two years, then increases to 4 for Years 3 through 5.

The forecasted stable program enrollment would represent less than a 10% increase in our current total enrollment. Along with no change to curriculum, faculty position, and facilities, we estimate that no new SHRA non-faculty positions are required. Similarly, the two existing academic advisors in Civil Engineering and Construction Management will be cross-trained and share the new workload. Meanwhile, starting fall 2025, the college's newly redesigned and streamlined common first year curriculum and related support from the college advising team will reduce advisors' workload by about 15%. Thus, no EHRA non-faculty position is proposed for the first three and half years, and if enrollment increases as expected, one dedicated Academic Advisor is recommended to enhance student advising service. Two faculty members, one from CEE department and one from ETCM department, will be appointed as Program Director and Associate Program Director who will lead the Construction Engineering program. And similarly, a new coordinator for student learning and assessment will be appointed who will manage ABET and SACSCOC accreditation efforts. In addition, to support the program marketing and recruiting needs, a total budget of $40,000 is allocated. Finally, when additional funds are allocated to the program, we plan to hire an internship/co-op coordinator to support both construction engineering and construction programs where internship is a mandatory requirement. In summary, the total estimated new costs of the program are $1.72M over the initial five years, as detailed in the attached Academic Program Planning Financial Worksheet.

ii. UNC Academic Program Revenues

Funding sources may include enrollment growth formula funding, other state appropriation, regular tuition, tuition differential, general fees, special fees, reallocation of existing resources, federal funding, and other funding (such as awarded grants or gifts). The total projected revenue from the above categories should allow the proposed program to become self-sufficient within five years.

When estimating funding for new programs, institutions should take into account that students switching programs do not generate additional enrollment growth formula funds. For example, if a program projects enrollment of 20 students, but 12 of them switched into the program from an existing program at the institution, then only 8 of the students would generate additional formula funding.

Reallocation of Existing Resources includes the salary of faculty reassigned who may be partially or wholly reallocated to the new program. Explain how the current teaching obligations of those faculty are reallocated and include any faculty replacement costs as program costs in the budget. If substantial funds are reallocated, explain how existing undergraduate and graduate programs will be affected.

Federal Funding (In-hand only) refers to federal monies from grants or other sources currently in hand. Do not include federal funding sought but not secured. If anticipated federal funding is obtained, at that time it can be substituted for funds designated in other funding categories. Make note within the text of the proposal of any anticipated federal funding. Provide evidence of sustainability after federal funds have been exhausted.

Our analysis predicts a total enrollment of 60 students at Year 5, with an estimated 20 major-change students from our existing programs, for a net increase of 40 students. Using the current rates, the total revenue from tuition and fees over five years is computed as $1.72M, as detailed in the attached UNC System Academic Program Planning Financial Worksheet. As the program grows, major fees will be used to support teaching, student services, and recruiting and outreach efforts. The tuition and appropriation revenues are determined at an institutional level. The numbers reflected may or may not reflect an actual change in the university budget.

b. Based on the institution's estimate of available existing resources or expected non-state financial resources that will support the proposed program (e.g., federal support, private sources, tuition revenue, etc.), please describe the following:

    i. How does the institution budget and allocate enrollment growth revenues? Is this program expected to generate new enrollment growth for the institution? If so, how will funds be allocated to the proposed program or be used to further other institutional priorities?

The proposed program is expected to generate new enrollment growth for UNC Charlotte. Increases in enrollment as well as Student Credit Hours (SCH) are reviewed by the Dean's office and examined within the context of the UNC System Office funding formula and University priorities when determining allocation of enrollment growth funds and general tuition and fees. Funds received at the department level will be used to support teaching, student services, and recruiting and outreach in proportion to the enrollment growth.

    ii. Will the institution seek other additional state appropriations (both one-time and recurring) to implement and sustain the proposed program? If so, please elaborate.

        No.

    iii. Will the institution require differential tuition supplements or program-specific fees? If so, please elaborate.
        1. State the amount of tuition differential or program-specific fees that will be requested.
        2. Describe specifically how the campus will spend the revenues generated.

The major fee currently in place in the W.S. Lee College of Engineering is $300 per year. We will request an equivalent fee for this new program. We will invest this generated revenue to support student success, including maintaining and upgrading lab equipment.

c. Provide a description of how the program can be implemented and sustained If enrollment increase funding, differential tuition, or other state appropriations noted in the budget templates are not forthcoming.

This program is not dependent on differential tuition or special state appropriations. Since the faculty, courses, equipment, and facilities are in place, the program can be initiated without additional resources in those areas.

Program expansion would be slowed in the absence of enrollment growth funding to fully support the anticipated demand.

d. If this is an online program offered in partnership with an OPM, describe the nature of the relationship, length of contract, funding model (e.g., revenue share, fee for service), and plans for sustainability beyond the initial contract period.

Not applicable.

VII. For Research Doctoral Programs Only:

Describe the following (maximum length 1,000 words):

a. The research and scholarly infrastructure in place (including faculty) to support the proposed program.
b. Any aspects of financing the proposed new program not included in the above section.
c. State the number, amount, and source of proposed graduate student stipends and related tuition benefits that will be required to initiate the program.

Not applicable.

VIII. For Professional Practice Doctoral Programs Only:

Describe the following (maximum length 1,000 words):

a. Discussion of external requirements, including professional licensure or accreditation requirements related to the proposed program. If the program is designed or will be marketed to lead to professional licensure, which state(s) has the institution determined the program meets professional licensure requirements for?
b. The academic and professional infrastructure in place (including faculty) to support the proposed program.
c. Any aspects of financing the proposed new program not included in the above section.
d. State the number and source of required clinical/practical placements, if applicable. Determine whether it is the students' or the institution's responsibility to secure clinical/practical placements and discuss how that expectation will be communicated to students and prospective students. Describe how the institution will ensure that proposed clinical/practical sites are appropriate.

Not applicable.

IX. **Contact:** (List the names, titles, e-mail addresses and telephone numbers of the person(s) responsible for planning the proposed program.)

Position Title	Name	E-mail Address	Telephone
Professor, **Department Chair,** **Civil & Environmental Engineering**	Glenn E. Moglen, Ph.D., P.E.	gmoglen@charlotte.edu	704-687-1219
Professor, **Department Chair,** **Engineering Technology & Construction Management**	Lingguang Song, PhD.	Lsong2@charlotte.edu	704-687-5057

Signatures. This Request for Preliminary Authorization has been reviewed and approved by the appropriate institutional committees and authorities and has my support.

Position Title	Signature	Date
Chancellor	DocuSigned by: Sharon Gaber 2FF1496738C7414...	02/12/2025 | 8:58 AM EST
Provost	DocuSigned by: Jennifer Troyer CB79653C3A82433...	02/11/2025 | 4:41 PM EST

(Only complete below for partner institution if this is a joint degree program proposal)

Position Title	Signature	Date
Chancellor	n/a	
Provost	n/a	

	Current Program Sources (if applicable)	Rate	Year 0 (Start Up)	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
1	General Fund Appropriation								$ -
2	NC Promise Appropriation								$ -
3	*Resident Enrollment (FTE)*			17	17	17	17		
4	Regular Resident Tuition (Annual Rate)	$ 3,812	$ -	$ 64,804	$ 64,804	$ 64,804	$ 64,804	$ -	$ 259,216
5	*Nonresident Enrollment (FTE)*			3	3	3	3		
6	Regular Nonresident Tuition (Annual Rate)	$ 19,065	$ -	$ 57,195	$ 57,195	$ 57,195	$ 57,195	$ -	$ 228,780
7	Tuition Differential (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
8	Special Fees	$ 300	$ -	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ -	$ 24,000
9	External Funding (In-Hand Only)								$ -
10	Other Funding (Identify)								$ -
11	**Total Current Sources**		$ -	$ 127,999	$ 127,999	$ 127,999	$ 127,999	$ -	$ 511,996
	Proposed New Program Sources								
12	*Incremental Resident SCH, ENGR*			110	176	262	332	336	
13	Enrollment Funding Appropriation, CIP 14	$ 860	$ -	$ -	$ 47,300	$ 122,980	$ 188,340	$ 255,420	$ 614,040
	Incremental Resident SCH, ENGR			-	80	148	208	208	
	Enrollment Funding Appropriation, CIP 15	$ 369	$ -	$ -	-	14,760	42,066	$ 65,682	$ 122,508
	Incremental Resident SCH, Non-ENGR			190	244	282	344	384	
	Enrollment Funding Appropriation, Non-ENGR	$ 269	$ -	$ -	25,555	58,373	70,747	$ 84,197	$ 238,872
14	*Resident Enrollment (FTE)*			9	14	19	26	34	
15	Regular Resident Tuition (Annual Rate)	$ 3,812	$ -	$ 32,402	$ 51,843	$ 71,284	$ 97,206	$ 129,608	$ 382,344
16	NC Promise Appropriation (Resident)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
17	*Nonresident Enrollment (FTE)*			1	2	3	5	6	
18	Regular Nonresident Tuition (Annual Rate)	$ 19,065	$ -	$ 19,065	$ 45,756	$ 62,915	$ 85,793	$ 114,390	$ 327,918
19	NC Promise Appropriation (Nonresident)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
20	Tuition Differential (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
21	Special Fees	$ 300	$ -	$ 2,850	$ 4,800	$ 6,600	$ 9,000	$ 12,000	$ 35,250
22	External Funding (In-Hand Only)								$ -
23	Other Funding (Identify)								$ -
24	**Total New Sources**		$ -	$ 54,317	$ 175,254	$ 336,912	$ 493,152	$ 661,297	$ 1,720,932
25	**Total Proposed Program Sources**		$ -	$ 182,316	$ 303,253	$ 464,911	$ 621,151	$ 661,297	$ 2,232,928

Comments

Proposed New Program Sources	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
Enrollment Funding Appropriation	$0	$72,855	$196,113	$301,153	$405,299	$975,420
Regular Resident Tuition (Annual Rate)	$32,402	$51,843	$71,284	$97,206	$129,608	$382,344
Regular Resident Tuition (Annual Rate)	$19,065	$45,756	$62,915	$85,793	$114,390	$327,918
Special Majors Fees	$2,850	$4,800	$6,600	$9,000	$12,000	$35,250
Total New Sources	$54,317	$175,254	$336,912	$493,152	$661,297	$1,720,932
Proposed New Program Uses	**1st Year**	**2nd year**	**3rd Year**	**4th Year**	**5th Year**	**TOTALS**
Graduate Student Support w/ GASP	$0	$60,469	$65,361	$65,361	$65,361	$256,552
New Faculty Lines	$0	$0	$0	$0	$63,165	$63,165
New Staff (Advisor and Co-op)	$0	$0	$20,532	$81,060	$81,060	$182,652
PTT Part Time Fac Holding	$27,159	$27,159	$47,010	$47,010	$47,010	$195,347
SPT Admin Stipends	$0	$0	$27,553	$27,553	$27,553	$82,659
Non Personnel Operating	$0	$0	$0	$17,592	$38,500	$56,092
Marketing	$0	$0	$8,000	$8,000	$8,000	$24,000
Central University/AA (50%)	$27,159	$87,627	$168,456	$246,576	$330,649	$860,466
Total New Program Uses	$54,317	$175,254	$336,912	$493,152	$661,297	$1,720,932
Projected Balance	$0	$0	$0	$0	$0	$0

Chief Financial Officer

Name Richard Amon

Date 02/11/2025 | 2:01 PM EST

DocuSigned by:

Richard Amon

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		Year 0 (Start Up)	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
	Current Program Uses (if applicable)							
1	Tenure/Tenure-Track Faculty		$ 121,999	$ 121,999	$ 121,999	$ 121,999		**$ 487,996**
2	Non Tenure-Track Faculty							**$ -**
3	Graduate Student Support							**$ -**
4	Non-Faculty Positions							**$ -**
5	Student Support (Scholarships)							**$ -**
6	Libraries							**$ -**
7	Supplies and Materials		6,000	6,000	6,000	6,000		**$ 24,000**
8	Travel, Communications, and Fixed Charges							**$ -**
9	Equipment and Technology							**$ -**
10	Facility Repair and Renovation							**$ -**
11	Other (Identify)							**$ -**
12	**Total Current Uses**	**$ -**	**$ 127,999**	**$ 127,999**	**$ 127,999**	**$ 127,999**	**$ -**	**$ 511,996**
	Proposed New Program Uses							
13	Tenure/Tenure-Track Faculty	-						**$ -**
14	Non Tenure-Track Faculty	-					63,165	**$ 63,165**
15	Graduate Student Support including GASP	-		60,469	65,361	65,361	65,361	**$ 256,552**
16	Non-Faculty Positions (Advisor II)	-			20,532	81,060	81,060	**$ 182,652**
	Non-Faculty Positions (Co-Op Coordinators)							**$ -**
17	Student Support (Scholarships)	-						**$ -**
18	Libraries	-						**$ -**
19	Supplies and Materials	-				10,092	15,000	**$ 25,092**
20	Travel, Communications, and Fixed Charges	-					8,500	**$ 8,500**
21	Equipment and Technology	-				7,500	15,000	**$ 22,500**
22	Facility Repair and Renovation	-						**$ -**
23	Facility New Construction or Expansion	-						**$ -**
24	Other (Identify)							
	PTT Part Time Fac Holding		27,159	27,159	47,010	47,010	47,010	
	SPT Admin Stipends				27,553	27,553	27,553	
	Marketing	-			8,000	8,000	8,000	**$ 24,000**
	University/Division (50%)	-	27,159	87,627	168,456	246,576	330,649	**$ 860,466**
25	**Total New Uses**	**$ -**	**$ 54,317**	**$ 175,254**	**$ 336,912**	**$ 493,152**	**$ 661,297**	**$ 1,720,932**
26	**Total Proposed Program Uses**	**$ -**	**$ 182,316**	**$ 303,253**	**$ 464,911**	**$ 621,151**	**$ 661,297**	**$ 2,232,928**
	Source Totals		54317	175254.2	336911.9	493151.5	661297	1720931.6
	ected Balance		$ -	$ 0	$ (0)	$ (0)	$ -	$ (0)

Comments

COEN will support Special Payments for Program Director and ABET Coordinator and marketing costs for 1st and 2nd year

Chief Financial Officer

Name Richard Amon

Date 02/11/2025 | 2:01 PM EST

Signature

DocuSigned by:

Richard Amon

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Appendix A

EAB Market Insights report on Construction Engineering Program

EAB

EAB MARKET INSIGHTS

Market Pulsecheck for a Bachelor's-Level Construction Engineering Program

Completed for The University of North Carolina at Charlotte
March 2024

Research Associate

Grace Warner

Senior Research Manager

Katie Murphy

Table of Contents

Market Pulsecheck

1

Market Pulsecheck Overview

An evaluation of employer demand for graduates from the proposed bachelor's-level construction engineering program in regional and national markets, and of student demand for similar programs.

Analysis Includes:

- Job Posting Trends
- Top Occupations
- Top Titles
- Top Employers
- Top Industries
- Top Cities
- Education Levels
- Degree Completion Trends

This analysis considered demand in areas defined as:

- Regional Data: North Carolina, South Carolina, Tennessee, and Virginia
- National Data: United States

Options for Next Steps

Following this analysis, the requesting partner can:

- Contact your Strategic Leader to schedule a call with the EAB research team to review the report.
- Choose to discontinue the research, if the leadership is able to make a decision based on this analysis and other institutional research.
- Continue the analysis. A final report of the continued research will address credential design and curricular recommendations as well as the prospective student experience.

High and Growing Employer and Student Demand Indicate Opportunity for Program Graduates; However, Market Leaders May Pose as Strong Competition

Preliminary Program Outlook

Employer demand trends point to a healthy labor market with ample opportunities for program graduates in both regions due to a moderate-to-high number of job postings. Between February 2021 and January 2024, employer demand grew an average monthly 0.80% regionally and 0.83% nationally. Employers posted a moderate-to-high number of relevant job postings in the last year (26,317 regionally and 231,630 nationally). Further, demand for all bachelor's-level professionals declined in both markets, indicating a favorable outlook for bachelor's-level construction engineering graduates. Overall, an increasing need for program graduates coupled with a moderate-to-high number of job postings signals a large and growing labor market for construction engineering graduates.

Growing student demand suggests a favorable competitive landscape; however, strong competitors in the regional market may challenge new program launch. Between the 2017-2018 and 2021-2022 academic years, the number of reported completions increased by an average of 22.79% annually while the number of institutions reporting completions increased by an average 12.50% annually, indicating a favorable competitive landscape as student demand grew faster than competition. During the same period, two of the top three institutions increased their market share while Virginia Polytechnic Institute and State University held 69.89% of the market, solidifying their stance as the top competitor. However, the Citadel Military Institute of South Carolina began reporting completions over the analyzed period, jumping from not reporting completions to reporting 13 completions, indicating some room for successful program launch. Overall, a new program may face challenges in capturing student demand in a competitive market.

Increasing student demand bodes well for new program launch; however, increasing competition and the presence of market concentration indicate an increasingly challenging competitive landscape nationally. Between the 2017-2018 and 2021-2022 academic years, the number of reported completions increased by an average of 3.90% annually, while the number of institutions reporting completions increased by an average 6.89%, outpacing student demand and signaling a less favorable competitive landscape for new program launch. Further, the top 20% of institutions held 62.01% of the market, indicating market concentration and thus a challenging market. Growth in competition outpacing growth in student demand may hinder new program launch.

Labor Market Intelligence

Regional Data Analysis of Job Postings for Bachelor's-Level Construction Engineering Professionals

Employer demand trends suggest a high need for bachelor's-level construction engineering professionals. From February 2023 to January 2024, employers posted a moderate-to-high number of relevant job postings (26,317). From February 2021 to January 2024, employer demand for bachelor's-level construction engineering professionals increased by an average of 0.80% per month, while demand for all bachelor's-level professionals declined by 0.04% per month. Demand for bachelor's-level construction engineering professionals increasing faster than demand for all bachelor's-level professionals indicates a favorable labor market for program graduates.

0.80%

Average Monthly Demand Growth

February 2021 - January 2024, Regional Data

- Average monthly growth of 22 job postings.
- During the same period, demand for all bachelor's-level professionals declined 0.04%.

5,368 postings

Average Monthly Demand

February 2021 - January 2024, Regional Data

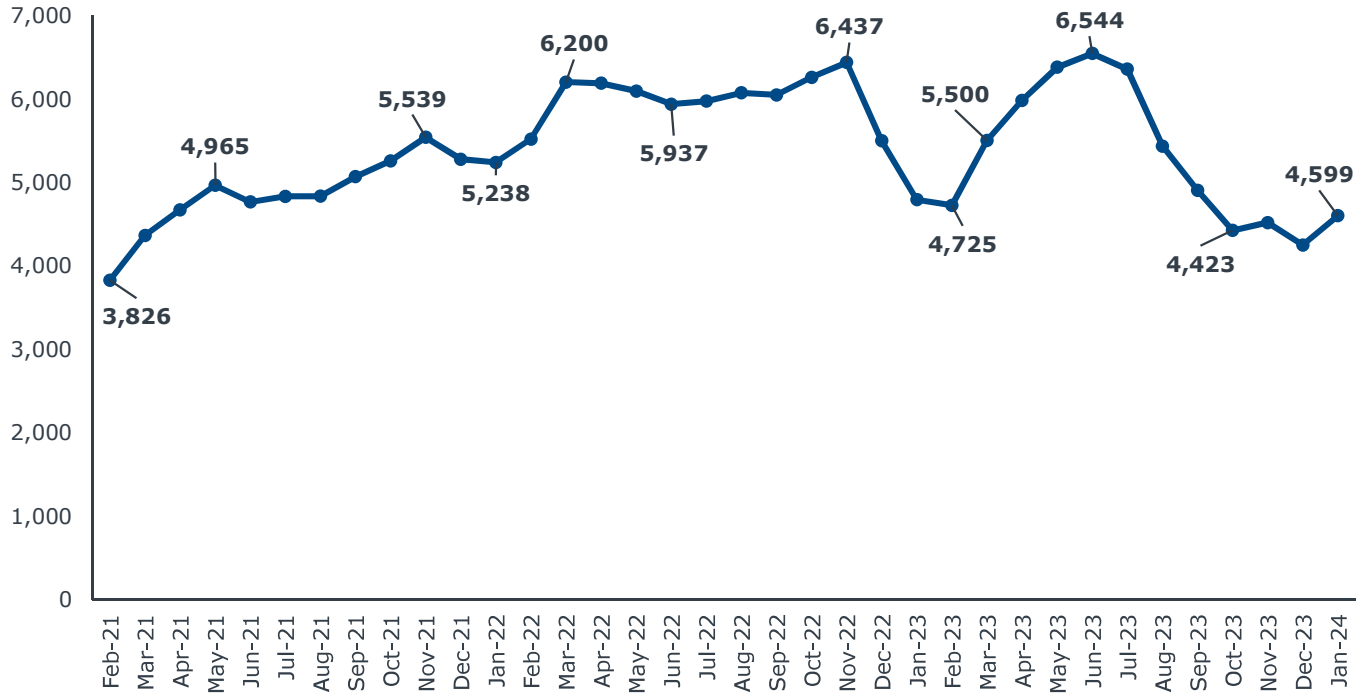
26,317 postings

Relevant Jobs Posted in the Past Year

February 2023 - January 2024, Regional Data

Job Postings for Bachelor's-Level Construction Engineering Professionals

February 2021 - January 2024, Regional Data



Source: EAB analysis. Lightcast.

Labor Market Intelligence

National Data Analysis of Job Postings for Bachelor's-Level Construction Engineering Professionals

Employer demand trends suggest a high and growing need for bachelor's-level construction engineering professionals. From February 2023 to January 2024, employers posted a moderate-to-high number of relevant job postings in the national market (231,630). From February 2021 to January 2024, employer demand for bachelor's-level construction engineering professionals increased by an average of 0.83% per month, equating to a growth of 200 job postings per month. During the same period, demand for all bachelor's-level professionals declined by 0.11% per month. Demand for bachelor's-level construction engineering professionals increased while demand for all bachelor's-level professionals decreased, signaling a strong labor market for program graduates.

0.83%

Average Monthly Demand Growth

February 2021 - January 2024, National Data

- Average monthly growth of 200 job postings.
- During the same period, demand for all bachelor's-level professionals declined 0.11%.

49,286 postings

Average Monthly Demand

February 2021 - January 2024, National Data

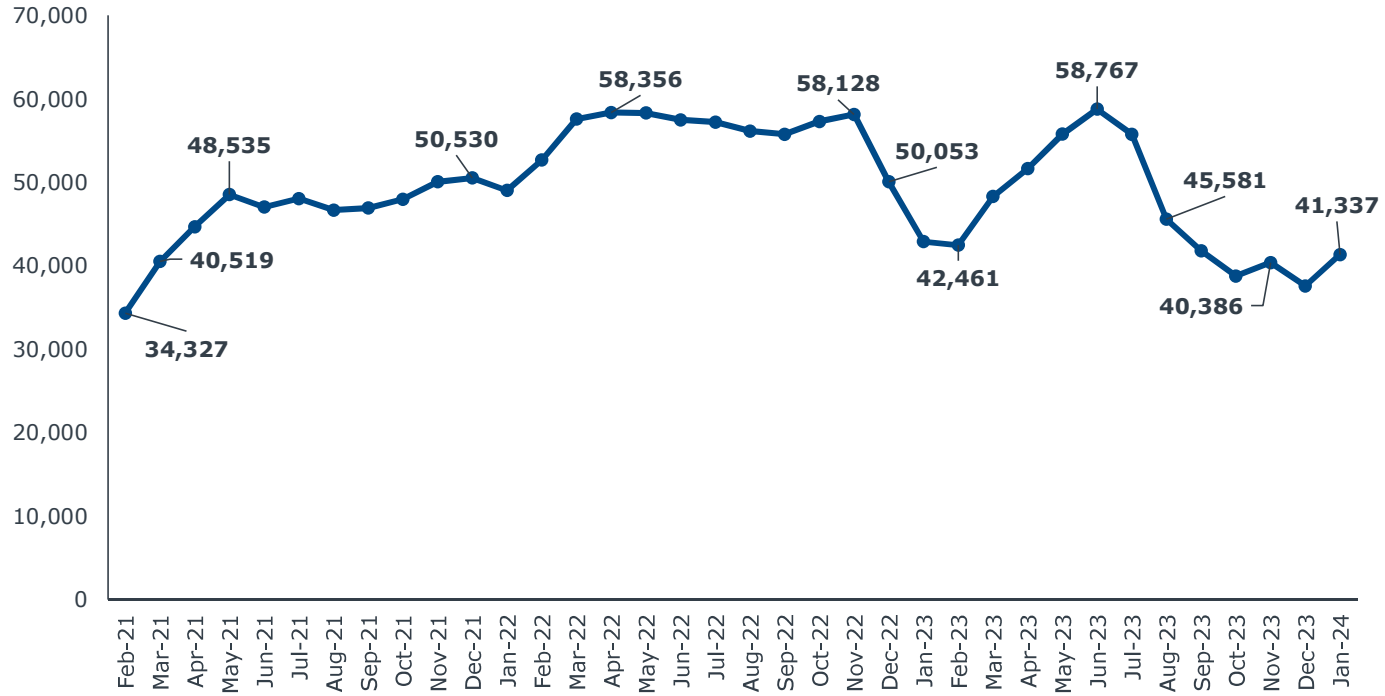
231,630 postings

Relevant Jobs Posted in the Past Year

February 2023 - January 2024, National Data

Job Postings for Bachelor's-Level Construction Engineering Professionals

February 2021 - January 2024, National Data



Source: EAB analysis. Lightcast.

Regional Data Analysis of Job Postings and Future Employment for Construction Engineering Professionals

Over the next decade, employment in four of the top five relevant occupations for construction engineering professionals is projected to outpace overall employment growth (9.50%), indicating growing employment opportunities for program graduates. Job titles listed under the occupation Managers, All Other include Construction Managers, Program Coordinators, and Program Managers.

While these occupations represent the most common occupations appearing in job postings for bachelor's-level construction engineering professionals, the projected employment data considers all jobs within an occupation at all degree levels.

Top Occupations Across Job Postings for Bachelor's-Level Construction Engineering Professionals

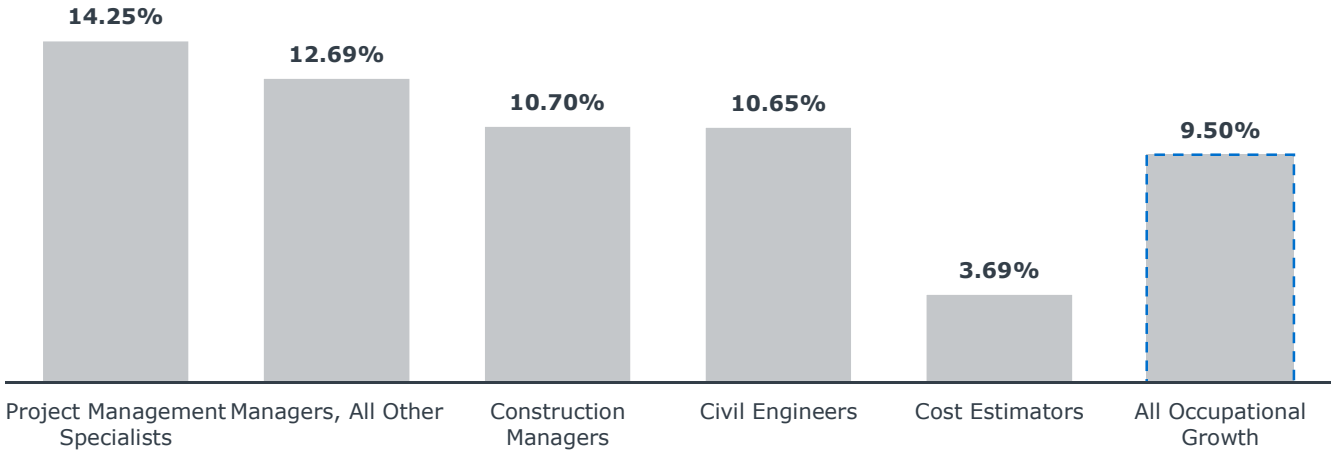
February 2023 - January 2024, Regional Data

n = 26,317 job postings

Occupation	Percent of Relevant Job Postings within Occupation	Number of Relevant Job Postings within Occupation
Construction Managers	22.10%	5,816
Civil Engineers	18.50%	4,868
Project Management Specialists	11.17%	2,939
Cost Estimators	6.07%	1,597
Managers, All Other	4.77%	1,255
Architectural and Engineering Managers	3.72%	979
First-Line Supervisors of Construction Trades and Extraction Workers	3.55%	933
Production, Planning, and Expediting Clerks	1.42%	373
Buyers and Purchasing Agents	1.15%	303
Industrial Production Managers	1.09%	288

Projected Employment in Top Occupations[1]

2023 - 2033, Regional Data



1) Top occupations refer to the occupations in which employers most often seek relevant professionals.

Source: EAB analysis. Lightcast.

National Data Analysis of Job Postings and Future Employment for Construction Engineering Professionals

Over the next decade, employment in four of the top five relevant occupations for construction engineering professionals is projected to outpace overall employment growth (10.13%), indicating increasing employment opportunities for program graduates.

While these occupations represent the most common occupations appearing in job postings for bachelor's-level construction engineering professionals, the projected employment data considers all jobs within an occupation at all degree levels.

Top Occupations Across Job Postings for Bachelor's-Level Construction Engineering Professionals

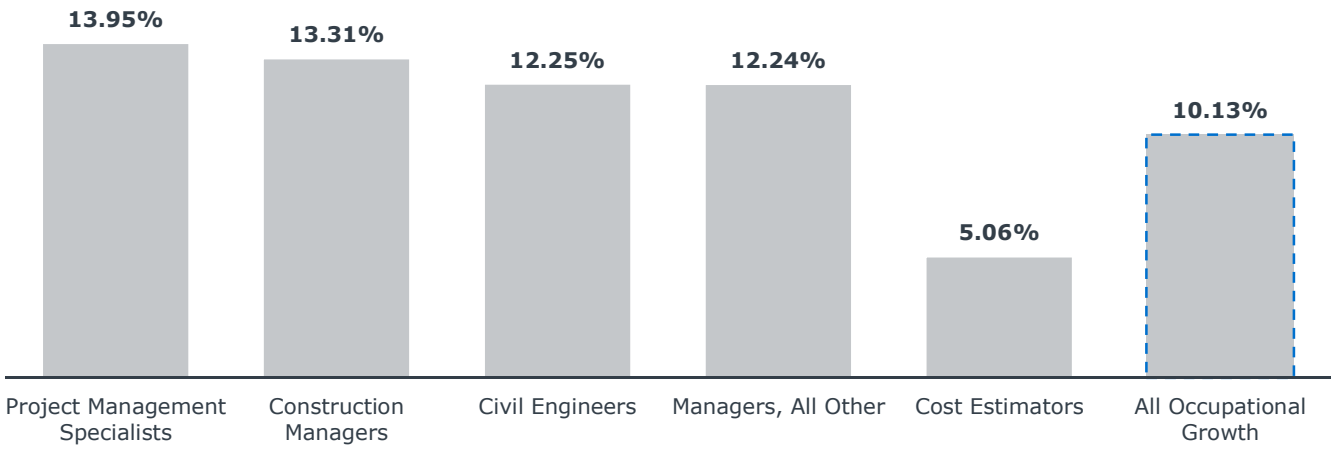
February 2023 - January 2024, National Data

n = 231,630 job postings

Occupation	Percent of Relevant Job Postings within Occupation	Number of Relevant Job Postings within Occupation
Construction Managers	21.81%	50,529
Civil Engineers	19.19%	44,457
Project Management Specialists	11.25%	26,067
Cost Estimators	6.48%	15,014
Managers, All Other	4.80%	11,123
Architectural and Engineering Managers	3.54%	8,195
First-Line Supervisors of Construction Trades and Extraction Workers	3.43%	7,945
Production, Planning, and Expediting Clerks	1.31%	3,025
Buyers and Purchasing Agents	1.20%	2,791
Industrial Production Managers	1.01%	2,349

Projected Employment in Top Occupations[1]

2023 - 2033, National Data



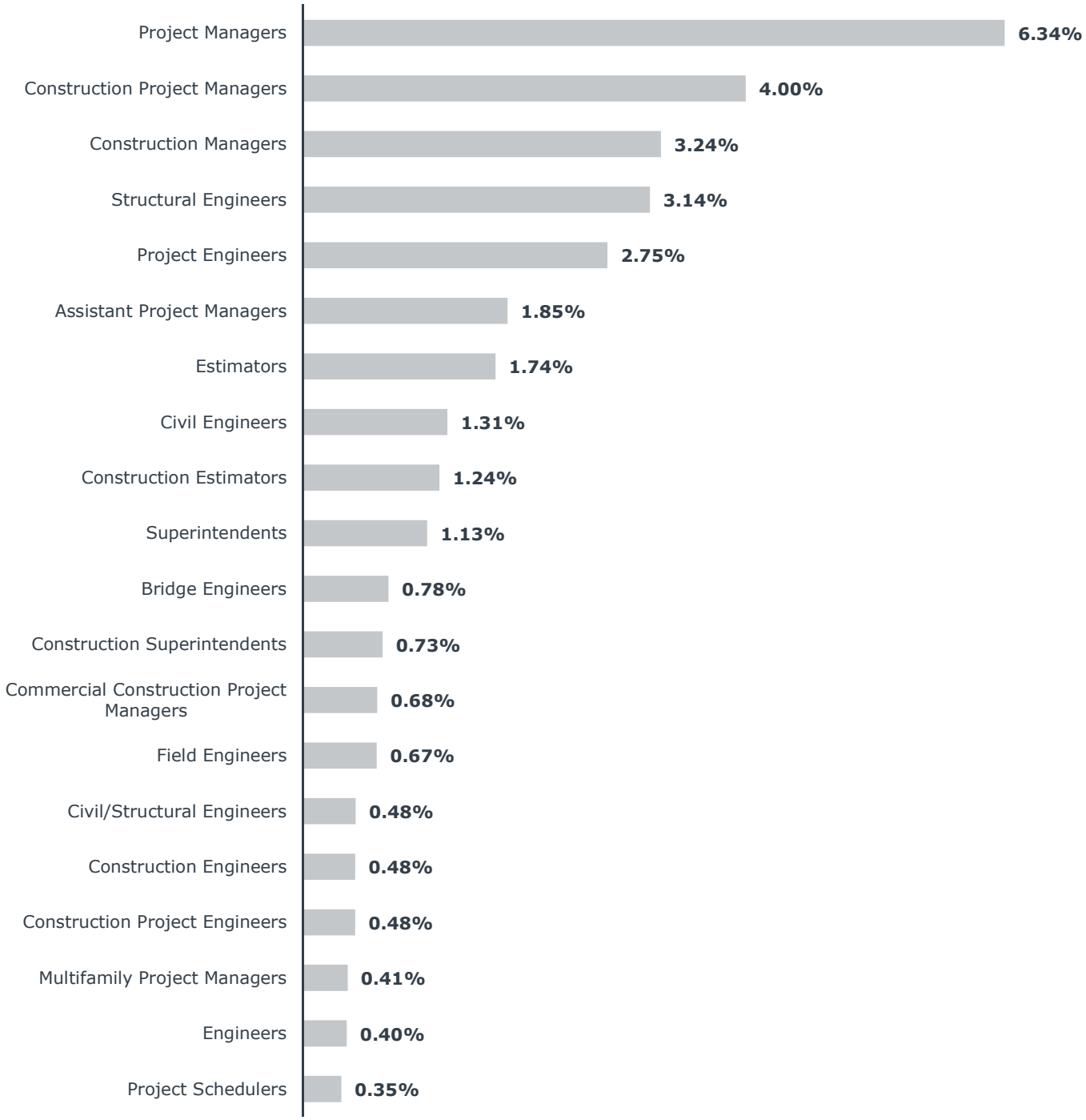
1) Top occupations refer to the occupations in which employers most often seek relevant professionals.

Source: EAB analysis. Lightcast.

Top Titles in Job Postings for Bachelor's-Level Construction Engineering Professionals

February 2023 - January 2024, Regional Data

n = 26,317 job postings

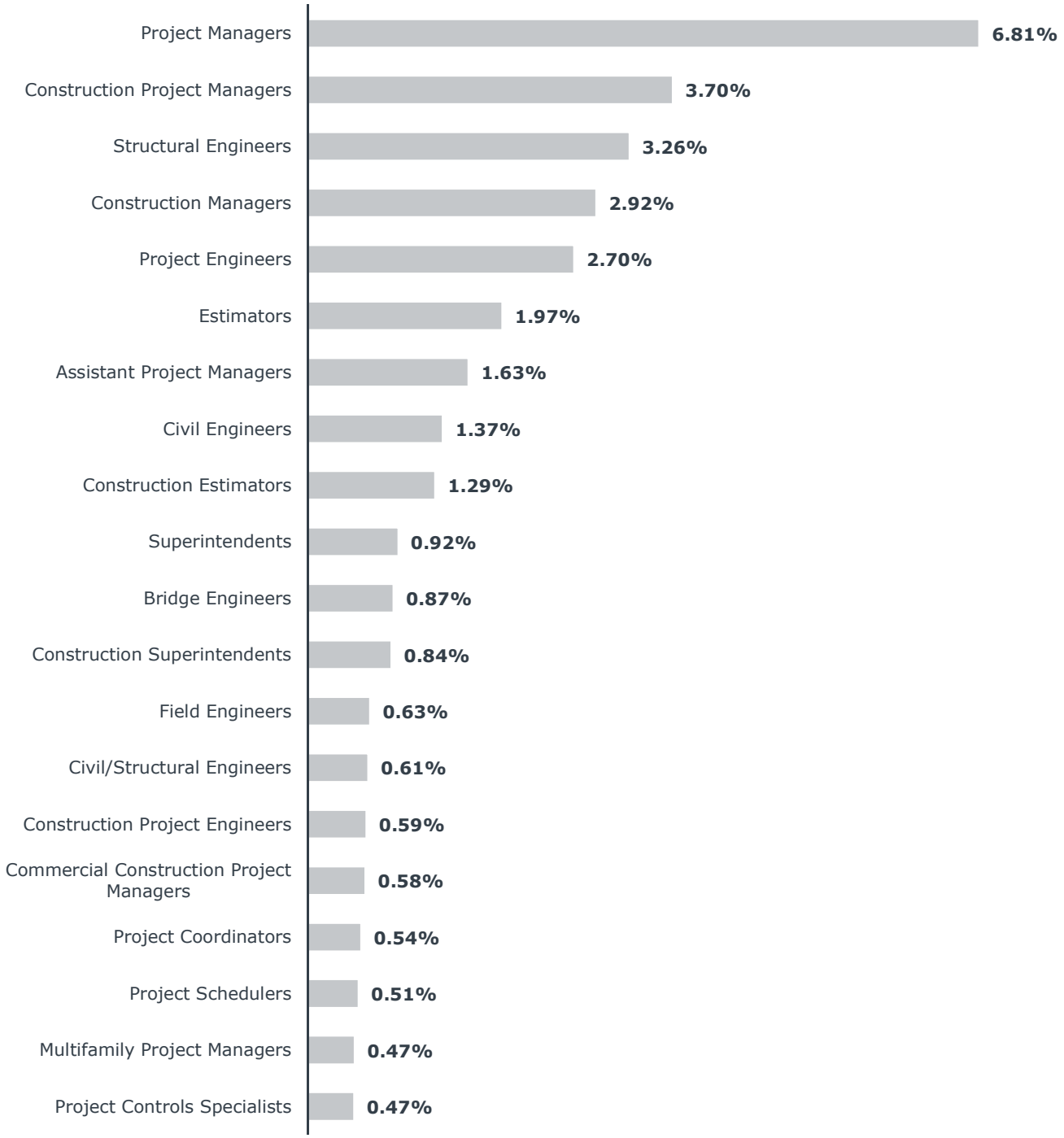


Source: EAB analysis. Lightcast.

Top Titles in Job Postings for Bachelor's-Level Construction Engineering Professionals

February 2023 - January 2024, National Data

n = 231,630 job postings

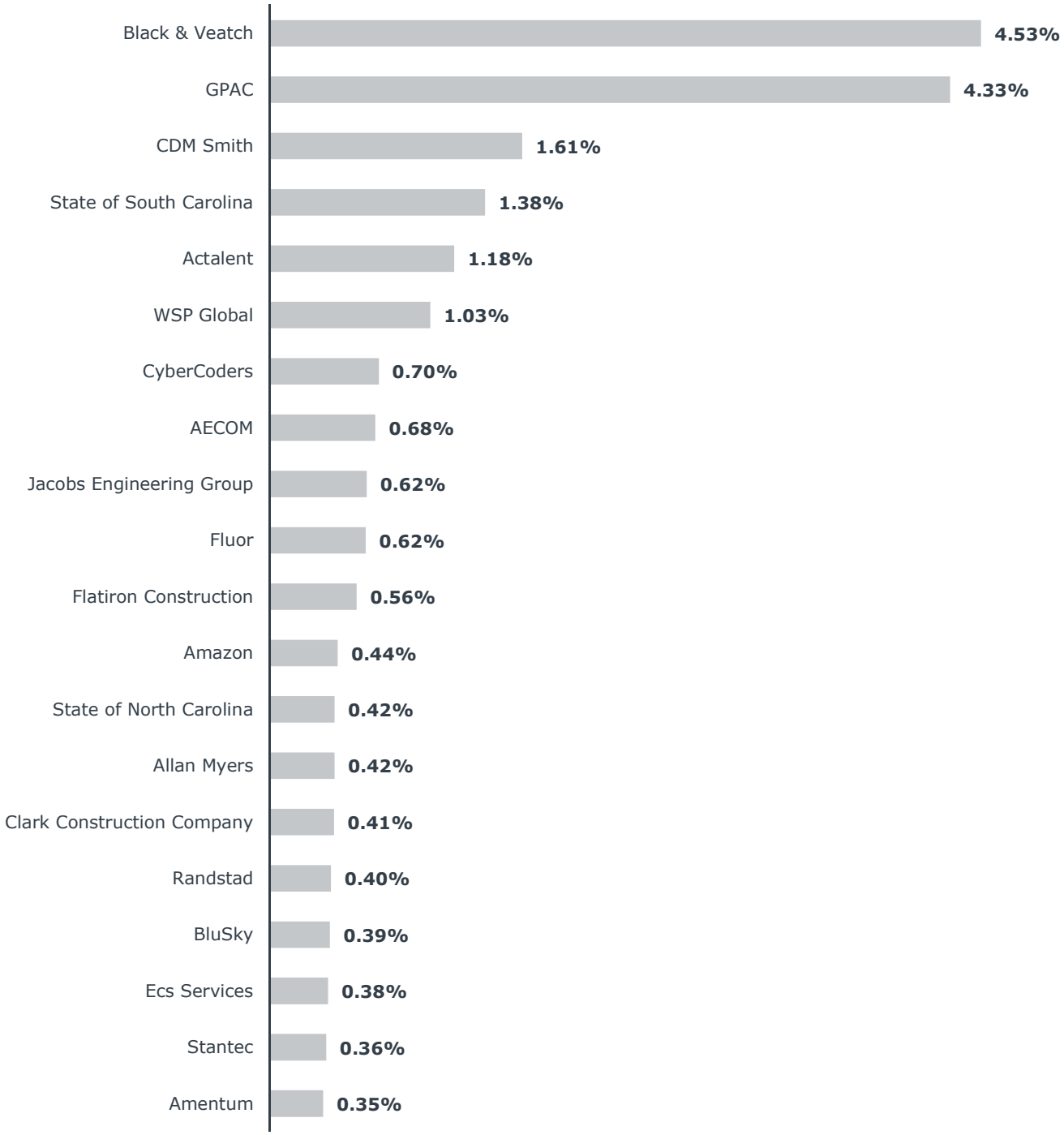


Source: EAB analysis. Lightcast.

Top Employers in Job Postings for Bachelor's-Level Construction Engineering Professionals

February 2023 - January 2024, Regional Data

n = 26,317 job postings

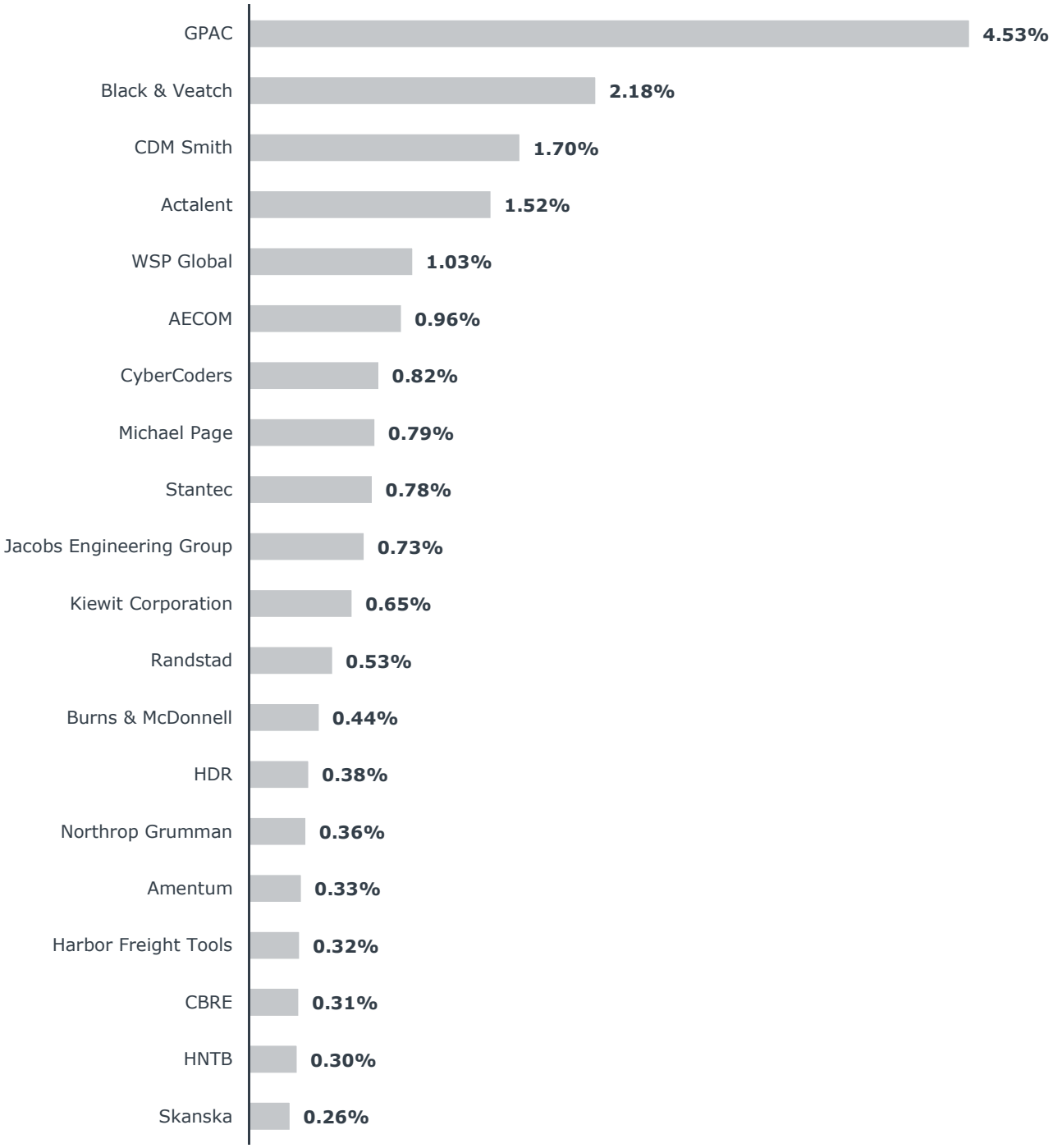


Source: EAB analysis. Lightcast.

Top Employers in Job Postings for Bachelor's-Level Construction Engineering Professionals

February 2023 - January 2024, National Data

n = 231,630 job postings

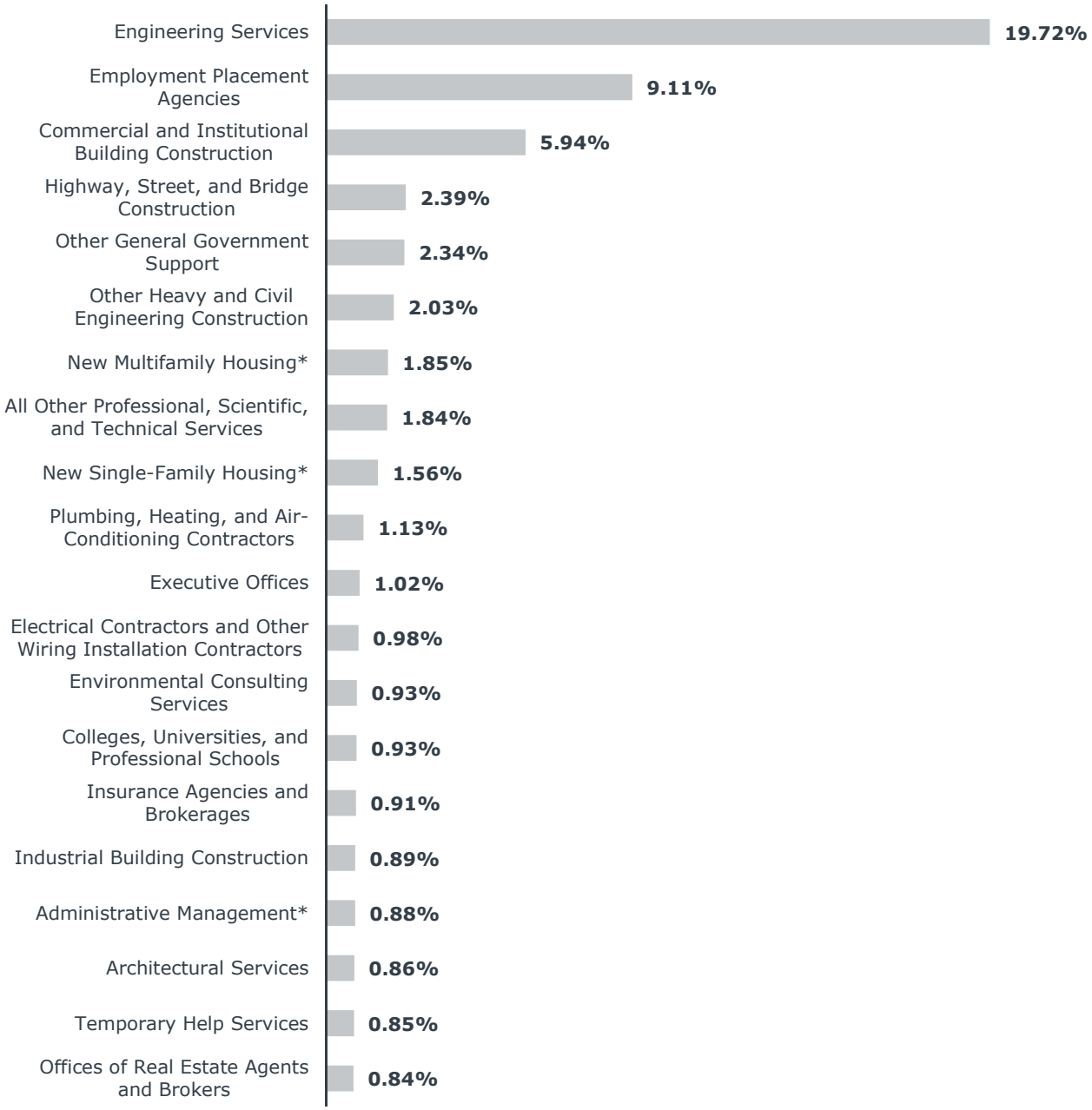


Source: EAB analysis. Lightcast.

Job Postings Across Industries for Bachelor's-Level Construction Engineering Professionals

February 2023 - January 2024, Regional Data

n = 26,317 job postings



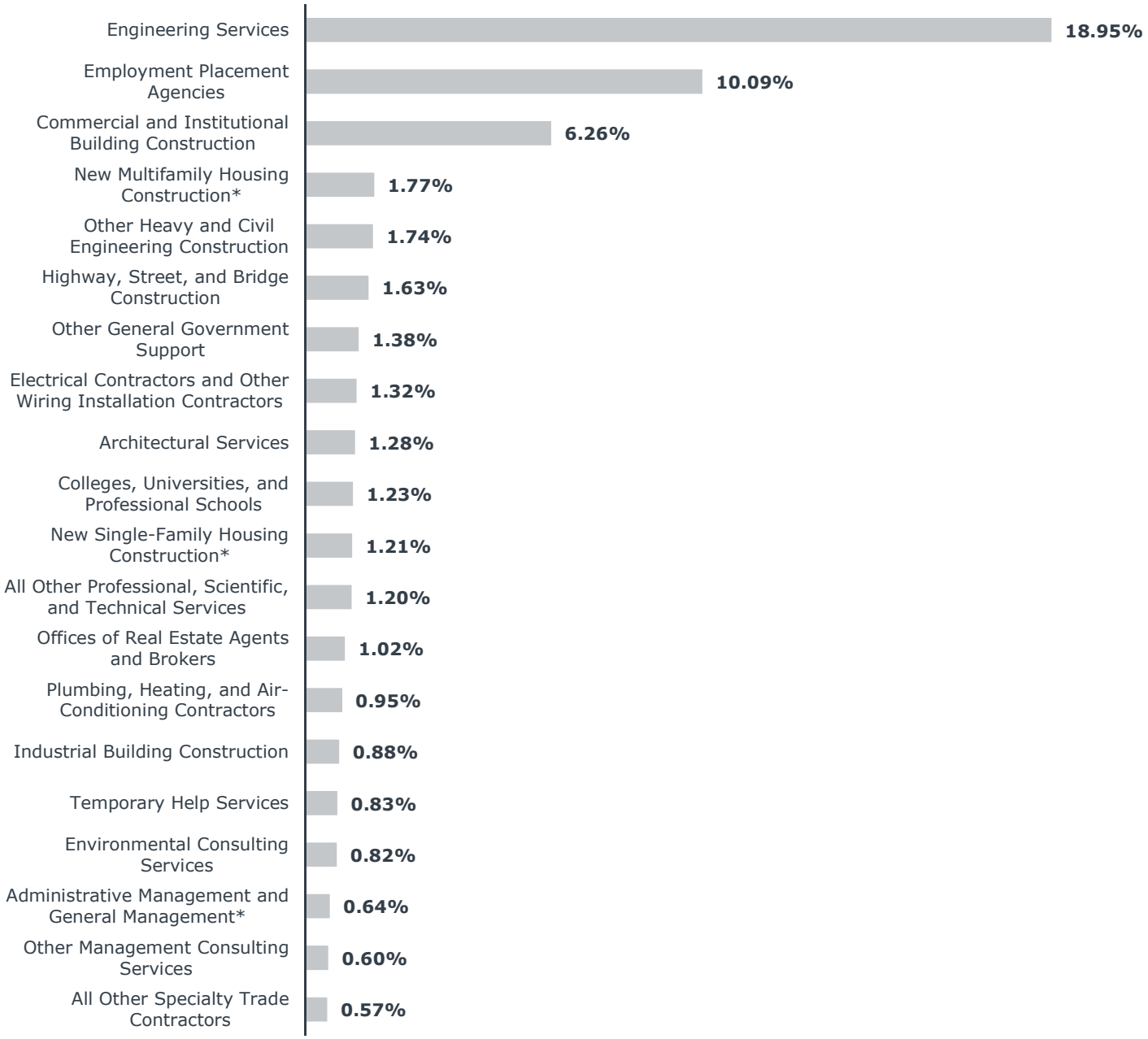
* Full industry names: New Multifamily Housing Construction (except For-Sale Builders), New Single-Family Housing Construction (except For-Sale Builders), Administrative Management and General Management Consulting Services

Source: EAB analysis. Lightcast.

Job Postings Across Industries for Bachelor's-Level Construction Engineering Professionals

February 2023 - January 2024, National Data

n = 231,630 job postings



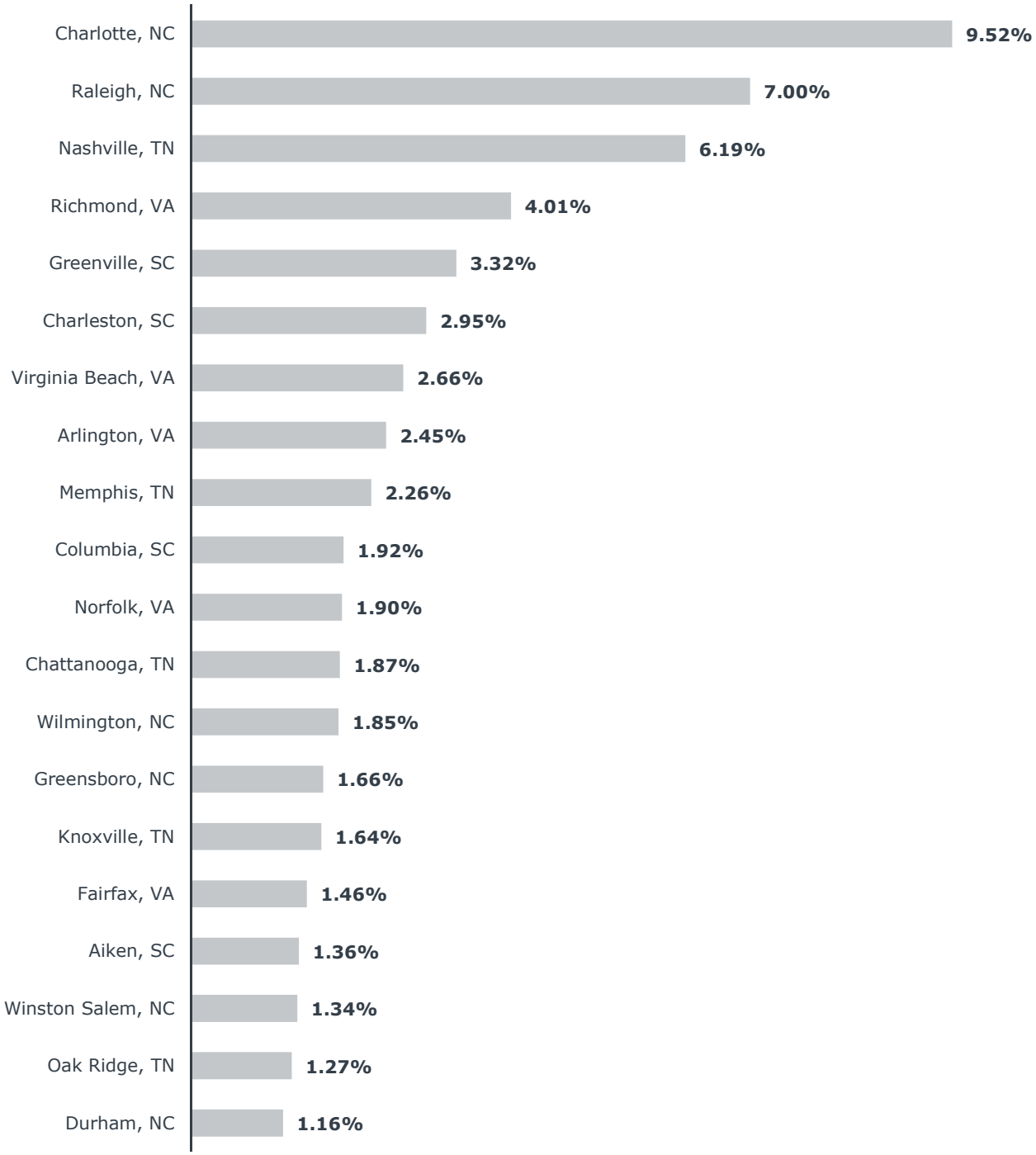
* Full industry names: New Multifamily Housing Construction (except For-Sale Builders), New Single-Family Housing Construction (except For-Sale Builders), Administrative Management and General Management Consulting Services

Source: EAB analysis. Lightcast.

Top Cities Seeking Bachelor's-Level Construction Engineering Applicants

February 2023 - January 2024, Regional Data

n = 26,317 job postings

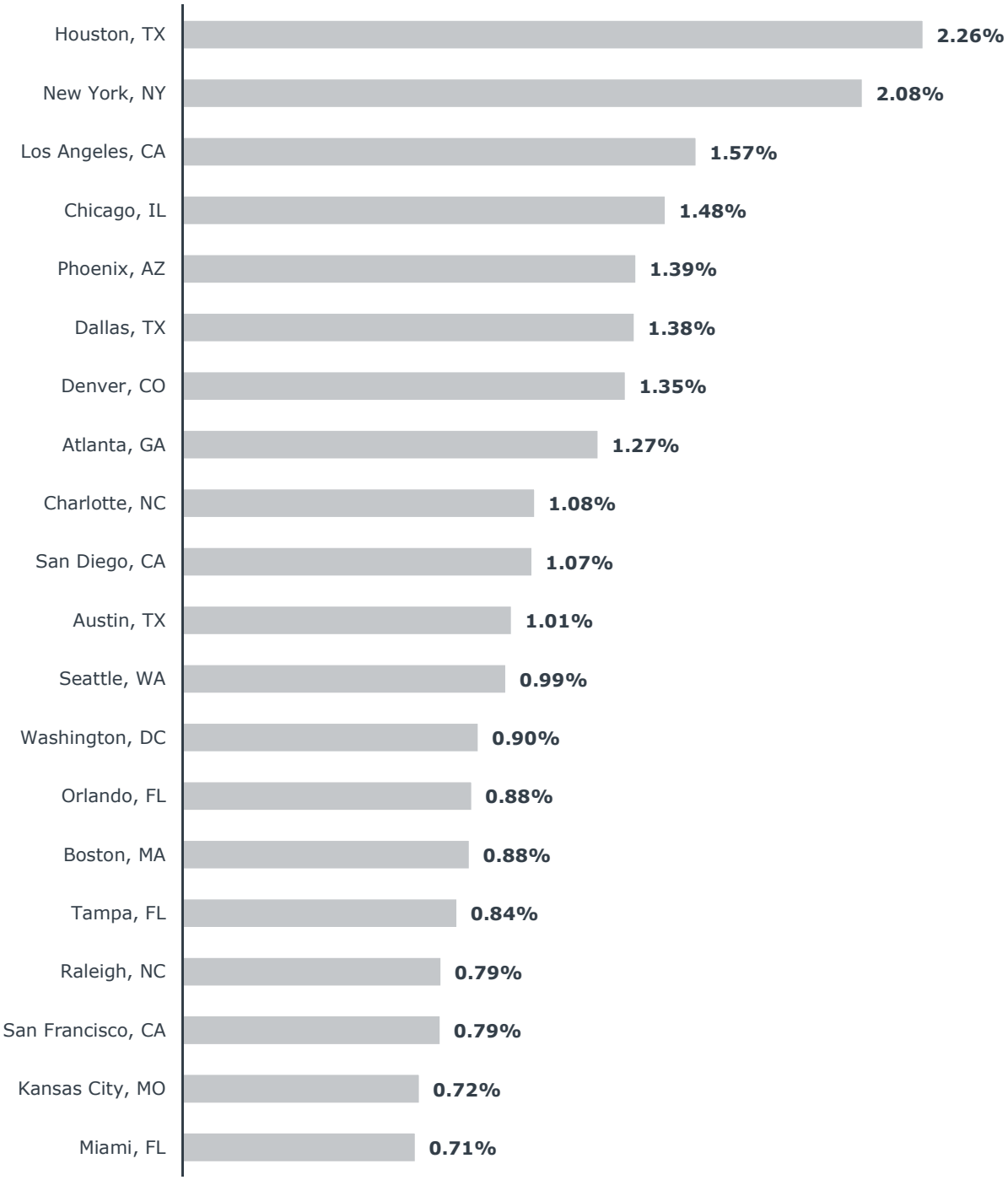


Source: EAB analysis. Lightcast.

Top Cities Seeking Bachelor's-Level Construction Engineering Applicants

February 2023 - January 2024, National Data

n = 231,630 job postings

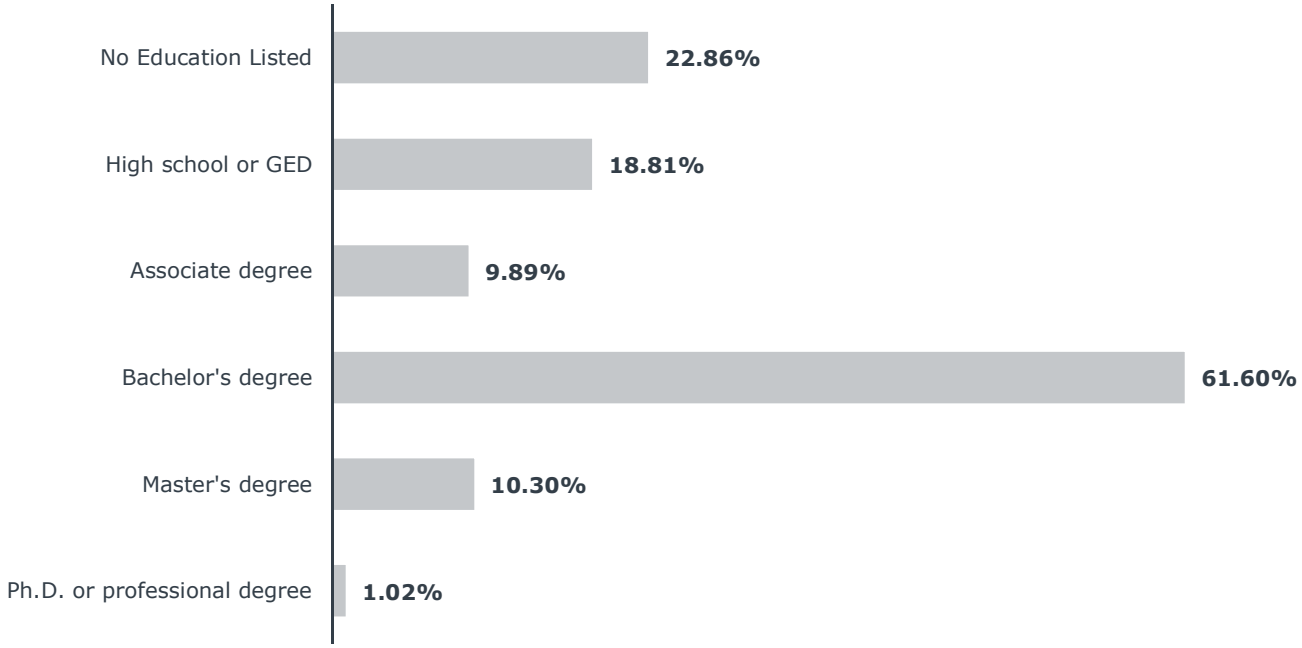


Source: EAB analysis. Lightcast.

Education Levels Requested of Construction Engineering Applicants[1]

February 2023 - January 2024, Regional Data

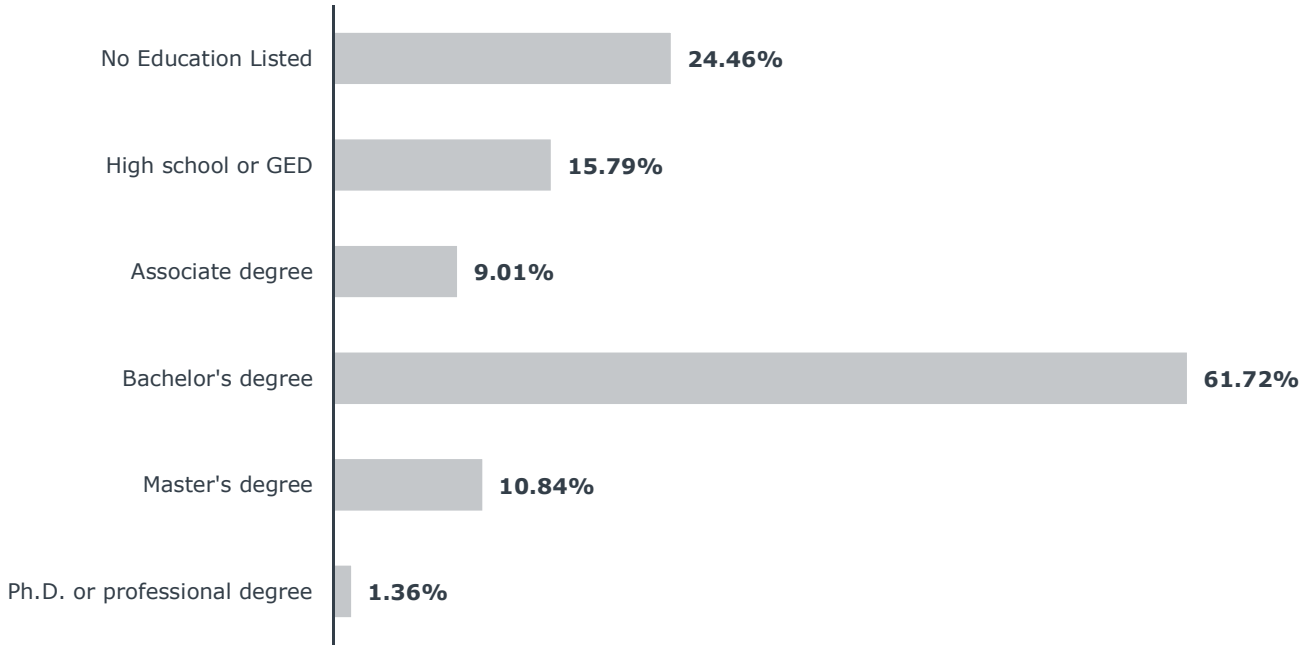
n = 42,719 job postings



Education Levels Requested of Construction Engineering Applicants[1]

February 2023 - January 2024, National Data

n = 375,308 job postings



1) The n-value reflects the number of job postings requesting any degree level construction engineering applicants rather than the number of postings requesting only those at the focus degree level.

Source: EAB analysis. Lightcast.

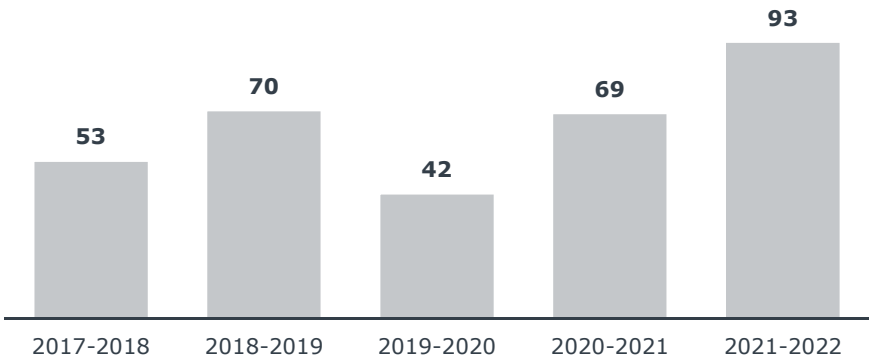
Competitive Intelligence

Regional Data Analysis of Bachelor's-Level Completions Under Construction Engineering (14.3301)

Between the 2017-2018 and 2021-2022 academic years, relevant degree completions fluctuated and ultimately increased by an average annual 22.79%, signaling increasing student demand. Further, the number of institutions reporting relevant completions increased by one institution, indicating a slight rise in competition. All three institutions reporting degree completions in the 2021-2022 academic year offered a distance-delivery modality, signaling a demand for online options. Overall, growth in student demand outpacing growth in competition indicates a favorable competitive landscape for program launch.

Completions Reported Over Time

2017-2018 to 2021-2022 Academic Years, Regional Data



22.79%

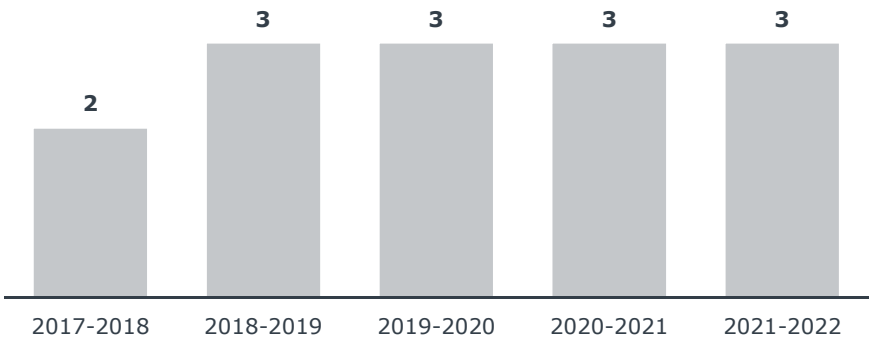
Average Annual Completions Growth

2017-2018 Academic Year to 2021-2022 Academic Year, Regional Data

- During the same period, the number of institutions reporting completions grew by 12.50% on average annually.

Institutions Reporting Completions Over Time

2017-2018 to 2021-2022 Academic Years, Regional Data



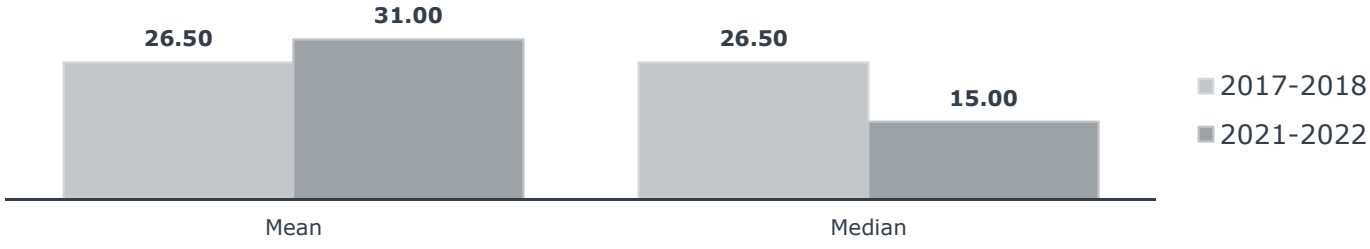
100.00%

Institutions Reporting Completions with a 100% Distance-Delivery Option

2021-2022 Academic Year, Regional Data

Completions per Institution Reporting

2017-2018 and 2021-2022 Academic Years, Regional Data



Source: EAB analysis. National Center for Education Statistics.

Regional Data Analysis of Bachelor's-Level Completions Under Construction Engineering (14.3301)

Two of the top three institutions in the regional market increased the number of reported completions from the 2017-2018 to the 2021-2022 academic year, while only the Citadel Military College of South Carolina increased their market share (13.98%). Notably, Virginia Polytechnic Institute and State University held 69.89% of the market, cementing themselves as a market leader. Still, the Citadel Military College of South Carolina was able to successfully enter the market, indicating room for new program launch.

Institutions with Most Reported Completions

2017-2018 Academic Year to 2021-2022 Academic Year, Regional Data

Institution	Reported Completions, 2017-2018 Academic Year	Market Share, 2017-2018 Academic Year	Reported Completions, 2021-2022 Academic Year	Market Share, 2021-2022 Academic Year	Completions Reported via Distance-Delivery, 2021-2022 Academic Year
Virginia Polytechnic Institute and State University	38	71.70%	65	69.89%	Yes
North Carolina State University at Raleigh	15	28.30%	15	16.13%	Yes
Citadel Military College of South Carolina	Not Offered	Not Offered	13	13.98%	Yes

69.89%

Conferrals by top 20% of institutions

2021-2022 Academic Year, Regional Data

Source: EAB analysis. National Center for Education Statistics.

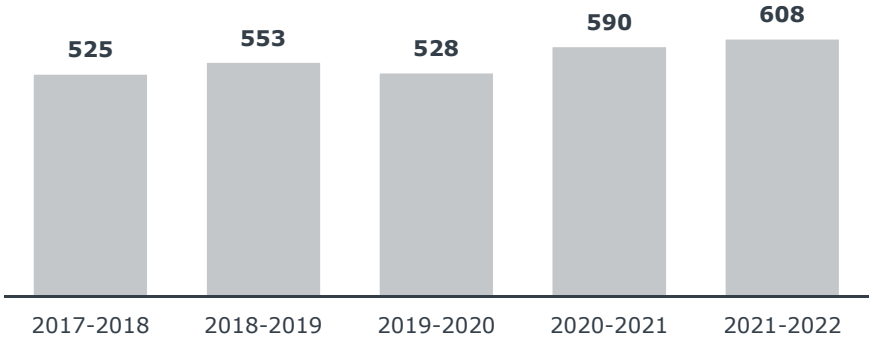
Competitive Intelligence

National Data Analysis of Bachelor's-Level Completions Under Construction Engineering (14.3301)

Between the 2017-2018 and 2021-2022 academic years, the number of relevant degree completions increased by an average annual 3.90%, signaling growing student demand. Further, the number of institutions reporting relevant completions increased by an average annual 6.89%, indicating rising competition. Overall, growth in student demand being outpaced by growth in competition signals a challenging competitive landscape for new program launch.

Completions Reported Over Time

2017-2018 to 2021-2022 Academic Years, National Data



3.90%

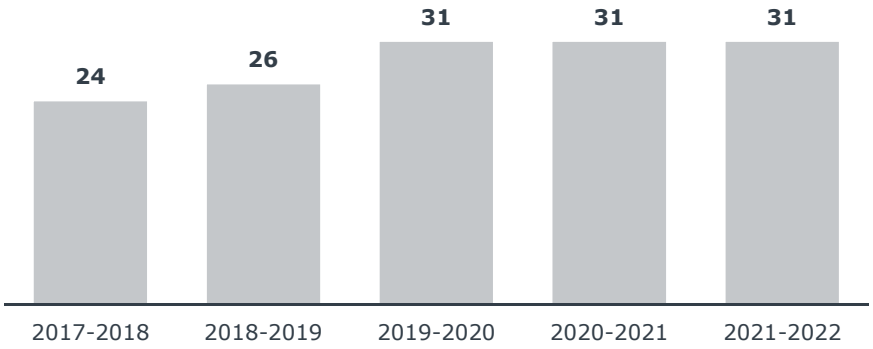
Average Annual Completions Growth

2017-2018 Academic Year to 2021-2022 Academic Year, National Data

- During the same period, the number of institutions reporting completions grew by 6.89% on average annually.

Institutions Reporting Completions Over Time

2017-2018 to 2021-2022 Academic Years, National Data



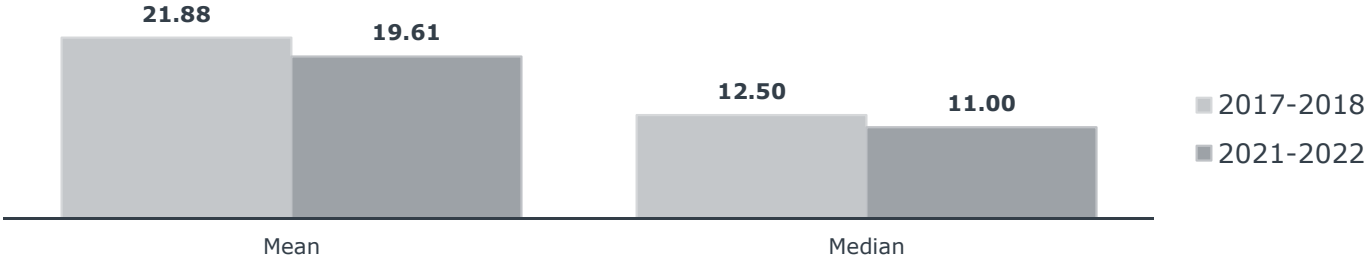
6.45%

Institutions Reporting Completions with a 100% Distance-Delivery Option

2021-2022 Academic Year, National Data

Completions per Institution Reporting

2017-2018 and 2021-2022 Academic Years, National Data



Source: EAB analysis. National Center for Education Statistics.

National Data Analysis of Bachelor's-Level Completions Under Construction Engineering (14.3301)

Five of the top ten institutions increased the number of reported completions from the 2017-2018 to the 2021-2022 academic year, while only four of the top institutions increased their market share. Further, the top 20% of institutions held 62.01% of the market, indicating market concentration and thus a challenging competitive landscape for new program launch.

Institutions with Most Reported Completions

2017-2018 Academic Year to 2021-2022 Academic Year, National Data

Institution	Reported Completions, 2017-2018 Academic Year	Market Share, 2017-2018 Academic Year	Reported Completions, 2021-2022 Academic Year	Market Share, 2021-2022 Academic Year	Completions Reported via Distance-Delivery, 2021-2022 Academic Year
Oregon State University	95	18.10%	77	12.66%	Yes
Iowa State University	74	14.10%	71	11.68%	Yes
The University of Texas at Arlington	Not Offered	Not Offered	70	11.51%	Yes
Virginia Polytechnic Institute and State University	38	7.24%	65	10.69%	Yes
Bowling Green State University-Main Campus	48	9.14%	54	8.88%	Yes
University of Cincinnati-Main Campus	56	10.67%	40	6.58%	Yes
Purdue University-Main Campus	27	5.14%	34	5.59%	Yes
University of Delaware	Not Offered	Not Offered	18	2.96%	Yes
Texas Tech University	29	5.52%	17	2.80%	Yes
North Carolina State University at Raleigh	15	2.86%	15	2.47%	Yes

62.01%

Conferrals by top 20% of institutions

2021-2022 Academic Year, National Data

Source: EAB analysis. National Center for Education Statistics.

Appendix

2

- Research Process and Sources

Research Process and Sources

EAB conducted an analysis to assess a proposed new programming opportunity.

All workforce demand data was collected from Lightcast, EAB's labor market intelligence partner. Competitive data was collected from the National Center for Education Statistics via the Lightcast platform.

1

Step One: Labor Market Analysis

This report includes an analysis of external labor market needs to determine demand for program graduates. Researchers evaluate historical job postings and future employment projections to determine if the labor market supports program growth.

2

Step Two: Competitive Landscape Analysis

The volume and growth of degree conferrals serves as an indicator of student demand for the program being evaluated. Researchers use conferral data to determine if the selected program is facing a crowded market or if it may struggle to attract students due to declining student interest.

3

(Optional) Step Three: Comparator Program Analysis

Researchers analyze how the design and curricula of similar programs should inform the structure and format of the proposed new program. The researchers collect information publicly available on profiled programs' webpages.

Research Methodology

EAB's market insights research guides strategic programmatic decisions at partner institutions. The Market Insights Service combines qualitative and quantitative data to help administrators identify opportunities for new program development, assess job market trends, and align curriculum with employer and student demand. Unless stated otherwise, this report includes data from online job postings from February 2023 to January 2024. To best estimate employer demand for bachelor's-level construction engineering professionals, we analyzed job postings for bachelor's-level professionals in relevant occupations (e.g., Civil Engineers, Architectural and Engineering Managers, Construction Managers).

Research Questions

The requesting partner asked:

- **How has demand for graduates of my program evolved over time?**
- **In what positions do employers demonstrate the greatest need for graduates?**
- **What skills should the program teach to prepare students to meet employer demand?**
- **Which employers demonstrate the greatest demand for graduates?**
- **In which industries should the program prepare students to work?**
- **In which cities do employers demonstrate the greatest demand for potential graduates?**
- **What education level do employers most frequently request from relevant professionals?**

Bolded questions were addressed within this analysis.

Research Limitations

Due to the self-reported nature of the NCES, some comparable and competitor programs may report completions for a bachelor's-level construction engineering program under a different CIP code not included in this analysis. Institutions may also report completions for programs unrelated to bachelor's-level construction engineering under the CIP codes analyzed in this report. Further, additional online programs may exist that are not captured in NCES data, as not all institutions offering a distance-delivery program report it as such. Additionally, if an institution offers multiple modalities, completions data will not distinguish between the number of online completions and face-to-face completions.

Definitions

CIP code refers to the Classification of Instructional Programming code.

Region and regionally refer to the following states: North Carolina, South Carolina, Tennessee, and Virginia.

Nation and nationally refer to the United States.

Project Sources

We consulted the following sources for this report:

- EAB's internal and online research libraries
- Lightcast Analyst, described below
- U.S. Bureau of Labor Statistics
- U.S. National Center for Education Statistics (NCES)

Labor Market Intelligence Partner: Lightcast

This report includes data made available through EAB's partnership with Lightcast (formerly Economic Modeling Specialists International), a labor market analytics firm serving higher education, economic development, and industry leaders in the U.S., Canada and the United Kingdom.

Lightcast curates and maintains the most comprehensive labor market data sets available for academic program planning, providing real-time job posting data, workforce and alumni outcomes data, and traditional government sources of data. Under this partnership, EAB may use Lightcast's proprietary Analyst™ and Alumni Insight™ tools to answer partner questions about employer demand, the competitive landscape, in-demand skills, postings versus actual hires, and skills gaps between job postings and professionals in the workforce. The Lightcast tools also provide EAB with in-depth access to unsuppressed, zip-code-level government data for occupations, industries, programs, and demographics. For more complete descriptions of the Lightcast tools, visit:

- https://lightcast.io/solutions/education/analyst
- https://lightcast.io/solutions/education/alumni-pathways

To learn more about Lightcast and its software and services, please contact Bob Hieronymus, Vice President of Business Development at bob.hieronymus@lightcast.io.

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ABOUT EAB

At EAB, our mission is to make education smarter and our communities stronger. We work with thousands of institutions to drive transformative change through data-driven insights and best-in-class capabilities. From kindergarten to college to career, EAB partners with leaders and practitioners to accelerate progress and drive results across five major areas: enrollment, student success, institutional strategy, data analytics, and diversity, equity, and inclusion (DEI). We work with each partner differently, tailoring our portfolio of research, technology, and marketing and enrollment solutions to meet the unique needs of every leadership team, as well as the students and employees they serve. Learn more at eab.com.

Appendix B

Construction Industry Advisory Board Support Letter

BARRINGER
CONSTRUCTION

UNC Charlotte
9201 University City Boulevard
Charlotte, NC 28223

Attn: Dr. Lingguang Song, PH.D.
RE: IAB Support for Construction Engineering

Dear Dr. Song,
Per the mission of the UNC Charlotte Civil Engineering Technology & Construction Management Industry Advisory Board, we continually evaluate the programs and potential opportunities that will increase enrollment and produce students who can fill the increasing need for talent in the Charlotte market. Developing a Construction Engineering Program that Pairs with our current Construction Management Program has been a topic for several years and was moved to a vote at our 2023 2nd Quarter Meeting.

The UNC Charlotte Civil Engineering Technology & Construction Management Industry Advisory Board voted at the 2nd Quarter IAB Meeting on December 15, 2023, for the establishment of a Construction Engineering Program, partnered with the Construction Management Program as a beneficial addition to the William States Lee College of Engineering program offerings. The premise of the vote is based on ideology.

"The Construction Engineering curriculum would be designed for the student interested in the planning, design, direction, and management of construction projects. It includes the core course requirements in mathematics, the physical sciences, and the humanities and social sciences. After exposure to engineering fundamentals and design of facilities, the curriculum provides a series of specialty courses in construction engineering related to building construction and systems, construction equipment, construction estimating and planning, and legal aspects of contracting. The student also develops skills in accounting, communication, and management. The curriculum is designed for students interested in delivering sustainable construction projects safely and efficiently by using appropriate resources and means and methods."

All 34 members attending the meeting provided a vote of support in a unanimous decision.

Members in attendance:

BARRINGER
CONSTRUCTION

John Tomasic	Danis Construction	Noah Palmer-Licht	Clancy & Theys
Joe Royer	JE Dunn	Matt Williams	Metrolina Builders
David Jarrett	Keller North America	Henry Batten	Concrete Supply
Payton Stull	Mill Creek Residential	Trey Craig	Phillips & Jordan
Jim Rhodes	Wayne Brothers	Kris Hannah	State Utilities
Dave Tolley	Blythe Development	Scott Oosthuysen	Cleveland Construction
Brian Spach	Reeves Construction	Michael Morgan	Denham-Blythe Construction
David Burke	Whiting Turner	Dan O'brien	Turner Construction
Keith Poettker	Poettker Construction	Star Swafford	Empire Communities
Drew Baucomb	Lane Corporation	Brittany Martin	Adams Electric Company
Ron Shaw	Lee Corporation	Joseph Bose	Elford Construction
Matthew Kiker	Thomas & Hutton	Darek Burns	Crescent Communities
Brandon Cline	Balfour-Beatty Civil	Matt Cavalline	Barringer Construction
Frank Dipaolo	Wharton Smith	Billie Graham	Myers & Chapman
Courtney Blalock	Robins & Morton	Jennifer West	Hazen-Sawyer
Michael Wright	Balfour-Beatty	Lauren Kearney	Crowder Construction
Brandon Whitaker	NCDOT	Haley Hassler	Barton Malow

Sincerely,

Matt Cavalline, Industry Advisory Board President