



Construction Technology

April 2018

Prepared by Los Angeles/Orange County Center of Excellence for Labor Market Research

Program Recommendation

The Los Angeles/Orange County Center of Excellence (COE) compiled this report to provide regional labor market data for the program recommendation of construction technology. This report intends to determine whether there is demand in the local labor market that is not being met by the supply from programs of study.

Based on the labor market supply and demand data, the COE has determined that **there may be an unmet need** for the construction technology program in Los Angeles County region. Reasons include:

- There are nearly 8,500 projected annual openings in Los Angeles County through 2022.
- Between 2014 and 2017, an annual average of 12 community college awards have been conferred in Los Angeles County.
- About 33% to 41% of the construction supervisor (47-1101) and cost estimator (13-1051) workforce holds a community college degree or has completed some college coursework as their highest level of education, signaling that these **two occupations are relevant for community college-level students.**
- Construction laborers (47-2061) are included in this data brief, but **require no formal educational credential** and only 22% of the current workforce in this occupation holds some college coursework as their highest level of education, meaning that this occupation is **below middle-skill and may not be applicable for community-college level students.**

Occupation Codes and Descriptions

Currently, there are four occupations in the standard occupational classification (SOC) system directly related to construction technology. The occupation titles and descriptions, as well as reported job titles are included in Exhibit 1.

Exhibit 1 – Occupations, job descriptions and sample job title(s)

SOC Code	Title	Description	Sample of Reported Job Titles
13-1051	Cost Estimators	Prepare cost estimates for product manufacturing, construction projects, or services to aid management in bidding on or determining price of product or service. May specialize according to particular service performed or type of product manufactured.	Acquisition Cost Estimator, Construction Estimator, Cost Analyst, Cost and Risk Analysis Manager, Cost Consultant, Cost Engineer, Cost Estimator, Estimator, Estimator Project Manager, Preconstruction Manager

47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	Directly supervise and coordinate activities of construction or extraction workers.	Construction Foreman, Construction Superintendent, Construction Supervisor, Field Supervisor, Foreman, Job Superintendent, Project Superintendent, Site Supervisor, Superintendent, Supervisor
47-2031	Carpenters	Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; and wood stairways, window and door frames, and hardwood floors. May also install cabinets, siding, drywall and batt or roll insulation. Includes brattice builders who build doors or brattices (ventilation walls or partitions) in underground passageways	Apprentice Carpenter, Assembler, Bridge Carpenter, Bridge Repair Crew Person, Cabinet Maker, Carpenter Foreman, Carpentry Foreman, Concrete Carpenter, Construction Superintendent, Construction Worker, Foreman, Form Carpenter, Framer, Journeyman Carpenter, Production Worker, Carpenter, Rough Carpenter, Union Carpenter
47-2061	Construction Laborers	Perform tasks involving physical labor at construction sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. May clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, and clean up rubble, debris and other waste materials. May assist other craft workers.	Construction Laborer, Construction Worker, Curb and Gutter Laborer, Drain Layer, Drop Crew Laborer, Helper, Laborer, Post Framer, Skill Labor, Union Laborer

Source: O*NET Online

Current and Future Employment

In Los Angeles County, the number of jobs for occupations related to construction technology is expected to increase by 3% over the next five years. Nearly 8,500 job opportunities will be available annually for this occupation group through 2022 due to new job growth and replacement need (e.g., retirements). Exhibit 2 contains detailed employment projections data for this occupation group.

Exhibit 2 – Five-year projections for construction technology occupations in Los Angeles County

SOC	Occupation	2017 Jobs	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	Annual Openings
47-2061	Construction Laborers	32,745	34,312	1,567	5%	3,688
47-2031	Carpenters	29,768	30,115	347	1%	2,849
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	13,407	13,514	107	1%	1,390
13-1051	Cost Estimators	5,567	5,715	148	3%	570
	TOTAL	81,488	83,657	2,169	3%	8,497

Source: EMSI 2018.1 – QCEW, non-QCEW, Self-Employed.

Earnings

In Los Angeles County, the entry-level average wage for cost estimators is \$16.22 per hour, which is above the MIT Living Wage¹ estimate of \$13.54 per hour for a single adult. The average annual earnings for this occupation in the region is \$64,000 per year, assuming full-time employment.

Exhibit 3 contains hourly wages and annual average earnings for the occupation group studied in this report. Entry-level hourly earnings is represented by the 10th percentile of wages, median hourly earnings is represented by the 50th percentile of wages, and experienced hourly earnings is represented by the 90th percentile of wages, demonstrating various levels of employment.

¹ MIT Living Wage Calculator. <http://livingwage.mit.edu/>

Exhibit 3 – Earnings for construction technology occupations in Los Angeles County, 2017-2022

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings	Average Annual Earnings
13-1051	Cost Estimators	\$16.22	\$29.05	\$47.95	\$64,000
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	\$13.96	\$29.43	\$49.79	\$62,000
47-2031	Carpenters	\$11.81	\$14.93	\$37.09	\$48,000
47-2061	Construction Laborers	\$11.05	\$14.14	\$29.89	\$36,000

Source: EMSI 2018.1 – QCEW, non-QCEW, Self-Employed.

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is posting construction technology jobs and what they are looking for in potential candidates. To identify job postings related to construction technology, the following SOC codes were searched: cost estimators (13-1051), first-line supervisors of construction trades and extraction workers (47-1011), carpenters (47-2031) and construction laborers (47-2061).

Top Occupations

In 2017, there were 2,130 employer postings in Los Angeles County for occupations related to construction technology. Over one-third of the postings (37%) were for construction laborers (778 job postings). Two of the construction technology occupation codes are splitting into new and emerging O*NET occupation codes, and counts for these four O*NET codes are included in table below.

Exhibit 4 – Top occupations in job postings (n=2,130)

SOC/O*NET Code	Occupation	Job Postings, Full Year 2017
47-2061	Construction Laborers	778
13-1051	Cost Estimators	466
47-1011.00	First-Line Supervisors of Construction Trades and Extraction Workers	412
47-2031.02	Rough Carpenters	235
47-2031.01	Construction Carpenters	170
47-1011.03	Solar Energy Installation Managers	9

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The most common job titles for construction technology-related jobs are listed in Exhibit 5. Construction estimator was mentioned in 17% of all relevant job postings (352 postings).

Exhibit 5 –Job titles (n=2,070)

Title	Job Postings, Full Year 2017
Construction Estimator	352
Construction Laborer	255
Carpenter	236
Construction Superintendent	152
Handyman	85
Construction Coordinator	76
Construction Foreman	68
Journeyman Carpenter	53
Electrical Foreman	46
Finish Carpenter	39

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the field of construction technology. Top employers postings job ads include Shawmut Design Construction, Installed Building Products, and Charter Communications. The top worksite cities in the region for these occupations are Los Angeles, Long Beach, and Carson.

Exhibit 6 – Top employers (n=667)

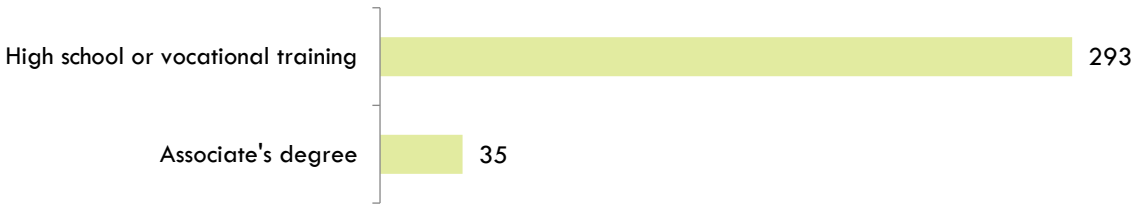
Employers	Job Postings, Full Year 2017
Shawmut Design Construction	30
Installed Building Products	14
Charter Communications	13
AECOM Technology Corporation	9
Edison International	9
Sunrun	9
Access Pacific Incorporated	8
California State University	8
Hill International Incorporated	8
Lenax Construction Services	8

Source: Labor Insight/Jobs (Burning Glass)

Advertised Education Levels

Exhibit 7 displays the education level requested by employers in online job ads. The majority of construction technology employers in 2017 were looking for a candidate with high school or vocational training. Approximately 84% of job postings did not specify a level of education.

Exhibit 7 – Education requirements for construction technology jobs



Source: Labor Insight/Jobs (Burning Glass)

Education and Training

Exhibit 8 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training, and percentage of workers in the field who hold a community college award or have completed some postsecondary courses. Between 22% and 41% of the current workforce in construction technology occupations has completed some community college education as their highest level of education.

Exhibit 8 – Education and training requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training	% of Community College Award Holders or Some Postsecondary Coursework
13-1051	Cost Estimators	Bachelor's degree	None	41%
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	HS diploma or equivalent	None	33%
47-2031	Carpenters	HS diploma or equivalent	Apprenticeship	26%
47-2061	Construction Laborers	No formal educational credential	Short-term	22%

Source: Economic Modeling Specialists International, Bureau of Labor Statistics Employment Projections (Educational Attainment)

In Los Angeles County, two community colleges have conferred awards in programs that train students for construction technology. Between 2014 and 2017, there was an average of 12 community college awards conferred annually across one program: Construction Crafts Technology (0952.00). It is important to note that an award is not equivalent to a single person in search of a job opening, since a student may earn more than one award (e.g. an associate degree and a certificate).

Exhibit 9 – CCC Student Awards (by TOP and College)

TOP Code	Program	College	2014-2015 Awards	2015-2016 Awards	2016-2017 Awards	3-Year Award Average
0952.00	Construction Crafts Technology	El Camino	9	17	8	11
		Pasadena	3	-	-	3
TOTAL			12	17	8	12

Source: California Community Colleges Chancellor’s Office MIS Data Mart

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Construction Crafts Technology Taxonomy of Program (TOP) code (0952.00) in Los Angeles County for the 2015-16 academic year.

- The median annual wage after program completion is \$39,378
- 63% of students are earning a living wage
- 74% of students are employed within six months after completing a program

Source: CTE LaunchBoard

Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor’s Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represents the labor market demand for positions most closely related to construction technology. Standard occupational classification (SOC) codes were chosen based on the national education level required for employment (associate degree and postsecondary certificate) as well as the proportion of current workers who hold a community college award or have had some community college training. This selection process narrows the labor market analysis to the most relevant employment opportunities for students with community college education and/or training.

Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and should not be used to establish current job openings, because the numbers may include duplicate job postings or postings intended to gather a pool of applicants. Real-time labor market information can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.