



Architecture and Architectural Technology (TOP 0201.00)

August 2022

Prepared by the South Central Coast Center of Excellence for
Labor Market Research

Program Recommendation

This report was compiled by the South Central Coast¹ Center of Excellence to provide regional labor market data for the program recommendation – Architecture and Architectural Technology. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Key Findings

- In the South Central Coast region, **the number of jobs related to Architecture and Architectural Technology are expected to remain steady for all aligned occupations** included in this analysis.
- Architecture and Architectural Technology is anticipated to experience a **low to medium risk of automation** for all five related occupations.
- In 2020 there were 2,438 regional completions in programs related to the occupations identified as aligned with Architecture and Architectural Technology and 1,995 openings, indicating **supply is being met**.
- Typical entry-level education for this occupational grouping ranges from an **Associate's degree** for Mechanical Drafters and Architectural and Civil Drafters; a **Bachelor's degree** for Architectural and Engineering Managers and Architects, Except Landscape and Naval; and a **Doctorate or Professional degree** for Architecture Teachers, Postsecondary.
- Completers of Architecture and Architectural Technology programs from the 2018-2019 academic year had a **median annual wage upon completion of \$25,312**. (region)
- 67% of students are **employed within a year** after completing a program. (region)
- 46% of students **attained a living wage** within a year of completion. (state)
- Completers experienced an average of **+25% change in earnings after exiting**. (state)
- 48% of students were **part-time**, 32% **first-generation**, and 72% **economically disadvantaged**. (region)
- 6% of statewide students were **skill builders**. (state)

¹ The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

Occupation Codes and Descriptions

There are five occupations in the standard occupational classification (SOC) system that were identified as related to Architecture and Architectural Technology for this analysis. The occupation titles and descriptions, as well as reported job titles, are included in Exhibit 1.

Exhibit 1 – Occupation, description, and sample job titles

SOC Code	Title	Description	Sample of Reported Job Titles
11-9041	Architectural and Engineering Managers	Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields.	Civil Engineering Managers, Electrical Engineering Manager, Engineering Director, Engineering Group Manager, Engineering Program Manager, Mechanical Engineering Manager, Process Engineering Manager, Project Manager
17-1011	Architects, Except Landscape and Naval	Plan and design structures, such as private residences, office buildings, theaters, factories, and other structural property.	Architect, Design Architect, Planner, Project Architect, Specifications Writer
17-3011	Architectural and Civil Drafters	Prepare detailed drawings of architectural and structural features of buildings or drawings and topographical relief maps used in civil engineering projects, such as highways, bridges, and public works. Use knowledge of building materials, engineering practices, and mathematics to complete drawings.	--
17-3013	Mechanical Drafters	Prepare detailed working diagrams of machinery and mechanical devices, including dimensions, fastening methods, and other engineering information.	CAD Designer (Computer Aided Design Designer), CAD Operator, Design Drafter, Drafter, Drafting Technician, Mechanical Designer, Mechanical Drafter, Product Designer, Project Designer
25-1031	Architecture Teachers, Postsecondary	Teach courses in architecture and architectural design, such as architectural environmental design, interior architecture/design, and landscape architecture. Includes both teachers primarily engaged in teaching and those who do a combination of teaching and research.	Adjunct Instructor, Adjunct Professor, Architecture Professor, Assistant Professor, Associate Professor, Faculty Member, Instructor, Interior Design Professor, Lecturer, Professor

Source: O*NET Online

Current and Future Employment

In the South Central Coast region, the number of jobs related to Architecture and Architectural Technology are expected to remain steady for all five aligned occupations.

Exhibit 2 – Five-year projections for Architecture and Architectural Technology in the South Central Coast region

SOC	Occupation	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change
11-9041	Architectural and Engineering Managers	1,512	1,495	-17	-1%
17-1011	Architects, Except Landscape and Naval	881	918	37	4%
17-3011	Architectural and Civil Drafters	636	635	-1	0%
17-3013	Mechanical Drafters	285	284	0	0%
25-1099 (for 25-1031)	Postsecondary Teachers (for Architecture Teachers, Postsecondary)	13,393	13,836	443	3%

Source: Economic Modeling Specialists International (EMSI)

Earnings

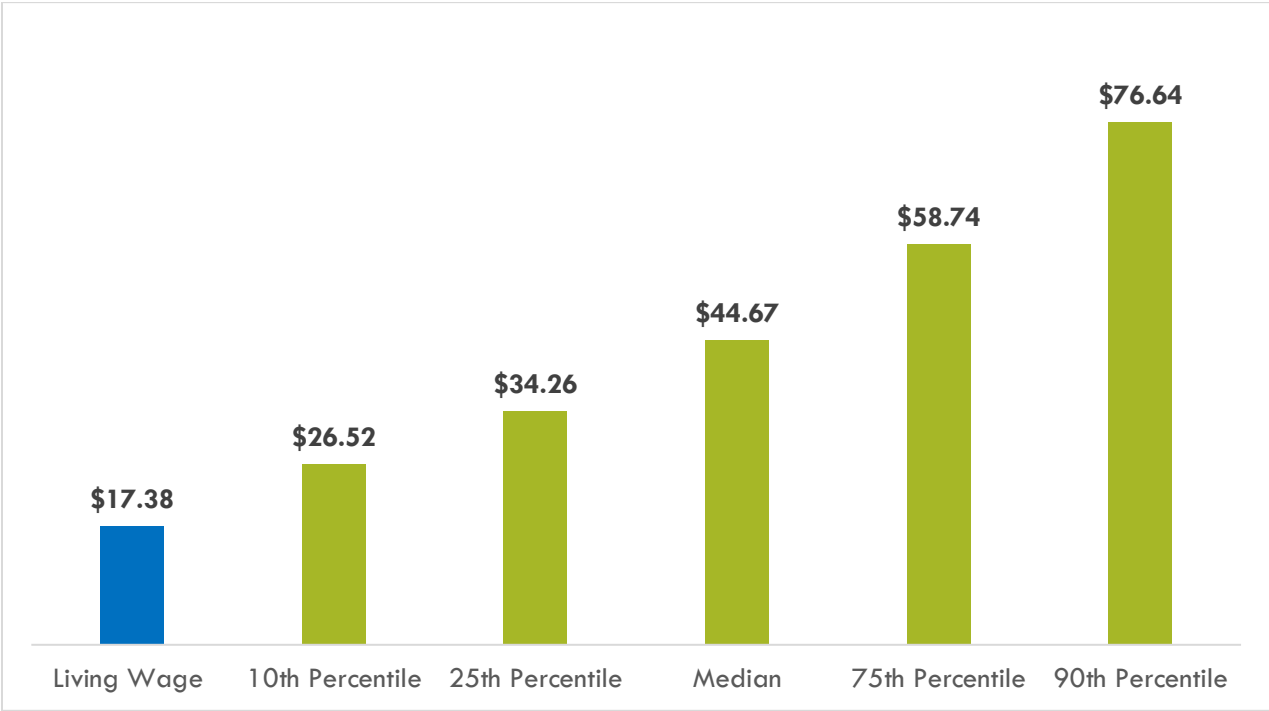
Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings are represented by the 25th percentile of wages, median hourly earnings are represented by the 50th percentile of wages, and experienced hourly earnings are represented by the 75th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for Architecture and Architectural Technology in the South Central Coast region, 2021

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
11-9041	Architectural and Engineering Managers	\$61.99	\$78.24	\$97.41
17-1011	Architects, Except Landscape and Naval	\$28.63	\$37.64	\$53.45
17-3011	Architectural and Civil Drafters	\$22.96	\$29.07	\$36.15
17-3013	Mechanical Drafters	\$23.24	\$30.39	\$39.99
25-1031	Architecture Teachers, Postsecondary	\$34.47	\$48.03	\$66.68

Source: Economic Modeling Specialists International (EMSI)

Exhibit 3b: Earnings for Architecture and Architectural Technology in the South Central Coast Region, 2021



Source: Family Needs Calculator (Living wage is based on Single Adult household with no children); Economic Modeling Specialists International (EMSI)

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 looking in the field, and what they are looking for in potential candidates. To identify job postings related to Architecture and Architectural Technology the following standard occupational classifications were used:

11-9041	Architectural and Engineering Managers
17-1011	Architects, Except Landscape and Naval
17-3011	Architectural and Civil Drafters
17-3013	Mechanical Drafters
25-1031	Architecture Teachers, Postsecondary

Top Occupations

In 2021, there were 953 employer postings for the occupations related to Architecture and Architectural Technology.

Exhibit 4 – Top occupations in job postings and risk of automation tables

SOC Code	Occupation	Job Postings, Full Year 2021
11-9041	Architectural and Engineering Managers	696
17-1011	Architects, Except Landscape and Naval	123
17-3013	Mechanical Drafters	83
17-3011	Architectural and Civil Drafters	45
25-1031	Architecture Teachers, Postsecondary	6

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
11-9041	Architectural and Engineering Managers	Low
17-1011	Architects, Except Landscape and Naval	Low
17-3013	Mechanical Drafters	Medium
17-3011	Architectural and Civil Drafters	Medium
25-1031	Architecture Teachers, Postsecondary	Low

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top job titles for employers posting ads for jobs related to Architecture and Architectural Technology are listed in Exhibit 5. Restoration Project Manager is mentioned as the job title in 3% of all relevant job postings (26 postings).

Exhibit 5 –Job Titles

Title	Job Postings, Full Year 2021
Restoration Project Manager	26
Senior Project Engineer	18
Engineering Manager	16
Chief Engineer	15
Director of Engineering	14

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the Architecture and Architectural Technology field. The top employer posting job ads was Dignity Health. The top worksite cities in the region for these occupations were Palmdale, Santa Barbara, Goleta, San Luis Obispo, and Thousand Oaks.

Exhibit 6 – Top Employers (n=742)

Employer	Job Postings, Full Year 2021
Northrop Grumman	126
Raytheon	62
Lockheed Martin Corp	28
Skyworks	20
Amgen	19

Source: Labor Insight/Jobs (Burning Glass)

Skills

The tables in Exhibit 7 list employers' most commonly requested skills in job postings related to Architecture and Architectural Technology. Project Management is the most sought-after specialized skill by employers, followed by Budgeting and Scheduling. Communication Skills, Planning, and Teamwork/Collaboration were the most requested baseline skills. Microsoft Excel, Microsoft Office, and AutoCAD were the most commonly requested software and programming skills.

Exhibit 7 –Specialized Skills (n= 8,047)

Skills	Job Postings, Full Year 2021
Project Management	337
Budgeting	316
Scheduling	302
Engineering Management	178
AutoCAD	141
Project Planning and Development Skills	100
Revit	96
Product Development	89
Repair	88
Customer Contact	80
Quality Assurance and Control	77
Microsoft Project	71
Mechanical Engineering	70
Systems Engineering	67
Software Development	63

Source: Labor Insight/Jobs (Burning Glass)

Baseline Skills (n= 3,503)

Skills	Job Postings, Full Year 2021
Communication Skills	378
Planning	298
Teamwork/Collaboration	228
Problem Solving	209
Microsoft Excel	166
Microsoft Office	146
Leadership	131
Organizational Skills	130
Written Communication	125
Detail-Oriented	124

Source: Labor Insight/Jobs (Burning Glass)

Software and Programming Skills (n= 1,933)

Skills	Job Postings, Full Year 2021
Microsoft Excel	166
Microsoft Office	146
AutoCAD	141
Revit	96
Microsoft Powerpoint	85
Microsoft Word	84
Microsoft Project	71
Software Development	63
SolidWorks	58
Software Engineering	49

Source: Labor Insight/Jobs (Burning Glass)

The table below lists the skill clusters most in demand for the selected occupations for Architecture and Architectural Technology.

Skill Clusters in Demand (n= 7,186)

Skill Cluster	Job Postings, Full Year 2021
Business: Project Management	390
Finance: Budget Management	316
Administration: Scheduling	302
Engineering: Drafting and Engineering Design	291
Information Technology: Microsoft Office and Productivity Tools	216
Engineering: Engineering Management	212
Information Technology: System Design and Implementation	153
Customer and Client Support: Basic Customer Service	137
Business: People Management	132
Information Technology: Software Development Principles	128

Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Exhibit 8 shows the industries with the most Architecture and Architectural Technology postings in the South Central Coast. Note: 25% of records have been excluded because they do not include an industry. As a result, the chart below may not be representative of the full sample.

Exhibit 8 – Industries employing the most in the Architecture and Architectural Technology field, 2021

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Manufacturing	372	52%
Professional, Scientific, and Technical Services	109	15%
Construction	43	6%
Finance and Insurance	30	4%
Accommodation and Food Services	28	4%

Source: Labor Insight/Jobs (Burning Glass)

Certifications

Exhibit 9 lists the most in-demand certifications in the Architecture and Architectural Technology field. The top requested certification in job postings was Security Clearance.

Exhibit 9 – Certifications (n= 516)

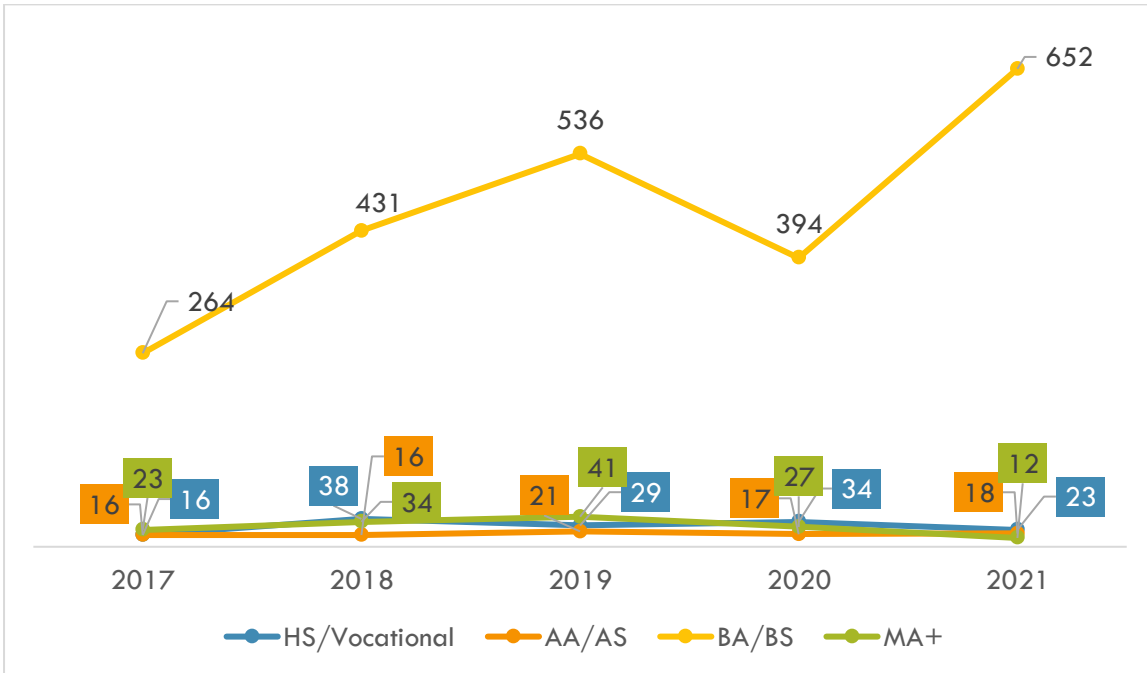
Skills	Job Postings, Full Year 2021
Security Clearance	208
Driver's License	62
Project Management Certification	59
Project Management Professional (PMP)	45
Architecture License	24
American Board for Engineering and Technology (ABET) Accredited	11
Six Sigma Certification	9
Licensed Professional Engineer	8
LEED AP	8

Source: Labor Insight/Jobs (Burning Glass)

Job Postings - Minimum Educational Attainment – Change Over Time

Exhibit 10 displays the change in job advertisements over the last five years for Architecture and Architectural Technology, according to the minimum advertised education. In 2021, there were 705 job ads posted with a minimum advertised education, with 652 of them requiring a bachelor’s degree.

Exhibit 10 – Educational Demand, Minimum Advertised



Source: Labor Insight / Jobs (Burning Glass)

Job Postings – Proportion of Job Postings by Minimum Educational Attainment Required

To gauge employer preference for candidates with particular education levels, the proportion of job postings by minimum advertised education appears in Exhibit 11. Employers posting job ads for Architecture and Architectural Technology have frequently sought candidates with a bachelor’s degree.

Exhibit 11 – Occupational Demand by Education, Minimum Advertised

Minimum Education Requirement	2017	2018	2019	2020	2021
HS Diploma / Vocational Training	5%	7%	5%	7%	3%
Associate Degree	5%	3%	3%	4%	3%
Bachelor’s Degree	83%	83%	86%	84%	93%
Graduate Degree	7%	7%	7%	6%	2%

Source: Labor Insight/ Jobs (Burning Glass)

Education and Training

Exhibit 12 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

Exhibit 12 – Education and Training Requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training
11-9041	Architectural and Engineering Managers	Bachelor's degree	None
17-1011	Architects, Except Landscape and Naval	Bachelor's degree	Internship/Residency
17-3011	Architectural and Civil Drafters	Associate's degree	None
17-3013	Mechanical Drafters	Associate's degree	None
25-1031	Architecture Teachers, Postsecondary	Doctorate or professional degree	None

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

Regional Completions and Openings

In 2021, there were 2,438 regional completions and 1,995 regional openings in the South Central Coast region for programs related to the Architecture and Architectural Technology occupations in this report.

Exhibit 13 – Completions and Openings

16 Regional Institutions had Related Programs (2020)	2,438 Regional Completions (2020)	1,995 Annual Openings (2020)
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Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2020)
14.1901	Mechanical Engineering	446
14.1001	Electrical and Electronics Engineering	307
14.0102	Pre-Engineering	171
14.0801	Civil Engineering, General	159
14.0901	Computer Engineering, General	152
14.0201	Aerospace, Aeronautical, and Astronautical/Space Engineering, General	134
14.0501	Bioengineering and Biomedical Engineering	131
04.0902	Architectural and Building Sciences/Technology	126
14.3501	Industrial Engineering	101
15.1301	Drafting and Design Technology/Technician, General	77
14.0701	Chemical Engineering	63
14.0903	Computer Software Engineering	61
14.0401	Architectural Engineering	44
14.0301	Agricultural Engineering	39
14.1401	Environmental/Environmental Health Engineering	38
14.1801	Materials Engineering	38
14.0899	Civil Engineering, Other	36
04.0201	Architecture	32
04.0301	City/Urban, Community, and Regional Planning	32
40.1001	Materials Science	30

Source: Economic Modeling Specialists International (EMSI)

Exhibit 14 – CCC and Non-CCC Awards the South Central Coast Region, 2021

Exhibit 14 lists the number of completers from programs related to Architecture and Architectural Technology in the South Central Coast Region.

Exhibit 14 – CCC and Non-CCC Awards

CCC Programs	Completers
Ventura	130
Santa Barbara City College	54
College of the Canyons	44
Allan Hancock	26
Cuesta College	12
Antelope Valley	15
Moorpark	12
Oxnard	0
Non-CCC Programs	Completers
Cal Poly San Luis Obispo	1,654
UC Santa Barbara	440
CSU Channel Islands	27
California Institute of the Arts	11
Ventura Adult and Continuing Education	8
Westmont	5

Source: Economic Modeling Specialists International (EMSI)

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 Architecture and Architectural Technology Programs (TOP: 0201.00). Regional data is provided and when unavailable at the regional level, statewide data is used.

- Completers of Architecture and Architectural Technology programs from the 2018-2019 academic year statewide had a **median annual wage upon completion of \$25,312.** (region)
- 67% of students are **employed within a year** after completing a program. (region)
- 46% of students **attained a living wage** within a year of completion. (state)
- Completers experienced an average of **+25% change in earnings after exiting.** (state)
- 48% of students were **part-time**, 32% **first-generation**, and 72% **economically disadvantaged.** (region)
- 6% of statewide students were **skill builders.** (state)

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 represent the labor market demand for relevant positions most closely related to Architecture and Architectural Technology. 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 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. All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.