Program Endorsement Brief: 0201.00/Architecture and Architectural Technology
Los Angeles/Orange County Center of Excellence, February 2020

Summary Analysis

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to three middle-skill occupations: architectural and civil drafters (17-3011), electrical and electronics drafters (17-3012), and mechanical drafters (17-3013). Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.[1] This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data there appears to be a supply gap for these architectural technology occupations in the region. **Therefore, the COE endorses this proposed program.** Reasons include:

Demand:

- Over the next five years, there is projected to be **745 jobs available annually** in the region due to new job growth and replacements, **which is more than the 590 awards conferred annually** by educational institutions in the region.
- The national-level educational attainment data indicates 60.9% of workers in the field have completed some college or an associate degree.
- Typical **entry-level hourly wages** for architectural technology throughout the region are between $21.47 and $25.17, which **are higher than the California Family Needs Calculator** hourly wage for one adult in the region ($15.04 in Los Angeles County and $17.36 in Orange County)[2].

Supply:

- There are **20 community colleges** in the region that have programs that train for architectural technology occupations, conferring an average of **585 awards annually** between 2015 and 2018.
- Between 2013 and 2016, there were an average of **5 awards conferred annually** in related training programs by non-community college institutions **throughout the region.**

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[1] The COE classifies middle-skill jobs as the following:
- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

[2] Living wage data was pulled from California Family Needs Calculator on 2/24/20. For more information, visit the California Family Needs Calculator website: https://insightcced.org/2018-family-needs-calculator/.

Occupational Demand
Exhibit 1 shows the five-year occupational demand projections for these middle-skill architectural occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 3% through 2023. There will be nearly 750 job openings per year through 2023 due to job growth and replacements.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties[3]

Geography	2018 Jobs	2023 Jobs	2018-2023 Change	2018-2023 % Change	Annual Openings
Los Angeles	5,270	5,370	100	2%	470
Orange	2,948	3,058	110	4%	274
Total	**8,218**	**8,429**	**211**	**3%**	**745**

Wages—Typical entry-level hourly wages for these architectural technology occupations throughout the region are between $21.47 and $25.17.[4] Entry-level wages for these occupations are higher than the California Family Needs Calculator hourly wage for one adult in the region ($15.04 in Los Angeles County and $17.36 in Orange County)[5]. Experienced workers can expect to earn between $36.06 and $44.57, which is higher than the California Family Needs Calculator wage estimates for both counties. Regional average wages are slightly below the average statewide wage of $31.68 for these occupations. Wage information, by county, is included in Appendix A.

Job Postings—There were 1,583 online job postings related to architectural technology listed in the past 12 months. The highest number of job postings were for drafter/draftsman, CAD draughter, mechanical designer, electrical designer, and piping designer. The top skills were knowledge of: AutoCAD, Revit, MicroStation, 3D modeling/design and SolidWorks. The top three employers, by number of job postings, in the region were: The Bergaila Companies, ME Engineers Incorporated and Parsons Brinckerhoff. Of the 1,583 online job postings, 37% list a minimum education requirement.

Educational Attainment—The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for all three architectural technology occupations. The national-level educational attainment data indicates 60.9% of workers in the field have completed some college or an associate degree. Of the 37% of architectural technology job postings listing a minimum education requirement in Los Angeles/Orange County, 44% (253) requested a high school diploma and 56% (324) requested an associate degree.

Supply
Community College Supply—Exhibit 2, on the following page, shows the three-year average number of awards conferred by community colleges in the related TOP codes: Architecture and

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[3] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.
[4] Entry-level wage is defined as the twenty-fifth percentile hourly wage. Wages for experienced workers are defined as the seventy-fifth percentile hourly wage.
[5] Living wage data was pulled from California Family Needs Calculator on 2/24/20. For more information, visit the California Family Needs Calculator website: https://insightcced.org/2018-family-needs-calculator/.

Architectural Technology (0201.00); Drafting Technology (0953.00); Architectural Drafting (0953.10); Civil Drafting (0953.20); Electrical, Electronic, and Electro-Mechanical Drafting (0953.30); and Mechanical Drafting (0953.40). The programs with the most completions in the region are: Architecture and Architectural Technology (0201.00), and Drafting Technology (0953.00), while the colleges with the most regional completions are Mt. San Antonio, East LA, Cerritos, and Rio Hondo. Over the past 12 months, there were five other related program recommendation requests from regional community colleges.

Exhibit 2: Regional community college awards (certificates and degrees), 2015-2018

TOP Code	Program	College	2015-2016 Awards	2016-2017 Awards	2017-2018 Awards	3-Year Award Average
0201.00	Architecture and Architectural Technology	Cerritos	16	20	17	18
		Citrus	0	0	2	1
		Compton	2	0	0	1
		East LA	103	25	34	54
		El Camino	18	21	35	25
		Glendale	4	3	4	4
		LA Harbor	14	10	5	10
		LA Pierce	7	4	8	6
		LA Trade	8	9	8	8
		LA Valley	3	2	4	3
		Long Beach	6	12	10	9
		Mt San Antonio	19	67	82	56
		Pasadena	7	5	11	8
		Rio Hondo	17	13	19	16
		LA Subtotal	**224**	**191**	**239**	**218**
		Fullerton	8	9	8	8
		Orange Coast	34	43	82	53
		Saddleback	6	14	12	11
		OC Subtotal	**48**	**66**	**102**	**72**
	Supply Subtotal/Average		**272**	**257**	**341**	**290**

0953.00	Drafting Technology	Cerritos	45	41	48	45
		Citrus	7	2	6	5
		East LA	41	33	38	37
		El Camino	14	11	15	13
		LA Harbor	5	2	1	3
		LA Pierce	3	8	7	6
		LA Valley	1	2	4	2
		Mt San Antonio	30	45	34	36
		Pasadena	2	0	21	8
		Rio Hondo	19	9	93	40
		LA Subtotal	**167**	**153**	**267**	**196**
		Fullerton	8	8	11	9
		Golden West	16	17	18	17
		Irvine	3	5	0	3
		Saddleback	2	0	2	1
		Santa Ana	8	20	23	17
		OC Subtotal	**37**	**50**	**54**	**47**
	Supply Subtotal/Average		**204**	**203**	**321**	**243**
0953.10	Architectural Drafting	Citrus	0	1	0	0
		Long Beach	4	12	8	8
		LA Subtotal	**4**	**13**	**8**	**8**
		Fullerton	0	0	4	1
		Santa Ana	1	3	3	2
		OC Subtotal	**1**	**3**	**7**	**4**
	Supply Subtotal/Average		**5**	**16**	**15**	**12**
0953.20	Civil Drafting	Rio Hondo	6	7	2	5
		LA Subtotal	**6**	**7**	**2**	**5**
		Irvine	1	1	1	1
		OC Subtotal	**1**	**1**	**1**	**1**
	Supply Subtotal/Average		**7**	**8**	**3**	**6**
0953.30	Electrical, Electronic, and Electro-Mechanical Drafting	Glendale	5	7	6	6
	Supply Subtotal/Average		**5**	**7**	**6**	**6**

		LA Valley	5	5	8	6
		Long Beach	7	36	23	22
0953.40	Mechanical Drafting	**LA Subtotal**	**12**	**41**	**31**	**28**
		Irvine	0	2	0	1
		OC Subtotal	**0**	**2**	**0**	**1**
	Supply Subtotal/Average		12	43	31	29
	Supply Total/Average		505	534	717	585

Non-Community College Supply—It is important to consider the supply from four-year institutions in the region that provide training programs for architectural technology occuaptions. Exhibit 3 shows the annual and three-year average number of awards conferred by this institution in the related Classification of Instructional Programs (CIP) Codes: Drafting and Design Technology/Technician (15.1301), and CAD/CADD Drafting and/or Design Technology/Technician (15.1302). Due to different data collection periods, the most recent three-year period of available data is from 2013 to 2016. Between 2013 and 2016, four-year colleges in the region conferred an average of five awards annually in related training programs.

Exhibit 3: Regional non-community college awards, 2013-2016

CIP Code	Program	College	2013-2014 Awards	2014-2015 Awards	2015-2016 Awards	3-Year Award Average
15.1301	Drafting and Design Technology/Technician, General	Los Angeles ORT College-Van Nuys Campus	2	1	-	1
15.1302	CAD/CADD Drafting and/or Design Technology/Technician	Los Angeles ORT College-Van Nuys Campus	-	-	11	4
		Supply Total/Average	**2**	**1**	**11**	**5**

Appendix A: Occupational demand and wage data by county

Exhibit 4. Los Angeles County

Occupation (SOC)	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Architectural and Civil Drafters (17-3011)	3,451	3,554	103	3%	314	$24.05	$29.12	$35.67
Mechanical Drafters (17-3013)	1,134	1,129	(5)	(0%)	98	$21.25	$28.35	$37.03
Electrical and Electronics Drafters (17-3012)	685	687	2	0%	59	$25.08	$33.66	$44.53
Total	**5,270**	**5,370**	**100**	**2%**	**470**			

Exhibit 5. Orange County

Occupation (SOC)	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Architectural and Civil Drafters (17-3011)	1,931	2,001	70	4%	179	$24.95	$30.06	$36.73
Mechanical Drafters (17-3013)	613	639	26	4%	58	$21.88	$29.07	$37.83
Electrical and Electronics Drafters (17-3012)	405	419	14	3%	37	$25.33	$33.86	$44.64
Total	**2,948**	**3,058**	**110**	**4%**	**274**			

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Architectural and Civil Drafters (17-3011)	5,382	5,555	173	3%	493	$24.36	$29.46	$36.06
Mechanical Drafters (17-3013)	1,746	1,767	21	1%	155	$21.47	$28.60	$37.31
Electrical and Electronics Drafters (17-3012)	1,090	1,106	16	1%	96	$25.17	$33.74	$44.57
Total	**8,218**	**8,429**	**211**	**3%**	**745**			

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- Employment Development Department, Unemployment Insurance Dataset
- Living Insight Center for Community Economic Development
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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February 2020

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