

## **Program Endorsement Brief: 0953.10/Architectural Drafting Architectural Drafting; Architectural Theory and Design; Residential Architectural Design**

Los Angeles/Orange County Center of Excellence, May 2020

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### **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 four middle-skill occupations: Architectural and Civil Drafters (17-3011), Electrical and Electronics Drafters (17-3012), Mechanical Drafters (17-3013), and Drafters, All Other (17-3019). Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.<sup>1</sup> 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 drafting occupations in the region. **Therefore, the COE endorses this proposed program.** Reasons include:

#### **Demand:**

- Over the next five years, there is projected to be **947 jobs available annually** in the region due to retirements and workers leaving the field, **which is more than the 597 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 regional entry-level hourly wages** for occupations throughout the region are between \$19.98 and \$24.74, **which are higher than the California Family Needs Calculator** hourly wage (living wage) for one adult in the region (\$15.04 in Los Angeles County and \$17.36 in Orange County).<sup>2</sup>

#### **Supply:**

- There are **20 community colleges** in the region that issue awards related to drafting, conferring an average of **587 awards annually** between 2016 and 2019.
- Between 2014 and 2017, there was an average of **10 awards conferred annually** in related training programs by non-community college institutions throughout the region.

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<sup>1</sup> 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.

<sup>2</sup> Living wage data was pulled from California Family Needs Calculator on 5/11/20. 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 drafting occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to slightly decrease by less than 1% through 2024. However, there will be 947 job openings per year through 2024 due to retirements and workers leaving the field.

*This report includes employment projection data by Emsi which uses EDD information. Emsi's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.*

**Exhibit 1: Occupational demand in Los Angeles and Orange Counties<sup>3</sup>**

Geography	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Los Angeles	5,748	5,697	(51)	(1%)	601
Orange	3,228	3,268	40	1%	346
<b>Total</b>	<b>8,976</b>	<b>8,965</b>	<b>(11)</b>	<b>(0%)</b>	<b>947</b>

**Wages** — Typical regional entry-level hourly wages for drafting occupations are between \$19.98 and \$24.74. Regional entry-level wages for these occupations are higher than the California Family Needs Calculator hourly wage (living wage) for one adult in the region (\$15.04 in Los Angeles County and \$17.36 in Orange County). Experienced workers can expect to earn regional wages between \$29.85 and \$44.40, which is also higher than the living wage estimates for both counties. Wage information, by county, is included in Appendix A.

**Job Postings** — There were 2,704 online job postings related to drafting occupations listed in the past 12 months. The highest number of job postings were for Computer Aided Drafting/Design (CAD) Drafters, CAD Designers, Mechanical Designers, CAD Technicians, and Electrical Designers. The top software skills were: AutoCAD, Revit, and SolidWorks. The top three employers, by number of job postings, in the region were: Edison International, The Bergalia Companies, and Peak Technical Services Incorporated.

*It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.*

**Educational Attainment** — The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for drafting occupations. The national-level educational attainment

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<sup>3</sup> Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

data indicates 60.9% of workers in the field have completed some college or an associate degree. Of the 37% of drafting occupation job postings listing a minimum education requirement in Los Angeles/Orange County, 58% (582) requested an associate degree and 42% (417) requested a high school diploma.

## Educational Supply

**Community College Supply** — Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Architecture and Architectural Technology (0201.00), Drafting Technology (0953.00), and Architectural Technology (0953.10). The colleges with the most completions in the region are Mt. San Antonio, East LA, and El Camino. Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

**Exhibit 2: Regional community college awards (certificates and degrees), 2016-2019**

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
0201.00	Architecture and Architectural Technology	Cerritos	20	17	24	20
		Citrus	0	2	3	2
		Compton	0	0	2	1
		East LA	21	34	27	25
		El Camino	21	35	14	23
		Glendale	3	4	6	4
		LA Harbor	10	5	5	7
		LA Pierce	4	8	9	7
		LA Trade-Tech	9	8	11	9
		LA Valley	2	4	1	2
		Long Beach	12	10	14	12
		Mt San Antonio	67	82	97	82
		Pasadena	5	11	16	11
		Rio Hondo	13	19	20	17
		<b>LA Subtotal</b>	<b>191</b>	<b>239</b>	<b>279</b>	<b>236</b>
		Fullerton	9	8	5	7
		Orange Coast	43	82	40	55
		Saddleback	14	12	15	14
		<b>OC Subtotal</b>	<b>66</b>	<b>102</b>	<b>60</b>	<b>76</b>
		<b>Supply Subtotal/Average</b>			<b>257</b>	<b>341</b>

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
0953.00	Drafting Technology	Cerritos	41	48	35	41
		Citrus	2	6	13	7
		East LA	33	38	36	36
		El Camino	11	15	21	16
		LA Harbor	2	1	3	2
		LA Pierce	8	7	5	7
		LA Valley	2	4	1	2
		Mt San Antonio	45	34	42	40
		Pasadena	0	21	5	9
		Rio Hondo	9	93	14	39
		<b>LA Subtotal</b>	<b>153</b>	<b>267</b>	<b>175</b>	<b>198</b>
		Fullerton	8	11	5	8
		Golden West	17	18	57	31
		Irvine	5	0	2	2
		Saddleback	0	2	1	1
		Santa Ana	20	23	15	19
		<b>OC Subtotal</b>	<b>50</b>	<b>54</b>	<b>80</b>	<b>61</b>
<b>Supply Subtotal/Average</b>			<b>203</b>	<b>321</b>	<b>255</b>	<b>260</b>
0953.10	Architectural Drafting	Citrus	1	0	0	0
		Long Beach	12	8	7	9
		<b>LA Subtotal</b>	<b>13</b>	<b>8</b>	<b>7</b>	<b>9</b>
		Fullerton	0	4	3	2
		Santa Ana	3	3	3	3
		<b>OC Subtotal</b>	<b>3</b>	<b>7</b>	<b>6</b>	<b>5</b>
<b>Supply Subtotal/Average</b>			<b>16</b>	<b>15</b>	<b>13</b>	<b>15</b>
<b>Supply Total/Average</b>			<b>476</b>	<b>677</b>	<b>607</b>	<b>587</b>

**Non-Community College Supply** — It is important to consider the supply from other postsecondary institutions in the region that provide training programs for drafting occupations. Exhibit 3 shows the annual and three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Codes: Drafting and Design Technology/Technician, General (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 2014 to 2017. Between 2014 and 2017, other educational institutions in the region conferred an average of 10 awards annually in related training programs.

**Exhibit 3: Regional non-community college awards, 2014-2017**

CIP Code	Program	College	2014-2015 Awards	2015-2016 Awards	2016-2017 Awards	3-Year Award Average
15.1301	Drafting and Design Technology/ Technician, General	Los Angeles ORT College-Van Nuys Campus	1	-	-	0
15.1302	CAD/CADD Drafting and/or Design	Los Angeles ORT College-Los Angeles Campus	-	-	10	3
	Technology/ Technician	Los Angeles ORT College-Van Nuys Campus	-	11	9	7
<b>Supply Total/Average</b>			<b>1</b>	<b>11</b>	<b>19</b>	<b>10</b>

**Appendix A: Occupational demand and wage data by county**

**Exhibit 4. Los Angeles County**

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 <sup>th</sup> Percentile)
Architectural and Civil Drafters (17-3011)	3,312	3,345	33	1%	352	\$24.44	\$29.28	\$35.68
Electrical and Electronics Drafters (17-3012)	730	719	(11)	(2%)	75	\$24.46	\$33.20	\$44.34
Mechanical Drafters (17-3013)	1,197	1,130	(67)	(6%)	121	\$20.94	\$28.14	\$37.00
Drafters, All Other (17-3019)	510	503	(7)	(1%)	53	\$19.63	\$25.86	\$29.68
<b>Total</b>	<b>5,748</b>	<b>5,697</b>	<b>(51)</b>	<b>(1%)</b>	<b>601</b>	<b>-</b>	<b>-</b>	<b>-</b>

**Exhibit 5. Orange County**

<b>Occupation (SOC)</b>	<b>2019 Jobs</b>	<b>2024 Jobs</b>	<b>5-Yr Change</b>	<b>5-Yr % Change</b>	<b>Annual Openings</b>	<b>Entry-Level Hourly Earnings (25th Percentile)</b>	<b>Median Hourly Earnings</b>	<b>Experienced Hourly Earnings (75th Percentile)</b>
Architectural and Civil Drafters (17-3011)	1,887	1,914	27	1%	202	\$25.28	\$30.20	\$36.76
Electrical and Electronics Drafters (17-3012)	430	440	10	2%	47	\$24.85	\$33.50	\$44.51
Mechanical Drafters (17-3013)	642	633	(9)	(1%)	66	\$21.58	\$28.86	\$37.79
Drafters, All Other (17-3019)	269	281	12	4%	31	\$20.61	\$26.93	\$30.65
<b>Total</b>	<b>3,228</b>	<b>3,268</b>	<b>40</b>	<b>1%</b>	<b>346</b>	<b>-</b>	<b>-</b>	<b>-</b>

**Exhibit 6. Los Angeles and Orange Counties**

<b>Occupation (SOC)</b>	<b>2019 Jobs</b>	<b>2024 Jobs</b>	<b>5-Yr Change</b>	<b>5-Yr % Change</b>	<b>Annual Openings</b>	<b>Entry-Level Hourly Earnings (25th Percentile)</b>	<b>Median Hourly Earnings</b>	<b>Experienced Hourly Earnings (75th Percentile)</b>
Architectural and Civil Drafters (17-3011)	5,199	5,259	60	1%	554	\$24.74	\$29.62	\$36.07
Electrical and Electronics Drafters (17-3012)	1,160	1,159	(1)	(0%)	122	\$24.60	\$33.32	\$44.40
Mechanical Drafters (17-3013)	1,838	1,763	(75)	(4%)	187	\$21.16	\$28.39	\$37.28
Drafters, All Other (17-3019)	779	784	5	1%	84	\$19.98	\$26.24	\$29.85
<b>Total</b>	<b>8,976</b>	<b>8,965</b>	<b>(11)</b>	<b>(0%)</b>	<b>947</b>	<b>-</b>	<b>-</b>	<b>-</b>

## 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
- 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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