

## **Program Endorsement Brief: 0953/Drafting Technology Engineering Drafting Aide**

Los Angeles/Orange County Center of Excellence, July 2019

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### **Summary Analysis**

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide regional labor market supply and demand data related to four middle-skill engineering drafting 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.<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 relevant occupations.

Based on the available data, it appears that there is a supply gap for these 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 **808 jobs available annually** in the region due to new jobs, retirements, and workers leaving the field.

#### **Supply:**

- Between 2013 and 2016, there were an average of **585 awards conferred annually** by twenty regional community colleges, which is less than the number of regional job openings.

**Occupational Demand** — Exhibit 1 shows the five-year occupational demand projections for the four occupations of interest. In Los Angeles/Orange County, the number of drafting jobs is projected to increase by 1% over the next five years. There will be more than 800 job openings per year through 2023.

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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.

**Exhibit 1: Occupational demand in Los Angeles and Orange Counties<sup>2</sup>**

<b>Geography</b>	<b>2018 Jobs</b>	<b>2023 Jobs</b>	<b>2018-2023 Change</b>	<b>2018-2023 % Change</b>	<b>Annual Openings</b>
Los Angeles	5,846	5,891	45	1%	514
Orange	3,255	3,335	80	2%	293
<b>Total</b>	<b>9,101</b>	<b>9,226</b>	<b>125</b>	<b>1%</b>	<b>807</b>

**Wages** — Entry-level wages for drafting occupations in the region are between \$20.33 and \$25.09.<sup>3</sup> Typical entry-level wages for these occupations are higher than the California Family Needs Calculator hourly wages for one adult in the region (\$15.04 in Los Angeles County and \$17.36 in Orange County). Experienced workers can expect to earn between \$29.99 and \$44.57 per hour. Regional average wages are below the average statewide wage of \$31.43 for these occupations. Wage information, by county, is included in Appendix A.

**Job Postings** — There were 2,755 online job postings related to drafting occupations listed in the past 12 months. The majority of job postings were for CAD Drafter, CAD Technician, Detailer, Mechanical Designer, and Piping Designer. Top specialized skills were knowledge of: AutoCAD, Revit, SolidWorks, MicroStation and AutoDesk. The top employers, by number of job postings, in the region were: Edison International, Jacobs Engineering Group and WorleyParsons. Of the 2,755 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 the four drafting occupations. The national-level educational attainment data indicates 62% of workers in the field have completed some college or an associate degree. Of the 37% of drafting job postings listing a minimum education requirement in Los Angeles/Orange County, 51% (518) of job postings requested a high school diploma or vocational training and 49% (499) requested an associate degree.

**Community College Supply** — Exhibit 2 shows the three-year average number of awards conferred by programs that have historically trained for the four drafting occupations: Architecture and 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 colleges with the most completions in the region are: Mt. San Antonio, East LA, and Cerritos. Over the past 12 months, there were eight other related program recommendation requests from regional community colleges.

<sup>2</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.

<sup>3</sup> Entry-level wage is defined as the 25<sup>th</sup> percentile hourly wage. Wages for experienced workers are defined as the 75<sup>th</sup> percentile hourly wage.

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

TOP Code	Program	College	2015-16 Awards	2016-17 Awards	2017-18 Awards	3-Year Award Average
0201.00	Architecture and Architectural Technology	Cerritos	16	20	17	18
		Citrus	-	-	2	2
		Compton	2	0	0	1
		East LA	103	25	34	54
		El Camino	18	21	35	25
		Fullerton	8	9	8	8
		Glendale	4	3	4	4
		LA Harbor	14	10	5	10
		LA Pierce	7	4	8	6
		LA Trade-Tech	8	9	8	8
		LA Valley	3	2	4	3
		Long Beach	6	12	10	9
		Mt San Antonio	19	67	82	56
		Orange Coast	34	43	82	53
		Pasadena	7	5	11	8
		Rio Hondo	17	13	19	16
		Saddleback	6	14	12	11
<b>Subtotal</b>			<b>272</b>	<b>257</b>	<b>341</b>	<b>290</b>
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
		Fullerton	8	8	11	9
		Golden West	16	17	18	17
		Irvine	3	5	-	4
		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
		Saddleback	2	0	2	1
Santa Ana	8	20	23	17		
<b>Subtotal</b>			<b>204</b>	<b>203</b>	<b>321</b>	<b>243</b>

0953.10	Architectural Drafting	Citrus	0	1	0	0
		Fullerton	-	-	4	4
		Long Beach	4	12	8	8
		Santa Ana	1	3	3	2
		<b>Subtotal</b>	<b>5</b>	<b>16</b>	<b>15</b>	<b>12</b>
0953.20	Civil Drafting	Irvine	1	1	1	1
		Rio Hondo	6	7	2	5
		<b>Subtotal</b>	<b>7</b>	<b>8</b>	<b>3</b>	<b>6</b>
0953.30	Electrical, Electronic, and Electro-Mechanical Drafting	Glendale	5	7	6	6
		<b>Subtotal</b>	<b>5</b>	<b>7</b>	<b>6</b>	<b>6</b>
0953.40	Mechanical Drafting	Irvine	0	2	0	1
		LA Valley	5	5	8	6
		Long Beach	7	36	23	22
		<b>Subtotal</b>	<b>12</b>	<b>43</b>	<b>31</b>	<b>29</b>
		<b>Total</b>	<b>505</b>	<b>534</b>	<b>717</b>	<b>585</b>

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

### Exhibit 3. Los Angeles County

Occupation (SOC)	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Architectural and Civil Drafters (17-3011)	3,486	3,582	96	3%	316	\$24.06	\$29.15	\$35.71
Mechanical Drafters (17-3013)	1,163	1,133	(30)	(3%)	97	\$21.25	\$28.38	\$37.09
Electrical and Electronics Drafters (17-3012)	701	693	(8)	(1%)	59	\$24.91	\$33.53	\$44.42
Drafters, All Other (17-3019)	496	483	(13)	(3%)	42	\$20.00	\$26.04	\$29.55
<b>Total</b>	<b>5,846</b>	<b>5,891</b>	<b>45</b>	<b>1%</b>	<b>514</b>			

**Exhibit 4. Orange County**

<b>Occupation (SOC)</b>	<b>2018 Jobs</b>	<b>2023 Jobs</b>	<b>5-Yr Change</b>	<b>5-Yr % Change</b>	<b>Annual Openings</b>	<b>Entry-Level Hourly Earnings</b>	<b>Median Hourly Earnings</b>	<b>Experienced Hourly Earnings</b>
Architectural and Civil Drafters (17-3011)	1,954	1,992	38	2%	174	\$24.91	\$30.02	\$36.67
Mechanical Drafters (17-3013)	631	651	20	3%	58	\$21.87	\$29.07	\$37.85
Electrical and Electronics Drafters (17-3012)	410	421	11	3%	37	\$25.39	\$33.97	\$44.82
Drafters, All Other (17-3019)	260	271	11	4%	25	\$20.94	\$27.10	\$30.65
<b>Total</b>	<b>3,255</b>	<b>3,335</b>	<b>80</b>	<b>2%</b>	<b>293</b>			

**Exhibit 5. Los Angeles and Orange Counties**

<b>Occupation (SOC)</b>	<b>2018 Jobs</b>	<b>2023 Jobs</b>	<b>5-Yr Change</b>	<b>5-Yr % Change</b>	<b>Annual Openings</b>	<b>Entry-Level Hourly Earnings</b>	<b>Median Hourly Earnings</b>	<b>Experienced Hourly Earnings</b>
Architectural and Civil Drafters (17-3011)	5,440	5,574	134	2%	490	\$24.36	\$29.47	\$36.06
Mechanical Drafters (17-3013)	1,794	1,784	(10)	(1%)	155	\$21.46	\$28.62	\$37.36
Electrical and Electronics Drafters (17-3012)	1,111	1,114	3	0%	96	\$25.09	\$33.69	\$44.57
Drafters, All Other (17-3019)	756	754	(2)	(0%)	66	\$20.33	\$26.37	\$29.99
<b>Total</b>	<b>9,101</b>	<b>9,226</b>	<b>125</b>	<b>1%</b>	<b>807</b>			

## Appendix C: Sources

- O\*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (EMSI)
- 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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