**Architectural Drafter Occupations**

**Labor Market Information Report**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

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# Recommendation

Based on all available data included in this report, there appears to be an undersupply of Architectural Drafters compared to the demand for this cluster of occupations in the Bay region and the East Bay sub-region. The annual gap between demand and supply is 418 in the region and 108 in the East Bay sub-region. However, these gaps may be smaller in the region and sub-region because civil drafters are included along with architectural drafters in the annual openings number.

This report also provides student outcomes data on employment and earnings for Architecture and Architectural Technology programs in the region and state. It is recommended that this data be reviewed to better understand how student outcomes for Laney College compare to potentially similar programs at colleges in the state, region and sub-region as well as to outcomes across all programs in the region.

# Introduction

This report profiles Architectural Drafter occupations in the 12 county Bay Region and the East Bay Sub-Region (Alameda and Contra Costa counties) for a proposed revision to the existing program at Laney College.

* **Architectural and Civil Drafters (SOC 17-3011)**: 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.

*Entry-Level Educational Requirement:* *Associate Degree*

*Training Requirement:* *None*

*Percentage of Community College Award Holders or Some Postsecondary Coursework:* 62%

* + **Architectural Drafters (SOC 17-3011.01)**: Prepare detailed drawings of architectural designs and plans for buildings and structures according to specifications provided by architect.
	+ **Civil Drafters (SOC 17-3011.02)**: Prepare drawings and topographical and relief maps used in civil engineering projects, such as highways, bridges, pipelines, flood control projects, and water and sewerage control systems.

Note: There is no LMI at the 8-digit SOC code level except from online postings as reported by Burning Glass. The EMSI data will include information for both 8-digit SOC codes under the 6-digit code.

* **Drafters, All Others (SOC 17-3019)**: All drafters not listed separately.

*Entry-Level Educational Requirement:* *Associate Degree*

*Training Requirement:* *None*

*Percentage of Community College Award Holders or Some Postsecondary Coursework:* 62%

# Occupational Demand

**Table 1. Employment Outlook for Architectural Drafter Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2016 Jobs | 2021 Jobs | 5-Yr Change | 5-Yr % Change | 5-year Openings | Annual Openings | 10% Hrly Wage | Median Hrly Wage |
| Architectural & Civil Drafters | 4,514 | 4,670 | 156 | 3% | 2,116 | 423 | $20.60 | $27.92 |
| Drafters, All Other | 388 | 414 | 26 | 7% | 194 | 39 | $20.34 | $28.17 |
| **Total** | **4,902** | **5,084** | **182** | **4%** | **2,310** | **462** | **$20.58**  | **$27.94**  |

*Source: EMSI 2017.4***Bay Region** includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Architectural Drafter Occupations in East Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2016 Jobs | 2021 Jobs | 5-Yr Change | 5-Yr % Change | 5-year Openings | Annual Openings | 10% Hrly Wage | Median Hrly Wage |
| Architectural & Civil Drafters | 1,222 | 1,282 | 60 | 5% | 596 | 119 | $21.07 | $27.64 |
| Drafters, All Other | 172 | 182 | 10 | 6% | 83 | 17 | $19.50 | $28.15 |
| **Total** | **1,395** | **1,463** | **68** | **5%** | **679** | **136** | **$20.87**  | **$27.70**  |

*Source: EMSI 2017.4***East Bay Sub-Region** includes Alameda and Contra Costa counties

### Job Postings in Bay Region and East Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Dec 2016 – Nov 2017)**

|  |  |  |
| --- | --- | --- |
| Occupation | Bay Region | East Bay |
| Drafters, All Other (17-3019.00) | 326 | 125 |
| Civil Drafters (17-3011.02) | 64 | 35 |
| Architectural Drafters (17-3011.01) | 31 | 22 |
| **Total** | **421** | **182** |

*Source: Burning Glass*

**Table 4. Top Job Titles for Architectural Drafter Occupations for latest 12 months (Dec 2016 – Nov 2017)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay Region | East Bay | Common Title | Bay Region | East Bay |
| Cad Drafter | 70 | 28 | Cad Drafter | 11 | 2 |
| Autocad Drafter | 64 | 20 | Cad Manager | 10 | 6 |
| Cad Designer | 25 | 11 | Architect Revit Cad Designer | 9 | 9 |
| Cad Technician | 20 | 14 | Senior Cad Designer | 9 | 5 |
| Detailer | 20 | 9 | Autocad Drafter | 8 | 4 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Architectural Drafters in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2016) | Jobs in Industry (2021) | % Change (2016-21) | % in Industry (2016) |
| Architectural Services (541310) | 1,518 | 1,591 | 5% | 31.0% |
| Engineering Services (541330) | 1,392 | 1,451 | 4% | 28.4% |
| Landscape Architectural Services (541320) | 337 | 310 |  (8%) | 6.8% |
| Surveying and Mapping (except Geophysical) Services (541370) | 174 | 185 | 6% | 3.6% |
| Building Inspection Services (541350) | 128 | 142 | 11% | 2.6% |
| Commercial and Institutional Building Construction (236220) | 86 | 93 | 8% | 1.8% |
| Local Government, Excluding Education and Hospitals (903999) | 84 | 85 | 1% | 1.7% |
| Residential Remodelers (236118) | 82 | 85 | 4% | 1.6% |
| New Single-Family Housing Construction (except For-Sale Builders) (236115) | 76 | 71 |  (7%) | 1.5% |
| Plumbing, Heating, and Air-Conditioning Contractors (238220) | 77 | 82 | 6% | 1.5% |
| Temporary Help Services (561320) | 60 | 64 | 7% | 1.2% |

*Source: EMSI 2017.4*

**Table 6. Top Employers Posting Jobs in Bay Region and East Bay for latest 12 months (Dec 2016 – Nov 2017)**

Note: 49% of records have been excluded because they do not include an employer. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Employer** | **Bay Region** |  | **Employer** | **East Bay** |
| Tesla Motors | 19 |  | Tesla Motors | 12 |
| Coffman Engineers | 6 |  | Coffman Engineers | 6 |
| Cupertino Electric Incorporated | 5 |  | Gillig Corporation | 4 |
| Johnson Controls Incorporated | 5 |  | Jacobs Engineering Group Incorporated | 4 |
| Gillig Corporation | 4 |  | Eichleay | 3 |
| Intel Corporation | 4 |  | Engeo Incorporated | 3 |
| Jacobs Engineering Group Incorporated | 4 |  | Haley & Aldrich Incorporated | 3 |
| Online Technical Services | 4 |  | Jensen Hughes, Inc | 3 |
| Tata Technologies Incorporated | 4 |  |  |  |

*Source: Burning Glass*

# Educational Supply

There are seven community colleges issuing 44 awards on Architecture and Architectural Technology (TOP 0201.00) in the Bay Region and three community colleges issuing 28 awards in the East Bay Sub-Region.

Laney College may want to consider listing this program under TOP 0953.10 – Architectural Drafting, which may be a better fit. (Note: there are only three colleges issuing 16 awards annually on TOP 0953.10, so if this TOP code was selected there would still be a significant undersupply of workers compared to the demand for this cluster of occupations).

**Table 7. Data Analytics Programs on 0201.00 Architecture and Architectural Technology in Bay Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| College | Sub-Region | CC Headcount | No of Transfer Students | Associate Degrees | Certificates or Other Credit Awards | Total Awards |
| Canada | Mid-Peninsula | 83 | 0 | 0 | 0 | 0 |
| Chabot | East Bay | 164 | 5 | 7 | 1 | 8 |
| College of Marin | North Bay | 66 | 3 | 0 | 0 | 0 |
| Diablo Valley | East Bay | 509 | 26 | 14 | 3 | 17 |
| Laney | East Bay | 183 | 10 | 2 | 1 | 3 |
| San Francisco | Mid-Peninsula | 470 | 18 | 3 | 0 | 3 |
| San Mateo | Mid-Peninsula | 187 | 10 | 4 | 0 | 4 |
| Santa Rosa | North Bay | 88 | 1 | 2 | 0 | 2 |
| West Valley | Silicon Valley | 173 | 6 | 2 | 5 | 7 |
| **Total Bay Region** | **1,910** | **79** | **34** | **10** | **44** |
| **Total East Bay Sub-Region** | **854** | **41** | **23** | **5** | **28** |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: For Community Colleges, the annual average for Associate Degrees and Certificates is 2014-17. There appears to be no programs at Other Educational Postsecondary Institutes based on a crosswalk of TOP to CIP codes. Headcount is for 2015-16.

# Gap Analysis

The labor market gap is significant in the Bay region for this cluster of occupation with total annual openings of 462 and annual supply of 44 awards. This represents an undersupply of 418 students. In the East Bay sub-region, there is also a gap with total annual openings of 136 and annual supply of 28 awards for a gap of 108. However, the annual openings number includes civil drafters, so the demand may be overstated. Since the labor market gaps are fairly large in the region and sub-region, it still appears that there is a need for additional Architectural Drafters.

# Student Outcomes

Student Outcomes data from Launchboard is available for students who took courses on TOP 0201.00 - Architecture and Architectural Technology, in the Bay region.

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0201.00 Architecture and Architectural Technology**

* The outcomes for students who took courses on TOP 0201.00 at Laney College appear to be similar to the rest of the region and state in terms of percentage employed four quarters after exit and earning a living wage.
* The median earnings for students from Laney College are lower by 24% compared to the East Bay median and 30% lower than the Bay median.
* The median wage gains experienced by Laney College students who took courses on TOP 0201.00, was the highest in the region in 2014-15.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **2014-15** | **Bay Region (All Programs)** | **State (0201.00)** | **Bay Region (0201.00)** | **Laney (0201.00)** | **East Bay (0201.00)** | **Top Colleges for Architecture & Architectural Technology in Bay Region** |
| % Employed Four Quarters After Exit | 68% | 59% | 57% | 56% | 58% | Chabot | 62% |
| Median Earnings Two Quarters After Exit | $12,640 | $7,410 | $11,430 | $7,950 | $10,410 | San Francisco | $15,855 |
| Median % Change in Earnings | 37% | 41% | 50% | 87% | 47% | Laney | 87% |
| % of Students Earning a Living Wage | 51% | 45% | 60% | 52% | 55% | San Francisco | 71% |

*Source: Launchboard*

# Skill & Certifications

**Table 9. Top Skills for Architectural Drafter Occupations in the Bay Region (Dec 2016 – Nov 2017)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Skill** | **Latest 12 Mos. Postings** | **Skill** | **Latest 12 Mos. Postings** | **Skill** | **Latest 12 Mos. Postings** |
| AutoCAD | 225 | Budgeting | 25 | Microstation | 19 |
| Microsoft Excel | 81 | Schematic Diagrams | 25 | Packaging | 19 |
| Revit | 81 | Calculation | 23 | Civil Engineering | 18 |
| Computer Aided Drafting/Design (CAD) | 76 | Adobe Acrobat | 22 | Drawing Preparation | 17 |
| Microsoft Office | 72 | Microsoft Powerpoint | 22 | Adobe Illustrator | 16 |
| Project Management | 42 | Scheduling | 22 | Electrical Design | 16 |
| Microsoft Word | 36 | Staff Management | 20 | Electrical Diagrams | 16 |
| Civil 3D | 35 | Adobe Photoshop | 19 | Estimating | 16 |
| Autodesk | 30 | Bill of Materials | 19 | Heavy Industrial Project Experience | 16 |
| 3D Modeling/ Design | 29 | Construction Mgnt | 19 | Adobe Indesign | 15 |

*Source: Burning Glass*

**Table 10. Certifications for Architectural Drafter Occupations in the Bay Region (Dec 2016 – Nov 2017)**

Note: 91% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |
| --- | --- |
| **Certification** | **Latest 12 Mos. Postings** |
| COMPUTER AIDED DESIGN (CAD) CERTIFICATION | 15 |
| DRAFTING CERTIFICATION | 14 |
| PROFESSIONAL ENGINEER | 3 |

*Source: Burning Glass*

**Table 11. Education Requirements in Bay Region**

Note: 58% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |
| --- | --- | --- |
| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **% of Total Indicating Ed. Level** |
| High school or vocational training | 42 | 24% |
| Associate Degree | 49 | 27% |
| Bachelor’s Degree or Higher | 87 | 49% |

*Source: Burning Glass*

# Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

# Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard [www.calpassplus.org/Launchboard/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor’s Office MIS system

# Contacts

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