

# Mechanical Drafting

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*Inland Empire/Desert Region (Riverside-San Bernardino-Ontario Metropolitan Statistical Area)*

## Summary

- Employment for mechanical drafters is expected to increase by **2% between 2017 and 2022** in the Inland Empire/Desert Region. Just over **200 job openings** will be available over the five-year timeframe.
- The entry-level wage for mechanical drafters is **above the MIT Living Wage estimate of \$12.30 per hour** for a single adult living in the Inland Empire/Desert Region.
- There appears to be an opportunity for program growth based on the average annual number of program completions for the selected community college programs (**2 average annual community college awards**), and the annual openings for mechanical drafters in the local region (**42 annual job openings**).

## Introduction

Details for the mechanical drafters occupation highlighted report are listed below along with its corresponding definition/description, sample job titles, education and training requirements, as well as the community college educational attainment of current workers within this occupation:

### **Mechanical Drafters (17-3013)**

Prepare detailed working diagrams of machinery and mechanical devices, including dimensions, fastening methods, and other engineering information.

**Sample job titles:** CAD Designer (Computer Aided Design Designer), CAD Operator (Computer Aided Design Operator), Design Drafter, Designer, Drafter, Drafting Technician, Mechanical Designer, Mechanical Drafter, Product Designer, Project Designer

*Entry-Level Educational Requirement: Associate degree*

*Training Requirement: None*

*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 61%*

## Job Opportunities

In 2017, there were more than 470 mechanical drafter jobs in the Inland Empire/Desert Region. This occupational group is projecting to increase employment 2% by 2022. Employers in the region will need to hire more than 200 workers over the next five years to fill new jobs and backfill jobs that workers are permanently vacating (includes retirements).

*Exhibit 1: Five-year projections for mechanical drafters in the Inland Empire/Desert Region*

| Region               | 2017 Jobs | 5-Yr % Change (New Jobs) | 5-Yr Openings (New + Replacement Jobs) | Annual Openings (New + Replacement Jobs) | % of workers age 55+ |
|----------------------|-----------|--------------------------|--|--|----------------------|
| Inland Empire/Desert | 471       | 2%                       | 209                                    | 42                                       | 26%                  |

Source: EMSI 2018.1

Over the last 12 months (April 2017 to March 2018), there were 87 advertisements (ads) for mechanical drafters in the Inland Empire/Desert Region. In the full-year 2017, there were 102 job ads; 62 job ads in 2016; 62 job ads in 2015; and 48 job ads in 2014. Exhibit 2 shows the number of job ads posted during the last 12 months and the average time to fill mechanical drafter positions in the local region and nationally.

*Exhibit 2: Job ads for mechanical drafters in the Inland Empire/Desert Region during the last 12 months and time to fill, Apr 2017 – Mar 2018*

| Occupation          | Job Ads | Regional Average Time to Fill (Days) | National Average Time to Fill (Days) |
|---------------------|---------|--------------------------------------|--------------------------------------|
| Mechanical Drafters | 87      | 43                                   | 39                                   |

Source: Burning Glass – Labor Insights

## Earnings

The entry-level wage for mechanical drafters is above the MIT Living Wage estimate of \$12.30 per hour for a single adult living in the Inland Empire/Desert Region. This wage is also sufficient for an adult living in a household with one other working adult and one child (\$14.50 per hour, per adult or \$30,160 annually for each adult). Exhibit 3 displays wage information for this occupation group in the Inland Empire/Desert Region.

*Exhibit 3: Earnings for mechanical drafters in the Inland Empire/Desert Region*

| Occupation          | Entry to Experienced Hourly Earnings Range* | Median Wage* | Average Annual Earnings |
|---------------------|---|--------------|-------------------------|
| Mechanical Drafters | \$18.12 to \$28.71                          | \$22.67      | \$50,000                |

Source: EMSI 2018.1

\*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.

## Work Locations, Employers, Skills, and Education

Exhibit 4 displays the top employers posting job ads as well as the top work locations from job ads during the last 12 months.

*Exhibit 4: The top employers and work locations for mechanical drafters in the Inland Empire/Desert Region during the last 12 months, Apr 2017 – Mar 2018*

| Occupation                 | Top Employers  | Top Work Locations   |
|----------------------------|--|--|
| Mechanical Drafters (n=34) | <ul style="list-style-type: none"> <li>Husmann Corporation</li> <li>Northrop Grumman</li> <li>Ruhnau Ruhnau Clarke</li> <li>WB Powell</li> <li>Edison International</li> </ul> | <ul style="list-style-type: none"> <li>Riverside</li> <li>Chino</li> <li>Corona</li> <li>Rancho Cucamonga</li> <li>San Bernardino</li> </ul> |

Source: Burning Glass – Labor Insights

Exhibit 5 lists a sample of in-demand specialized and soft skills that employers are seeking when looking for workers to fill mechanical drafter positions.

*Exhibit 5: Sample of in-demand skills from employer job ads for mechanical drafters in the Inland Empire/Desert Region, Apr 2017 – Mar 2018*

| Occupation                 | Specialized skills   | Soft skills  | Software and Programming skills  |
|----------------------------|--|--|--|
| Mechanical Drafters (n=64) | <ul style="list-style-type: none"> <li>Engineering Management</li> <li>Project Management</li> <li>3D Modeling/Design</li> </ul> | <ul style="list-style-type: none"> <li>English</li> <li>Communication Skills</li> <li>Written Communication</li> </ul> | <ul style="list-style-type: none"> <li>AutoCAD</li> <li>SolidWorks</li> <li>Microsoft Office</li> <li>Revit</li> </ul> |

Source: Burning Glass – Labor Insights

Exhibit 6 displays the entry-level education level education typically required to enter this occupation according to the Bureau of Labor Statistics, educational attainment for incumbent workers with “some college, no degree” and an “associate degree” according to the U.S. Census, and the minimum advertised education requirement requested by employers in online job ads.

*Exhibit 6: Educational attainment and online job ads with minimum advertised education requirements for mechanical drafters in the Inland Empire/Desert Region, Apr 2017 – Mar 2018*

| Occupation          | Typical Entry-Level Education Requirement | Educational Attainment (Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework) | Minimum Advertised Education Requirement from Job Ads |  |                  |                             |
|---------------------|---|--|---|--|------------------|-----------------------------|
|                     |   |  | Number of Job Postings (n=)                           | High school diploma or vocational training | Associate degree | Bachelor's degree or higher |
| Mechanical Drafters | Associate degree                          | 61%  | 26  | 31%  | 23%              | 46%                         |

Source: EMSI 2018.1, Burning Glass – Labor Insights

## Industry

Staffing patterns show the industries that employ the most mechanical drafters. Exhibit 7 displays the industries that hire and are looking for the most mechanical drafters occupations in the two-county region.

*Exhibit 7: Top industries employing mechanical drafters in the Inland Empire/Desert Region, Apr 2017 – Mar 2018*

| Occupation          | Top Industries from Staffing Pattern (NAICS) - % of occupation employed in industry   | Industry Classification from Job Ads |   |
|---------------------|---|--------------------------------------|---|
|                     |   | Number of Job Postings (n=)          | Top Industries from Job Ads (NAICS)   |
| Mechanical Drafters | <ul style="list-style-type: none"> <li>Architectural, Engineering, and Related Services (5413) 22%</li> <li>Architectural and Structural Metals Manufacturing (3323) 11%</li> </ul> | 21                                   | <ul style="list-style-type: none"> <li>Architectural, Engineering, and Related Services (5413)</li> </ul> |

Source: EMSI 2018.1, Burning Glass – Labor Insights

## Student Completions

Exhibit 8 shows the annual average regional community college awards (associate degrees and certificates) conferred during the three academic years between 2014 and 2017, with the relevant TOP code as well as the program title used at each college, sourced from the Chancellor’s Office Curriculum Inventory (COCI). Please note, an award is not equivalent to a single person in search of a job opening since a student may earn more than one award, such as an associate degree in addition to a certificate. Community College student outcome information was obtained from the CTE LaunchBoard based on the selected TOP code(s) and region.

*Exhibit 8: Annual average community college student completions for mechanical drafting programs in the Inland Empire/Desert Region*

| <b>0953.40 - Mechanical Drafting</b>                 | <b>Annual Community College Headcount (2016-17)</b> | <b>Community College Annual Average Awards (2014-17)</b> |
|--|---|--|
| <b>Chaffey – Drafting Technician: Mechanical</b>     | 18  |  |
| Associate Degree                                     |   | 2  |
| <b>Mt. San Jacinto</b>                               | 14  |  |
| <b>San Bernardino</b>                                | 10  |  |
| <b>Total Community College Headcount (2016-17)</b>   | <b>42</b>   |  |
| <b>Total Annual Average Community College Awards</b> |   | <b>2</b>   |

Source: LaunchBoard, IPEDS

### **0953.40 Mechanical Drafting program Strong Workforce outcomes in the Inland Empire/Desert Region in the academic year 2015-16:**

- Number of course enrollments: 42 (California median: 74)\*
- Number of students who transferred to a 4-year institution: N/A (CA: 17)
- Employed in the second fiscal quarter after exit: 56% (CA: 76%)
- Median earnings in the second fiscal quarter after exit: \$8,663 (CA:\$8,663)
- Employed in the fourth fiscal quarter after exit: N/A (CA: 90%)
- Median annual earnings: \$34,910 (CA: \$35,735)
- The percentage in a job closely related to the field of study: N/A (CA: 88%) [2014-15]
- Median change in earnings: 15% (CA: 31%)
- The proportion of students who attained a living wage: 90% (CA: 71%) [2014-15]

\*academic year 2016-17



## Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard

MIT Living Wage Calculator

Chancellor's Office Curriculum Inventory (COCI, version 2.0)

The Integrated Postsecondary Education Data System (IPEDS)

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