

# Labor Market Analysis: Composites

## San Diego County

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May 2018

### Introduction

Global demand for composite materials is rising and for good reason. “Composites, also known as Fiber-Reinforced Polymer (FRP) composites, are made from a polymer matrix that is reinforced with an engineered, man-made or natural fiber or other reinforcing material.”<sup>1</sup> They are resistant to a wide range of chemicals and are known to be durable, lightweight, and safe. Composites can be molded into different dimensions with accuracy and are known to cost less than metals such as aluminum or steel. Composite materials have been incorporated into windsurfer frames, trail bridges, and bonding fasteners. Their use in the aerospace sector is expected to speed up production for customers at lower costs.

This report analyzes the top 10 occupations that work with composite materials. The occupations selected are based on O\*NET’s top matches for the keyword “composite.” The O\*NET Program is the nation’s primary source of occupational information.<sup>2</sup> The occupations are:

- Molding and Casting Workers
- Model Makers, Metal and Plastic
- Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic
- Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
- Fiberglass Laminators and Fabricators
- Team Assemblers
- Prepress Technicians and Workers
- Inspectors, Testers, Sorters, Samplers, and Weighers
- Production Workers, All Other
- Insulation Workers, Floor, Ceiling, and Wall

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<sup>1</sup> Defining composites. [compositeslab.com/composites-101/what-are-composites](http://compositeslab.com/composites-101/what-are-composites).

<sup>2</sup> O\*NET. [onetonline.org](http://onetonline.org).

## Top 10 Composite Occupations

The top 10 occupations that work with composite materials are:

- **Molding and Casting Workers** (SOC<sup>3</sup> 51-9195): Perform a variety of duties such as mixing materials, assembling mold parts, filling molds and stacking molds to cast a wide range of products.
- **Model Makers, Metal and Plastic** (SOC 51-4061): Set up and operate machines, such as lathes, milling and engraving machines, and jig borers to make working models of metal or plastic objects. Includes template makers.
- **Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic** (SOC 51-4072): Set up, operate, or tend metal or plastic molding, casting, or core making machines to mold or cast metal or thermoplastic parts or products.
- **Aircraft Structure, Surfaces, Rigging, and Systems Assemblers** (SOC 51-2011): Assemble, fit, fasten, and install parts of airplanes, space vehicles or missiles, such as tails, wings, fuselages, bulkheads, stabilizers, landing gear, rigging and control equipment, or heating and ventilating systems.
- **Fiberglass Laminators and Fabricators** (51-2091): Laminate layers of fiberglass on molds to form boat decks and hulls, bodies for golf carts, automobiles, or other products.
- **Team Assemblers** (51-2092): Work as part of a team having responsibility for assembling an entire product or component of a product. Team assemblers can perform all tasks conducted by the team in the assembly process and rotate through all or most of them rather than being permanently assigned to a specific task. May participate in making management decisions affecting the work. Includes team leaders who work as part of the team.
- **Prepress Technicians and Workers** (51-5111): Format and proof text and images submitted by designers and clients for finished pages that can be printed. Includes digital and photo typesetting. May produce printing plates.
- **Inspectors, Testers, Sorters, Samplers, and Weighers** (51-9061): Inspect, test, sort, sample or weigh nonagricultural raw materials, or processed, machined, fabricated or assembled parts or products to check for defects, wear, and deviations from specifications. May use precision measuring instruments and complex test equipment.
- **Production Workers, All Other** (51-9199): All production workers not listed separately. "All Other" titles represent occupations with a wide range of characteristics that do not fit into one of the detailed O\*NET-SOC occupations. O\*NET data is not available for this type of title.
- **Insulation Workers, Floor, Ceiling, and Wall** (47-2131): Line and cover structures with insulating materials. May work with batt, roll, or blown insulation materials.

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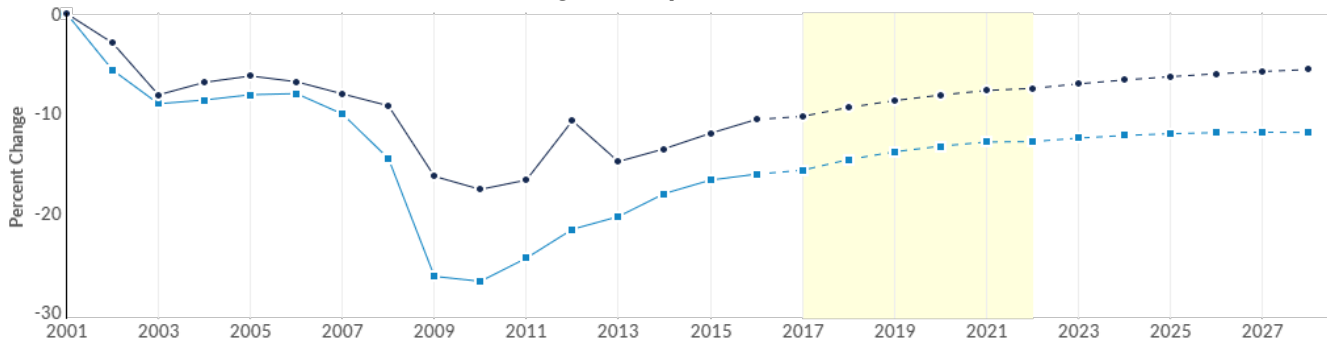
<sup>3</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

## Fast Facts

In 2017, 17,939 people in San Diego County were employed in the top 10 composite occupations. This number is expected to increase by 565 jobs or 3.1 percent by 2022 (Exhibit 1).<sup>4</sup> This rate is similar to the national growth rate for these 10 occupations.

<b>17,939</b> Jobs (2017) Full- and Part-Time Jobs	<b>3.1%</b> % Jobs Change (2017-2022) Nation: 3.4%	<b>\$17.42/hr</b> Median Hourly Earnings Nation: \$15.44/hr	<b>Gender Breakdown</b> 64.1% Male 35.9% Female
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**Exhibit 1: Job Percentage Change for Top 10 Composite Occupations  
San Diego County vs. the Nation<sup>5</sup>**



Region	2017 Jobs	2022 Jobs	Change	% Change
San Diego County	17,939	18,504	565	3.1%
Nation	2,256,056	2,333,162	77,106	3.4%

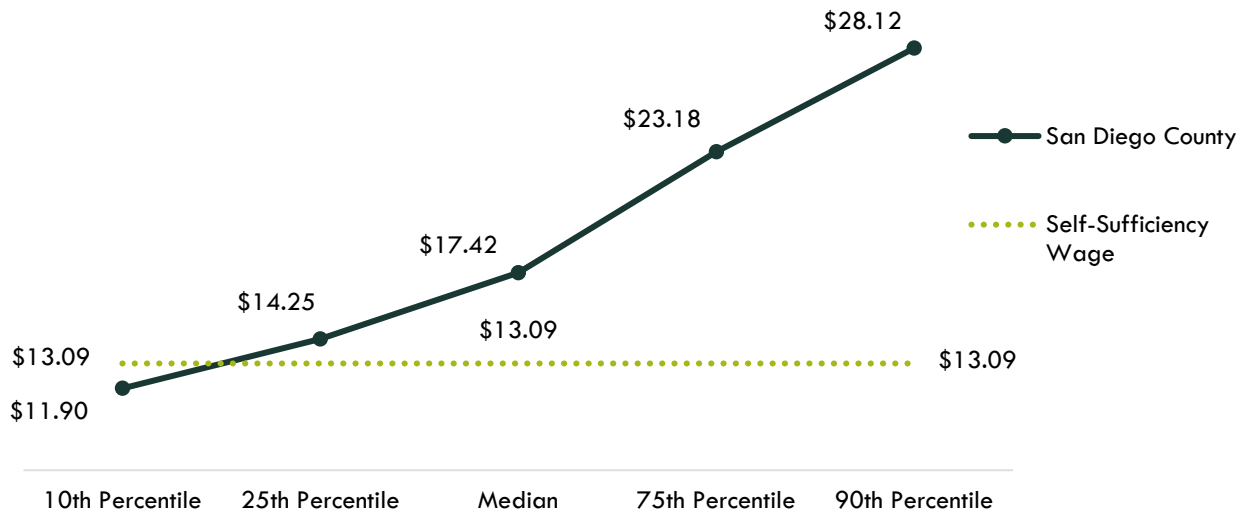
<sup>4</sup> Economic Modeling Specialists, Int'l. (EMSI). San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

<sup>5</sup> EMSI. San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

## Earnings

On average, the median hourly earnings for the top 10 composite occupations is **\$17.42**. This is higher than the Self-Sufficiency Standard for a single adult in San Diego County, which is **\$13.09** per hour (Exhibit 2).<sup>6</sup>

**Exhibit 2: Average Hourly Earnings for the Top 10 Jobs for Composite Occupations in in San Diego County<sup>7</sup>**



(More specifically, the median hourly earnings for each of the 10 composite occupations can be found in Exhibit 4.)

## Labor Market Demand

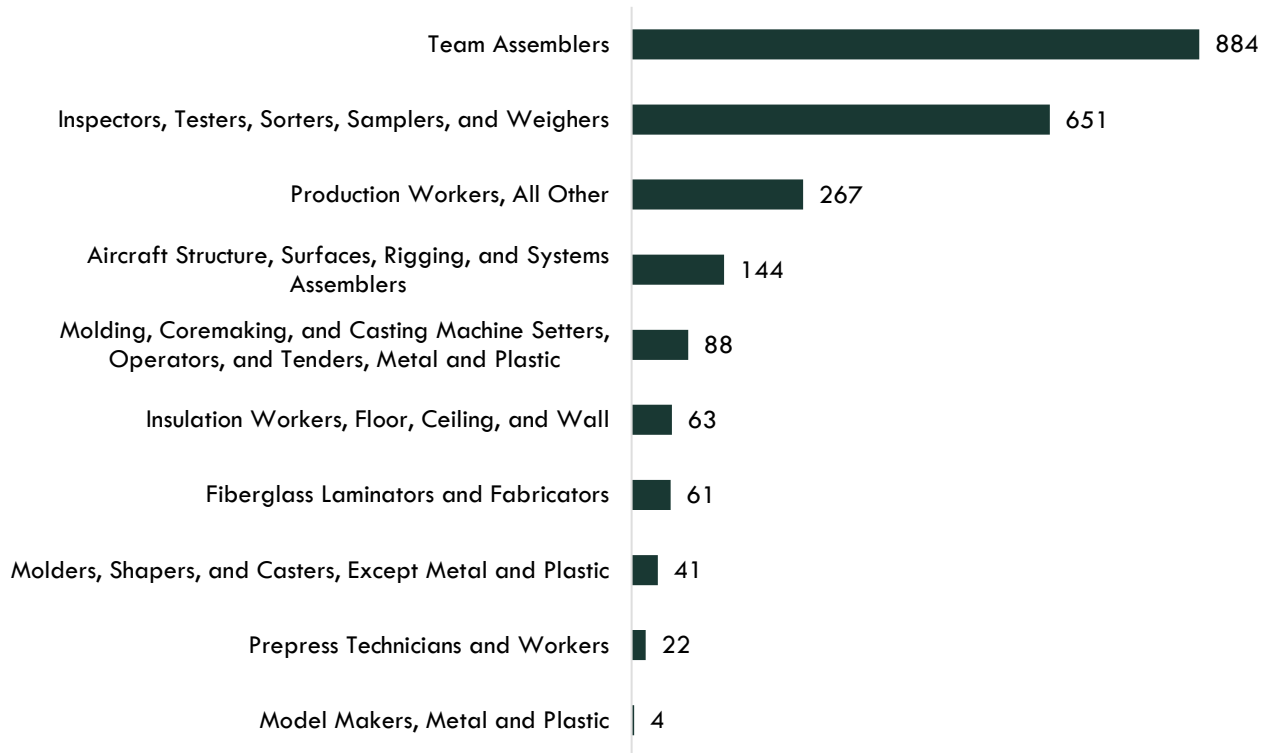
Of the top 10 occupations that work with composite materials, *Team Assemblers* has the most labor market demand with **884** annual openings in San Diego County (Exhibit 3). Annual openings are an estimated employment change and turnover for an occupation for a given year.<sup>8</sup>

<sup>6</sup> The self-sufficient wage in San Diego for one adult is \$13.09 ([insightcced.org/tools-metrics/self-sufficiency-standard-tool-for-california](https://insightcced.org/tools-metrics/self-sufficiency-standard-tool-for-california)).

<sup>7</sup> EMSI. San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

<sup>8</sup> EMSI. San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

**Exhibit 3: Labor Market Demand (Annual Job Openings) for the Top 10 Composite Occupations  
San Diego County, 2017-2022**



Of the top 10 occupations, *Team Assemblers* have the most number of jobs in San Diego County, with **7,428** employed as of 2017. The number of jobs for *Team Assemblers* is expected to increase by **two** percent between 2017 and 2022 (Exhibit 4).<sup>9</sup> The typical entry-level education for this occupation is a high school diploma.

<sup>9</sup> EMSI. San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

**Exhibit 4: Top 10 Composite Occupations in San Diego County<sup>10</sup>**

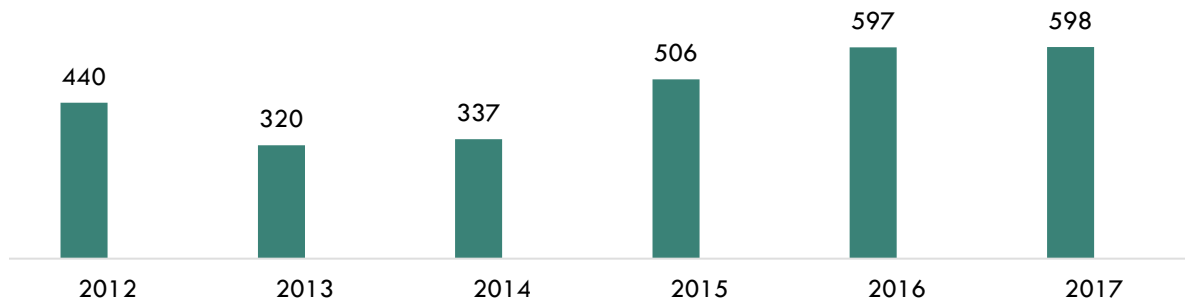
SOC	Occupational Title	Employed (2017)	Employed (2022)	% Change (2017 - 2022)	Median Hourly Earnings	Typical Entry-Level Education	Work Experience Required	Typical On-The-Job Training (OJT)
51-2092	Team Assemblers	7,428	7,542	2%	\$13.27	High school (HS) diploma or equivalent	None	Moderate-term OJT
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	5,122	5,302	4%	\$19.62	HS diploma or equivalent	None	Moderate-term OJT
51-9199	Production Workers, All Other	2,267	2,318	2%	\$14.38	HS diploma or equivalent	None	Moderate-term OJT
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	821	733	(11%)	\$17.24	HS diploma or equivalent	None	Moderate-term OJT
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	809	1,051	30%	\$21.73	HS diploma or equivalent	None	Moderate-term OJT
51-2091	Fiberglass Laminators and Fabricators	464	494	6%	\$15.38	HS diploma or equivalent	None	Moderate-term OJT
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	425	394	(7%)	\$15.94	HS diploma or equivalent	None	Long-term OJT
47-2131	Insulation Workers, Floor, Ceiling, and Wall	373	470	26%	\$19.61	No formal educational credential	None	Short-term OJT
51-5111	Prepress Technicians and Workers	197	168	(15%)	\$23.42	Postsecondary non-degree award	None	None
51-4061	Model Makers, Metal and Plastic	33	33	0%	\$21.75	HS diploma or equivalent	None	Moderate-term OJT

<sup>10</sup> EMSI. San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

## Job Postings and Top 10 Employers

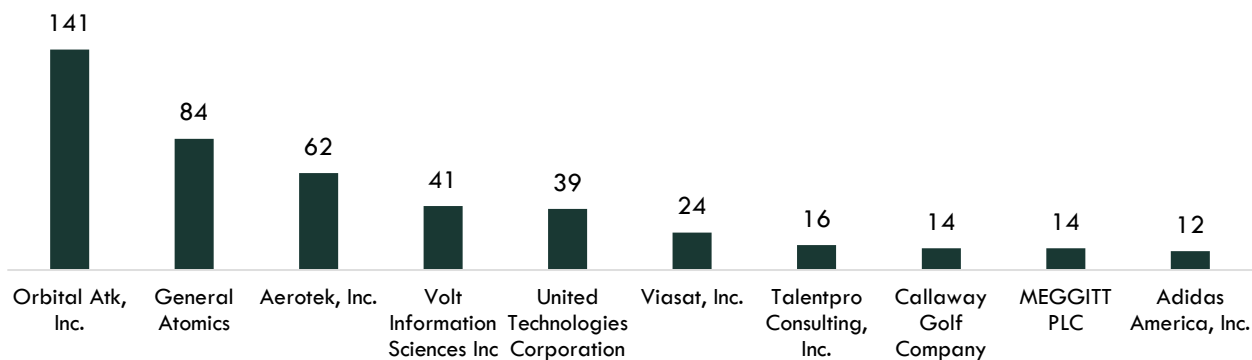
Between 2012 and 2017, there was an average of 466 unique online job postings per year for jobs with the skill, “composite materials” (Exhibit 5).

**Exhibit 5: Number of Unique Online Job Postings with “Composite Materials” Skill  
San Diego County, 2012-2017<sup>11</sup>**



Between January 1, 2017, and December 31, 2017, there was a total of 598 unique online job postings in San Diego County with the skill, “composite materials.” Of the unique online job postings, 447, or 75 percent, were posted by Orbital Atk Inc., General Atomics, Aerotek Inc., Volt Information Sciences Inc., United Technologies Corporation, Viasat Inc., Talentpro Consulting Inc., Callaway Golf Company, MEGGITT PLC and Adidas America Inc. (Exhibit 6).

**Exhibit 6: Top 10 Employers in San Diego County for Composite Occupations, 2017<sup>12</sup>**



<sup>11</sup> EMSI. San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW+ Self-Employed. 2012-2017.

<sup>12</sup> EMSI. San Diego County (6073). 2018.01 Class of Worker. QCEW + Non-QCEW+ Self-Employed. 2017.

## Labor Market Supply

Exhibit 7 lists the top 10 composite occupations in San Diego County and their related six-digit Taxonomy of Programs (TOP6) or Classification of Instructional Programs (CIP) codes. Because a TOP or CIP code can be associated with more than one occupation, duplicate TOP codes will be present in the table. Colleges issuing awards for the associated TOP or CIP codes are also listed in the table (Exhibit 7).

### Exhibit 7: Program Supply for the Top 10 Occupations in San Diego County for Composite Occupations

Occupational Title (SOC)	TOP or CIP Code	TOP or CIP Program Title	Colleges
Team Assemblers (51-2092)	None	N/A	N/A
Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061)	TOP 043000	Biotechnology and Biomedical Technology	MiraCosta San Diego City San Diego Mesa San Diego Miramar Southwestern
	TOP 095500	Laboratory Science	None
	TOP 095600	Technology Manufacturing and Industrial Technology	San Diego Adult San Diego City
	TOP 095680	Industrial Quality Control	None
Production Workers, All Other (51-9199)	None	N/A	N/A
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic (51-4072)	TOP 095420	Plastics and Composites	None
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers (51-2011)	TOP 095000	Aeronautical and Aviation Technology	San Diego Miramar
	TOP 095010	Aviation Airframe Mechanics	San Diego Miramar
	TOP 095020	Aviation Power plant Mechanics	San Diego Miramar
	TOP 095040	Aircraft Electronics (Avionics)	None
	TOP 095050	Aircraft Fabrication	None
Fiberglass Laminators and Fabricators (51-2091)	None	N/A	N/A
Molders, Shapers, and Casters, Except Metal and Plastic (51-9195)	None	N/A	N/A
Insulation Workers, Floor, Ceiling, and Wall (47-2131)	TOP 095280	Drywall and Insulation	Palomar



Occupational Title (SOC)	TOP or CIP Code	TOP or CIP Program Title	Colleges
Prepress Technicians and Workers (51-5111)	TOP 061400	Digital Media	MiraCosta Palomar San Diego City
	TOP 061450	Desktop Publishing	Palomar
	TOP 093600	Printing and Lithography	Palomar
Model Makers, Metal and Plastic (51-4061)	CIP 48.0506	Sheet Metal Technology/Sheetworking	Palomar San Diego City

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