

Careers in Manufacturing

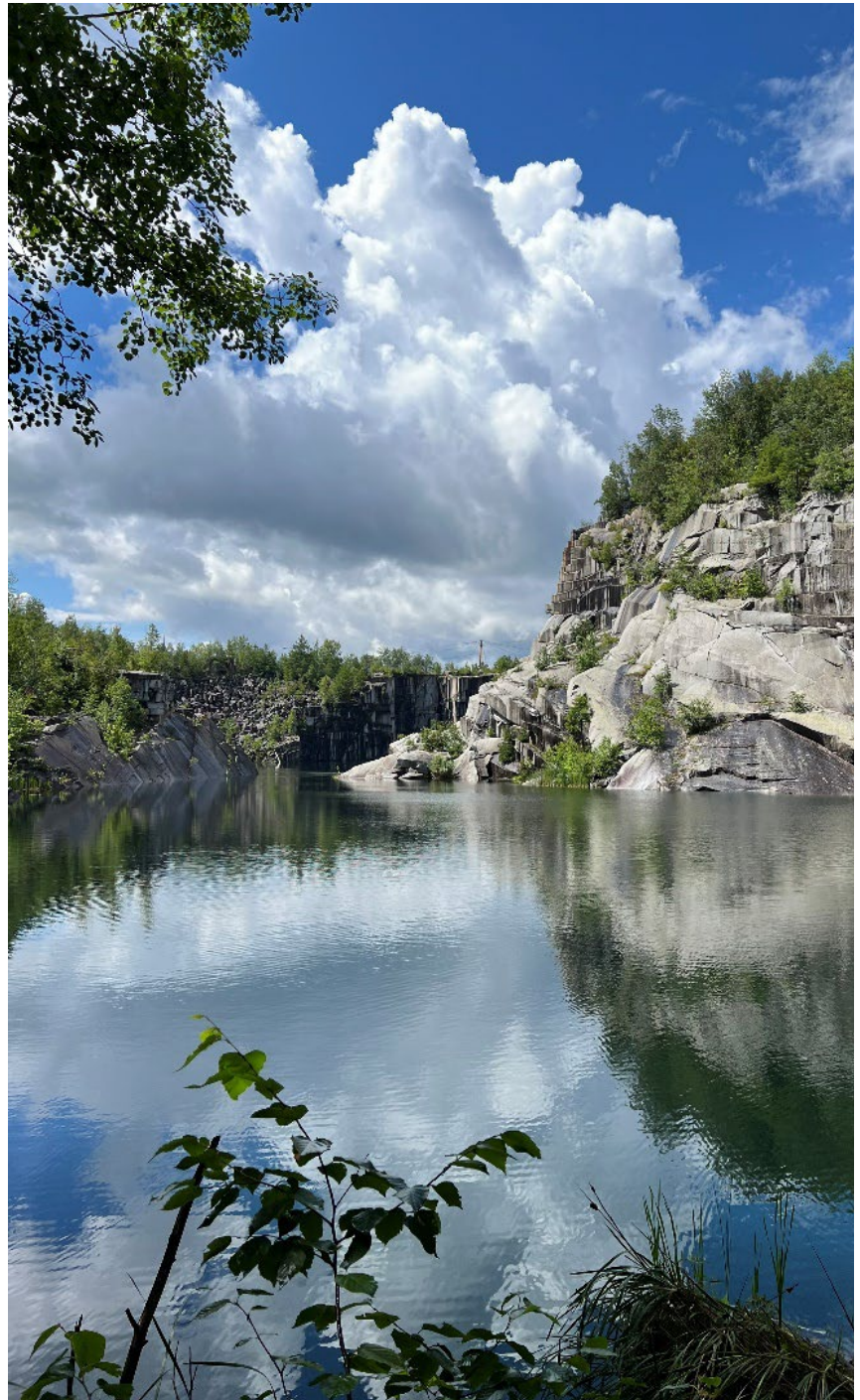
Summary

This Spotlight emphasizes the diverse career opportunities and above-average wages in the Vermont Manufacturing industry. While Manufacturing is often associated with factories and production lines, production workers account for less than half of the total workforce in the sector.

Manufacturing is the physical process of converting raw materials into finished goods using human labor, tools and machinery. Historically, Vermont's share of employment in manufacturing has been higher than the nationwide average and that remains true today.

-Kevin Stapleton, E&LMI Assistant
Director

Economic & Labor Market Information



Introduction

Manufacturing is a key industry in the Vermont economy. In 2023, it accounted for 11.2% of all private sector employment in the state, compared to a 9.7% share at the national level. This highlights that Manufacturing jobs are more prevalent in Vermont than in the United States as a whole.¹

In Vermont, Manufacturing accounts for 3.8% of private sector business establishments and a higher share of private employment (11.2%). Manufacturing annual average wages (\$69,202) are 12.6% higher than the overall private sector average. (See Table 1.)

Table 1. Vermont Total Private and Manufacturing

	Total Private	Manufacturing	Manufacturing Ratio
Establishments	29,935	1,134	3.8%
Employment	254,464	28,495	11.2%
Annual Average Wage	\$61,451	\$69,202	112.6%

Source – Vermont Department of Labor, Quarterly Census of Employment and Wages, 2023 Annual Averages

Definitions

OEWS – Occupational Employment and Wage Statistics. May 2023 estimates are used in this analysis.

SOC – Standard Occupational Classification system. A framework to classify and group occupations.

Production – SOC Major group 51-0000, “Production Occupations”.

QCEW – Quarterly Census of Employment and Wages. A census of business establishments. Data includes average wage, employment and establishment counts by industry. This analysis uses 2023 annual averages.

Manufacturing - NAICS sector ‘31-33’.

Data Limitations

This analysis looks at the intersection of industry and occupation in the Manufacturing sector. The occupational breakdown below in Table 3 is generated using “Research Estimates”. Information about the limitations of these estimates can be found here: https://www.bls.gov/oes/current/oes_research_estimates.htm. Both the employment and wages in Table 3 are generated for research purposes only and are not official OEWS estimates.

Data may not always be directly comparable between QCEW, OEWS, and OEWS Research Estimates.

¹Bureau of Labor Statistics. Current Employment Statistics, 2023 Annual Average.
Vermont Department of Labor
Economic & Labor Market Information

CAREER RESOURCES

Interested in working in Manufacturing?

Learn more here:

Community College of Vermont
<https://ccv.edu/academics/certifications-training/certified-production-technician/>

Vermont Manufacturing
Extension Center:
<https://vmec.org/>

Vermont Department of Labor
(VDOL), Workforce
Development:
<https://labor.vermont.gov/workforce-development>

VDOL, Economic and Labor
Market Information:
<http://www.vtlmi.info/>

Detailed occupational
information:
<https://www.onetonline.org/>

Findings

Manufacturing Subsectors

In Table 2, the top five subsectors of Manufacturing are ranked by employment. Food Manufacturing is the largest subsector in both employment and the number of business establishments. All the top 5 sectors, except for Food Manufacturing, have higher average annual wages than the private sector as a whole.

Table 2. Major Manufacturing Subsectors by Employment

Industry Code	Industry	Establishments	Employment	Average Annual Wage
-	Total Private Employment	29,935	254,464	\$61,451
31-33	Manufacturing	1,134	28,495	\$69,202
311	Food Manufacturing	230	5,433	\$57,594
334	Computer and Electronic Product Manufacturing	51	4,001	\$105,919
333	Machinery Manufacturing	64	2,570	\$73,941
336	Transportation Equipment Manufacturing	25	1,881	\$78,874
332	Fabricated Metal Product Manufacturing	97	1,747	\$63,876

Source - Vermont Department of Labor, QCEW, 2023 Annual Averages

Vermont Production Workers

Although most Production workers in Vermont are employed in the Manufacturing industry, Production workers exist in other industries as well. There are 17,680 production workers in Vermont with an average annual wage of \$47,510 (or median annual wage of \$44,530). Water and Wastewater Treatment Plant and System Operators (SOC 51-8031) is an example of a Production occupation not in the Manufacturing industry. Within Manufacturing, one of the most highly employed Production occupations is Computer Numerically Controlled Tool Operators (51-9161) with employment reaching 1,220 in 2023. See Appendix B for further information on employment and wages for Production occupations in Vermont.

Within the Manufacturing Industry itself there are 13,970 Production workers (Appendix C). This makes up a little less than half of the total employment in the industry.

Non-Production Occupations in Manufacturing

Though Production occupations are typically the primary employment at a Manufacturing facility, these establishments are also supported by an array of other occupations. More than half of all total employment in the industry is composed of non-Production occupations.

Table 3. Non-Production Major Occupational Groups in Manufacturing

SOC Code	Occupational Title	Employment	Share	Average Annual Wage	Median Annual Wage
17-0000	Architecture and Engineering Occupations	2,370	8.4%	\$91,980	\$81,240
43-0000	Office and Administrative Support Occupations	2,270	8.0%	\$48,290	\$46,140
11-0000	Management Occupations	2,100	7.4%	\$113,770	\$97,030
53-0000	Transportation and Material Moving Occupations	1,940	6.8%	\$44,180	\$40,580
13-0000	Business and Financial Operations Occupations	1,070	3.8%	\$81,990	\$73,420
49-0000	Installation, Maintenance, and Repair Occupations	1,020	3.6%	\$57,840	\$52,770
41-0000	Sales and Related Occupations	1,020	3.6%	\$50,370	\$37,070
35-0000	Food Preparation and Serving Related Occupations	950	3.3%	\$43,710	\$36,640

Source – Bureau of Labor Statistics, May 2023 OEWS Research Estimates

Above in Table 3 are the notable non-Production occupational families in Manufacturing. To see the entire breakdown, including Production, see Appendix C. Architecture and Engineering (17-000) is the largest non-Production occupational group within Manufacturing with 2,370 jobs and a median annual wage of \$81,240. Office and Administration Support (43-0000), Management (11-0000), and Transportation and Material Moving (53-000) are all prevalent occupations with employment levels around two thousand jobs. Food Preparation and Serving Related Occupations (35-000) workers may seem out of place in Manufacturing but can be found at Food Manufacturing establishments, such as breweries for example, that also serve food and drink.

ANALYST INSIGHT

Architectural and Engineering Occupations (17-0000)

Employees in this occupational group are typically various types of engineers and technicians such as mechanical, electrical, and industrial. These engineers and their related engineering technicians provide technical expertise in the areas of manufacturing systems as it relates to their manufacturing equipment and processes or provide design services for various technical and non-technical products for the manufacturing process.

Office and Administrative Support (43-0000) Occupations frequently found in Manufacturing are Administrative Assistants (43-6014) and Production, Planning, & Expediting Clerks (43-5061). Clerical workers support manufacturers by maintaining the administrative requirements of the establishment through handling customer or public inquiry and maintaining records and financial reports. They also directly support the production process and assist their fellow production workers in achieving a consistent output through their duties in scheduling and maintaining production flow.

-Gianna Somarriba, OEWS Analyst

Examples of other detailed occupations under the major groups can be found on the Economic and Labor Market Information's website: <http://www.vtlmi.info/occupation.cfm>.

Please send suggestions for future Vermont Economic Spotlights to labor.lmi@vermont.gov

Appendix

Appendix A. Vermont Manufacturing Subsectors

Industry Code	Industry	Establishments	Employment	Average Annual Wage
-	Total Private Employment	29,935	254,464	\$61,451
31-33	Manufacturing	1,134	28,495	\$69,202
311	Food Manufacturing	230	5,433	\$57,594
312	Beverage and Tobacco Product Manufacturing	83	1,363	\$44,853
313	Textile Mills	12	95	\$50,285
314	Textile Product Mills	14	43	\$45,357
315	Apparel Manufacturing	14	523	\$59,660
316	Leather and Allied Product Manufacturing	4	45	\$45,390
321	Wood Product Manufacturing	91	1,369	\$55,414
322	Paper Manufacturing	8	628	\$75,703
323	Printing and Related Support Activities	70	789	\$56,012
324	Petroleum and Coal Products Manufacturing	10	63	\$75,855
325	Chemical Manufacturing	68	1,362	\$79,409
326	Plastics and Rubber Products Manufacturing	22	1,146	\$63,622
327	Nonmetallic Mineral Product Manufacturing	95	1,571	\$65,921
331	Primary Metal Manufacturing	3	[c]	[c]
332	Fabricated Metal Product Manufacturing	97	1,747	\$63,876
333	Machinery Manufacturing	64	2,570	\$73,941
334	Computer and Electronic Product Manufacturing	51	4,001	\$105,919
335	Electrical Equipment, Appliance, and Component Manufacturing	26	[c]	[c]
336	Transportation Equipment Manufacturing	25	1,881	\$78,874
337	Furniture and Related Product Manufacturing	66	1,151	\$49,678
339	Miscellaneous Manufacturing	83	1,724	\$58,623

[c] - data is non-disclosable due to confidentiality standards.

Source - Vermont Department of Labor, QCEW, 2023 Annual Averages

Appendix B. Vermont Production Occupations (All Industries)

SOC	Occupation Title	Employment	Annual Average Wage	Annual Median Wage
00-0000	All Occupations	300,760	\$62,780	\$49,630
51-0000	Production Occupations	17,680	\$47,510	\$44,530
51-1011	First-Line Supervisors of Production and Operating Workers	1,130	\$69,860	\$65,690
51-2028	Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	710	\$42,740	\$42,680
51-2031	Engine and Other Machine Assemblers	20	\$57,030	\$59,390
51-2041	Structural Metal Fabricators and Fitters	[c]	\$50,010	\$49,480
51-2090	Miscellaneous Assemblers and Fabricators	1,650	\$39,380	\$36,500
51-3011	Bakers	750	\$37,250	\$36,670
51-3021	Butchers and Meat Cutters	420	\$42,000	\$44,930
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	40	\$37,880	\$34,890
51-3092	Food Batchmakers	1,010	\$39,630	\$36,970
51-3099	Food Processing Workers, All Other	510	\$35,260	\$36,040
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	80	\$50,390	\$46,180
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	30	\$58,120	\$62,900
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	40	\$46,170	\$40,920
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	110	\$42,020	\$41,550
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	270	\$49,440	\$48,190
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	70	\$54,000	\$48,350
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	20	\$45,600	\$44,190
51-4041	Machinists	360	\$54,760	\$54,080
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	150	\$49,210	\$47,770
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	80	\$45,530	\$40,630
51-4111	Tool and Die Makers	170	\$69,950	\$65,600
51-4121	Welders, Cutters, Solderers, and Brazers	290	\$52,330	\$50,960
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	60	\$41,590	\$39,670

51-4193	Plating Machine Setters, Operators, and Tenders, Metal and Plastic	20	\$47,310	\$48,660
51-4199	Metal Workers and Plastic Workers, All Other	60	\$39,740	\$37,750
51-5111	Prepress Technicians and Workers	50	\$51,800	\$50,770
51-5112	Printing Press Operators	260	\$45,700	\$44,490
51-5113	Print Binding and Finishing Workers	120	\$46,420	\$48,880
51-6011	Laundry and Dry-Cleaning Workers	250	\$34,100	\$32,840
51-6031	Sewing Machine Operators	260	\$37,050	\$37,170
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	10	\$40,300	\$41,160
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	20	\$35,110	\$35,360
51-6093	Upholsterers	100	\$45,310	\$45,760
51-6099	Textile, Apparel, and Furnishings Workers, All Other	40	\$36,100	\$35,170
51-7011	Cabinetmakers and Bench Carpenters	260	\$53,890	\$50,880
51-7021	Furniture Finishers	80	\$38,890	\$36,520
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	170	\$41,280	\$38,620
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	330	\$43,210	\$39,160
51-7099	Woodworkers, All Other	50	\$41,710	\$36,720
51-8012	Power Distributors and Dispatchers	20	\$117,220	\$124,410
51-8013	Power Plant Operators	120	\$81,940	\$82,370
51-8021	Stationary Engineers and Boiler Operators	60	[c]	[c]
51-8031	Water and Wastewater Treatment Plant and System Operators	310	\$57,710	\$57,580
51-8099	Plant and System Operators, All Other	10	\$57,330	\$55,820
51-9011	Chemical Equipment Operators and Tenders	60	\$45,830	\$46,260
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	250	\$51,090	\$47,640
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	110	\$50,860	\$45,920
51-9022	Grinding and Polishing Workers, Hand	50	\$43,810	\$36,440
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	240	\$52,490	\$52,070
51-9031	Cutters and Trimmers, Hand	40	\$47,910	\$44,280
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	370	\$41,930	\$39,650
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	240	\$43,950	\$45,420
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	20	\$43,960	\$42,480
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	890	\$50,320	\$47,970
51-9071	Jewelers and Precious Stone and Metal Workers	90	\$49,030	\$48,350
51-9081	Dental Laboratory Technicians	[c]	\$54,650	\$53,240
51-9083	Ophthalmic Laboratory Technicians	20	\$45,910	\$39,630

51-9111	Packaging and Filling Machine Operators and Tenders	790	\$40,930	\$39,760
51-9123	Painting, Coating, and Decorating Workers	40	\$39,600	\$38,140
51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	200	\$44,130	\$42,190
51-9161	Computer Numerically Controlled Tool Operators	1,220	\$58,370	\$57,680
51-9162	Computer Numerically Controlled Tool Programmers	80	\$67,100	\$65,390
51-9191	Adhesive Bonding Machine Operators and Tenders	60	\$43,550	\$43,640
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	50	\$44,920	\$45,770
51-9194	Etchers and Engravers	70	\$57,250	\$62,310
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	220	\$52,580	\$47,300
51-9198	Helpers--Production Workers	280	\$41,900	\$39,320
51-9199	Production Workers, All Other	410	\$45,460	\$42,600

[c] - data is non-disclosable due to confidentiality standards.

Source – Vermont Department of Labor, OEWS, May 2023 Estimates

Appendix C. Major Occupations in Manufacturing

SOC Code	Occupational Title	Employment	Share	Average Annual Wage	Median Annual Wage
11-0000	Management Occupations	2,100	7.4%	\$123,620	\$110,930
13-0000	Business and Financial Operations Occupations	1,070	3.8%	\$77,810	\$74,790
15-0000	Computer and Mathematical Occupations	370	1.3%	\$95,820	\$89,980
17-0000	Architecture and Engineering Occupations	2,370	8.4%	\$87,110	\$80,170
19-0000	Life, Physical, and Social Science Occupations	260	0.9%	\$76,750	\$77,170
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	330	1.2%	\$54,840	\$48,790
35-0000	Food Preparation and Serving Related Occupations	950	3.4%	\$43,650	\$37,870
37-0000	Building and Grounds Cleaning and Maintenance Occupations	180	0.6%	\$40,450	\$37,980
41-0000	Sales and Related Occupations	1,020	3.6%	\$68,540	\$57,590
43-0000	Office and Administrative Support Occupations	2,270	8.0%	\$51,110	\$47,180
45-0000	Farming, Fishing, and Forestry Occupations	100	0.4%	\$39,550	\$38,060
47-0000	Construction and Extraction Occupations	420	1.5%	\$55,320	\$50,210
49-0000	Installation, Maintenance, and Repair Occupations	1,020	3.6%	\$61,200	\$59,320
51-0000	Production Occupations	13,970	49.2%	\$48,020	\$45,270
53-0000	Transportation and Material Moving Occupations	1,940	6.8%	\$44,440	\$42,690

Source- Bureau of Labor Statistics, May 2023 OEWS Research Estimates

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