NEW HAMPSHIRE SECTOR PARTNERSHIP

State of the Sector

Infrastructure

June 2020

NH SECTOR PARTNERSHIPS INITIATIVE

ELMI Economic + Labor Market Information Bureau

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STATE OF THE SECTOR: INFRASTRUCTURE

The dictionary definition of *Infrastructure* is "the system of public works of a country, state, or region; or the resources (such as personnel, buildings, or equipment) required for an activity."[1] This definition of infrastructure describes multiple business activities that are not contained within a single industrial classification, but include multiple separate industries that together are business establishments engaged in developing, constructing, and maintaining infrastructure. There are three industry subsectors used to define the majority of infrastructure activities:

- Utilities (NAICS 221)
- Heavy and Civil Engineering Construction (NAICS 237)
- Telecommunications (NAICS 517)

For purposes of this analysis, infrastructure activities assessed are the physical assets and facilities of public works versus the resources required or establishments that provide services using infrastructure, such as transportation services.

Together, these three industries employed nearly 10,500 workers in New Hampshire, including 1,140 workers employed by a government entity.[2] Total employment in infrastructure-related industries is relatively low, employing fewer workers than the *Arts, entertainment, and recreation* industry sector in 2018.

Among the three infrastructure industries in New Hampshire, the largest number of workers are employed in *Heavy and civil engineering construction*, which includes the installation and maintenance of telecommunications systems, such as broadband access, and the construction of utility systems. Infrastructure work may be performed by either privately owned establishments or government entities.

The *Heavy and civil engineering construction* subsector includes specialty trade contractors who are engaged specifically in activities defined in the classification. However, not all workers required for infrastructure projects are employed in the construction sector. A construction firm may contract with another business for specific tasks, or project management may contract with businesses in other industry sectors. For example, civil engineering tasks are likely needed for large construction projects. Yet less than three percent of civil engineers are employed in the construction industry. Most civil engineers are employed by engineering firms (NAICS 5413), state government, or are self-employed.

[1] Merriam-Webster Dictionary. https://www.merriam-webster.com/dictionary/infrastructure

[2] New Hampshire Quarterly Census of Employment and Wages, 2018 Annual Averages. Includes workers covered by unemployment insurance only; self-employed workers are excluded. https://www.nhes.nh.gov/elmi/statistics/qcew-data.htm

NAICS Industry Definitions[3]

221 Utilities

Industries in the Utilities subsector provide electric power, natural gas, steam supply, water supply, and sewage removal through a permanent infrastructure of lines, mains, and pipes. Establishments are grouped together based on the utility service provided and the particular system or facilities required to perform the service.

Industry Groups:

- Electric Power Generation, Transmission, and Distribution (NAICS 2211)
- Natural Gas Distribution (NAICS 2212)
- Water, Sewage, and Other Systems (NAICS 2213)

237 Heavy and Civil Engineering Construction

The Heavy and Civil Engineering Construction subsector comprises establishments whose primary activity is the construction of entire engineering projects (e.g., highways and dams), and specialty trade contractors, whose primary activity is the production of a specific component for such projects. Specialty trade contractors in the Heavy and Civil Engineering Construction subsector generally perform activities that are specific to heavy and civil engineering construction projects and are not normally performed on buildings. The work performed may include new work, additions, alterations, or maintenance and repairs.

Specialty trade activities are classified in this subsector if the skills and equipment present are specific to heavy or civil engineering construction projects. For example, specialized equipment is needed to paint lines on highways. This equipment is not normally used in building applications so the activity is classified in this subsector. Traffic signal installation, while specific to highways, uses much of the same skills and equipment that are needed for electrical work in building projects and is therefore classified in Subsector 238, Specialty Trade Contractors.

Construction projects involving water resources (e.g., dredging and land drainage) and projects involving open space improvement (e.g., parks and trails) are included in this subsector. Establishments whose primary activity is the subdivision of land into individual building lots usually perform various additional site-improvement activities (e.g., road building and utility line installation) and are included in this subsector.

Establishments in this subsector are classified based on the types of structures that they construct. This classification reflects variations in the requirements of the underlying production processes.

[3] U.S. Census Bureau. https://www.census.gov/eos/www/naics/

Industry Groups:

- Utility System Construction (NAICS 2371)
- Land Subdivision (NAICS 2372)
- Highway, Street, and Bridge Construction (NAICS 2373)
- Other Heavy and Civil Engineering Construction (NAICS 2379)

517 Telecommunications

Industries in the Telecommunications subsector group establishments that provide telecommunications and services related to that activity, e.g., telephony, including Voice over Internet Protocol (VoIP); cable and satellite television distribution services; Internet access; and telecommunications reselling services. The Telecommunications subsector is primarily engaged in operating and/or providing access to facilities for the transmission of voice, data, text, sound, and video. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in the Telecommunications subsector are categorized into three industry groups. The first two are comprised of establishments that operate transmission facilities and infrastructure that they own and/or lease, and provide telecommunications services using those facilities. The distinction between the first two industry groups is the type of infrastructure operated (i.e., wired and/or wireless or satellite). The third industry group is comprised of establishments that provide support activities, telecommunications reselling services, or many of the same services provided by establishments in the first two industry groups, but do not operate as telecommunications carriers.

Establishments primarily engaged as independent contractors in the installation and maintenance of broadcasting and telecommunications systems are classified in Sector 23, Construction. Establishments known as Internet cafes, primarily engaged in offering limited Internet connectivity in combination with other services such as facsimile services, training, rental of on-site personal computers, game rooms, or food services are classified in Subsector 561, Administrative and Support Services, or Subsector 722, Food Services and Drinking Places, depending on the primary activity.

Industry Groups:

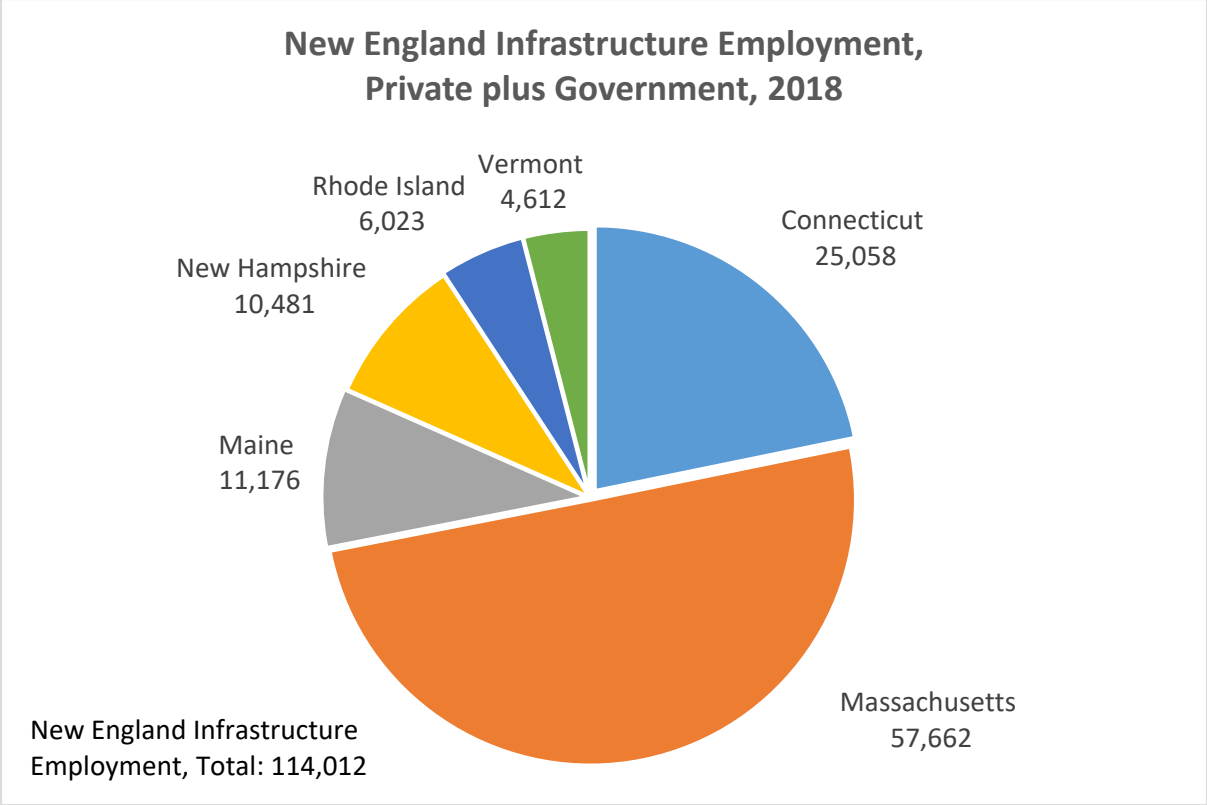
- Wired and Wireless Telecommunications (NAICS 5173)
- Satellite Telecommunications (NAICS 5174)
- Other Telecommunications (NAICS 5179)

Regional Infrastructure

There are three interstates, six U.S. routes, three turnpikes, over 30 state routes,[4] and multiple local roads crossing New Hampshire's border to other states and Canada. Infrastructure investment by a state usually has a larger economic impact than a small local area. Improvements to roads or other infrastructure by one state can provide benefits to neighboring states, improving commerce in both states.[5]

Due to the contractual nature of large construction projects, contractors may be located in another state, particularly if a limited number of firms in the region specialize in the required work. Local, state, and federally funded projects are open to bid from any vendor meeting bid specifications.

Massachusetts firms employ slightly over half of all New England workers in the three infrastructure industry subsectors. Considering the state's shared borders with four other New England states plus New York, there is ample opportunity for Massachusetts firms to work on projects in other states.



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2018 Annual Average
https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables

[4] New Hampshire Highway System, https://en.wikipedia.org/wiki/New_Hampshire_Highway_System

[5] "It's Time for States to Invest in Infrastructure," McNichol, Elizabeth, Senior Fellow, Center on Budget and Policy Priorities, March 19, 2019. <https://www.cbpp.org/research/state-budget-and-tax/its-time-for-states-to-invest-in-infrastructure>

Infrastructure Occupational Employment

Occupational staffing patterns show the distribution of occupational employment by industry for wage and salary workers, as well as the distribution of self-employed workers by occupation.[6] Occupational data come from the Occupation Employment Statistics survey of employers, which collects data on occupational employment and wage rates of workers in all nonfarm industries.[7] The median hourly wage rates in the following tables are representative of wages for the occupation in all employing industries, and not just the select industry.

Occupations in the Utilities Industry	Estimated Employment	2019 Median Hourly Wage
Total All Occupations	**2,045**	
Electrical Power-Line Installers and Repairers*	365	$41.79
Power Plant Operators	143	$28.31
First-Line Supervisors of Mechanics, Installers, and Repairers	97	$33.95
Electricians*	82	$26.72
Industrial Machinery Mechanics	64	$26.45
Control and Valve Installers and Repairers, Except Mechanical Door	54	$27.95
Telecommunications Equipment Installers and Repairers, Except Line Installers	53	$34.41
Meter Readers, Utilities	46	$23.49
First-Line Supervisors of Production and Operating Workers	46	$33.02
Gas Plant Operators	41	$34.95
Electrical Engineers*	40	$50.99
Water and Wastewater Treatment Plant and System Operators*	38	$23.91
Office Clerks, General	30	$18.42
Plumbers, Pipefitters, and Steamfitters*	29	$25.55
Stationary Engineers and Boiler Operators	22	$30.85
General and Operations Managers	n	$50.02
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	n	$34.72

Source: Occupational Employment Statistics, May 2019. Note: n = data do not meet disclosure standards.
Occupations marked with an asterisk (*) may require licensure in the State of New Hampshire.

[6] U.S. Bureau of Labor Statistics, Handbook of Methods, Employment Projections. https://www.bls.gov/opub/hom/emp/concepts.htm#staffing-patterns

[7] For more information on the Occupational Employment Statistics survey, see https://www.nhes.nh.gov/elmi/products/oes-prod.htm

Occupations in the Heavy and Civil Engineering Construction Industry	Estimated Employment	2019 Median Hourly Wage
Total, All Occupations	**3,450**	
Construction Laborers	693	$18.60
Heavy and Tractor-Trailer Truck Drivers*	372	$22.25
First-Line Supervisors of Construction Trades and Extraction Workers	300	$30.75
Operating Engineers and Other Construction Equipment Operators	260	$24.44
Construction Managers	127	$42.51
Plumbers, Pipefitters, and Steamfitters*	113	$25.55
Pipelayers	98	$23.55
Office Clerks, General	92	$18.42
Paving, Surfacing, and Tamping Equipment Operators	88	$21.28
Carpenters	85	$23.31
General and Operations Managers	83	$50.02
Electrical Power-Line Installers and Repairers*	80	$41.79
Telecommunications Line Installers and Repairers	80	$25.18
Mobile Heavy Equipment Mechanics, Except Engines	71	$24.56
First-Line Supervisors of Mechanics, Installers, and Repairers	55	$33.95
Excavating and Loading Machine and Dragline Operators	55	$18.67
Electricians*	52	$26.72
Earth Drillers, Except Oil and Gas*	42	$25.87
Bookkeeping, Accounting, and Auditing Clerks	40	$20.07
Helpers--Extraction Workers	36	$18.20
Industrial Machinery Mechanics	36	$26.45

Source: Occupational Employment Statistics, May 2019. Note: n = data do not meet disclosure standards.
Occupations marked with an asterisk (*) may require licensure in the State of New Hampshire.

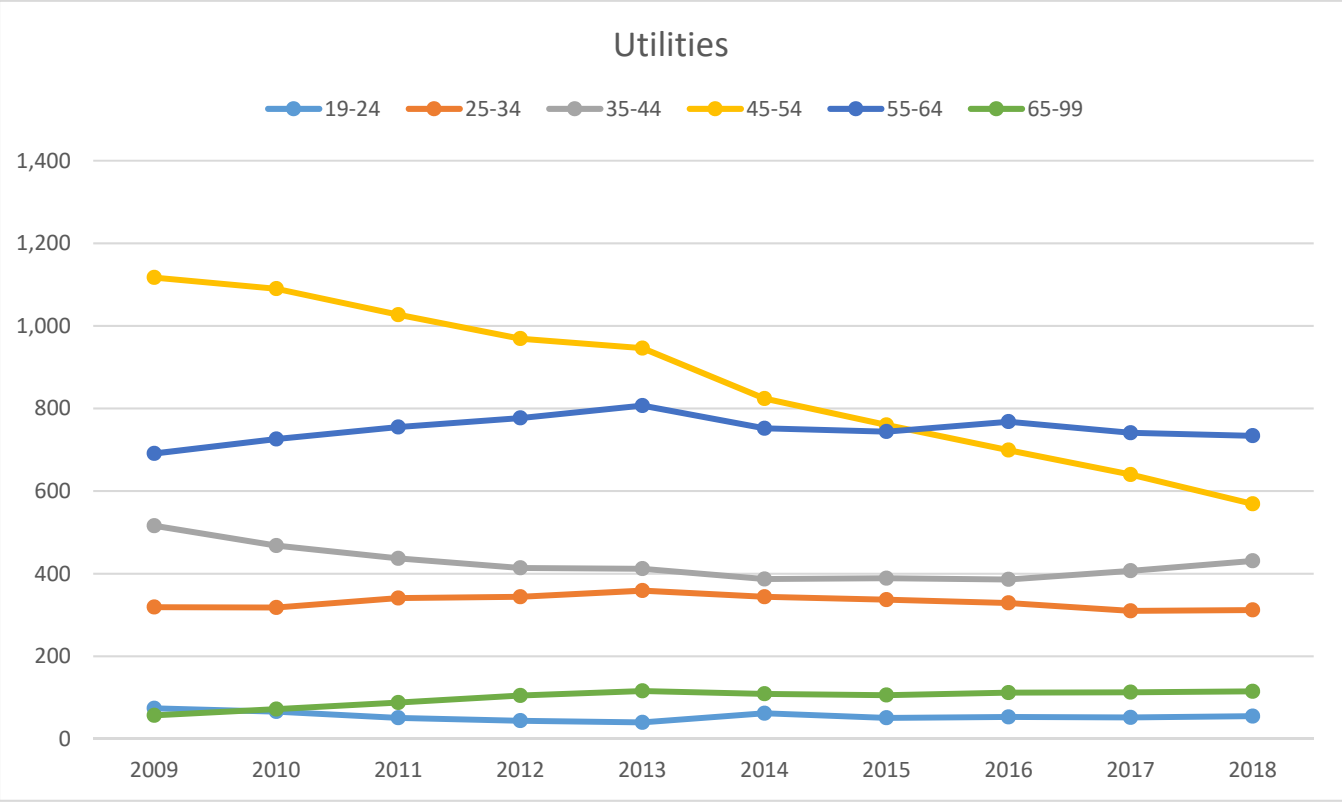
Occupations in the Telecommunications Industry	Estimated Employment	2019 Median Hourly Wage
Total, All Occupations	**3,862**	
Telecommunications Equipment Installers and Repairers, Except Line Installers	860	$34.41
Customer Service Representatives	542	$18.15
Network and Computer Systems Administrators	281	$41.40
Telecommunications Line Installers and Repairers	281	$25.18
Computer Network Support Specialists	241	$32.00
Sales Representatives, Services, All Other	188	$28.85
Computer User Support Specialists	117	$24.80
First-Line Supervisors of Mechanics, Installers, and Repairers	110	$33.95
Software Developers, Systems Software	85	$53.06
Retail Salespersons	72	$12.05
General and Operations Managers	60	$50.02
Computer Network Architects	60	$62.00
First-Line Supervisors of Office and Administrative Support Workers	60	$27.76
Computer and Information Systems Managers	59	$67.60
Software Developers, Applications	56	$53.06
Management Analysts	48	$41.59
Business Operations Specialists, All Other	46	$33.92
Electronics Engineers, Except Computer	40	$50.30
Stock Clerks and Order Fillers	36	$12.75
Advertising Sales Agents	35	$22.56
Dispatchers, Except Police, Fire, and Ambulance	35	$21.61

Source: Occupational Employment Statistics, May 2019. Note: n = data do not meet disclosure standards.
Occupations marked with an asterisk (*) may require licensure in the State of New Hampshire.

The Face of Infrastructure

Utilities

Total employment in *Utilities* has been steadily declining, dropping by 20 percent between 2009 and 2018. Employment declined in the four younger age groups, while the two older age groups gained workers; these gains were likely driven by incumbent workers increasing in age over time. There were 25 percent fewer workers age 19 to 24 in 2018 than in 2009, which may indicate fewer opportunities for young workers. The largest change was in the number of workers age 45 to 54, which in 2018 was close to half that of 2009. Given the two older age groups did not gain a similar number of workers over the ten-year period, the drop in the 45 to 54 years age group was not entirely driven by aging workers. Rather, this age group seems to have absorbed the majority of an employment decline in the sector due to other reasons.

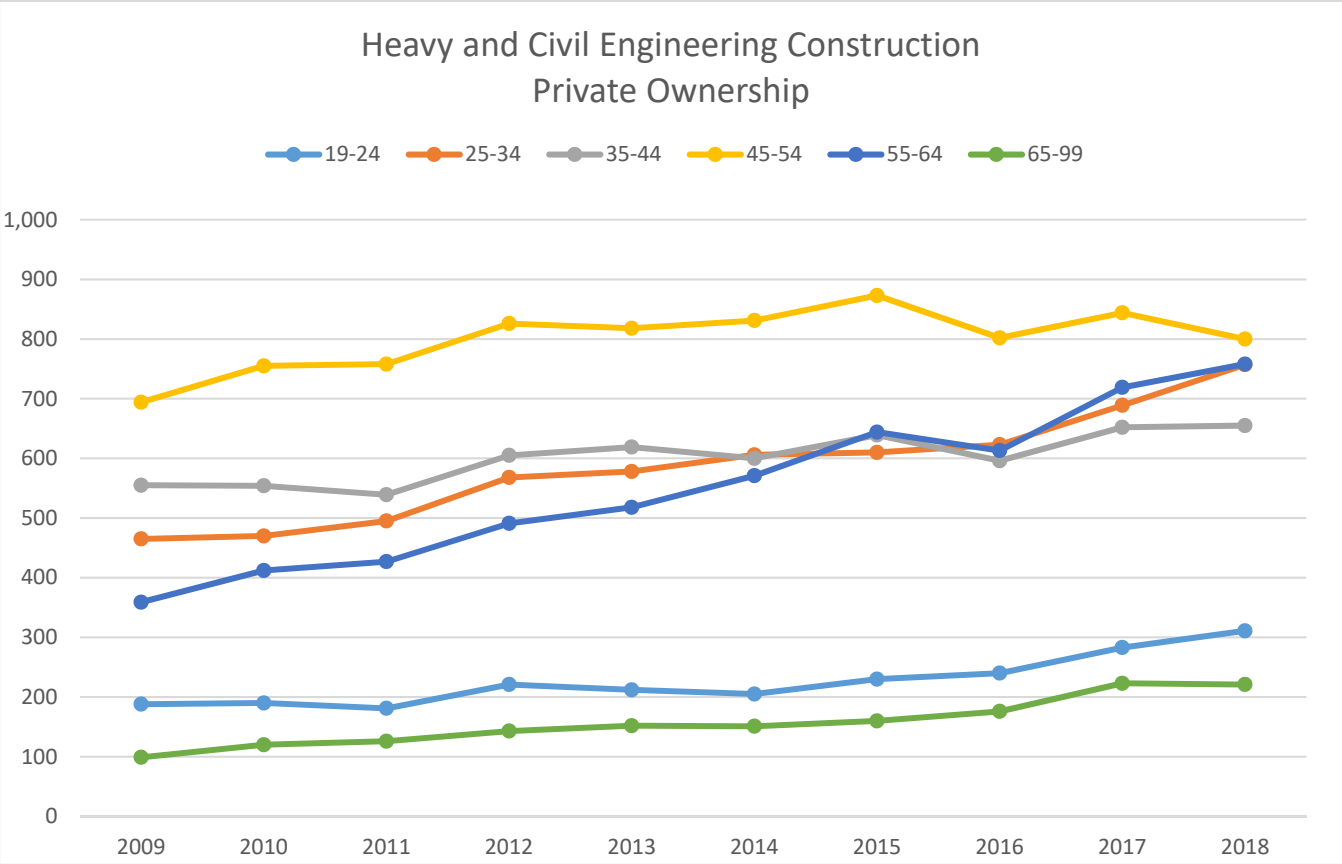


Source: Local Employment Dynamics, LEHD Program, U.S. Census Bureau. https://lehd.ces.census.gov/.
Data on workers age 14-18 was unavailable. Both private and government-owned establishment data are included.

Heavy and Civil Engineering Construction

Among the three infrastructure subsectors, *Heavy and civil engineering construction* was the only one that gained employment over the last ten years in all six age groups. This industry was also the only one employing workers ages 14 to 18, although the average number of workers each year was less than 20 workers; nearly all of these workers were employed in private establishments. Nearly half of the workers in this industry are under age 45.

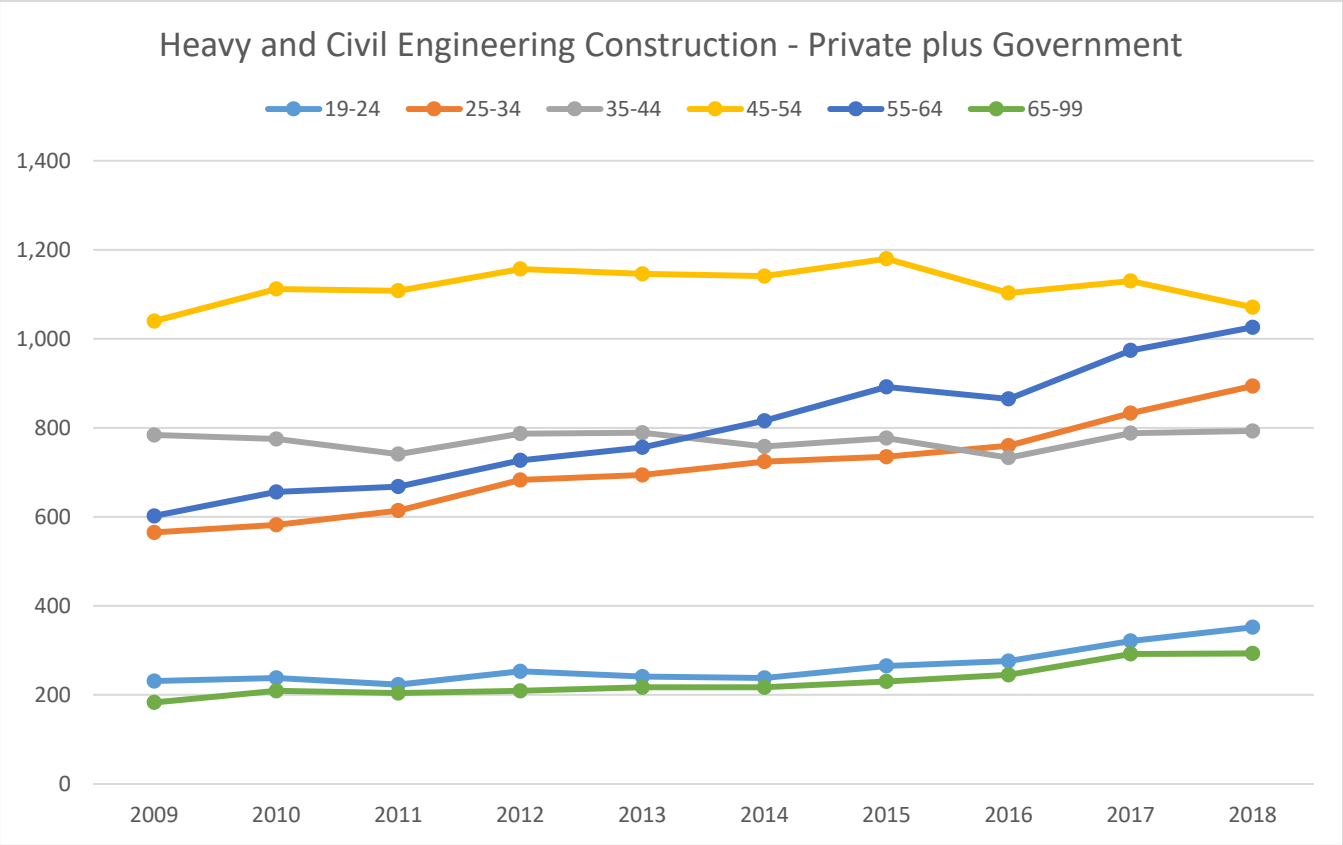
Privately owned establishments *Heavy and civil engineering construction* grew by 48 percent between 2009 and 2018, and employment increased in every age category. The number of workers in the 45 to 54 years age group saw the smallest increase, 15.3 percent. In the two oldest age groups, 55 to 64 years and 65 to 99 years, the number of workers more than doubled. Unlike many other industries, the number of workers in the two youngest age groups grew between 2009 and 2018. The 19 to 24 years age group increased by 65.4 percent, while the 25 to 34 years age group gained 62.8 percent.



Source: Local Employment Dynamics, LEHD Program, U.S. Census Bureau. https://lehd.ces.census.gov/.

When combining employment in privately owned establishments with government establishments in this industry, the picture is somewhat different. Employment grew between 2009 and 2018, but by 30 percent instead of close to 50 percent. The 35 to 44 years and 45 to 54 years age groups were nearly unchanged between 2009 and 2018. The 55 to 64 years age group added over 400 workers, by far the largest change among the six age groups. Privately owned establishments were primarily the source for employment gains of over 50 percent in each of the two youngest age groups.

Between 2009 and 2018, the number of workers in government establishments declined in four of the six age groups; only the 25 to 34 years and 55 to 64 years age groups gained workers.

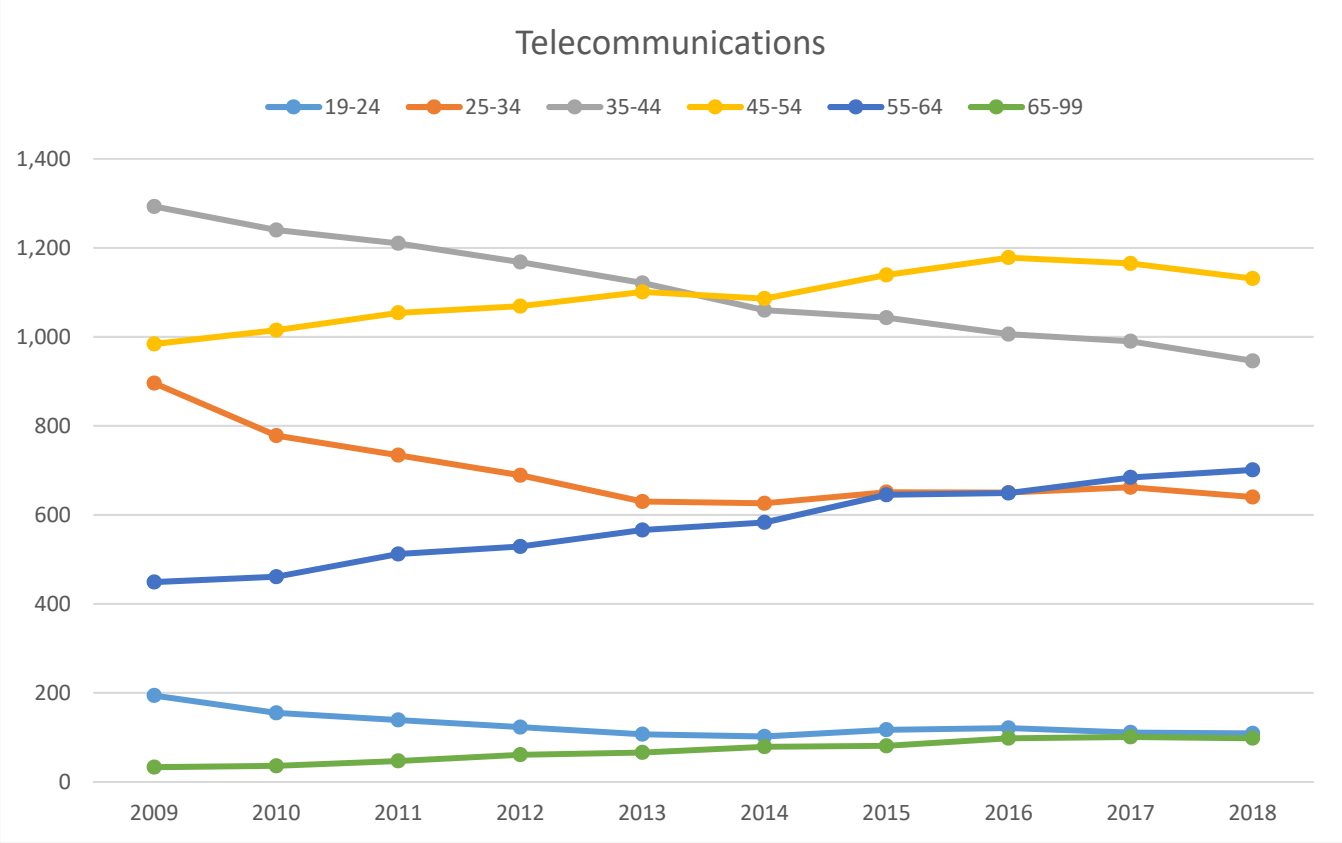


Source: Local Employment Dynamics, LEHD Program, U.S. Census Bureau. https://lehd.ces.census.gov/.
Note: Both private and government-owned establishment data are included.

Telecommunications

Employment in the Telecommunications industry subsector dropped by 4.8 percent between 2009 and 2018. The number of workers in this industry age 45 and over has been steadily increasing, rising from 38 percent in 2009 to 53 percent in 2018. While this indicates longevity among workers, a lack of younger workers affects the talent pipeline, indicating there may be insufficient trained workers to fill positions when older workers retire.

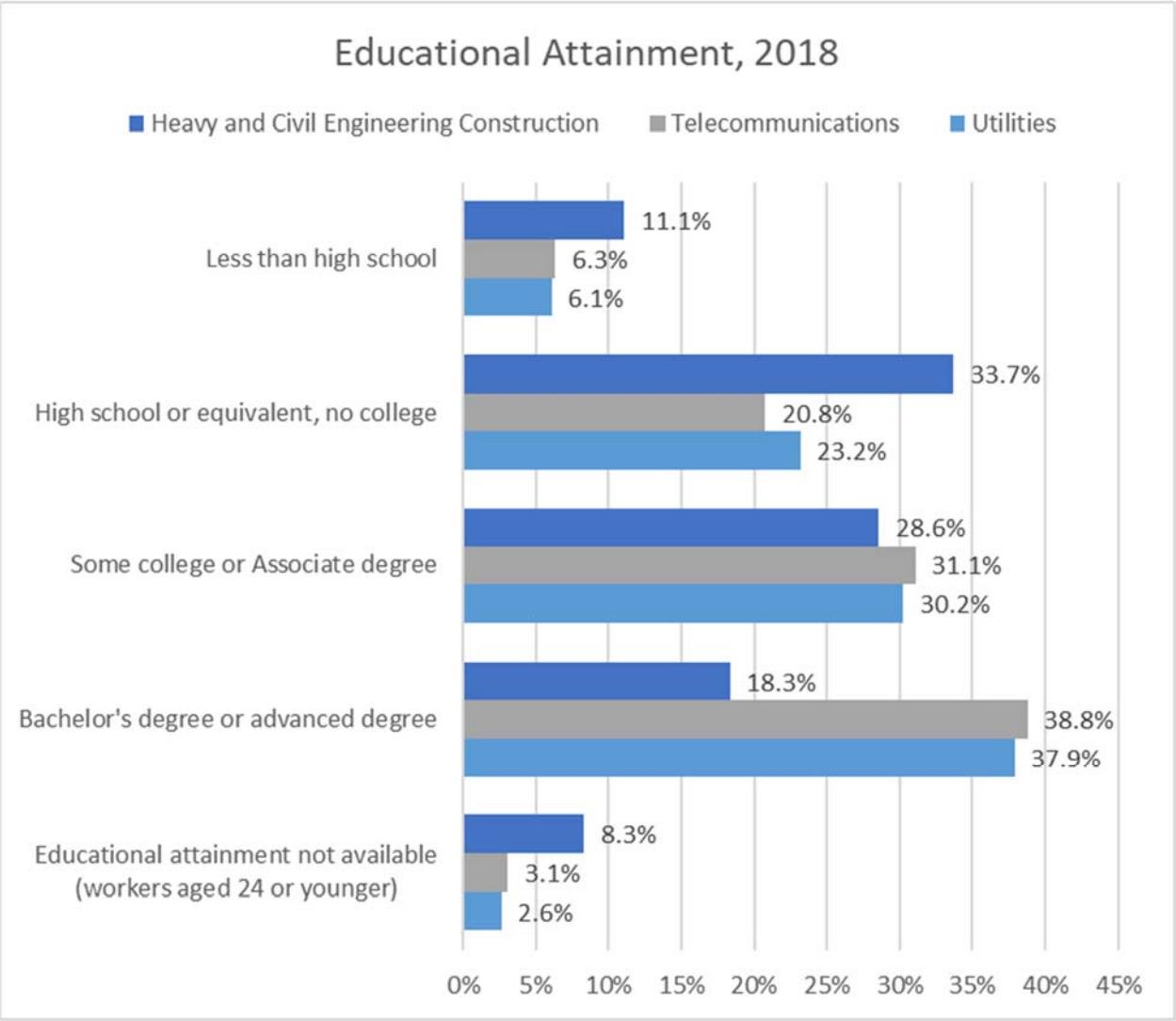
After decreasing annual gains from 2009 to 2012, the percentage of workers age 19 to 24 years and age 25 to 34 years changed little since. The percentage of workers age 35 to 44 years showed the largest declines, dropping from 34 percent in 2009 to 26 percent in 2018.



Educational Attainment

Workers in the *Utilities* and *Telecommunications* subsectors had similar shares of workers in each level of educational attainment. A slightly larger share of *Telecommunications* workers had attained some postsecondary education or a degree. A slightly larger share of *Utilities* workers had attained a high school diploma or equivalent without college.

Workers in *Heavy and civil engineering construction* generally had attained lower levels of education, including over ten percent of workers who had not attained a high school education. The share of workers with a Bachelor's degree or above was less than half that of the other two subsectors. About eight percent of workers fell into the age 24 or younger category, those for whom educational attainment is unavailable due to insufficient time to complete postsecondary education.



Nonemployer Statistics, 2018

Nonemployer establishments are businesses that do not have employees, but are subject to federal income tax. Most nonemployer establishments are self-employed individuals operating unincorporated businesses (known as sole proprietorships), which may or may not be the owner's principal source of income.[8]

Nonemployer establishments may be legally organized in one of four different ways: C-corporations and other corporate legal forms of organization, S-corporations, individual proprietorships, or partnerships. Just under 90 percent of all nonemployer establishments are individual proprietorships.

Among infrastructure-related industries, the Heavy and civil engineering construction subsector had the largest number of nonemployer establishments, with 222. Even so, this number was small when compared to the other construction subsectors. There were 4,690 *Construction of buildings* establishments, and 11,400 *Specialty trade contractor* establishments without employees.

There was a total of 16,300 nonemployer establishments in the *Construction* sector, the second-largest number among all industry sectors in New Hampshire. The *Professional, scientific, and technical services* sector had the largest number of nonemployer establishments, with 18,000.

2018 Nonemployer Statistics, All Establishments

NAICS	Industry Title	Nonemployer Establishments	Receipts ($1000)
221	Utilities	77	$3,302
237	Heavy and civil engineering construction	222	$26,021
2371	Utility system construction	19	$1,415
2372	Land subdivision	72	$10,389
2373	Highway, street, and bridge construction	29	$2,991
2379	Other heavy and civil engineering construction	102	$11,226
517	Telecommunications	95	$6,715

[8] Nonemployer Statistics, U.S. Census Bureau. https://www.census.gov/econ/nonemployer/index.html

Infrastructure Worker Demand: Online Job Postings
Full Year 2019 and January to May 2020

To estimate employer demand for workers by occupation, online job ads are a useful proxy. Online job ads provide information about the type of workers and the skills, knowledge, and abilities desired by employers. Job titles represent positions as described by the employer in an online job ad. Multiple job titles may describe duties of a single occupation.

Top 30 Workers in Demand by Job Title, Online Job Ads Utilities Industry		
Job Title	2019 Full Year	2020 YTD Jan. 1 to May 31
TOTAL	**620**	**575**
Machine Operator	25	12
Glazier	25	8
Material Handler	22	8
Lineworker	17	7
Auto Technician	16	2
Assembler	14	8
Foreman, Line	14	5
Intern	13	
Delivery Representative	10	1
Customer Service Representative	9	9
Utility Worker	9	6
Project Manager	9	1
Delivery Driver	9	
Engineer	7	11
Electrician	7	4
Associate Engineer	6	8
Troubleshooter	6	3
Diesel Technician	5	2
Manager	5	2
Administrative Assistant	5	1
Field Supervisor, Electric Operations	5	1
Substation Technician	5	1
Maintenance Technician	4	5
Operator	4	3
Senior Field Supervisor, Electric Operations	4	3
Senior Engineer	4	2
Construction Representative	4	1
Energy Engineer	4	1
Warehouse Associate	4	1
Energy Analyst	3	6

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Utilities industry, full year 2019 and year-to-date 2020. Data extracted June 4, 2020.

Top 30 Workers in Demand by Job Title, Online Job Ads Heavy and Civil Engineering Construction Industry[9]		
Job Title	2019 Full Year	2020 YTD Jan. 1 to May 31
TOTAL	**169**	**35**
Construction Manager	23	5
Electrical Engineer	10	1
Safety Manager	8	
Client Service Leader	8	
Environmental Engineer	7	
Mechanical Engineer	6	
Construction Specialist	6	
Technical Editor	5	
Program Automation Engineer	5	
Insurance Specialist	5	
Cultural Resources Specialist	5	
Cost Estimator	5	
Construction/APD Talent Sourcer	5	
Civil Engineer	5	
Appraiser, Insurance	5	
Project Delivery Manager	4	1
Payroll Specialist	4	
Business Process Analyst	4	
Bridge Maintainer	4	
Software Development Engineer	3	4
Engineer, Disaster Assistance	3	
Construction Laborer	2	2
Supervisor, Technical Training & Quality Control	2	
Quality Assurance Engineer	2	
Instructional Design Specialist	2	
Construction Associate	2	
Asphalt Paving Personnel	1	2
Information Systems Technician	1	1
GIS Specialist	1	1
Geotechnical Engineer	1	1

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Heavy and Civil Engineering Construction industry, full year 2019 and year-to-date 2020. Data extracted June 4, 2020.

[9] The limited number of online job ads for this industry can be attributed in part to (1) not all job ads specify an industry; (2) prior research has shown that firms in the Construction industry are less likely to post job ads online than firms in other industries; and (3) there were less than 20 job ads from January to April 2020, likely due to the seasonal nature of the business as well as issues related to the 2020 pandemic.

Top 30 Workers in Demand by Job Title, Online Job Ads Telecommunications Industry		
Job Title	2019 Full Year	2020 YTD Jan. 1 to May 31
TOTAL	**268**	**113**
Retail Sales Associate	56	22
Sales Consultant	30	5
Retail Sales Representative	27	3
Wireless Sales Consultant	20	6
Assistant Store Manager	15	1
Sales Associate	8	11
Retail Store Manager	7	3
Network Engineer	5	
Major Account Executive	4	
Multi-Unit Wireless Manager	4	
Operations Technician	4	
Retail Consultant	4	
Assistant Retail Sales Manager	3	1
Sales Executive	3	1
Sales Leader, Retail Industry	3	
Software Development Engineer	3	
Business to Business Sales Representative	2	1
Client Executive, Business Markets	2	
Client Solutions Executive	2	
Customer Service Representative	2	
Field Services Compliance Associate	2	2
Field Technician	2	4
Inventory Coordinator	2	
IT Service Delivery Representative, Government	2	1
National Account Manager, Retail Industry	2	
Quality Assurance Engineer	2	
Retail Wireless Consultant	2	2
RF Network Planning And Optimization Lead	2	
RF Technician	2	1
Sales Account Executive	2	5

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Telecommunications industry, full year 2019 and year-to-date 2020. Data extracted June 4, 2020.

Certifications in Demand

Professional certifications benefit both employers and employees. For employers, an employee with a certification demonstrates a commitment skill improvement. For employees, certification provides professional credibility, and licensure also may be required to engage in an occupation, such as electricians or plumbers. Certification may lead to higher compensation as well.

Certifications Specified in Online Job Ads, Utilities Industry Online Job Postings, January 1-May 31, 2020	
Certification	**Job Postings**
Driver's License	207
Licensed Professional Engineer	14
Electrician Certification	13
Occupational Safety and Health Administration Certification	12
Certified Public Accountant (CPA)	11
Certified Industrial Hygienist	8
Certified Safety Professional	7
Forklift Operator Certification	5
CDL Class A	5
American Board for Engineering and Technology (ABET) Accredited	5
Certified in Production and Inventory Management (CPIM)	4
American Production and Inventory Control Society (APICS) Certification	4
Project Management Certification	3
Certified Information Systems Auditor (CISA)	3
Six Sigma Certification	2
Six Sigma Black Belt Certification	2
Refrigeration Technician Certification	2
Reactor Operator License	2
Project Management Professional (PMP)	2
OSHA Safety 10 Hour	2
EPA 609	2
ServSafe	1
Purchasing Certification	1
Hazardous Materials Certification	1
Emergency Medical Technician (EMT)	1
Certified Scrum Professional (CSP)	1
Certified Purchasing Manager (CPM)	1
Certified Professional - Food Safety	1
Certified Energy Manager	1
Certified Electronics Technician Journeyman	1

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Utilities industry, year-to-date 2020. Data extracted June 4, 2020. Note: 50% of records were excluded as they did not include a certification. As a result, data may not be representative of the full sample.

Certifications Specified in Online Job Ads, Heavy and Civil Engineering Construction Industry Online Job Postings, January 1-May 31, 2020	
Certification	**Job Postings**
Security Clearance	8
CompTIA Security+	6
Occupational Safety and Health Administration Certification	5
Certified Information Systems Security Professional (CISSP)	5
Licensed Professional Engineer	2
Driver's License	2
Registered Architect	1
First Aid CPR AED	1
CompTIA Network+	1

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Heavy and Civil Engineering Construction industry, year-to-date 2020. Data extracted June 4, 2020. Note: 50% of records were excluded as they did not include a certification. As a result, data may not be representative of the full sample.

Certifications Specified in Online Job Ads, Telecommunications Industry Online Job Postings, January 1-May 31, 2020	
Certification	**Job Postings**
Driver's License	22
IT Infrastructure Library (ITIL) Certification	2
Registered Nurse	1
Implementation of Microsoft Azure Infrastructure Solutions	1
ITIL Foundation	1
ITIL Certification	1
IPC Certification	1
CompTIA Security+	1
CompTIA Network+	1
Cisco Certified Network Professional (CCNP)	1
Cisco Certified Network Associate (CCNA)	1
Certified Information Systems Security Professional (CISSP)	1
Architecting Microsoft Azure Solutions	1
AWS Certified Solutions Architect (AWS-CSA)	1

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Telecommunications industry, year-to-date 2020. Data extracted June 4, 2020. Note: 78% of records were excluded as they did not include a certification. As a result, data may not be representative of the full sample.

Skills in Demand

Most employers are looking for workers with some basic skills and abilities, those learned regardless of a person's occupation.

Skill Type Definitions

- **Baseline**: include crosscutting or foundational skills found across industries and occupations. These include things like organizational skills, communication skills, and project management.
- **Specialized:** include professional and occupation-specific skills requested in job postings, which can run the gamut from accounting and sales to database administration and welding.
- **Software and Programming:** include specific computer programs requested in job postings as well as programming skills (including languages such as Java and Perl).

Skills Highest in Demand, Utilities Industry Online Job Ads, January 1-May 31, 2020		
Baseline Skills	**Specialized Skills**	**Software Skills**
Communication Skills	Repair	Microsoft Excel
Physical Abilities	Manual Dexterity	Microsoft Office
Planning	Chain Saws	Microsoft Word
Microsoft Excel	Budgeting	Microsoft PowerPoint
Organizational Skills	Customer Service	SAP
Teamwork / Collaboration	Project Management	SCADA
Range of Motion	Herbicides	Enterprise Resource Planning (ERP)
Problem Solving	Lift Trucks	Debugging
Microsoft Office	Scheduling	SolidWorks
Writing	Customer Contact	Microsoft Access
Computer Literacy	Occupational Health and Safety	Active Server Pages (ASP)
Microsoft Word	SAP	Word Processing
Troubleshooting	SCADA	SAS
Leadership	Employee Relations	AutoCAD
Multi-Tasking	Supervisory Skills	Computer Aided Drafting/Design (CAD)
Research	Cost Control	Database Software
Microsoft PowerPoint	Customer Billing	Geographic Information System (GIS)
Detail-Oriented	Procurement	Great Plains Accounting Software
Verbal / Oral Communication	Safety Training	Hyperion
Presentation Skills	Claims Knowledge	Hyperion Financial Management
Preventive Maintenance	System Operation	R Programming Language
Building Effective Relationships	Tree Felling	Statistical Programming
Decision Making	Incident Investigation	Autodesk
Written Communication	Plumbing	Computer Aided Manufacturing (CAM)
Team Building	Transformers	Financial Software Packages

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Utilities industry, year-to-date 2020. Data extracted June 4, 2020. Note: 11% of records did not include a skill.

Skills Highest in Demand, Heavy and Civil Engineering Construction Industry Online Job Ads, January 1-May 31, 2020		
Baseline Skill	**Specialized Skills**	**Software Skills**
Research	Payment Receiving	Microsoft PowerPoint
Microsoft PowerPoint	Business Development	Microsoft Word
Microsoft Word	Adobe InDesign	Adobe InDesign
Writing	Graphic Design	Microsoft Excel
Editing	Marketing	Adobe Photoshop
Meeting Deadlines	Marketing Materials	Adobe Acrobat
Time Management	Proofreading	Adobe Creative Suite
Communication Skills	Staff Management	Adobe Illustrator
Microsoft Excel	Project Management	Microsoft Office
Planning	Scheduling	Oracle
Teamwork / Collaboration	Adobe Photoshop	Software Development
Creativity	Contract Preparation	Software Engineering
Microsoft Office	Adobe Acrobat	Adobe ColdFusion
Microsoft Access	Adobe Creative Suite	Apache Tomcat
Physical Abilities	Adobe Illustrator	Crystal Reports
Initiative	Construction Industry Knowledge	Java
Leadership	Construction Management	Microsoft Access
Self-Starter	Liquefied Petroleum Gas (LPG)	SAP
Computer Literacy	Managing Subcontractors	SAP Business Intelligence (BI)
Problem Solving	Meeting Facilitation	SQL
--	Meeting Planning/Facilitation	Systems Development Life Cycle
--	Occupational Health and Safety	Visual Studio
--	Proposal Writing	Application Design
--	Data Entry	ArcGIS
--	Manual Dexterity	AutoCAD

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Heavy and Civil Engineering Construction industry, year-to-date 2020. Data extracted June 4, 2020. Note: 9% of records did not include a skill.

Skills Highest in Demand, Telecommunications Industry Online Job Ads, January 1-May 31, 2020		
Baseline Skill	**Specialized Skills**	**Software Skills**
Communication Skills	Sales	Microsoft Office
Troubleshooting	Retail Industry Knowledge	Customer Relationship Management
Computer Literacy	Customer Service	Microsoft Excel
Physical Abilities	Retail Sales	Software as a Service (SaaS)
Bilingual	Sales Goals	Automation Tools
Spanish	Product Sales	Microsoft Outlook
Organizational Skills	Customer Contact	Microsoft Word
Energetic	Onboarding	Salesforce
Listening	Store Management	ArcGIS
Building Effective Relationships	Wireless Sales	ESRI Software
Presentation Skills	Internet of Things (IoT)	Microsoft PowerPoint
Written Communication	Telecommunications	Oracle
Problem Solving	Social Media	VMware
English	Product Description & Demonstration	Virtual Private Networking (VPN)
Creativity	Product Knowledge	Word Processing
Mentoring	Cold Calling	Border Gateway Protocol
Microsoft Office	Customer Billing	Enhanced Interior Gateway Routing Protocol (EIGRP)
Multi-Tasking	Repair	MPEG-2
Typing	Scheduling	MapInfo
Microsoft Excel	Energy Efficiency	McAfee
Leadership	Cabling	Microsoft Access
Persuasion	DNA	Microsoft Azure
Positive Disposition	Employee Training	Microsoft Windows
Self-Starter	Point of Sale System	OSI model
Writing	Prospective Clients	SmartBear

Source: Labor Insight Jobs (Burning Glass Technologies). Job ad data for the Telecommunications industry, year-to-date 2020. Data extracted June 4, 2020. Note: 5% of records did not include a skill.