LOUISIANA WORKFORCE COMMISSION
The Department of Labor

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Civil Engineers

Louisiana

Summary of Job Duties

Civil Engineers Video - Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems.

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Detailed Job Description

Civil Engineers Civil engineers design major transportation projects.

Civil engineers conceive, design, build, supervise, operate, construct and maintain infrastructure projects and systems in the public and private sector, including roads, buildings, airports, tunnels, dams, bridges, and systems for water supply and sewage treatment. Many civil engineers work in planning, design, construction, research, and education.

Duties

Civil engineers typically do the following:

• Analyze long range plans, survey reports, maps, and other data to plan and design projects
• Consider construction costs, government regulations, potential environmental hazards, and other factors during the planning and risk-analysis stages of a project
• Compile and submit permit applications to local, state, and federal agencies, verifying that projects comply with various regulations
• Oversee and analyze the results of soil testing to determine the adequacy and strength of foundations
• Analyze the results of tests on building materials, such as concrete, wood, asphalt, or steel, for use in particular projects
• Prepare cost estimates for materials, equipment, or labor to determine a project's economic feasibility
• Use design software to plan and design transportation systems, hydraulic systems, and structures in

line with industry and government standards
• Perform or oversee surveying operations to establish building locations, site layouts, reference points, grades, and elevations to guide construction
• Manage the repair, maintenance, and replacement of public and private infrastructure

Civil engineers also must present their findings to the public on topics such as bid proposals, environmental impact statements, or property descriptions.

Many civil engineers hold supervisory or administrative positions ranging from supervisor of a construction site to city engineer, public works director, and city manager. As supervisors, they are tasked with ensuring that safe work practices are followed at construction sites.

Other civil engineers work in design, construction, research, and teaching. Civil engineers work with others on projects and may be assisted by civil engineering technicians.

Civil engineers prepare permit documents for work on projects in renewable energy. They verify that the projects will comply with federal, state, and local requirements. These engineers conduct structural analyses for large-scale photovoltaic, or solar energy, projects. They also evaluate the ability of solar array support structures and buildings to tolerate stresses from wind, seismic activity, and other sources. For large-scale wind projects, civil engineers often prepare roadbeds to handle large trucks that haul in the turbines.

Civil engineers work on complex projects, and they can achieve job satisfaction in seeing the project reach completion. They usually specialize in one of several areas.

Construction engineers manage construction projects, ensuring that they are scheduled and built in accordance with plans and specifications. These engineers typically are responsible for the design and safety of temporary structures used during construction. They may also oversee budgetary, time-management, and communications aspects of a project.

Geotechnical engineers work to make sure that foundations for built objects ranging from streets and buildings to runways and dams, are solid. They focus on how structures built by civil engineers, such as buildings and tunnels, interact with the earth (including soil and rock). In addition, they design and plan for slopes, retaining walls, and tunnels.

Structural engineers design and assess major projects, such as buildings, bridges, or dams, to ensure their strength and durability.

Transportation engineers plan, design, operate, and maintain everyday systems, such as streets and highways, but they also plan larger projects, such as airports, ship ports, mass transit systems, and harbors.

The work of civil engineers is closely related to the work of environmental engineers.

Source: U.S. Department of Labor Bureau of Labor Statistics

Job Zone

The section below shows the job zone information for Civil Engineers. Job Zone Four: Considerable Preparation Needed.

Education	Experience	Training
Most of these occupations require a four-year bachelor's degree, but some do not.	A considerable amount of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Jobs Available

This section shows the number of job openings advertised online in Louisiana for Civil Engineers and for the related occupational group of Architecture and Engineering Occupations on November 23, 2020 (Jobs De-duplication Level 2).

Occupation	Job Openings
Civil Engineers	82
Architecture and Engineering Occupations	726

Source: Online advertised jobs data

Monthly Job Count

This section shows the number of job openings advertised online for Civil Engineers in Louisiana October, 2020 (Jobs De-duplication Level 2).

Occupation	Job Openings
Civil Engineers	104

GREEN OCCUPATIONS

Source: Online advertised jobs data

Jobs Area Distribution

This section shows the distribution of number of job openings advertised online for Civil Engineers in Louisiana by parishes on November 23, 2020 (Jobs De-duplication Level 2).

Job Openings

1	2	3 - 4	5 - 7	8 - 20	20 - 25	N/A

Job Source: Online advertised jobs data
Wage Source: Labor Market Statistics, Occupational Employment Statistics Program

The median wage is the estimated 50th percentile; 50 percent of workers in an occupation earn less than the median wage, and 50 percent earn more than the median wage. Data is from a 2019 survey.

Jobs in Related Occupations

This section shows the number of job openings advertised online in Louisiana for occupations related to Civil Engineers on November 23, 2020 (Jobs De-duplication Level 2).

Rank	Occupation	Median Wage	Job Openings	*Related By
1	Civil Engineers	$93,891	82	N/A
2	Computer Systems Engineers/Architects	N/A	49	O*NET
3	Electrical Engineers	$99,785	35	O*NET
4	Mechanical Engineers	$93,547	32	O*NET
5	Construction Managers	$90,946	26	O*NET
6	Architectural and Engineering Managers	$150,181	24	O*NET
7	Surveyors	$60,435	12	O*NET
8	Chemical Engineers	$109,485	7	O*NET
9	Manufacturing Engineers	$86,314	7	O*NET
10	Environmental Engineers	$97,716	6	O*NET
11	Logistics Engineers	$68,700	4	O*NET
12	Landscape Architects	$56,484	4	O*NET
13	Marine Engineers	$81,140	3	O*NET
14	Marine Architects	$81,140	3	O*NET
15	Biomedical Engineers	N/A	2	O*NET
16	Electronics Engineers, Except Computer	$78,755	2	SOC4
17	Mining and Geological Engineers, Including Mining Safety Engineers	Confidential	2	O*NET
18	Petroleum Engineers	$119,665	2	O*NET
19	Architects, Except Landscape and Naval	$74,634	1	O*NET
20	Aerospace Engineers	$110,791	1	O*NET
21	Radio Frequency Identification Device Specialists	$78,755	1	SOC4
22	Energy Engineers	$86,314	1	O*NET

BRIGHT OUTLOOK NATIONALLY | GREEN OCCUPATIONS

Job Source: Online advertised jobs data
Wage Source: Labor Market Statistics, Occupational Employment Statistics Program
The median wage is the estimated 50th percentile; 50 percent of workers in an occupation earn less than the median wage, and 50 percent earn more than the median wage. Data is from a 2019 survey.
*Related By: O*NET™ - The Occupational Information Network. O*NET is a registered trademark of the US Department of Labor/Employment and Training Administration.
SOC4 - Occupational grouping based on 1st 4 digits of the Standard Occupational Classification system.

Candidates Available

This section shows potential candidates in the workforce system in Louisiana for Civil Engineers and for the related occupational group of Architecture and Engineering Occupations on November 23, 2020.

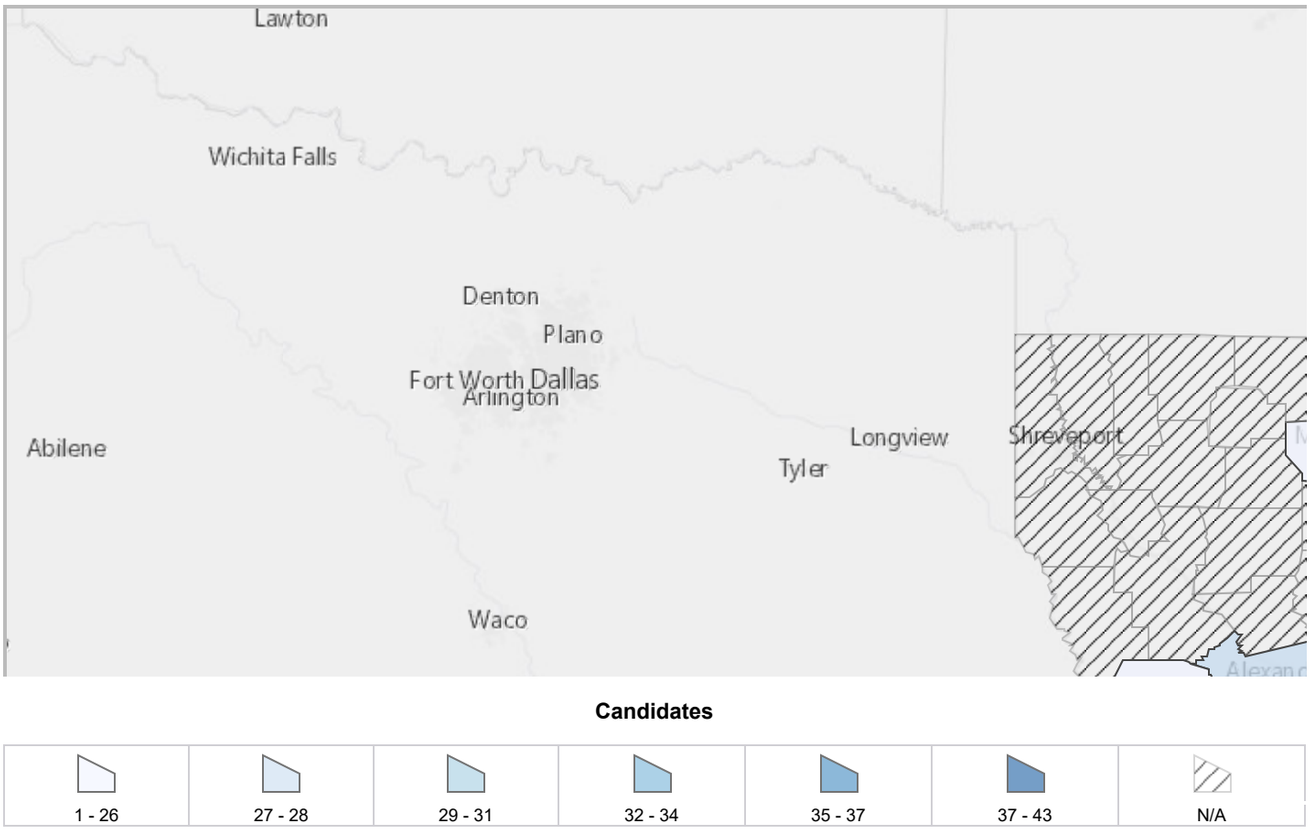
Occupation	Candidates
Civil Engineers	67
Architecture and Engineering Occupations	3,460

Source: Individuals with active résumés in the workforce system.

Candidate Area Distribution

This section shows the distribution of potential candidates in the workforce system for Civil Engineers in Louisiana by parishes on November 23, 2020.

Rank	Area Name	Median Wage	Candidates
1	East Baton Rouge Parish	$93,891 state level wages	43
2	Jefferson Parish	$93,891 state level wages	43
3	Orleans Parish	$93,891 state level wages	41
4	Ascension Parish	$93,891 state level wages	37
5	St. Charles Parish	$93,891 state level wages	36
6	Iberville Parish	$93,891 state level wages	34
7	Lafourche Parish	$93,891 state level wages	34
8	Livingston Parish	$93,891 state level wages	34
9	St. John the Baptist Parish	$93,891 state level wages	34
10	West Baton Rouge Parish	$93,891 state level wages	34



Candidate Source: Individuals with active résumés in the workforce system.
Wage Source: Labor Market Statistics, Occupational Employment Statistics Program
The median wage is the estimated 50th percentile; 50 percent of workers in an occupation earn less than the median wage, and 50 percent earn more than the median wage. Data is from a 2019 survey.

Candidates in Related Occupations

This section shows how many potential candidates in the workforce system were looking for work in Louisiana in occupations related to Civil Engineers on November 23, 2020.

Rank	Occupation	Median Wage	Candidates	*Related By
1	Construction Managers	$90,946	809	O*NET
2	Mechanical Engineers	$93,547	196	O*NET
3	Chemical Engineers	$109,485	145	O*NET
4	Electrical Engineers	$99,785	109	O*NET
5	Architectural and Engineering Managers	$150,181	107	O*NET
6	Petroleum Engineers	$119,665	82	O*NET
7	Surveyors	$60,435	67	O*NET
8	Civil Engineers	$93,891	67	N/A
9	Architects, Except Landscape and Naval	$74,634	51	O*NET
10	Computer Hardware Engineers	$87,713	44	SOC4
11	Environmental Engineers	$97,716	40	O*NET
12	Fire-Prevention and Protection Engineers	$81,297	38	O*NET
13	Marine Engineers	$81,140	28	O*NET
14	Energy Engineers	$86,314	24	O*NET
15	Landscape Architects	$56,484	23	O*NET

Rank	Occupation	Median Wage	Candidates	*Related By
16	Biomedical Engineers	N/A	19	O*NET
17	Computer Systems Engineers/Architects	N/A	18	O*NET
18	Aerospace Engineers	$110,791	18	O*NET
19	Manufacturing Engineers	$86,314	17	O*NET
20	Agricultural Engineers	N/A	16	O*NET
21	Mining and Geological Engineers, Including Mining Safety Engineers	Confidential	11	O*NET
22	Electronics Engineers, Except Computer	$78,755	9	SOC4
23	Geospatial Information Scientists and Technologists	N/A	6	O*NET
24	Hydrologists	$61,230	5	O*NET
25	Marine Architects	$81,140	4	O*NET
26	Logistics Engineers	$68,700	3	O*NET
27	Transportation Engineers	$93,891	3	O*NET
28	Biochemical Engineers	$86,314	3	O*NET
29	Soil and Water Conservationists	$60,177	2	O*NET
30	Radio Frequency Identification Device Specialists	$78,755	1	SOC4
31	Nuclear Engineers	N/A	1	O*NET
32	Validation Engineers	$86,314	1	O*NET
33	Robotics Engineers	$86,314	1	O*NET

BRIGHT OUTLOOK NATIONALLY | GREEN OCCUPATIONS

Candidate Source: Individuals with active résumés in the workforce system.
Wage Source: Labor Market Statistics, Occupational Employment Statistics Program
The median wage is the estimated 50th percentile; 50 percent of workers in an occupation earn less than the median wage, and 50 percent earn more than the median wage. Data is from a 2019 survey.
*Related By: O*NET™ - The Occupational Information Network. O*NET is a registered trademark of the US Department of Labor/Employment and Training Administration.
SOC4 - Occupational grouping based on 1st 4 digits of the Standard Occupational Classification system.

Jobs and Candidates Available

This section shows the number of job openings advertised online, as well as potential candidates in the workforce system in Louisiana for Civil Engineers and for the related occupational group of Architecture and Engineering Occupations on November 23, 2020 (Jobs De-duplication Level 2).

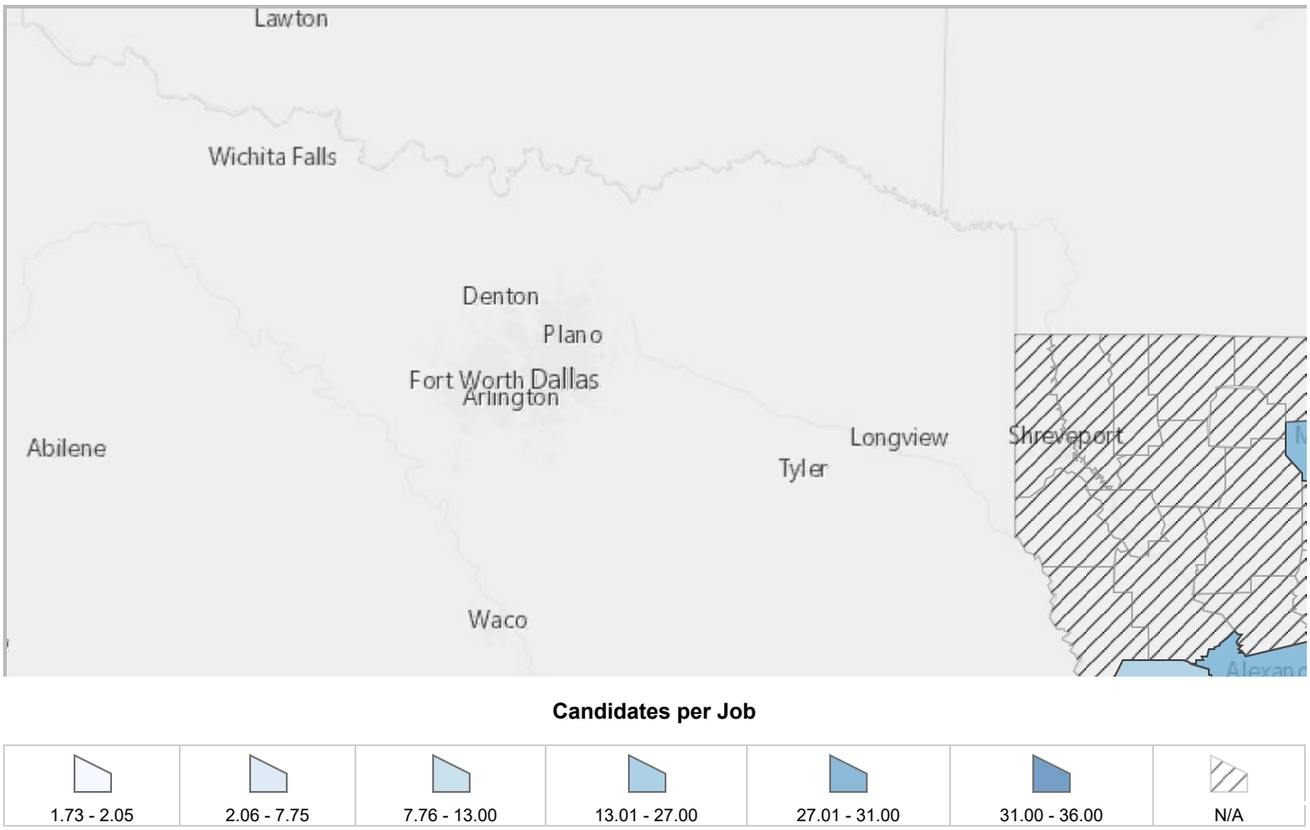
Occupation	Job Openings	Candidates	Candidates per Job
Civil Engineers	82	67	0.82
Architecture and Engineering Occupations	726	3,460	4.77

Job Source: Online advertised jobs data
Candidate Source: Individuals with active résumés in the workforce system.

Jobs and Candidates Area Distribution

This section shows the distribution of number of job openings advertised online, as well as potential candidates in the workforce system for Civil Engineers in Louisiana by parishes on November 23, 2020 (Jobs De-duplication Level 2).

Rank	Area Name	Median Wage	Job Openings	Candidates	Candidates per Job
1	St. Charles Parish	$93,891 state level wages	1	36	36.00
2	Livingston Parish	$93,891 state level wages	1	34	34.00
3	Acadia Parish	$93,891 state level wages	1	31	31.00
4	Terrebonne Parish	$93,891 state level wages	1	31	31.00
5	Rapides Parish	$93,891 state level wages	1	27	27.00
6	Washington Parish	$93,891 state level wages	1	27	27.00
7	Ouachita Parish	$93,891 state level wages	1	26	26.00
8	Vernon Parish	$93,891 state level wages	2	26	13.00
9	Ascension Parish	$93,891 state level wages	3	37	12.33
10	St. Tammany Parish	$93,891 state level wages	3	32	10.67



Job Source: Online advertised jobs data
Candidate Source: Individuals with active résumés in the workforce system.
Wage Source: Labor Market Statistics, Occupational Employment Statistics Program
The median wage is the estimated 50th percentile; 50 percent of workers in an occupation earn less than the median wage, and 50 percent earn more than the median wage. Data is from a 2019 survey.

National Supply and Demand Summary

Civil Engineers Employment of civil engineers is projected to grow 11 percent from 2016 to 2026, faster than the average for all occupations. As current U.S. infrastructure experiences growing obsolescence, civil engineers will be needed to manage projects to rebuild, repair, and upgrade bridges, roads, levees, dams, airports, buildings, and other structures.

A growing population likely means that new water systems will be required while, at the same time, aging, existing water systems must be maintained to reduce or eliminate leaks. In addition, more waste treatment plants will be needed to help clean the nation's waterways. Civil engineers will continue to play a key part in all of this work.

The work of civil engineers will be needed for renewable-energy projects. Thus, as these new projects gain approval, civil engineers will be further involved in overseeing the construction of structures such as wind farms and solar arrays.

Although state and local governments continue to face financial challenges and may have difficulty funding all projects, some delayed projects will have to be completed to build and maintain critical infrastructure, as well as to protect the public and the environment.

Job Prospects

Applicants who gain experience by participating in a co-op program while in college will have the best opportunities. In addition, new standards known collectively as the Body of Knowledge are growing in importance within civil engineering, and this development is likely to result in a heightened need for a graduate education. Therefore those who enter the occupation with a graduate degree will likely have better prospects.

Source: U.S. Department of Labor Bureau of Labor Statistics

Employers by Number of Job Openings

This section shows the employers with the highest number of job openings advertised online for Civil Engineers in Louisiana on November 23, 2020 (Jobs De-duplication Level 2).

Rank	Employer Name	Job Openings
1	CBRE	6
2	Aptim	4
3	Stantec Inc.	3
4	T Baker Smith LLC	3
5	Fox-Nesbit Engineering	2
6	HNTB	2
7	Hunt, Guillot & Associates	2
8	Parsons Corporation	2
9	Sedgwick Claims Management Services, Inc	2
10	Tetra Tech Inc	2

Source: Online advertised jobs data

Advertised Job Skills

This section shows the top advertised detailed job skills found in job openings advertised online for Civil Engineers in Louisiana in October, 2020. (Jobs De-duplication Level 1)

Rank	Advertised Detailed Job Skill	Advertised Skill Group	Job Opening Match Count
1	Design calculations	Civil Engineer Skills	23
2	Must be flexible	Basic Skills	22
3	Work independently	Basic Skills	21
4	Verbal communication skills	Interpersonal Skills	21
5	System design	Information Systems Manager Skills	16
6	Structural analysis	Civil Engineer Skills	15
7	Welding	Welding Skills	12
8	Developing new business	Business Development Skills	12
9	Effectively present information	Basic Skills	10
10	Drainage design	Civil Engineer Skills	9

Source: Online advertised jobs data

Advertised Tools and Technology

This section shows the top advertised detailed tools and technologies found in job openings advertised online for Civil Engineers in Louisiana in October, 2020. (Jobs De-duplication Level 1)

Rank	Advertised Detailed Tool or Technology	Advertised Tool and Technology Group	Job Opening Match Count
1	Microsoft (MS) Office	Office Suite Software	43

Rank	Advertised Detailed Tool or Technology	Advertised Tool and Technology Group	Job Opening Match Count
2	Ladders	Ladders	16
3	Visual Solutions VisSIM	Analytical or Scientific Software	13
4	Alarms	Alarm Systems	10
5	Personal Digital Assistant (PDA)	Personal Digital Assistant (PDAs) or Organizers	10
6	Personal Computer (PC)	Personal Computers	10
7	Refrigeration systems	Refrigerated Tanks	10
8	Microsoft Word	Word Processing Software	9
9	Microsoft Excel	Spreadsheet Software	9
10	Geostatistics software GS+	Analytical or Scientific Software	7

Source: Online advertised jobs data

Typical Job Skills

This section shows the job skills that are related to Civil Engineers.

Rank	Typical Job Skills	Typical Skill Category
1	Inspect facilities or sites to determine if they meet specifications or standards	Information Input
2	Design systems to reduce harmful emissions	Mental Processes
3	Recommend technical design or process changes to improve efficiency, quality, or performance	Interacting With Others
4	Estimate technical or resource requirements for development or production projects	Mental Processes
5	Test characteristics of materials or structures	Information Input
6	Direct construction activities	Interacting With Others
7	Survey land or bodies of water to measure or determine features	Information Input
8	Estimate operational costs	Information Input
9	Create graphical representations of civil structures	Mental Processes
10	Explain project details to the general public	Interacting With Others
11	Prepare proposal documents	Work Output
12	Incorporate green features into the design of structures or facilities	Mental Processes
13	Develop technical methods or processes	Mental Processes
14	Investigate the environmental impact of projects	Information Input
15	Coordinate safety or regulatory compliance activities	Interacting With Others
16	Evaluate technical data to determine effect on designs or plans	Mental Processes
17	Implement design or process improvements	Mental Processes

Rank	Typical Job Skills	Typical Skill Category
18	Analyze operational data to evaluate operations, processes or products	Mental Processes

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Personal Skills

This section shows the personal skills that are most useful for Civil Engineers. Click on a link in the Personal Skills column to view more detailed information.

Personal Skill	Skill Description	Rank by Importance (Out of 100)
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.	75
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.	75
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.	72
Speaking	Talking to others to convey information effectively.	72
Mathematics	Using mathematics to solve problems.	72
Complex Problem Solving	Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.	72
Operations Analysis	Analyzing needs and product requirements to create a design.	72
Systems Analysis	Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.	72
Time Management	Managing one's own time and the time of others.	69
Science	Using scientific rules and methods to solve problems.	66
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.	60
Systems Evaluation	Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.	60
Judgment and Decision Making	Considering the relative costs and benefits of potential actions to choose the most appropriate one.	60
Monitoring	Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.	56
Coordination	Adjusting actions in relation to others' actions.	56

Personal Skill	Skill Description	Rank by Importance (Out of 100)
Persuasion	Persuading others to change their minds or behavior.	53
Instructing	Teaching others how to do something.	53
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.	53
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.	53
Writing	Communicating effectively in writing as appropriate for the needs of the audience.	53
Management of Material Resources	Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.	53
Management of Personnel Resources	Motivating, developing, and directing people as they work, identifying the best people for the job.	50
Service Orientation	Actively looking for ways to help people.	50
Negotiation	Bringing others together and trying to reconcile differences.	50
Management of Financial Resources	Determining how money will be spent to get the work done, and accounting for these expenditures.	47
Repairing	Repairing machines or systems using the needed tools.	35
Quality Control Analysis	Conducting tests and inspections of products, services, or processes to evaluate quality or performance.	35
Technology Design	Generating or adapting equipment and technology to serve user needs.	35
Operation Monitoring	Watching gauges, dials, or other indicators to make sure a machine is working properly.	31
Programming	Writing computer programs for various purposes.	25
Equipment Maintenance	Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.	19
Troubleshooting	Determining causes of operating errors and deciding what to do about it.	10
Operation and Control	Controlling operations of equipment or systems.	10
Equipment Selection	Determining the kind of tools and equipment needed to do a job.	10
Installation	Installing equipment, machines, wiring, or programs to meet specifications.	0

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Typical Education Requirements

Civil Engineers Civil Engineers usually require at least a Bachelor's degree. However, not all employers may make this a hiring requirement.

Source: This information is based on the BLS Occupational Outlook Handbook (OOH).

Required Level of Education

This section shows the results of a national survey listing the most common required level of education for Civil Engineers.

Rank	Required Level of Education	Percentage of Respondents
1	Bachelor's Degree	43.48%
2	Master's Degree	26.09%
3	Post-Baccalaureate Certificate - awarded for completion of an organized program of study; designed for people who have completed a Baccalaureate degree but do not meet the requirements of academic degrees carrying the title of Master.	13.04%
4	First Professional Degree - awarded for completion of a program that: requires at least 2 years of college work before entrance into the program, includes a total of at least 6 academic years of work to complete, and provides all remaining academic requirements to begin practice in a profession.	8.70%
5	Doctoral Degree	4.35%
6	Post-Master's Certificate - awarded for completion of an organized program of study; designed for people who have completed a Master's degree but do not meet the requirements of academic degrees at the doctoral level.	4.35%

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

On The Job Training

This section shows the results of a national survey listing the most common lengths of on the job training for Civil Engineers.

Rank	On The Job Training	Percentage of Respondents
1	Over 4 years, up to and including 10 years	26.09%
2	Over 1 year, up to and including 2 years	21.74%
3	Over 6 months, up to and including 1 year	13.04%
4	Over 10 years	8.70%
5	None or short demonstration	8.70%
6	Over 1 month, up to and including 3 months	8.70%
7	Over 3 months, up to and including 6 months	8.70%
8	Anything beyond short demonstration, up to and including 1 month	4.35%

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

On-Site or In-Plant Training

This section shows the results of a national survey listing the most common lengths of on-site or in-plant training for Civil Engineers.

Rank	On-Site or In-Plant Training	Percentage of Respondents
1	None	26.09%
2	Over 3 months, up to and including 6 months	17.39%
3	Over 4 years, up to and including 10 years	17.39%
4	Over 2 years, up to and including 4 years	13.04%
5	Over 6 months, up to and including 1 year	8.70%
6	Over 1 month, up to and including 3 months	8.70%
7	Over 1 year, up to and including 2 years	4.35%
8	Over 10 years	4.35%

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Education Level of Jobs and Candidates

This section shows the minimum level of education requested by employers on job openings advertised online, as well as the educational attainment of potential candidates in the workforce system that are looking for jobs as Civil Engineers in Louisiana on November 23, 2020. There were 57 job openings advertised online that did not specify a minimum education requirement (Jobs De-duplication Level 2).

Rank	Education Level	Job Openings	Percentage of Job Openings	Potential Candidates	Percentage of Potential Candidates
1	No Minimum Education Requirement	2	2.44%	0	N/A
2	Less than High School	0	N/A	1	1.49%
3	High School Diploma or Equivalent	1	1.22%	5	7.46%
4	1 Year of College or a Technical or Vocational School	0	N/A	2	2.99%
5	3 Years of College or a Technical or Vocational School	0	N/A	2	2.99%
6	Vocational School Certificate	0	N/A	1	1.49%
7	Associate's Degree	0	N/A	1	1.49%
8	Bachelor's Degree	22	26.83%	35	52.24%
9	Master's Degree	0	N/A	16	23.88%
10	Doctorate Degree	0	N/A	3	4.48%
11	Specialized Degree (e.g. MD, DDS)	0	N/A	1	1.49%
12	Not Specified	57	69.51%	0	N/A

Job Source: Online advertised jobs data
Candidate Source: Individuals with active résumés in the workforce system.

Education Training Programs

This section shows the Education Training Programs for Civil Engineers in Louisiana.

Provider Name	Program Name	Location	Tuition	Length	WIOA Eligible
Baton Rouge Community College	Highway Engineering Technology Certificate	Baton Rouge, LA	$4,925	4 Semesters	
Louisiana State University at Baton Rouge	Civil Engineering (BSCE) A baccalaureate degree	BATON ROUGE, LA	$47,624	8 Semesters	✓
Louisiana Tech University - Ruston	Civil Engineering A baccalaureate degree	Ruston, LA	$44,135	1600 Hours	✓
Southern University at Baton Rouge	Civil Engineering A baccalaureate degree, Employment, A measurable skills gain leading to a credential, A measurable skills gain leading to employment	Baton Rouge, LA	$40,400	10 Semesters	✓
University of Louisiana at Lafayette	Civil Engineering A baccalaureate degree	Lafayette, LA	$21,628	8 Semesters	✓

Source: U.S. Department of Commerce, Bureau of the Census, Midyear Estimates

Advertised Job Certifications

This section shows the top advertised certification groups found in job openings advertised online for Civil Engineers in Louisiana in October, 2020. (Jobs De-duplication Level 1)

Rank	Advertised Certification Group	Advertised Certification Sub-Category	Job Opening Match Count
1	Research Adminstrators Certification Council (RACC)	Medical Testing	11
2	Transportation Professional Certification Board (TPCB)	Engineering	7
3	Project Management Institute (PMI) Certifications	Business Planning	4
4	National Society of Professional Engineers (NSPE) Credentials	Engineering	4

Rank	Advertised Certification Group	Advertised Certification Sub-Category	Job Opening Match Count
5	Association of Diving Contractors (ADC) International Certifications	Engineering	1
6	American Heart Association (AHA) CPR & First Aid Certifications	Nursing	1

Source: Online advertised jobs data

Training Program Completers

There is no data available for Civil Engineers in Louisiana.

National Education, Training, Licensing and Qualifications

Civil Engineers Education

Civil engineers need a bachelor's degree in civil engineering, in one of its specialties, or in civil engineering technology. Programs in civil engineering and civil engineering technology include coursework in math, statistics, engineering mechanics and systems, and fluid dynamics, depending on the specialty. Courses include a mix of traditional classroom learning, work in laboratories, and fieldwork. Programs may include cooperative programs, also known as co-ops, in which students gain work experience while pursuing a degree.

A degree from a program accredited by ABET is needed to earn the professional engineer (PE) license. In many states, a bachelor's degree in civil engineering technology also meets the academic requirement for obtaining a license.

Further education after the bachelor's degree, along with the PE license and previous experience, is helpful in getting a job as a manager. For more information on engineering managers, see the profile on architectural and engineering managers.

Important Qualities

Decisionmaking skills. Civil engineers often balance multiple and frequently conflicting objectives, such as determining the feasibility of plans with regard to financial costs and safety concerns. Urban and regional planners often look to civil engineers for advice on these issues. Civil engineers must be able to make good decisions based on best practices, their own technical knowledge, and their own experience.

Leadership skills. Civil engineers take ultimate responsibility for the projects that they manage or research that they perform. Therefore, they must be able to lead planners, surveyors, construction managers, civil engineering technicians, civil engineering technologists, and others in implementing their project plan.

Math skills. Civil engineers use the principles of calculus, trigonometry, and other advanced topics in mathematics for analysis, design, and troubleshooting in their work.

Organizational skills. Only licensed civil engineers can sign the design documents for infrastructure projects. This requirement makes it imperative that civil engineers be able to monitor and evaluate the work at the jobsite as a project progresses. That way, they can ensure compliance with the design documents. Civil engineers also often manage several projects at the same time, and thus must be able to balance time needs and to effectively allocate resources.

Problem-solving skills. Civil engineers work at the highest level of the planning, design, construction, and operation of multifaceted projects or research. The many variables involved require that they possess the ability to identify and evaluate complex problems. They must be able to then use their

skill and training to develop cost-effective, safe, and efficient solutions.

Speaking skills. Civil engineers must present reports and plans to audiences of people with a wide range of backgrounds and technical knowledge. This requires the ability to speak clearly and to converse with people in various settings, and to translate engineering and scientific information into easy-to-understand concepts.

Writing skills. Civil engineers must be able to communicate with others, such as architects, landscape architects, urban and regional planners. They also must be able to explain projects to elected officials and citizens. Civil engineers must be able to write reports that are clear, concise, and understandable to those with little or no technical or scientific background.

Licenses, Certifications, and Registrations

Licensure is not required for entry-level positions as a civil engineer. A Professional Engineering (PE) license, which allows for higher levels of leadership and independence, can be acquired later in one's career. Licensed engineers are called professional engineers (PEs). A PE can oversee the work of other engineers, approve design plans, sign off on projects, and provide services directly to the public. State licensure generally requires

- A degree from an ABET-accredited engineering program
- A passing score on the Fundamentals of Engineering (FE) exam
- Relevant work experience, typically at least 4 years working under a licensed engineer
- A passing score on the Professional Engineering (PE) exam

The initial FE exam can be taken after earning a bachelor's degree. Engineers who pass this exam commonly are called engineers in training (EITs) or engineer interns (EIs). After meeting work experience requirements, EITs and EIs can take the second exam, called the Principles and Practice of Engineering.

Each state issues its own licenses. Most states recognize licensure from other states, as long as the licensing state's requirements meet or exceed their own licensure requirements. Several states require continuing education for engineers to keep their licenses.

The American Society of Civil Engineers offers certifications in coastal engineering, geotechnical engineering, ports engineering, water resources engineering, and other fields. Additionally, civil engineers can become certified in building security and in sustainability.

Other Experience

During high school, students can attend engineering summer camps to see what these and other engineers do. Attending these camps can help students plan their coursework for the remainder of their time in high school.

Advancement

Civil engineers with ample experience may move into senior positions, such as project managers or functional managers of design, construction, operation, or maintenance. However, they would first need to obtain the Professional Engineering (PE) license, because only licensed engineers can assume responsibilities for public projects.

After gaining licensure, a professional engineer may seek credentialing that demonstrates his or her expertise in a civil engineering specialty. Such a credential may be helpful for advancement to senior technical or even managerial positions.

Source: U.S. Department of Labor Bureau of Labor Statistics

Typical Work Experience Requirements

Civil Engineers Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Related Work Experience

This section shows the results of a national survey listing the most common related work experience for Civil Engineers.

Rank	Related Work Experience	Percentage of Respondents
1	Over 10 years	47.83%
2	Over 4 years, up to and including 6 years	17.39%
3	Over 1 year, up to and including 2 years	8.70%
4	Over 2 years, up to and including 4 years	8.70%
5	None	4.35%
6	Over 3 months, up to and including 6 months	4.35%
7	Over 6 years, up to and including 8 years	4.35%
8	Over 8 years, up to and including 10 years	4.35%

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Work Experience of Jobs and Candidates

This section shows the minimum required work experience requested by employers on job openings advertised online, as well as the experience level of potential candidates in the workforce system that are looking for jobs as Civil Engineers in Louisiana on November 23, 2020. There were 63 job openings advertised online that did not specify a minimum experience requirement (Jobs De-duplication Level 2).

Rank	Experience	Job Openings	Percentage of Job Openings	Potential Candidates	Percentage of Potential Candidates
1	Not Specified	63	76.83%	0	N/A
2	Entry Level	1	1.22%	0	N/A
3	Less than 1 year	0	N/A	2	2.99%
4	1 Year to 2 Years	6	7.32%	1	1.49%
5	2 Years to 5 Years	8	9.76%	2	2.99%
6	5 Years to 10 Years	4	4.88%	10	14.93%
7	More than 10 Years	0	N/A	52	77.61%

Job Source: Online advertised jobs data
Candidate Source: Individuals with active résumés in the workforce system.

Current Job Order Wage Information

The employer has NOT indicated a salary range for this job. The information below shows statistics on typical salaries in the local labor market for Civil Engineers. This data is NOT an indication of what this employer is willing to pay for this job.

Employment Wage Statistics

This section shows the estimated employment wage statistics for individuals in Louisiana employed for Civil Engineers in 2019.

Rate Type / Statistical Type	Entry level	Median	Experienced
Annual wage or salary	$58,718	$93,891	$157,942
Hourly wage	$28.23	$45.14	$75.93

Source: Labor Market Statistics, Occupational Employment Statistics Program
The median wage is the estimated 50th percentile; 50 percent of workers in an occupation earn less than the median wage, and 50 percent earn more than the median wage. Entry level and Experienced wage rates represent the means of the lower 1/3 and upper 2/3 of the wage distribution, respectively. Data is from an annual survey.

Wage Rates on Advertised Jobs

This section shows a statistical breakdown of available wage data on the 82 job openings advertised online for Civil Engineers in Louisiana that posted a salary on November 23, 2020.

Rate Type / Statistical Type	Entry Level	Median	Experienced
Annual wage or salary	N/A	N/A	N/A
Hourly Wage	N/A	N/A	N/A

Source: Online advertised jobs data
Note: This information is based on actual job orders and is not based on a statistically valid labor market survey. Hourly wage rate calculations in this section assume a 40 hour work week.

Desired Salary of Available Candidates

This section shows the desired salary of potential candidates in the workforce system that are looking for jobs as Civil Engineers in Louisiana on November 23, 2020.

Rank	Desired Salary	Potential Candidates	Percentage of Potential Candidates
1	Not Specified	18	26.87%
2	$20,000 - $34,999	4	5.97%
3	$35,000 - $49,999	8	11.94%
4	$50,000 - $64,999	8	11.94%
5	$65,000 - $79,999	3	4.48%
6	$80,000 - $94,999	6	8.96%
7	$95,000 or more	20	29.85%

Source: Individuals with active résumés in the workforce system.

Wage Rates Area Distribution

There is no data available for Civil Engineers in Louisiana.

Wage Rates in Related Occupations

This section shows a comparison of 2019 median annual rates for occupations that are in the same occupational family as Civil Engineers for Louisiana.

Rank	Occupation	Median	*Related By
1	Architectural and Engineering Managers	$150,181	O*NET
2	Petroleum Engineers	$119,665	O*NET
3	Aerospace Engineers	$110,791	O*NET
4	Chemical Engineers	$109,485	O*NET
5	Electrical Engineers	$99,785	O*NET
6	Environmental Engineers	$97,716	O*NET
7	Civil Engineers	$93,891	N/A
8	Transportation Engineers	$93,891	O*NET
9	Mechanical Engineers	$93,547	O*NET
10	Construction Managers	$90,946	O*NET
11	Computer Hardware Engineers	$87,713	SOC4
12	Biochemical Engineers	$86,314	O*NET
13	Validation Engineers	$86,314	O*NET
14	Energy Engineers	$86,314	O*NET
15	Manufacturing Engineers	$86,314	O*NET
16	Robotics Engineers	$86,314	O*NET
17	Fire-Prevention and Protection Engineers	$81,297	O*NET
18	Marine Engineers	$81,140	O*NET
19	Marine Architects	$81,140	O*NET
20	Electronics Engineers, Except Computer	$78,755	SOC4
21	Radio Frequency Identification Device Specialists	$78,755	SOC4
22	Architects, Except Landscape and Naval	$74,634	O*NET
23	Logistics Engineers	$68,700	O*NET
24	Hydrologists	$61,230	O*NET
25	Surveyors	$60,435	O*NET
26	Soil and Water Conservationists	$60,177	O*NET
27	Landscape Architects	$56,484	O*NET
*	Mining and Geological Engineers, Including Mining Safety Engineers	Confidential	O*NET

BRIGHT OUTLOOK NATIONALLY | GREEN OCCUPATIONS

* Rank is suppressed for confidential data.

Source: Labor Market Statistics, Occupational Employment Statistics Program
The median wage is the estimated 50th percentile; 50 percent of workers in an occupation earn less than the median wage, and 50 percent earn more than the median wage. Entry level and Experienced wage rates represent the means of the lower 1/3 and upper 2/3 of the wage distribution, respectively. Data is from an annual survey.
*Related By: O*NET™ - The Occupational Information Network. O*NET is a registered trademark of the US Department of Labor/Employment and Training Administration.
SOC4 - Occupational grouping based on 1st 4 digits of the Standard Occupational Classification system.

Wage Rates by Industry

There is no data available for Civil Engineers in Louisiana.

National Earnings Data Summary

Civil Engineers The median annual wage for civil engineers was $83,540 in May 2016. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than $53,470, and the highest 10 percent earned more than $132,880.

In May 2016, the median annual wages for civil engineers in the top industries in which they worked were as follows:

Federal government, excluding postal service $92,320
Local government, excluding education and hospitals 88,370
Engineering services 82,710
State government, excluding education and hospitals 80,200
Nonresidential building construction 77,170

Civil engineers typically work full time, and about 3 in 10 worked more than 40 hours per week in 2016. Engineers who direct projects may need to work extra hours in order to monitor progress on projects, to ensure that designs meet requirements, and to guarantee that deadlines are met.

Source: U.S. Department of Labor Bureau of Labor Statistics

Occupational Employment & Future Employment Outlook

This section shows the long term employment projections for Civil Engineers in Louisiana from 2016-2026.

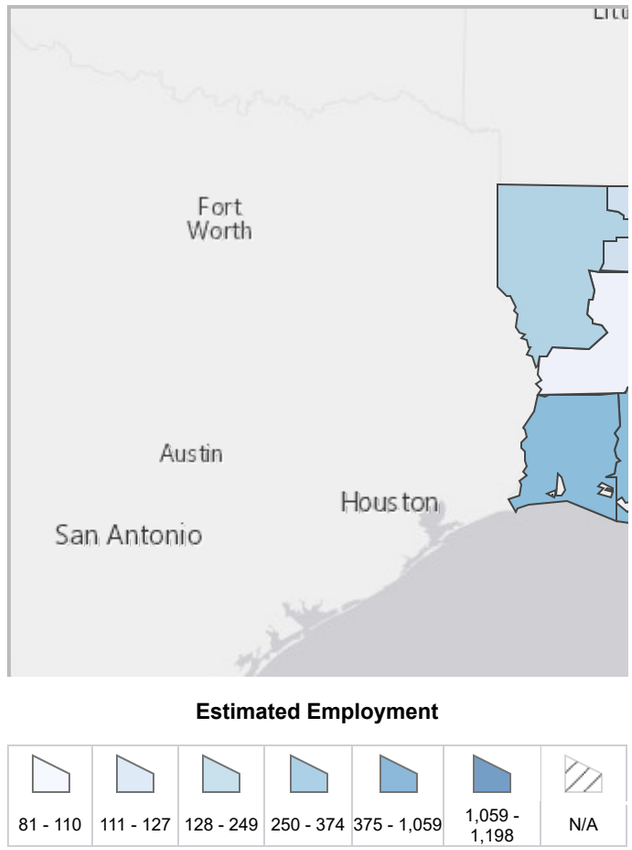
Occupation	2016 Estimated Employment	2026 Projected Employment	Total 2016-2026 Employment Change	2016-2026 Annual Avg. Percent Change
Civil Engineers	3,535	3,961	426	1.14%
Total All	2,034,986	2,203,144	168,158	0.80%

Source: Occupational Employment Projections

Employment Data Area Distribution

This section shows the distribution of the 2016 estimated employment for Civil Engineers in Louisiana by regional labor market area.

Rank	Area	2016 Estimated Employment
1	1st Regional Labor Market Area, New Orleans	1,198
2	2nd Regional Labor Market Area, Baton Rouge	1,059
3	5th Regional Labor Market Area, Lake Charles	374
4	4th Regional Labor Market Area, Lafayette	344
5	7th Regional Labor Market Area, Shreveport	249
6	8th Regional Labor Market Area, Monroe	127
7	3rd Regional Labor Market Area, Houma	110
8	6th Regional Labor Market Area, Alexandria	80



Source: Labor Market Statistics, Occupational Employment Projections Program

Employment Data in Related Occupations

This section shows the 2016 Estimated Employment in Louisiana for occupations related to Civil Engineers.

Rank	Occupation	2016 Estimated Employment	*Related By
1	Construction Managers	5,323	O*NET
2	Biochemical Engineers	3,698	O*NET
3	Energy Engineers	3,698	O*NET
4	Manufacturing Engineers	3,698	O*NET
5	Robotics Engineers	3,698	O*NET
6	Validation Engineers	3,698	O*NET
7	Civil Engineers	3,535	SOC4
8	Transportation Engineers	3,535	O*NET
9	Computer Systems Engineers/Architects	2,873	O*NET
10	Geospatial Information Scientists and Technologists	2,873	O*NET
11	Chemical Engineers	2,401	O*NET
12	Mechanical Engineers	2,316	O*NET
13	Petroleum Engineers	1,645	O*NET
14	Electrical Engineers	1,557	O*NET
15	Architectural and Engineering Managers	1,457	O*NET

Rank	Occupation	2016 Estimated Employment	*Related By
16	Architects, Except Landscape and Naval	1,339	O*NET
17	Surveyors	910	O*NET
18	Logistics Engineers	795	O*NET
19	Electronics Engineers, Except Computer	750	SOC4
20	Radio Frequency Identification Device Specialists	750	SOC4
21	Soil and Water Conservationists	659	O*NET
22	Fire-Prevention and Protection Engineers	646	O*NET
23	Environmental Engineers	481	O*NET
24	Marine Architects	256	O*NET
25	Marine Engineers	256	O*NET
26	Computer Hardware Engineers	206	SOC4
27	Nuclear Engineers	142	O*NET
28	Biomedical Engineers	48	O*NET
*	Aerospace Engineers	Confidential	O*NET
*	Agricultural Engineers	Confidential	O*NET
*	Hydrologists	Confidential	O*NET
*	Landscape Architects	Confidential	O*NET
*	Mining and Geological Engineers, Including Mining Safety Engineers	Confidential	O*NET

BRIGHT OUTLOOK NATIONALLY | GREEN OCCUPATIONS

* Rank is suppressed for confidential data.

Source: Occupational Employment Projections
*Related By: O*NET™ - The Occupational Information Network. O*NET is a registered trademark of the US Department of Labor/Employment and Training Administration.
SOC4 - Occupational grouping based on 1st 4 digits of the Standard Occupational Classification system.

Projected Annual Openings

This section shows the long term projected annual openings for Civil Engineers in Louisiana from 2016 to 2026.

Occupation	Total Annual Average Openings	Annual Average Openings Due to Growth	Annual Average Openings Due to Replacement
Civil Engineers	N/A	N/A	N/A
Architecture and Engineering	N/A	N/A	N/A

Source: Labor Market Statistics, Occupational Employment Projections Program

Projected Annual Openings Area Distribution

This section shows the distribution of the total annual average openings for Civil Engineers in Louisiana by regional labor market area from 2016 to 2026.

Rank	Area	Total Annual Average Openings
1	1st Regional Labor Market Area, New Orleans	N/A
2	2nd Regional Labor Market Area, Baton Rouge	N/A
3	3rd Regional Labor Market Area, Houma	N/A
4	4th Regional Labor Market Area, Lafayette	N/A
5	5th Regional Labor Market Area, Lake Charles	N/A
6	6th Regional Labor Market Area, Alexandria	N/A
7	7th Regional Labor Market Area, Shreveport	N/A
8	8th Regional Labor Market Area, Monroe	N/A

There is no total annual average openings data available for Civil Engineers in Louisiana.

Source: Labor Market Statistics, Occupational Employment Projections Program

Projected Annual Openings in Related Occupations

This section shows the projected total annual average openings in Louisiana for occupations related to Civil Engineers from 2016 to 2026.

Rank	Occupation	Total Annual Average Openings	*Related By
1	Architects, Except Landscape and Naval	N/A	O*NET
2	Architectural and Engineering Managers	N/A	O*NET
3	Biochemical Engineers	N/A	O*NET
4	Biomedical Engineers	N/A	O*NET
5	Chemical Engineers	N/A	O*NET
6	Civil Engineers	N/A	SOC4
7	Computer Hardware Engineers	N/A	SOC4
8	Computer Systems Engineers/Architects	N/A	O*NET
9	Construction Managers	N/A	O*NET
10	Electrical Engineers	N/A	O*NET
11	Electronics Engineers, Except Computer	N/A	SOC4
12	Energy Engineers	N/A	O*NET
13	Environmental Engineers	N/A	O*NET
14	Fire-Prevention and Protection Engineers	N/A	O*NET
15	Geospatial Information Scientists and Technologists	N/A	O*NET
16	Logistics Engineers	N/A	O*NET

Rank	Occupation	Total Annual Average Openings	*Related By
17	Manufacturing Engineers	N/A	O*NET
18	Marine Architects	N/A	O*NET
19	Marine Engineers	N/A	O*NET
20	Mechanical Engineers	N/A	O*NET
21	Nuclear Engineers	N/A	O*NET
22	Petroleum Engineers	N/A	O*NET
23	Radio Frequency Identification Device Specialists	N/A	SOC4
24	Robotics Engineers	N/A	O*NET
25	Soil and Water Conservationists	N/A	O*NET
26	Surveyors	N/A	O*NET
27	Transportation Engineers	N/A	O*NET
28	Validation Engineers	N/A	O*NET
*	Aerospace Engineers	Confidential	O*NET
*	Agricultural Engineers	Confidential	O*NET
*	Hydrologists	Confidential	O*NET
*	Landscape Architects	Confidential	O*NET
*	Mining and Geological Engineers, Including Mining Safety Engineers	Confidential	O*NET

BRIGHT OUTLOOK NATIONALLY | GREEN OCCUPATIONS

* Rank is suppressed for confidential data.

Source: Occupational Employment Projections

Industries by Employment

This section shows the industries that employed the highest number of Civil Engineers in Louisiana in 2016.

Rank	Industry Title	Estimated Employment	Percent of Total Employment
1	Professional, Scientific, and Technical Services	2,119	59.94%
2	Self-Employed and Unpaid Family Workers, Primary Job	119	3.37%
3	Construction of Buildings	101	2.86%
4	Fabricated Metal Product Manufacturing	27	0.76%
*	Oil and Gas Extraction	Confidential	Confidential
*	Support Activities for Mining	Confidential	Confidential
*	Utilities	Confidential	Confidential
*	Heavy and Civil Engineering Construction	Confidential	Confidential
*	Specialty Trade Contractors	Confidential	Confidential
*	Petroleum and Coal Products Manufacturing	Confidential	Confidential

* Rank is suppressed for confidential data.

Source: Louisiana Workforce Commission, Occupational Projections Program

Work Activities

This section shows the most common work activities required by Civil Engineers in order of importance. Click on a link in the Work Activity column to view more detailed information.

Work Activity	Work Activity Description	Rank by Importance (Out of 100)
Making Decisions and Solving Problems	Analyzing information and evaluating results to choose the best solution and solve problems.	85
Getting Information	Observing, receiving, and otherwise obtaining information from all relevant sources.	84
Communicating with Supervisors, Peers, or Subordinates	Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.	80
Interacting With Computers	Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.	77
Evaluating Information to Determine Compliance with Standards	Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.	76
Thinking Creatively	Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions.	75
Updating and Using Relevant Knowledge	Keeping up-to-date technically and applying new knowledge to your job.	75
Organizing, Planning, and Prioritizing Work	Developing specific goals and plans to prioritize, organize, and accomplish your work.	73
Communicating with Persons Outside Organization	Communicating with people outside the organization, representing the organization to customers, the public, government, and other external sources. This information can be exchanged in person, in writing, or by telephone or e-mail.	73
Inspecting Equipment, Structures, or Material	Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.	71
Analyzing Data or Information	Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.	71
Establishing and Maintaining Interpersonal Relationships	Developing constructive and cooperative working relationships with others, and maintaining them over time.	71

Work Activity	Work Activity Description	Rank by Importance (Out of 100)
Identifying Objects, Actions, and Events	Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.	70
Coordinating the Work and Activities of Others	Getting members of a group to work together to accomplish tasks.	70
Developing and Building Teams	Encouraging and building mutual trust, respect, and cooperation among team members.	69
Provide Consultation and Advice to Others	Providing guidance and expert advice to management or other groups on technical, systems-, or process-related topics.	68
Processing Information	Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data.	66
Monitoring and Controlling Resources	Monitoring and controlling resources and overseeing the spending of money.	66
Scheduling Work and Activities	Scheduling events, programs, and activities, as well as the work of others.	66
Estimating the Quantifiable Characteristics of Products, Events, or Information	Estimating sizes, distances, and quantities; or determining time, costs, resources, or materials needed to perform a work activity.	65
Judging the Qualities of Things, Services, or People	Assessing the value, importance, or quality of things or people.	65
Guiding, Directing, and Motivating Subordinates	Providing guidance and direction to subordinates, including setting performance standards and monitoring performance.	65
Resolving Conflicts and Negotiating with Others	Handling complaints, settling disputes, and resolving grievances and conflicts, or otherwise negotiating with others.	64
Documenting/Recording Information	Entering, transcribing, recording, storing, or maintaining information in written or electronic/magnetic form.	63
Coaching and Developing Others	Identifying the developmental needs of others and coaching, mentoring, or otherwise helping others to improve their knowledge or skills.	63
Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment	Providing documentation, detailed instructions, drawings, or specifications to tell others about how devices, parts, equipment, or structures are to be fabricated, constructed, assembled, modified, maintained, or used.	61

Work Activity	Work Activity Description	Rank by Importance (Out of 100)
Training and Teaching Others	Identifying the educational needs of others, developing formal educational or training programs or classes, and teaching or instructing others.	60
Developing Objectives and Strategies	Establishing long-range objectives and specifying the strategies and actions to achieve them.	60
Interpreting the Meaning of Information for Others	Translating or explaining what information means and how it can be used.	59
Monitor Processes, Materials, or Surroundings	Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.	59
Staffing Organizational Units	Recruiting, interviewing, selecting, hiring, and promoting employees in an organization.	56
Performing Administrative Activities	Performing day-to-day administrative tasks such as maintaining information files and processing paperwork.	48
Performing for or Working Directly with the Public	Performing for people or dealing directly with the public. This includes serving customers in restaurants and stores, and receiving clients or guests.	43
Selling or Influencing Others	Convincing others to buy merchandise/goods or to otherwise change their minds or actions.	41
Operating Vehicles, Mechanized Devices, or Equipment	Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or water craft.	31
Assisting and Caring for Others	Providing personal assistance, medical attention, emotional support, or other personal care to others such as coworkers, customers, or patients.	31
Performing General Physical Activities	Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.	30
Handling and Moving Objects	Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.	22
Repairing and Maintaining Electronic Equipment	Servicing, repairing, calibrating, regulating, fine-tuning, or testing machines, devices, and equipment that operate primarily on the basis of electrical or electronic (not mechanical) principles.	20
Controlling Machines and Processes	Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).	19

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Tasks

This section shows the most common tasks required by Civil Engineers in order of importance. Click on a link in the Task column to view more detailed information.

Tasks	Task Description	Rank by Importance (Out of 100)
Inspect project sites to monitor progress and ensure conformance to design specifications and safety or sanitation standards.	Core	75
Compute load and grade requirements, water flow rates, or material stress factors to determine design specifications.	Core	73
Provide technical advice to industrial or managerial personnel regarding design, construction, program modifications, or structural repairs.	Core	73
Test soils or materials to determine the adequacy and strength of foundations, concrete, asphalt, or steel.	Core	72
Manage and direct the construction, operations, or maintenance activities at project site.	Core	71
Direct or participate in surveying to lay out installations or establish reference points, grades, or elevations to guide construction.	Core	65
Estimate quantities and cost of materials, equipment, or labor to determine project feasibility.	Core	65
Plan and design transportation or hydraulic systems or structures, using computer-assisted design or drawing tools.	Core	64
Prepare or present public reports on topics such as bid proposals, deeds, environmental impact statements, or property and right-of-way descriptions.	Core	63
Design energy-efficient or environmentally sound civil structures.	Core	63
Identify environmental risks and develop risk management strategies for civil engineering projects.	Core	63
Direct engineering activities, ensuring compliance with environmental, safety, or other governmental regulations.	Core	62
Analyze survey reports, maps, drawings, blueprints, aerial photography, or other topographical or geologic data.	Core	60
Conduct studies of traffic patterns or environmental conditions to identify engineering problems and assess potential project impact.	Core	57
Design or engineer systems to efficiently dispose of chemical, biological, or other toxic wastes.	Supplemental	73

Tasks	Task Description	Rank by Importance (Out of 100)
Develop or implement engineering solutions to clean up industrial accidents or other contaminated sites.	Supplemental	59
Analyze manufacturing processes or byproducts to identify engineering solutions to minimize the output of carbon or other pollutants.	Supplemental	54

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

National Working Conditions

Civil Engineers Though civil engineers must work in an office setting to produce their plans, they must also spend much time on site to oversee construction.

Civil engineers held about 303,500 jobs in 2016. The largest employers of civil engineers were as follows:

Engineering services 48%
State government, excluding education and hospitals 12
Local government, excluding education and hospitals 10
Nonresidential building construction 6
Federal government, excluding postal service 3

Civil engineers work in a variety of locations and conditions. When working on designs, civil engineers may spend most of their time indoors in offices. However, construction engineers may spend much of their time outdoors at construction sites monitoring operations or solving onsite problems. Some jobs may require frequent relocation to different areas and offices in jobsite trailers.

Civil engineers who function as project managers may work from cars or trucks as they move from site to site. Many civil engineers work for government agencies in government office buildings or facilities. Occasionally, civil engineers travel abroad to work on large engineering projects in other countries.

Work Schedules

Civil engineers typically work full time, and about 3 in 10 worked more than 40 hours per week in 2016. Engineers who direct projects may need to work extra hours to monitor progress on the projects, to ensure that designs meet requirements, and to guarantee that deadlines are met.

Source: U.S. Department of Labor Bureau of Labor Statistics

Typical Work Conditions

This section shows the most common work conditions required by Civil Engineers in order of importance.

Work Condition	Work Condition Description	Rank by Importance (Out of 100)
Electronic Mail	How often do you use electronic mail in this job?	98
Telephone	How often do you have telephone conversations in this job?	95
Face-to-Face Discussions	How often do you have to have face-to-face discussions with individuals or teams in this job?	91

Work Condition	Work Condition Description	Rank by Importance (Out of 100)
Importance of Being Exact or Accurate	How important is being very exact or highly accurate in performing this job?	81
Contact With Others	How much does this job require the worker to be in contact with others (face-to-face, by telephone, or otherwise) in order to perform it?	77
Impact of Decisions on Co-workers or Company Results	What results do your decisions usually have on other people or the image or reputation or financial resources of your employer?	77
Work With Work Group or Team	How important is it to work with others in a group or team in this job?	76
Indoors, Environmentally Controlled	How often does this job require working indoors in environmentally controlled conditions?	75
Freedom to Make Decisions	How much decision making freedom, without supervision, does the job offer?	75
Letters and Memos	How often does the job require written letters and memos?	73
Structured versus Unstructured Work	To what extent is this job structured for the worker, rather than allowing the worker to determine tasks, priorities, and goals?	72
Consequence of Error	How serious would the result usually be if the worker made a mistake that was not readily correctable?	70
Spend Time Sitting	How much does this job require sitting?	68
Time Pressure	How often does this job require the worker to meet strict deadlines?	66
Frequency of Decision Making	How frequently is the worker required to make decisions that affect other people, the financial resources, and/or the image and reputation of the organization?	63
Level of Competition	To what extent does this job require the worker to compete or to be aware of competitive pressures?	63
Outdoors, Exposed to Weather	How often does this job require working outdoors, exposed to all weather conditions?	61
In an Enclosed Vehicle or Equipment	How often does this job require working in a closed vehicle or equipment (e.g., car)?	60
Responsibility for Outcomes and Results	How responsible is the worker for work outcomes and results of other workers?	59

Work Condition	Work Condition Description	Rank by Importance (Out of 100)
Coordinate or Lead Others	How important is it to coordinate or lead others in accomplishing work activities in this job?	56
Deal With External Customers	How important is it to work with external customers or the public in this job?	52
Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets	How much does this job require wearing common protective or safety equipment such as safety shoes, glasses, gloves, hard hats or life jackets?	52
Sounds, Noise Levels Are Distracting or Uncomfortable	How often does this job require working exposed to sounds and noise levels that are distracting or uncomfortable?	51
Responsible for Others' Health and Safety	How much responsibility is there for the health and safety of others in this job?	50
Frequency of Conflict Situations	How often are there conflict situations the employee has to face in this job?	48
Physical Proximity	To what extent does this job require the worker to perform job tasks in close physical proximity to other people?	45
Indoors, Not Environmentally Controlled	How often does this job require working indoors in non-controlled environmental conditions (e.g., warehouse without heat)?	45
Deal With Unpleasant or Angry People	How frequently does the worker have to deal with unpleasant, angry, or discourteous individuals as part of the job requirements?	41
Importance of Repeating Same Tasks	How important is repeating the same physical activities (e.g., key entry) or mental activities (e.g., checking entries in a ledger) over and over, without stopping, to performing this job?	41
Outdoors, Under Cover	How often does this job require working outdoors, under cover (e.g., structure with roof but no walls)?	41
Public Speaking	How often do you have to perform public speaking in this job?	39
Spend Time Standing	How much does this job require standing?	36
Exposed to High Places	How often does this job require exposure to high places?	33
Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls	How much does this job require using your hands to handle, control, or feel objects, tools or controls?	33

Work Condition	Work Condition Description	Rank by Importance (Out of 100)
Very Hot or Cold Temperatures	How often does this job require working in very hot (above 90 F degrees) or very cold (below 32 F degrees) temperatures?	32
Extremely Bright or Inadequate Lighting	How often does this job require working in extremely bright or inadequate lighting conditions?	32
Exposed to Contaminants	How often does this job require working exposed to contaminants (such as pollutants, gases, dust or odors)?	31
Exposed to Hazardous Equipment	How often does this job require exposure to hazardous equipment?	31
Degree of Automation	How automated is the job?	31
Wear Specialized Protective or Safety Equipment such as Breathing Apparatus, Safety Harness, Full Protection Suits, or Radiation Protection	How much does this job require wearing specialized protective or safety equipment such as breathing apparatus, safety harness, full protection suits, or radiation protection?	28
Spend Time Walking and Running	How much does this job require walking and running?	26
Spend Time Making Repetitive Motions	How much does this job require making repetitive motions?	26
Cramped Work Space, Awkward Positions	How often does this job require working in cramped work spaces that requires getting into awkward positions?	24
Exposed to Minor Burns, Cuts, Bites, or Stings	How often does this job require exposure to minor burns, cuts, bites, or stings?	23
Exposed to Hazardous Conditions	How often does this job require exposure to hazardous conditions?	20
Spend Time Bending or Twisting the Body	How much does this job require bending or twisting your body?	20

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Work Values and Needs

This section shows the information on the current work values for your selected occupation.

Work Value	Work Value Description	Rank By Extent (Out of 100)
Independence	Occupations that satisfy this work value allow employees to work on their own and make decisions. Corresponding needs are Creativity, Responsibility and Autonomy.	83

Work Value	Work Value Description	Rank By Extent (Out of 100)
Working Conditions	Occupations that satisfy this work value offer job security and good working conditions. Corresponding needs are Activity, Compensation, Independence, Security, Variety and Working Conditions.	75
Achievement	Occupations that satisfy this work value are results oriented and allow employees to use their strongest abilities, giving them a feeling of accomplishment. Corresponding needs are Ability Utilization and Achievement.	72
Recognition	Occupations that satisfy this work value offer advancement, potential for leadership, and are often considered prestigious. Corresponding needs are Advancement, Authority, Recognition and Social Status.	72
Support	Occupations that satisfy this work value offer supportive management that stands behind employees. Corresponding needs are Company Policies, Supervision: Human Relations and Supervision: Technical.	61
Relationships	Occupations that satisfy this work value allow employees to provide service to others and work with co-workers in a friendly non-competitive environment. Corresponding needs are Co-workers, Moral Values and Social Service.	50

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Typical Tools

This section shows common tools used by Civil Engineers.

Detailed Tool	Tool Group
Anemometers	Anemometers
Compasses	Compasses
Dividers	Compasses
Desktop computers	Desktop computers
Digital cameras	Digital cameras
Electronic distance measuring devices	Distance meters
Rhodes arcs	Distance meters
Traffic counters	Electronic counters
Global positioning system GPS receivers	Global positioning system GPS receiver
Transit levels	Level sensors or transmitters
Laser levels	Levels
Precision levels	Levels
Planimeters	Map measurers
Surveying rods	Measuring rods

Detailed Tool	Tool Group
Surveying wheels	Measuring wheels for distance
Microfilm readers	Microfiche or microfilm viewers
Laptop computers	Notebook computers
Blueprint copiers	Photocopiers
Protractors	Protractors
Steel rules	Rulers
Drafting scales	Scales
Rolling scales	Scales
Radar guns	Speed sensors
Measuring tapes	Tape measures
Theodolites	Theodolites
Total stations	Theodolites
Thickness gauges	Thickness measuring devices
Drafting triangles	Triangles
Two way radios	Two way radios

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Typical Technology

This section shows common technology used by Civil Engineers.

Detailed Technology	Technology Group
Dassasult Systemes Abaqus	Analytical or scientific software
Finite element analysis FEA software	Analytical or scientific software
HEC-1	Analytical or scientific software
HEC-HMS	Analytical or scientific software
Hydraulic analysis software	Analytical or scientific software
Hydraulic modeling software	Analytical or scientific software
MAYA Nastran	Analytical or scientific software
Minitab	Analytical or scientific software
The MathWorks MATLAB	Analytical or scientific software
Trimble Geomatics Office	Analytical or scientific software
WinTR-55	Analytical or scientific software
Oracle Business Intelligence Enterprise Edition	Business intelligence and data analysis software
Scheduling software	Calendar and scheduling software
Autodesk AutoCAD	Computer aided design CAD software
Autodesk AutoCAD Civil 3D	Computer aided design CAD software
Autodesk Land Desktop	Computer aided design CAD software
Autodesk Revit	Computer aided design CAD software
Bentley Haestad Methods CivilStorm	Computer aided design CAD software

Detailed Technology	Technology Group
Bentley InRoads Site	Computer aided design CAD software
Bentley MicroStation	Computer aided design CAD software
Bridge design software	Computer aided design CAD software
Computer aided design and drafting software CADD	Computer aided design CAD software
Dassault Systemes CATIA	Computer aided design CAD software
Dassault Systemes SOLIDWORKS	Computer aided design CAD software
Eagle Point Site Design	Computer aided design CAD software
GT STRUDL	Computer aided design CAD software
HydroCAD Software Solutions HydroCAD Stormwater Modeling System	Computer aided design CAD software
Mathsoft Mathcad	Computer aided design CAD software
PTC Creo Parametric	Computer aided design CAD software
Research Engineers International STAAD.Pro	Computer aided design CAD software
Road design software	Computer aided design CAD software
Stormwater hydrology software	Computer aided design CAD software
Trimble Terramodel	Computer aided design CAD software
Data entry software	Data base user interface and query software
Microsoft Access	Data base user interface and query software
C	Development environment software
Formula translation/translator FORTRAN	Development environment software
Microsoft Visual Basic	Development environment software
National Instruments LabVIEW	Development environment software
Verilog	Development environment software
Adobe Systems Adobe Acrobat	Document management software
Email software	Electronic mail software
Microsoft Outlook	Electronic mail software
Extensible markup language XML	Enterprise application integration software
Microsoft Dynamics	Enterprise resource planning ERP software
Oracle JD Edwards EnterpriseOne	Enterprise resource planning ERP software
SAP	Enterprise resource planning ERP software
Apache Subversion SVN	File versioning software
Adobe Systems Adobe Fireworks	Graphics or photo imaging software
Bentley GeoPak Bridge	Graphics or photo imaging software
Graphics software	Graphics or photo imaging software
SmugMug Flickr	Graphics or photo imaging software
Trimble SketchUp Pro	Graphics or photo imaging software

Detailed Technology	Technology Group
Supervisory control and data acquisition SCADA software	Industrial control software
Microsoft Internet Explorer	Internet browser software
Web browser software	Internet browser software
Cartography software	Map creation software
ESRI ArcGIS software	Map creation software
ESRI ArcInfo	Map creation software
ESRI ArcView	Map creation software
Geographic information system GIS software	Map creation software
Intergraph MGE	Map creation software
Microsoft ActiveX	Object or component oriented development software
Corel WordPerfect	Office suite software
Microsoft Office	Office suite software
Shell script	Operating system software
Microsoft PowerPoint	Presentation software
Cost estimating software	Project management software
Microsoft Project	Project management software
Oracle Primavera Enterprise Project Portfolio Management	Project management software
The Gordian Group PROGEN Online	Project management software
Microsoft Excel	Spreadsheet software
Spreadsheet software	Spreadsheet software
Microsoft Word	Word processing software

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Licensing Information

There is no data available for Civil Engineers in Louisiana.

Typical Knowledge Categories

This section shows the most common knowledge categories required by Civil Engineers in order of importance. Click on a link in the Knowledge Category column to view more detailed information.

Knowledge Category	Knowledge Category Description	Rank by Importance (Out of 100)
Engineering and Technology	Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.	90
Building and Construction	Knowledge of materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.	86

Knowledge Category	Knowledge Category Description	Rank by Importance (Out of 100)
Mathematics	Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.	83
Design	Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.	81
English Language	Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.	76
Administration and Management	Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.	67
Physics	Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub- atomic structures and processes.	65
Law and Government	Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.	60
Customer and Personal Service	Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.	58
Economics and Accounting	Knowledge of economic and accounting principles and practices, the financial markets, banking and the analysis and reporting of financial data.	55
Computers and Electronics	Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.	54
Personnel and Human Resources	Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labor relations and negotiation, and personnel information systems.	50
Public Safety and Security	Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.	49

Knowledge Category	Knowledge Category Description	Rank by Importance (Out of 100)
Sales and Marketing	Knowledge of principles and methods for showing, promoting, and selling products or services. This includes marketing strategy and tactics, product demonstration, sales techniques, and sales control systems.	47
Mechanical	Knowledge of machines and tools, including their designs, uses, repair, and maintenance.	41
Psychology	Knowledge of human behavior and performance; individual differences in ability, personality, and interests; learning and motivation; psychological research methods; and the assessment and treatment of behavioral and affective disorders.	39
Clerical	Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, stenography and transcription, designing forms, and other office procedures and terminology.	38
Chemistry	Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.	37
Geography	Knowledge of principles and methods for describing the features of land, sea, and air masses, including their physical characteristics, locations, interrelationships, and distribution of plant, animal, and human life.	34
Communications and Media	Knowledge of media production, communication, and dissemination techniques and methods. This includes alternative ways to inform and entertain via written, oral, and visual media.	33
Production and Processing	Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.	31
Telecommunications	Knowledge of transmission, broadcasting, switching, control, and operation of telecommunications systems.	22

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Typical Work Abilities Required

This section shows the results of a national survey listing the most common work abilities required by Civil Engineers in order of importance. Click on a link in the Work Ability column to view more detailed information.

Work Ability	Work Ability Description	Rank by Importance (Out of 100)
Deductive Reasoning	The ability to apply general rules to specific problems to produce answers that make sense.	75
Inductive Reasoning	The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).	75
Information Ordering	The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).	75
Oral Comprehension	The ability to listen to and understand information and ideas presented through spoken words and sentences.	75
Oral Expression	The ability to communicate information and ideas in speaking so others will understand.	75
Problem Sensitivity	The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.	75
Category Flexibility	The ability to generate or use different sets of rules for combining or grouping things in different ways.	72
Mathematical Reasoning	The ability to choose the right mathematical methods or formulas to solve a problem.	72
Written Comprehension	The ability to read and understand information and ideas presented in writing.	72
Written Expression	The ability to communicate information and ideas in writing so others will understand.	72
Flexibility of Closure	The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.	69
Near Vision	The ability to see details at close range (within a few feet of the observer).	69
Number Facility	The ability to add, subtract, multiply, or divide quickly and correctly.	69
Visualization	The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.	69
Far Vision	The ability to see details at a distance.	63
Fluency of Ideas	The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).	63
Perceptual Speed	The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.	63
Speech Clarity	The ability to speak clearly so others can understand you.	63

Work Ability	Work Ability Description	Rank by Importance (Out of 100)
Speech Recognition	The ability to identify and understand the speech of another person.	63
Originality	The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.	60
Selective Attention	The ability to concentrate on a task over a period of time without being distracted.	50
Speed of Closure	The ability to quickly make sense of, combine, and organize information into meaningful patterns.	50
Auditory Attention	The ability to focus on a single source of sound in the presence of other distracting sounds.	47
Memorization	The ability to remember information such as words, numbers, pictures, and procedures.	47
Time Sharing	The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).	47
Hearing Sensitivity	The ability to detect or tell the differences between sounds that vary in pitch and loudness.	44
Visual Color Discrimination	The ability to match or detect differences between colors, including shades of color and brightness.	44
Depth Perception	The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.	41
Finger Dexterity	The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.	41
Spatial Orientation	The ability to know your location in relation to the environment or to know where other objects are in relation to you.	25
Control Precision	The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.	22
Multilimb Coordination	The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.	22
Arm-Hand Steadiness	The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.	3
Glare Sensitivity	The ability to see objects in the presence of glare or bright lighting.	3
Manual Dexterity	The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.	3
Peripheral Vision	The ability to see objects or movement of objects to one's side when the eyes are looking ahead.	3

Work Ability	Work Ability Description	Rank by Importance (Out of 100)
Sound Localization	The ability to tell the direction from which a sound originated.	3
Trunk Strength	The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.	3

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Typical Work Interests

This section shows the results of a national survey listing the most common work interests for Civil Engineers in order of importance.

Work Interest	Work Interest Description	Rank by Importance (Out of 100)
Realistic	Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others.	95
Investigative	Investigative occupations frequently involve working with ideas, and require an extensive amount of thinking. These occupations can involve searching for facts and figuring out problems mentally.	83
Conventional	Conventional occupations frequently involve following set procedures and routines. These occupations can include working with data and details more than with ideas. Usually there is a clear line of authority to follow.	56
Artistic	Artistic occupations frequently involve working with forms, designs and patterns. They often require self-expression and the work can be done without following a clear set of rules.	28
Enterprising	Enterprising occupations frequently involve starting up and carrying out projects. These occupations can involve leading people and making many decisions. Sometimes they require risk taking and often deal with business.	28

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Typical Work Styles

This section shows the most common work styles required by Civil Engineers in order of importance. Click on a link in the Work Style column to view more detailed information.

Work Style	Work Style Description	Rank by Importance (Out of 100)
Integrity	Job requires being honest and ethical.	97

Work Style	Work Style Description	Rank by Importance (Out of 100)
Dependability	Job requires being reliable, responsible, and dependable, and fulfilling obligations.	86
Attention to Detail	Job requires being careful about detail and thorough in completing work tasks.	82
Initiative	Job requires a willingness to take on responsibilities and challenges.	78
Analytical Thinking	Job requires analyzing information and using logic to address work-related issues and problems.	78
Achievement/Effort	Job requires establishing and maintaining personally challenging achievement goals and exerting effort toward mastering tasks.	77
Self Control	Job requires maintaining composure, keeping emotions in check, controlling anger, and avoiding aggressive behavior, even in very difficult situations.	76
Persistence	Job requires persistence in the face of obstacles.	75
Leadership	Job requires a willingness to lead, take charge, and offer opinions and direction.	74
Cooperation	Job requires being pleasant with others on the job and displaying a good-natured, cooperative attitude.	74
Adaptability/Flexibility	Job requires being open to change (positive or negative) and to considerable variety in the workplace.	73
Stress Tolerance	Job requires accepting criticism and dealing calmly and effectively with high stress situations.	71
Independence	Job requires developing one's own ways of doing things, guiding oneself with little or no supervision, and depending on oneself to get things done.	68
Innovation	Job requires creativity and alternative thinking to develop new ideas for and answers to work-related problems.	66
Concern for Others	Job requires being sensitive to others' needs and feelings and being understanding and helpful on the job.	64
Social Orientation	Job requires preferring to work with others rather than alone, and being personally connected with others on the job.	48

Source: This information is based on O*NET™ data. O*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

Related Occupations

This section shows a list of occupations related to Civil Engineers. Click an occupation title to see more information about that occupation.

Rank	Related Occupations	Duties	*Related By
1	Computer Hardware Engineers	Research, design, develop, or test computer or computer-related equipment for commercial, industrial, military, or scientific use. May supervise the manufacturing and installation of computer or computer-related equipment and components.	SOC4
2	Electronics Engineers, Except Computer	Research, design, develop, or test electronic components and systems for commercial, industrial, military, or scientific use employing knowledge of electronic theory and materials properties. Design electronic circuits and components for use in fields such as telecommunications, aerospace guidance and propulsion control, acoustics, or instruments and controls.	SOC4
3	Radio Frequency Identification Device Specialists	Design and implement radio frequency identification device (RFID) systems used to track shipments or goods.	SOC4
4	Architects, Except Landscape and Naval	Plan and design structures, such as private residences, office buildings, theaters, factories, and other structural property.	O*NET
5	Construction Managers	Plan, direct, or coordinate, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in the conceptual development of a construction project and oversee its organization, scheduling, budgeting, and implementation. Includes managers in specialized construction fields, such as carpentry or plumbing.	O*NET
6	Landscape Architects	Plan and design land areas for projects such as parks and other recreational facilities, airports, highways, hospitals, schools, land subdivisions, and commercial, industrial, and residential sites.	O*NET
7	Surveyors	Make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes.	O*NET
8	Transportation Engineers	Develop plans for surface transportation projects, according to established engineering standards and state or federal construction policy. Prepare designs, specifications, or estimates for transportation facilities. Plan modifications of existing streets, highways, or freeways to improve traffic flow.	O*NET
9	Aerospace Engineers	Perform engineering duties in designing, constructing, and testing aircraft, missiles, and spacecraft. May conduct basic and applied research to evaluate adaptability of materials and equipment to aircraft design and manufacture. May recommend improvements in testing equipment and techniques.	O*NET

Rank	Related Occupations	Duties	*Related By
10	Agricultural Engineers	Apply knowledge of engineering technology and biological science to agricultural problems concerned with power and machinery, electrification, structures, soil and water conservation, and processing of agricultural products.	O*NET
11	Architectural and Engineering Managers	Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields.	O*NET
12	Biochemical Engineers	Develop usable, tangible products, using knowledge of biology, chemistry, or engineering. Solve problems related to materials, systems, or processes that interact with humans, plants, animals, microorganisms, or biological materials.	O*NET
13	Biomedical Engineers	Apply knowledge of engineering, biology, and biomechanical principles to the design, development, and evaluation of biological and health systems and products, such as artificial organs, prostheses, instrumentation, medical information systems, and health management and care delivery systems.	O*NET
14	Chemical Engineers	Design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, paper, and pulp, by applying principles and technology of chemistry, physics, and engineering.	O*NET
15	Computer Systems Engineers/Architects	Design and develop solutions to complex applications problems, system administration issues, or network concerns. Perform systems management and integration functions.	O*NET
16	Electrical Engineers	Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use.	O*NET
17	Energy Engineers	Design, develop, or evaluate energy-related projects or programs to reduce energy costs or improve energy efficiency during the designing, building, or remodeling stages of construction. May specialize in electrical systems; heating, ventilation, and air-conditioning (HVAC) systems; green buildings; lighting; air quality; or energy procurement.	O*NET
18	Environmental Engineers	Research, design, plan, or perform engineering duties in the prevention, control, and remediation of environmental hazards using various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology.	O*NET
19	Fire-Prevention and Protection Engineers	Research causes of fires, determine fire protection methods, and design or recommend materials or equipment such as structural components or fire-detection equipment to assist organizations in safeguarding life and property against fire, explosion, and related hazards.	O*NET

Rank	Related Occupations	Duties	*Related By
20	Geospatial Information Scientists and Technologists	Research or develop geospatial technologies. May produce databases, perform applications programming, or coordinate projects. May specialize in areas such as agriculture, mining, health care, retail trade, urban planning, or military intelligence.	O*NET
21	Hydrologists	Research the distribution, circulation, and physical properties of underground and surface waters; and study the form and intensity of precipitation, its rate of infiltration into the soil, movement through the earth, and its return to the ocean and atmosphere.	O*NET
22	Logistics Engineers	Design or analyze operational solutions for projects such as transportation optimization, network modeling, process and methods analysis, cost containment, capacity enhancement, routing and shipment optimization, or information management.	O*NET
23	Manufacturing Engineers	Design, integrate, or improve manufacturing systems or related processes. May work with commercial or industrial designers to refine product designs to increase producibility and decrease costs.	O*NET
24	Marine Architects	Design and oversee construction and repair of marine craft and floating structures such as ships, barges, tugs, dredges, submarines, torpedoes, floats, and buoys. May confer with marine engineers.	O*NET
25	Marine Engineers	Design, develop, and take responsibility for the installation of ship machinery and related equipment including propulsion machines and power supply systems.	O*NET
26	Mechanical Engineers	Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems.	O*NET
27	Mining and Geological Engineers, Including Mining Safety Engineers	Conduct sub-surface surveys to identify the characteristics of potential land or mining development sites. May specify the ground support systems, processes and equipment for safe, economical, and environmentally sound extraction or underground construction activities. May inspect areas for unsafe geological conditions, equipment, and working conditions. May design, implement, and coordinate mine safety programs.	O*NET
28	Nuclear Engineers	Conduct research on nuclear engineering projects or apply principles and theory of nuclear science to problems concerned with release, control, and use of nuclear energy and nuclear waste disposal.	O*NET
29	Petroleum Engineers	Devise methods to improve oil and gas extraction and production and determine the need for new or modified tool designs. Oversee drilling and offer technical advice.	O*NET
30	Robotics Engineers	Research, design, develop, or test robotic applications.	O*NET

Rank	Related Occupations	Duties	*Related By
31	Soil and Water Conservationists	Plan or develop coordinated practices for soil erosion control, soil or water conservation, or sound land use.	O*NET
32	Validation Engineers	Design or plan protocols for equipment or processes to produce products meeting internal and external purity, safety, and quality requirements.	O*NET

BRIGHT OUTLOOK NATIONALLY | GREEN OCCUPATIONS

Source: **Related By: O*NET™ - The Occupational Information Network. O*NET is a registered trademark of the US Department of Labor/Employment and Training Administration.
SOC4 - Occupational grouping based on 1st 4 digits of the Standard Occupational Classification system.

Career Ladder

This section shows the top 10 occupations and the corresponding individuals in the workforce system who were previously Civil Engineers and have changed their occupation over the last 5 years.

Occupation Title	Number of Individuals that Moved	Percentage of Individuals that Moved
Construction Managers	10	16.95%
Architectural and Engineering Managers	9	15.25%
Managers, All Other	8	13.56%
Civil Engineering Technicians	7	11.86%
Engineers, All Other	5	8.47%
Cost Estimators	4	6.78%
Mechanical Engineers	4	6.78%
First-Line Supervisors of Construction Trades and Extraction Workers	4	6.78%
Operating Engineers and Other Construction Equipment Operators	4	6.78%
Helpers--Production Workers	4	6.78%

BRIGHT OUTLOOK NATIONALLY | GREEN OCCUPATIONS

Source: Individuals with active résumés in the workforce system.

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